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电源选型手册

- DC-DC 模块电源
- AC-DC 模块电源
- AC-DC 医疗电源
- AC-DC 开关电源

KEY FEATURES

- Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No.	SB1R5-5-5S	SB1R5-5-12S	SB1R5-5-15S	SB1R5-5-24S	SB1R5-5-5D	SB1R5-5-12D	SB1R5-5-15D
Max. Output Wattage (W)	1.5W	1.5W	1.5W	1.5W	1.5W	1.44W	1.5W
Input Voltage (V.DC.)	5V (4.5-5.5)	5V (4.5-5.5)	5V (4.5-5.5)	5V (4.5-5.5)	5V (4.5-5.5)	5V (4.5-5.5)	5V (4.5-5.5)
Output Voltage (V.DC.)	5V / 300mA	12V / 125mA	15V / 100mA	24V / 63mA	±5V / ±150mA	±12V / ±60mA	±15V / ±50mA
Efficiency	60%	54%	56%	58%	57%	59%	61%

Model No.	SB1R5-12-5S	SB1R5-12-12S	SB1R5-12-15S	SB1R5-12-24S	SB1R5-12-5D	SB1R5-12-12D	SB1R5-12-15D
Max. Output Wattage (W)	1.5W	1.5W	1.5W	1.5W	1.5W	1.44W	1.5W
Input Voltage (V.DC.)	12V (10.8-13.2)	12V (10.8-13.2)	12V (10.8-13.2)	12V (10.8-13.2)	12V (10.8-13.2)	12V (10.8-13.2)	12V (10.8-13.2)
Output Voltage (V.DC.)	5V / 300mA	12V / 125mA	15V / 100mA	24V / 63mA	±5V / ±150mA	±12V / ±60mA	±15V / ±50mA
Efficiency	65%	60%	62%	64%	60%	61%	65%

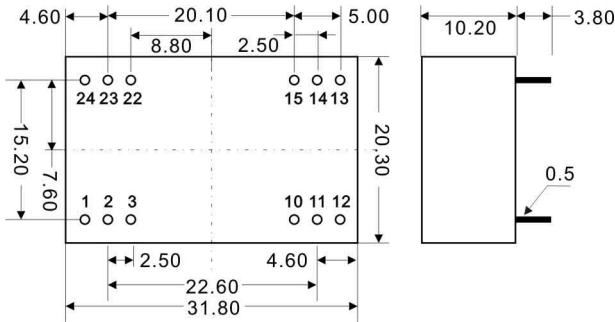
Model No.	SB1R5-24-5S	SB1R5-24-12S	SB1R5-24-15S	SB1R5-24-24S	SB1R5-24-5D	SB1R5-24-12D	SB1R5-24-15D
Max. Output Wattage (W)	1.5W	1.5W	1.5W	1.5W	1.5W	1.44W	1.5W
Input Voltage (V.DC.)	24V (21.6-26.4)	24V (21.6-26.4)	24V (21.6-26.4)	24V (21.6-26.4)	24V (21.6-26.4)	24V (21.6-26.4)	24V (21.6-26.4)
Output Voltage (V.DC.)	5V / 300mA	12V / 125mA	15V / 100mA	24V / 63mA	±5V / ±150mA	±12V / ±60mA	±15V / ±50mA
Efficiency	57%	55%	55%	58%	54%	54%	56%

Model No.	SB1R5-48-5S	SB1R5-48-12S	SB1R5-48-15S	SB1R5-48-24S	SB1R5-48-5D	SB1R5-48-12D	SB1R5-48-15D
Max. Output Wattage (W)	1.5W	1.5W	1.5W	1.5W	1.5W	1.44W	1.5W
Input Voltage (V.DC.)	48V (43.2-52.8)	48V (43.2-52.8)	48V (43.2-52.8)	48V (43.2-52.8)	48V (43.2-52.8)	48V (43.2-52.8)	48V (43.2-52.8)
Output Voltage (V.DC.)	5V / 300mA	12V / 125mA	15V / 100mA	24V / 63mA	±5V / ±150mA	±12V / ±60mA	±15V / ±50mA
Efficiency	53%	52%	51%	54%	52%	54%	54%

Model No.	SB1R5-5-5S	SB1R5-5-12S	SB1R5-5-15S	SB1R5-5-24S	SB1R5-5-5D	SB1R5-5-12D	SB1R5-5-15D	
	SB1R5-12-5S	SB1R5-12-12S	SB1R5-12-15S	SB1R5-12-24S	SB1R5-12-5D	SB1R5-12-12D	SB1R5-12-15D	
	SB1R5-24-5S	SB1R5-24-12S	SB1R5-24-15S	SB1R5-24-24S	SB1R5-24-5D	SB1R5-24-12D	SB1R5-24-15D	
	SB1R5-48-5S	SB1R5-48-12S	SB1R5-48-15S	SB1R5-48-24S	SB1R5-48-5D	SB1R5-48-12D	SB1R5-48-15D	
Max Output Wattage (W)	1.5W	1.5W	1.5W	1.5W	1.5W	1.44W	1.5W	
Input	Input Filter	π type						
	Voltage (V.DC.)	5	12	15	24	±5	±12	±15
Output	Voltage Accuracy	±3%						
	Current (mA) max	300	125	100	63	±150	±60	±50
	Line Regulation (LL-HL) (typ.)	±0.3%						
	Load Regulation (10-100%) (typ.)	±0.5%						
	Ripple	<0.2% Vout +10mV max (Vp-p)						
	Noise	<0.5% Vout +30mV max (Vp-p)						
	Switching Frequency	20KHz						
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.						
	Short Circuit Protection	Current limit, auto-recovery						
Isolation	Voltage	500 VDC.						
	Resistance	10 ⁸ ohms						
Environment	Operating Temperature	-25°C...+70°C (at Full Load)						
	Storage Temperature	-55°C...+105°C						
	Case Temperature	+100°C max.						
	Temperature Coefficient	±0.02% Per°C						
	Humidity	95% RH						
	MTBF	>1,000,000 h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H)	1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm) Tolerance ±0.5 mm						
	Case Material	Plastic						
	Weight	13 g						
	Cooling Method	Free-air convection						

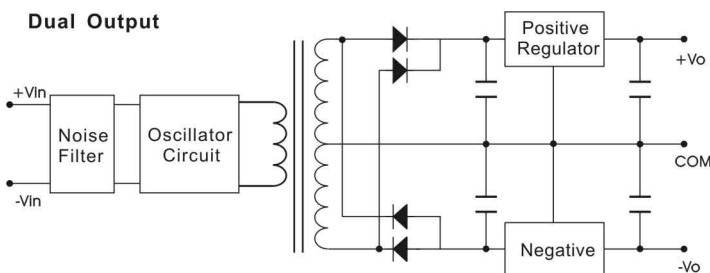
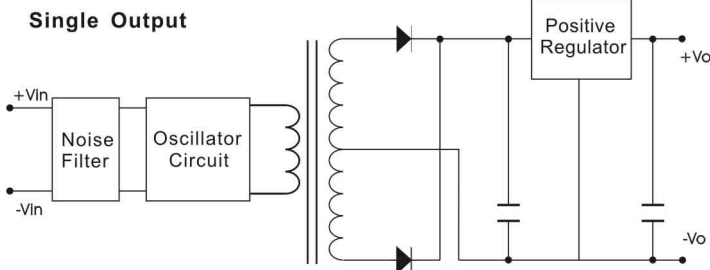
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

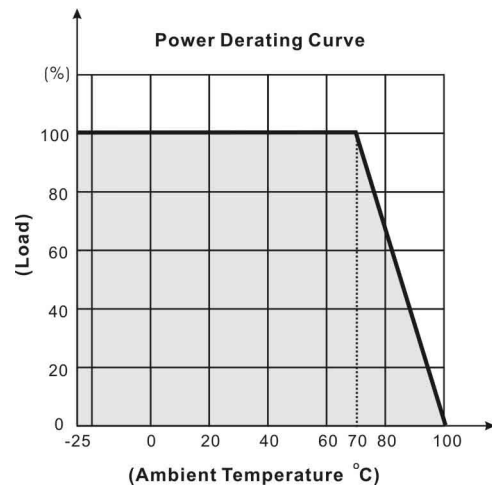


PIN#	Single	Dual
1	+VIN	+VIN
2	NC	-VOUT
3	NO PIN	COMMON
10	-VOUT	COMMON
11	+VOUT	+VOUT
12	-VIN	-VIN
13	-VIN	-VIN
14	+VOUT	+VOUT
15	-VOUT	COMMON
22	NO PIN	COMMON
23	NC	-VOUT
24	+VIN	+VIN

BLOCK DIAGRAM



DERATING



KEY FEATURES

- Power Module for PCB Mountable
- 4:1 Wide Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

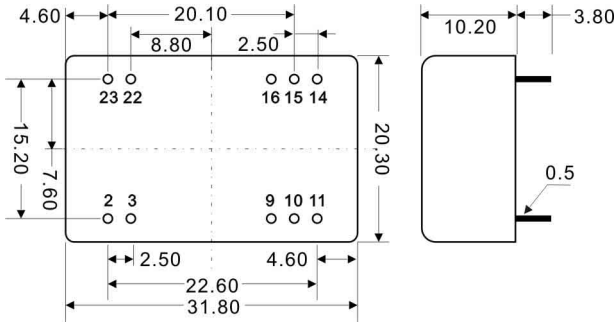
Model No.	SB03-24-3.3S	SB03-24-5S	SB03-24-12S	SB03-24-15S	SB03-24-24S	SB03-24-5D	SB03-24-12D	SB03-24-15D
Max. Output Wattage (W)	3W	3.3W	4W	4W	4W	3W	4W	4W
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	3.3V / 900mA	5V / 660mA	12V / 330mA	15V / 267mA	24V / 166mA	±5V / ±300mA	±12V / ±166mA	±15V / ±133mA
Efficiency	70%	71%	80%	77%	78%	73%	77%	75%

Model No.	SB03-48-3.3S	SB03-48-5S	SB03-48-12S	SB03-48-15S	SB03-48-24S	SB03-48-5D	SB03-48-12D	SB03-48-15D
Max. Output Wattage (W)	3W	3.3W	4W	4W	4W	3W	4W	4W
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V / 900mA	5V / 660mA	12V / 330mA	15V / 267mA	24V / 166mA	±5V / ±300mA	±12V / ±166mA	±15V / ±133mA
Efficiency	71%	73%	80%	79%	78%	75%	79%	78%

Model No.		SB03-24-3.3S	SB03-24-5S	SB03-24-12S	SB03-24-15S	SB03-24-24S	SB03-24-5D	SB03-24-12D	SB03-24-15D
Max Output Wattage (W)		3W	3.3W	4W	4W	4W	3W	4W	4W
Input	Input Filter	π type							
	Voltage (V.DC.)	3.3	5	12	15	24	±5	±12	±15
Output	Voltage Accuracy	±2%							
	Current (mA) max	900	660	330	267	166	±300	±166	±133
	Line Regulation (LL-HL) (typ.)	±0.5%							
	Load Regulation (10-100%) (typ.)	±3%	±1%	±1%	±1%	±1%	±1%	±1%	±1%
	Ripple	<0.2% Vout +40mV max (Vp-p)							
	Noise	<0.5% Vout +50mV max (Vp-p)							
	Switching Frequency	300KHz							
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.							
	Short Circuit Protection	Current limit, auto-recovery							
Isolation	Voltage	1600 VDC.							
	Resistance	10 ⁸ ohms							
	Capacitance	1000 pF							
Environment	Operating Temperature	-25°C...+70°C (at Full Load)							
	Storage Temperature	-55°C...+105°C							
	Case Temperature	+100°C max.							
	Temperature Coefficient	±0.02% Per°C							
	Humidity	95% RH							
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)							
	Dimension (L x W x H)	1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm) Tolerance ±0.5 mm							
	Case Material	Six-side shielded Aluminum with Non-Conductive base, Black Anodize							
	Weight	13 g							
Cooling Method		Free-air convection							

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

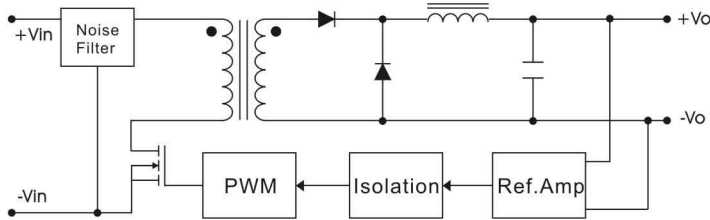
MECHANICAL DIMENSION (Top View)



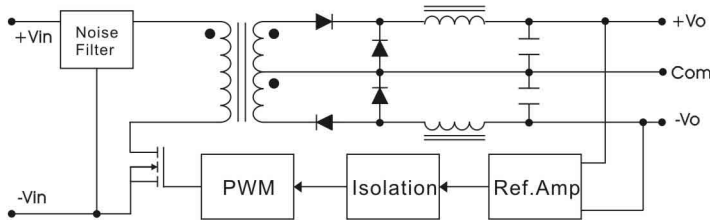
PIN#	Single	Dual
2	-VIN	-VIN
3	-VIN	-VIN
9	NC	COMMON
10	NC	NC
11	NC	-VOUT
14	+VOUT	+VOUT
15	NC	NC
16	-VOUT	COMMON
22	+VIN	+VIN
23	+VIN	+VIN

BLOCK DIAGRAM

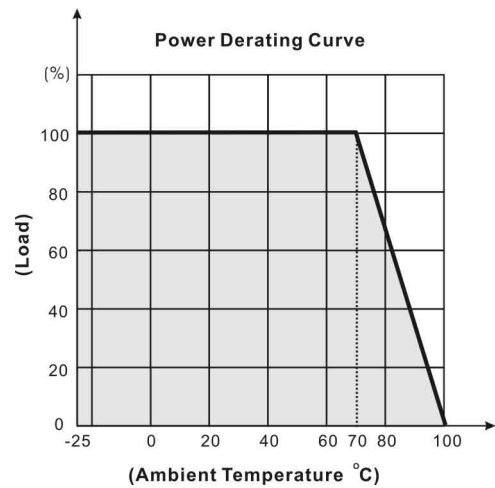
Single Output



Dual Output



DERATING



KEY FEATURES

- Power Module for PCB Mountable
- 4:1 Wide Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

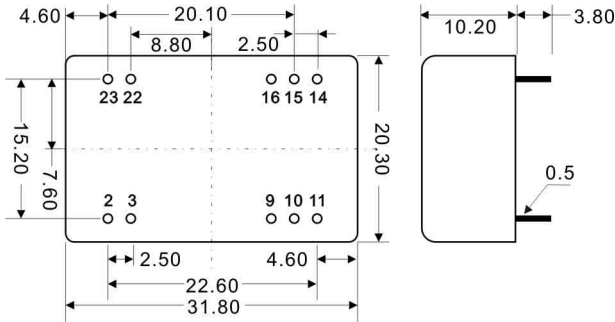
Model No.	SB05-24-3.3S	SB05-24-5S	SB05-24-12S	SB05-24-15S	SB05-24-24S	SB05-24-5D	SB05-24-12D	SB05-24-15D
Max. Output Wattage (W)	4W	5W	6W	6W	6W	5W	6W	6W
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	3.3V / 1200mA	5V / 1000mA	12V / 500mA	15V / 400mA	24V / 250mA	±5V / ±500mA	±12V / ±250mA	±15V / ±200mA
Efficiency	71%	75%	82%	79%	81%	75%	78%	75%

Model No.	SB05-48-3.3S	SB05-48-5S	SB05-48-12S	SB05-48-15S	SB05-48-24S	SB05-48-5D	SB05-48-12D	SB05-48-15D
Max. Output Wattage (W)	4W	5W	6W	6W	6W	5W	6W	6W
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V / 1200mA	5V / 1000mA	12V / 500mA	15V / 400mA	24V / 250mA	±5V / ±500mA	±12V / ±250mA	±15V / ±200mA
Efficiency	71%	75%	82%	82%	81%	77%	83%	81%

Model No.	SB05-24-3.3S SB05-48-3.3S	SB05-24-5S SB05-48-5S	SB05-24-12S SB05-48-12S	SB05-24-15S SB05-48-15S	SB05-24-24S SB05-48-24S	SB05-24-5D SB05-48-5D	SB05-24-12D SB05-48-12D	SB05-24-15D SB05-48-15D	
Max Output Wattage (W)	4W	5W	6W	6W	6W	5W	6W	6W	
Input	Input Filter: π type								
Output	Voltage (V.DC.)	3.3	5	12	15	24	±5	±12	±15
	Voltage Accuracy	±2%							
	Current (mA) max	1200	1000	500	400	250	±500	±250	±200
	Line Regulation (LL-HL) (typ.)	±0.5%							
	Load Regulation (10-100%) (typ.)	±3%	±1%	±1%	±1%	±1%	±1%	±1%	±1%
	Ripple	<0.2% Vout +40mV max (Vp-p)							
	Noise	<0.5% Vout +50mV max (Vp-p)							
Switching Frequency	300KHz								
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.							
	Short Circuit Protection	Current limit, auto-recovery							
Isolation	Voltage	1600 VDC.							
	Resistance	10 ⁸ ohms							
	Capacitance	1000 pF							
Environment	Operating Temperature	-25°C...+70°C (at Full Load)							
	Storage Temperature	-55°C...+105°C							
	Case temperature	+100°C max.							
	Temperature Coefficient	±0.02% Per°C							
	Humidity	95% RH							
	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)							
Physical	Dimension (L x W x H)	1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm) Tolerance ±0.5 mm							
	Case Material	Six-side shielded Aluminum with Non-Conductive base, Black Anodize							
	Weight	13 g							
	Cooling Method	Free-air convection							

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

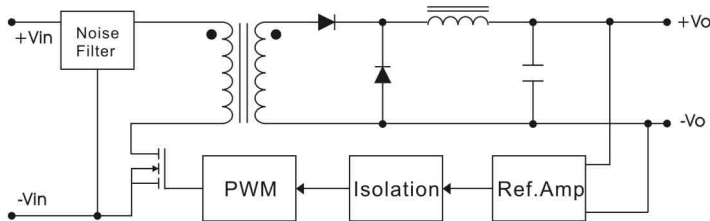
MECHANICAL DIMENSION (Top View)



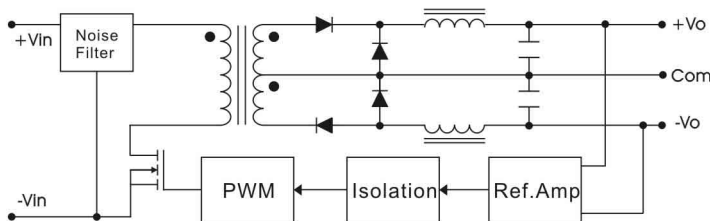
PIN#	Single	Dual
2	-VIN	-VIN
3	-VIN	-VIN
9	NC	COMMON
10	NC	NC
11	NC	-VOUT
14	+VOUT	+VOUT
15	NC	NC
16	-VOUT	COMMON
22	+VIN	+VIN
23	+VIN	+VIN

BLOCK DIAGRAM

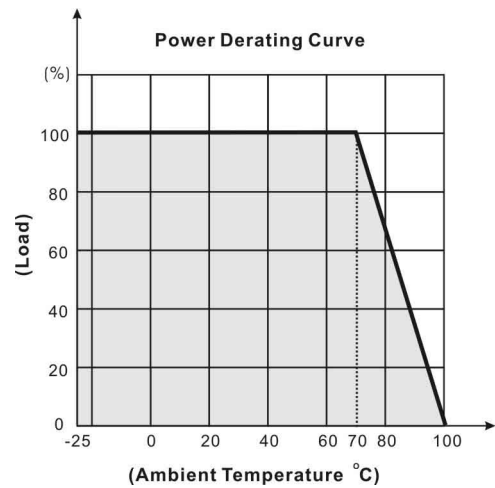
Single Output



Dual Output



DERATING



KEY FEATURES

- Power Module for PCB Mountable
- 2:1 & 4:1 Wide Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SB08-12-3.3S	SB08-12-5S	SB08-12-12S	SB08-12-15S	SB08-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	3.3V/2000mA	5V/1500mA	12V/666mA	15V/533mA	24V/333mA
Efficiency	67%	69%	76%	75%	68%
Minimum Load	4%	3%	5%	5%	4%

Model No. (Single Output)	SB08-24-3.3S	SB08-24-5S	SB08-24-12S	SB08-24-15S	SB08-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	3.3V/2000mA	5V/1500mA	12V/666mA	15V/533mA	24V/333mA
Efficiency	72%	73%	80%	80%	77%
Minimum Load	3%	3%	4%	4%	4%

Model No. (Single Output)	SB08-24F-3.3S	SB08-24F-5S	SB08-24F-12S	SB08-24F-15S	SB08-24F-24S
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	3.3V/2000mA	5V/1500mA	12V/666mA	15V/533mA	24V/333mA
Efficiency	70%	66%	72%	71%	73%
Minimum Load		4%	5%	5%	

Model No. (Single Output)	SB08-48-3.3S	SB08-48-5S	SB08-48-12S	SB08-48-15S	SB08-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	3.3V/2000mA	5V/1500mA	12V/666mA	15V/533mA	24V/333mA
Efficiency	73%	74%	80%	80%	79%
Minimum Load	3%	3%	4%	4%	4%

Model No. (Single Output)	SB08-48F-3.3S	SB08-48F-5S	SB08-48F-12S	SB08-48F-15S	SB08-48F-24S
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V/2000mA	5V/1500mA	12V/666mA	15V/533mA	24V/333mA
Efficiency	70%	73%	78%	78%	73%

Model No. (Dual Output)	SB08-12-5D	SB08-12-12D	SB08-12-15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency	70%	75%	74%
Minimum Load	4%	5%	5%

Model No. (Dual Output)	SB08-24-5D	SB08-24-12D	SB08-24-15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency	73%	78%	74%
Minimum Load	2%	5%	6%

Model No. (Dual Output)	SB08-24F-5D	SB08-24F-12D	SB08-24F-15D
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency	72%	76%	74%

Model No. (Dual Output)	SB08-48-5D	SB08-48-12D	SB08-48-15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency	73%	77%	74%
Minimum Load	4%	5%	3%

SB08 SERIES
8 Watts

Model No. (Dual Output)	SB08-48F-5D	SB08-48F-12D	SB08-48F-15D
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency	74%	77%	74%

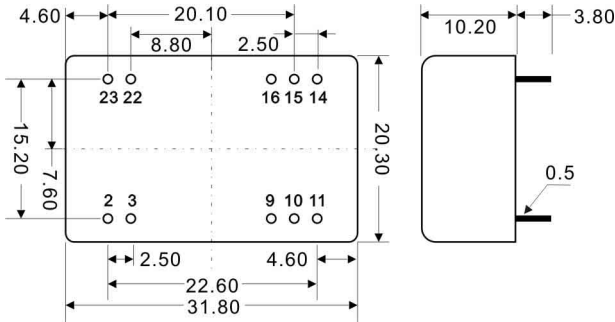
Model No. (Single Output)	SB08-12-3.3S SB08-24-3.3S SB08-24F-3.3S SB08-48-3.3S SB08-48F-3.3S	SB08-12-5S SB08-24-5S SB08-24F-5S SB08-48-5S SB08-48F-5S	SB08-12-12S SB08-24-12S SB08-24F-12S SB08-48-12S SB08-48F-12S	SB08-12-15S SB08-24-15S SB08-24F-15S SB08-48-15S SB08-48F-15S	SB08-12-24S SB08-24-24S SB08-24F-24S SB08-48-24S SB08-48F-24S	
Max Output Wattage (W)	6.6W	7.5W	8W	8W	8W	
Input	Input Filter L-C type					
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	±2%				
	Current (mA) max	2000	1500	666	533	333
	Line Regulation (LL-HL) (typ.)	±0.5%				
	Load Regulation (10-100%) (typ.)	±3%	±1%	±1%	±1%	±1%
	Ripple	<0.2% Vout +20mV max (Vp-p)				
	Noise	<0.5% Vout +50mV max (Vp-p)				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Works over 120% of rating and recovers automatically.				
Short Circuit Protection	Current limit, auto-recovery					
	Isolation	Voltage 1600 VDC.				
Resistance	10 ⁸ ohms					
	Capacitance 1000 pF					
	Environment	Operating Temperature -40°C...+80°C (with derating)				
Storage Temperature -55°C...+105°C						
Case Temperature +100°C max.						
Temperature Coefficient ±0.02% Per°C						
Humidity 95% RH						
MTBF >800,000 h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H) 1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm) Tolerance ±0.5 mm					
	Case Material Six-side shielded Aluminum with Non-Conductive base, Black Anodize					
	Weight 13 g					
	Cooling Method Free-air convection					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Dual Output)	SB08-12-5D SB08-24-5D SB08-24F-5D SB08-48-5D SB08-48F-5D	SB08-12-12D SB08-24-12D SB08-24F-12D SB08-48-12D SB08-48F-12D	SB08-12-15D SB08-24-15D SB08-24F-15D SB08-48-15D SB08-48F-15D	
Max Output Wattage (W)	8W	8W	8W	
Input	Input Filter L-C type			
Output	Voltage (V.DC.)	±5	±12	±15
	Voltage Accuracy	±2%		
	Current (mA) max	±800	±333	±267
	Line Regulation (LL-HL) (typ.)	±0.5%		
	Load Regulation (10-100%) (typ.)	±1%	±1%	±1%
	Ripple	<0.2% Vout +20mV max (Vp-p)		
	Noise	<0.5% Vout +50mV max (Vp-p)		
Protection	Switching Frequency	300KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.		
Short Circuit Protection	Current limit, auto-recovery			
	Isolation	Voltage 1600 VDC.		
Resistance	10 ⁸ ohms			
	Capacitance 1000 pF			
	Environment	Operating Temperature -25°C...+70°C (with derating)		
Storage Temperature -55°C...+105°C				
Case Temperature +100°C max.				
Temperature Coefficient ±0.02% Per°C				
Humidity 95% RH				
MTBF >800,000 h @ 25°C (MIL-HDBK-217F)				
Physical	Dimension (L x W x H) 1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm) Tolerance ±0.5 mm			
	Case Material Six-side shielded Aluminum with Non-Conductive base, Black Anodize			
	Weight 13 g			
	Cooling Method Free-air convection			

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

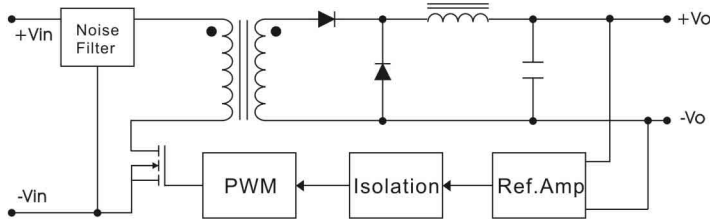
MECHANICAL DIMENSION (Top View)



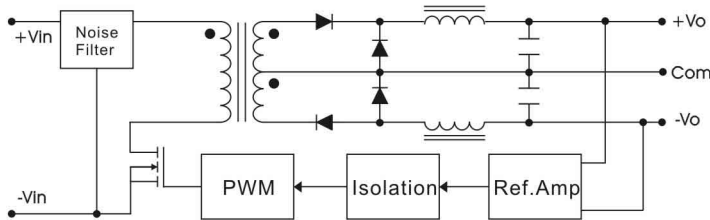
PIN#	Single	Dual
2	-VIN	-VIN
3	-VIN	-VIN
9	NC	COMMON
10	NC	NC
11	NC	-VOUT
14	+VOUT	+VOUT
15	NC	NC
16	-VOUT	COMMON
22	+VIN	+VIN
23	+VIN	+VIN

BLOCK DIAGRAM

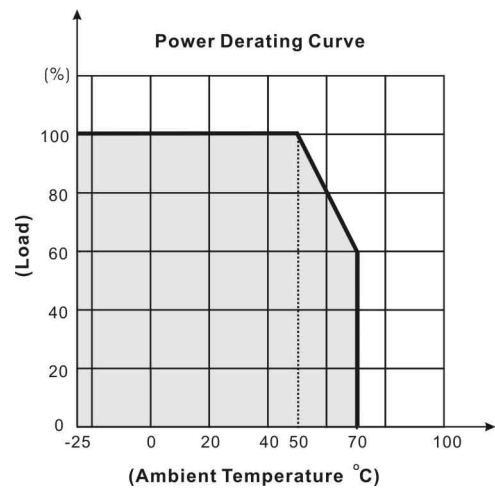
Single Output



Dual Output



DERATING



KEY FEATURES

- Power Module for PCB Mountable
- 4:1 Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SH08-24F-3.3S	SH08-24F-5S	SH08-24F-12S	SH08-24F-15S	SH08-24F-24S
Input Voltage (V.DC.)	12V (9-36V)	12V (9-36V)	12V (9-36V)	12V (9-36V)	12V (9-36V)
Output Voltage (V.DC.)	3.3V/2200mA	5V/1600mA	12V/666mA	15V/533mA	24V/333mA
Efficiency (typ.)	82%	84%	85%	85%	85%
Capacitor Load (max)	2200 μ F	2200 μ F	1200 μ F	680 μ F	330 μ F

Model No. (Single Output)	SH08-48F-3.3S	SH08-48F-5S	SH08-48F-12S	SH08-48F-15S	SH08-48F-24S
Input Voltage (V.DC.)	24V (18-75V)	24V (18-75V)	24V (18-75V)	24V (18-75V)	24V (18-75V)
Output Voltage (V.DC.)	3.3V/2200mA	5V/1600mA	12V/666mA	15V/533mA	24V/333mA
Efficiency (typ.)	82%	84%	85%	85%	85%
Capacitor Load (max)	2200 μ F	2200 μ F	1200 μ F	680 μ F	330 μ F

Model No. (Single Output)	SH08-24F-3.3S	SH08-24F-5S	SH08-24F-12S	SH08-24F-15S	SH08-24F-24S	
	SH08-48F-3.3S	SH08-48F-5S	SH08-48F-12S	SH08-48F-15S	SH08-48F-24S	
Max Output Wattage (W)		8W				
Input	Input Filter	π type				
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	2200	1600	666	533	333
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 1\%$				
	Minimum Load	0%				
	Ripple	50 mV max.				
	Noise	100 mV max.				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Above 105% Rated Output Power				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	10 ⁸ ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	-25°C...+60°C (at Full Load)				
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	$\pm 0.02\%$ Per°C				
	Humidity	95% RH				
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)				
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ± 0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	20 g				
	Cooling Method	Free-air convection				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

SH08 SERIES
8 Watts

Model No. (Dual Output)	SH08-24F-5D	SH08-24F-12D	SH08-24F-15D
Input Voltage (V.DC.)	12V (9-36V)	12V (9-36V)	12V (9-36V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency (typ.)	82%	84%	84%
Capacitor Load (max)	1000µF	220µF	100µF

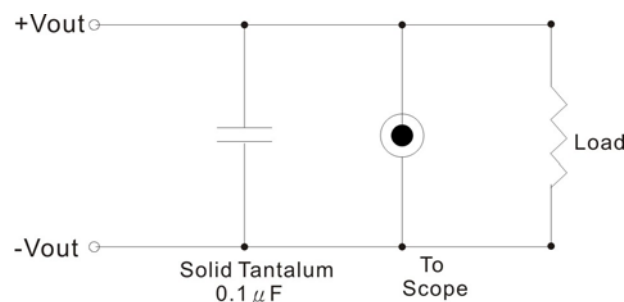
Model No. (Dual Output)	SH08-48F-5D	SH08-48F-12D	SH08-48F-15D
Input Voltage (V.DC.)	24V (18-75V)	24V (18-75V)	24V (18-75V)
Output Voltage (V.DC.)	±5V / ±800mA	±12 / ±333mA	±15 / ±267mA
Efficiency (typ.)	82%	85%	84%
Capacitor Load (max)	1000µF	220µF	100µF

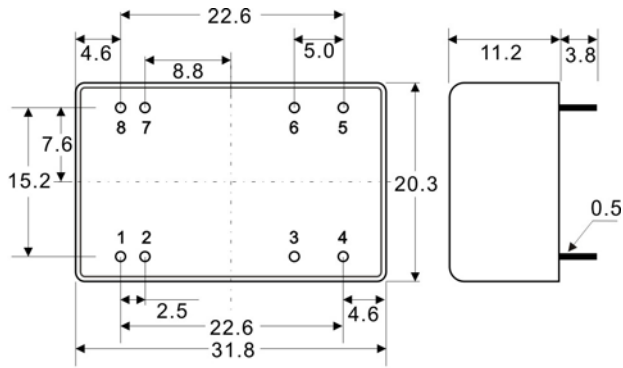
Model No. (Dual Output)	SH08-24F-5D SH08-48F-5D	SH08-24F-12D SH08-48F-12D	SH08-24F-15D SH08-48F-15D	
Max Output Wattage (W)	8W			
Input	Input Filter π type			
Output	Voltage (V.DC.)	±5	±12	±15
	Voltage Accuracy	±2%		
	Current (mA) max	±800	±333	±267
	Line Regulation (LL-HL) (typ.)	±0.5%		
	Load Regulation (10-100%) (typ.)	±1%	±1%	±1%
	Minimum Load	0%		
	Ripple	50 mV max.		
	Noise	<0.5% Vout +50mV max (Vp-p)		
Protection	Switching Frequency	300KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.		
Isolation	Short Circuit Protection	Current limit, auto-recovery		
	Voltage	1600 VDC.		
	Resistance	10 ⁸ ohms		
Environment	Capacitance	1000 pF		
	Operating Temperature	-25°C...+60°C (at Full Load)		
	Storage Temperature	-55°C...+105°C		
	Case Temperature	+100°C max.		
	Temperature Coefficient	±0.02% Per°C		
	Humidity	95% RH		
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)		
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ±0.5 mm		
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.		
	Weight	20 g		
	Cooling Method	Free-air convection		

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

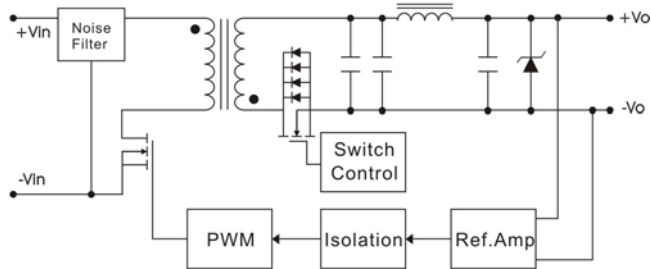
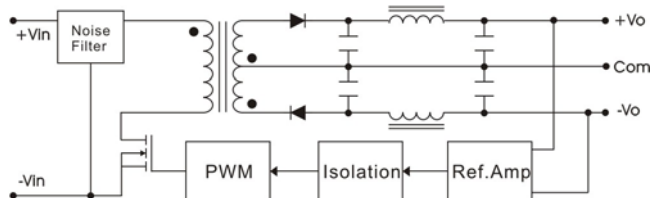
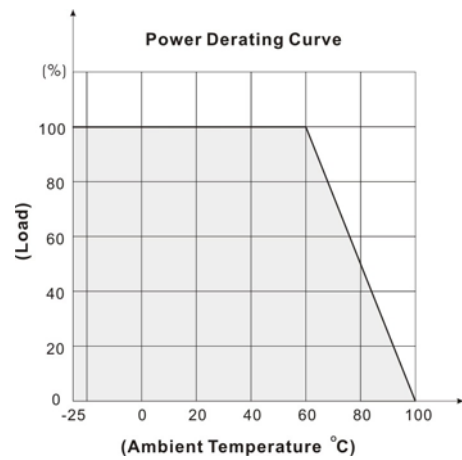
OUTPUT NOISE

The output noise is measured with 0.1µF tantalum capacitor



MECHANICAL DIMENSION (Top View)

 Tolerance ± 0.5 mm

PIN#	Single	Dual
1	-VIN	-VIN
2	-VIN	-VIN
3	NO PIN	COMMON
4	NC	-VOUT
5	+VOUT	+VOUT
6	-VOUT	COMMON
7	+VIN	+VIN
8	+VIN	+VIN

BLOCK DIAGRAM
Single Output

Dual Outputs

DERATING


KEY FEATURES

- Power Module for PCB Mountable
- 2:1 Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SH10-12-3.3S	SH10-12-5S	SH10-12-12S	SH10-12-15S	SH10-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	83%	86%	86%	86%
Capacitor Load (max)	2200μF	2200μF	560μF	470μF	100μF

Model No. (Single Output)	SH10-24-3.3S	SH10-24-5S	SH10-24-12S	SH10-24-15S	SH10-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	85%	86%	86%	86%
Capacitor Load (max)	2200μF	2200μF	560μF	470μF	100μF

Model No. (Single Output)	SH10-48-3.3S	SH10-48-5S	SH10-48-12S	SH10-48-15S	SH10-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	85%	86%	86%	86%
Capacitor Load (max)	2200μF	2200μF	560μF	470μF	100μF

Model No. (Single Output)	SH10-12-3.3S	SH10-12-5S	SH10-12-12S	SH10-12-15S	SH10-12-24S	
	SH10-24-3.3S	SH10-24-5S	SH10-24-12S	SH10-24-15S	SH10-24-24S	
	SH10-48-3.3S	SH10-48-5S	SH10-48-12S	SH10-48-15S	SH10-48-24S	
Max Output Wattage (W)	10W					
Input	Input Filter L-C type					
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	±2%				
	Current (mA) max	2500	2000	830	670	416
	Line Regulation (LL-HL) (typ.)	±0.5%				
	Load Regulation (10-100%) (typ.)	±3%	±1%	±1%	±1%	±1%
	Minimum Load	0%				
	Ripple	50 mV max.	1% max.			
	Noise	50 mV max.	1% max.			
Protection	Switching Frequency	300KHz				
	Over Power Protection	Above 105% Rated Output Power				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	10 ⁸ ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	-25°C...+60°C (at Full Load)				
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	±0.02% Per°C				
	Humidity	95% RH				
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)				
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ±0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	20 g				
	Cooling Method	Free-air convection				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

SH10 SERIES
10 Watts

Model No. (Dual Output)	SH10-12-5D	SH10-12-12D	SH10-12-15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	83%	86%	86%
Capacitor Load (max)	±1200μF	±330μF	±120μF

Model No. (Dual Output)	SH10-24-5D	SH10-24-12D	SH10-24-15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	83%	87%	86%
Capacitor Load (max)	±1200μF	±470μF	±330μF

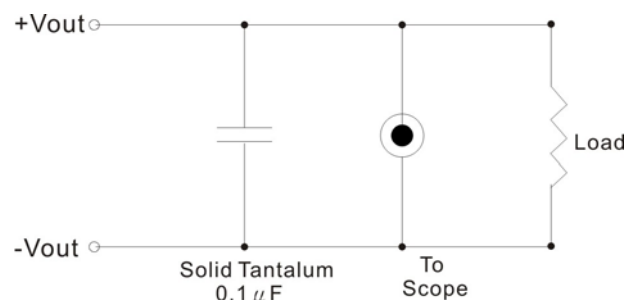
Model No. (Dual Output)	SH10-48-5D	SH10-48-12D	SH10-48-15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	82%	87%	86%
Capacitor Load (max)	±1200μF	±470μF	±330μF

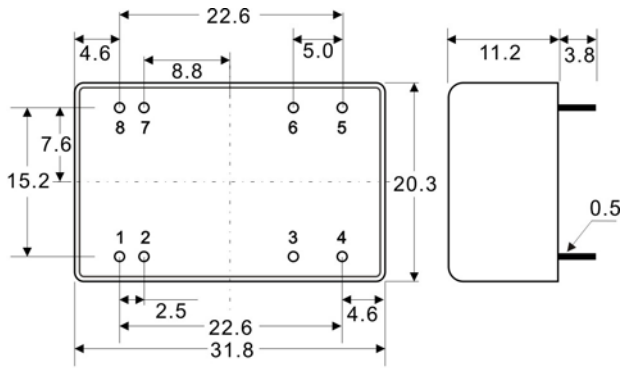
Model No. (Dual Output)	SH10-12-5D SH10-24-5D SH10-48-5D	SH10-12-12D SH10-24-12D SH10-48-12D	SH10-12-15D SH10-24-15D SH10-48-15D
Max Output Wattage (W)	10W		
Input	Input Filter L-C type		
Output	Voltage (V.DC.)	±5	±12
	Voltage Accuracy	±2%	
	Current (mA) max	±1000	±416
	Line Regulation (LL-HL) (typ.)	±0.5%	
	Load Regulation (10-100%) (typ.)	±1%	±1%
	Minimum Load	0%	
	Ripple	<0.2% Vout +20mV max (Vp-p)	
	Noise	<0.5% Vout +50mV max (Vp-p)	
Protection	Switching Frequency	300KHz	
	Over Power Protection	Works over 120% of rating and recovers automatically.	
Isolation	Short Circuit Protection	Current limit, auto-recovery	
	Voltage	1600 VDC.	
	Resistance	10 ⁸ ohms	
Environment	Capacitance	1000 pF	
	Operating Temperature	-25°C...+60°C (at Full Load)	
	Storage Temperature	-55°C...+105°C	
	Case Temperature	+100°C max.	
	Temperature Coefficient	±0.02% Per°C	
	Humidity	95% RH	
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)	
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ±0.5 mm	
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.	
	Weight	20 g	
	Cooling Method	Free-air convection	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

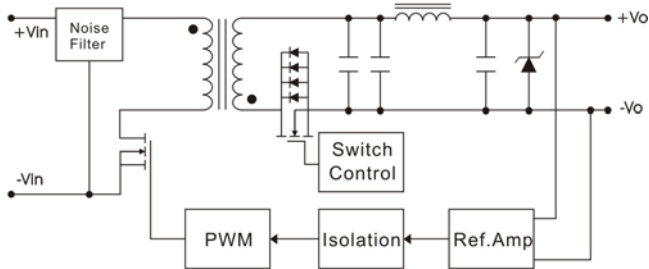
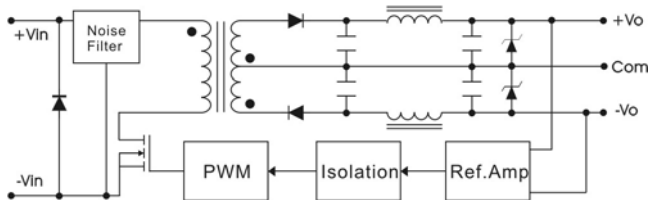
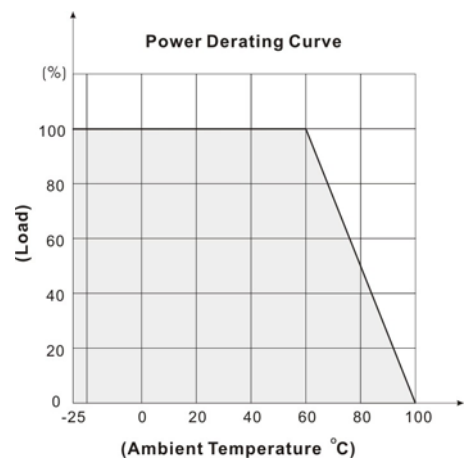
OUTPUT NOISE

The output noise is measured with 0.1μF tantalum capacitor



MECHANICAL DIMENSION (Top View)

 Tolerance ± 0.5 mm

PIN#	Single	Dual
1	-VIN	-VIN
2	-VIN	-VIN
3	NO PIN	COMMON
4	NC	-VOUT
5	+VOUT	+VOUT
6	-VOUT	COMMON
7	+VIN	+VIN
8	+VIN	+VIN

BLOCK DIAGRAM
Single Output

Dual Outputs

DERATING


KEY FEATURES

- Power Module for PCB Mountable
- Regulated Output
- Low Ripple and Noise
- Remote ON/OFF Control (Optional)
- 2:1 & 4:1 Wide Input Range
- 2 Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	ST10-12-3.3S	ST10-12-5S	ST10-12-12S	ST10-12-15S	ST10-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	3.3V / 2000mA	5V / 2000mA	12V / 830mA	15V / 670mA	24V / 420mA
Efficiency	74%	80%	81%	82%	81%

Model No. (Single Output)	ST10-24-3.3S	ST10-24-5S	ST10-24-12S	ST10-24-15S	ST10-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	3.3V / 2000mA	5V / 2000mA	12V / 830mA	15V / 670mA	24V / 420mA
Efficiency	74%	81%	84%	85%	84%

Model No. (Single Output)	ST10-24F-3.3S	ST10-24F-5S	ST10-24F-12S	ST10-24F-15S
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	3.3V / 2000mA	5V / 2000mA	12V / 830mA	15V / 670mA
Efficiency	67%	75%	75%	75%

Model No. (Single Output)	ST10-48-3.3S	ST10-48-5S	ST10-48-12S	ST10-48-15S	ST10-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	3.3V / 2000mA	5V / 2000mA	12V / 830mA	15V / 670mA	24V / 420mA
Efficiency	76%	81%	84%	84%	84%

Model No. (Single Output)	ST10-48F-3.3S	ST10-48F-5S	ST10-48F-12S	ST10-48F-15S
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V / 2000mA	5V / 2000mA	12V / 830mA	15V / 670mA
Efficiency	66%	75%	77%	75%

Model No. (Dual Output)	ST10-24F-5D	ST10-24F-12D	ST10-24F-15D
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±415mA	±15 / ±333mA
Efficiency	75%	75%	75%

Model No. (Dual Output)	ST10-48F-5D	ST10-48F-12D	ST10-48F-15D
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±415mA	±15 / ±333mA
Efficiency	75%	77%	77%

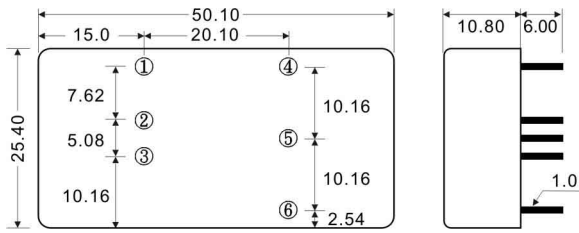
ST10 SERIES
10 Watts

Model No.	(Single Output)	ST10-12-3.3S ST10-24-3.3S ST10-24F-3.3S ST10-48-3.3S ST10-48F-3.3S	ST10-12-5S ST10-24-5S ST10-24F-5S ST10-48-5S ST10-48F-5S	ST10-12-12S ST10-24-12S ST10-24F-12S ST10-48-12S ST10-48F-12S	ST10-12-15S ST10-24-15S ST10-24F-15S ST10-48-15S ST10-48F-15S	ST10-12-24S ST10-24-24S ST10-48-24S
Max Output Wattage (W)		6.6W	10W	10W	10W	10W
Input	Input Filter	π type				
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	2000	2000	830	670	420
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 1\%$				
	Minimum Load	3%	3%	0%	0%	0%
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$				
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$				
	Switching Frequency	300KHz				
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
	Short Circuit Protection	Current limit, auto-recovery				
Isolation	Voltage	1600 VDC.				
	Resistance	10^8 ohms				
	Capacitance	1000 pF				
Environment	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load)		4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)		
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$				
	Case Temperature	$+100^{\circ}\text{C}$ max.				
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$				
	Humidity	95% RH				
	MTBF	$> 800,000$ h @ 25°C (MIL-HDBK-217F)				
Physical	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm				
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded				
	Weight	32 g				
	Cooling Method	Free-air convection				
Safety	Agency Approvals	CE, UL				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

Model No.	(Dual Output)	ST10-12F-5D ST10-24F-5D ST10-48F-5D	ST10-12F-12D ST10-24F-12D ST10-48F-12D	ST10-12F-15D ST10-24F-15D ST10-48F-15D
Max Output Wattage (W)		10W		
Input	Input Filter	π type		
Output	Voltage (V.DC.)	± 5	± 12	± 15
	Voltage Accuracy	$\pm 2\%$		
	Current (mA) max	± 1000	± 415	± 333
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		
	Load Regulation (10-100%)(Balance Load)	$\pm 1\%$		
	Minimum Load	3%		
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$		
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$		
	Switching Frequency	300KHz		
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.		
	Over Voltage Protection	Zener diode clamp		
	Short Circuit Protection	Current limit, auto-recovery		
Isolation	Voltage	1600 VDC.		
	Resistance	10^8 ohms		
	Capacitance	1000 pF		
Environment	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load)		4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$		
	Case Temperature	$+100^{\circ}\text{C}$ max.		
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$		
	Humidity	95% RH		
	MTBF	$> 800,000$ h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm		
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded		
	Weight	32 g		
	Cooling Method	Free-air convection		
Safety	Agency Approvals	CE, UL		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A		

 All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

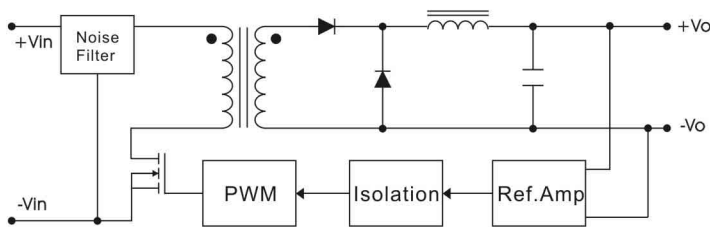
MECHANICAL DIMENSION (Top View)



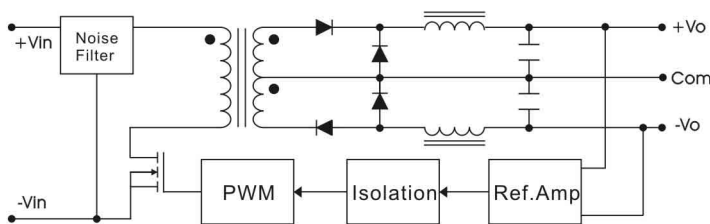
PIN#	Single	Dual
1	ON / OFF CTL (Optional)	ON / OFF CTL (Optional)
2	-DC IN	-DC IN
3	+DC IN	+DC IN
4	-DC OUT	-DC OUT
5	NO PIN	COMMON
6	+DC OUT	+DC OUT

BLOCK DIAGRAM

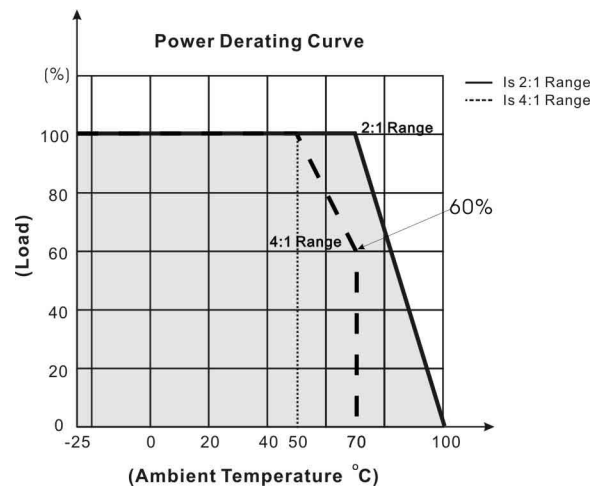
Single Output



Dual Outputs



DERATING



ST15 SERIES
15 Watts
KEY FEATURES

- Power Module for PCB Mountable
- Regulated Output
- Low Ripple and Noise
- Remote ON/OFF Control (Optional)
- 2:1 & 4:1 Wide Input Range
- 2 Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No.	ST15-12-3.3S	ST15-12-5S	ST15-12-12S	ST15-12-15S	ST15-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	77%	80%	82%	84%	84%

Model No.	ST15-24-3.3S	ST15-24-5S	ST15-24-12S	ST15-24-15S	ST15-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	77%	82%	85%	86%	87%

Model No.	ST15-24F-3.3S	ST15-24F-5S	ST15-24F-12S	ST15-24F-15S
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA
Efficiency	70%	76%	77%	75%

Model No.	ST15-48-3.3S	ST15-48-5S	ST15-48-12S	ST15-48-15S	ST15-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	79%	83%	86%	87%	87%

Model No.	ST15-48F-3.3S	ST15-48F-5S	ST15-48F-12S	ST15-48F-15S
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA
Efficiency	71%	78%	79%	79%

Model No. (Dual Output)	ST15-24F-5D	ST15-24F-12D	ST15-24F-15D
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

Model No. (Dual Output)	ST15-48F-5D	ST15-48F-12D	ST15-48F-15D
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

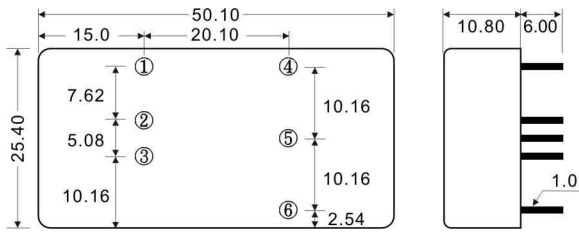
ST15 SERIES
15 Watts

Model No.	(Single Output)	ST15-12-3.3S ST15-24-3.3S ST15-24F-3.3S ST15-48-3.3S ST15-48F-3.3S	ST15-12-5S ST15-24-5S ST15-24F-5S ST15-48-5S ST15-48F-5S	ST15-12-12S ST15-24-12S ST15-24F-12S ST15-48-12S ST15-48F-12S	ST15-12-15S ST15-24-15S ST15-24F-15S ST15-48-15S ST15-48F-15S	ST15-12-24S ST15-24-24S ST15-48-24S
Max Output Wattage (W)		9.9W	15W	15W	15W	15W
Input	Input Filter	π type				
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	3000	3000	1250	1000	625
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 1\%$				
	Minimum Load	3%	3%	0%	0%	0%
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$				
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	10^8 ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load)			4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)	
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$				
	Case Temperature	$+100^{\circ}\text{C}$ max.				
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$				
	Humidity	95% RH				
Physical	MTBF	$> 800,000$ h @ 25°C (MIL-HDBK-217F)				
	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm				
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded				
	Weight	32 g				
Safety	Cooling Method	Free-air convection				
	Agency Approvals	CE, UL				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

Model No.	(Dual Output)	ST15-12F-5D ST15-24F-5D ST15-48F-5D	ST15-12F-12D ST15-24F-12D ST15-48F-12D	ST15-12F-15D ST15-24F-15D ST15-48F-15D
Max Output Wattage (W)		15W		
Input	Input Filter	π type		
Output	Voltage (V.DC.)	± 5	± 12	± 15
	Voltage Accuracy	$\pm 2\%$		
	Current (mA) max	± 1500	± 625	± 500
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		
	Load Regulation (10-100%)(Balance Load)	$\pm 1\%$		
	Minimum Load	3%		
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$		
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$		
Protection	Switching Frequency	300KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.		
	Over Voltage Protection	Zener diode clamp		
Isolation	Short Circuit Protection	Current limit, auto-recovery		
	Voltage	1600 VDC.		
	Resistance	10^8 ohms		
Environment	Capacitance	1000 pF		
	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load)		4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$		
	Case Temperature	$+100^{\circ}\text{C}$ max.		
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$		
	Humidity	95% RH		
Physical	MTBF	$> 800,000$ h @ 25°C (MIL-HDBK-217F)		
	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm		
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded		
	Weight	32 g		
Safety	Cooling Method	Free-air convection		
	Agency Approvals	CE, UL		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A		

 All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

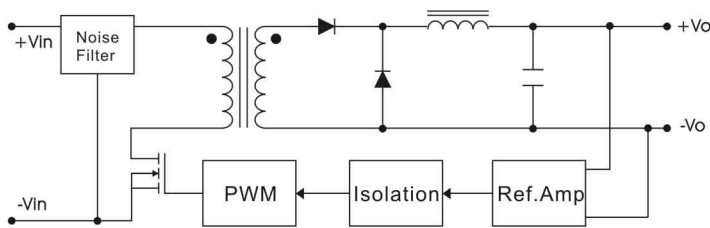
MECHANICAL DIMENSION (Top View)



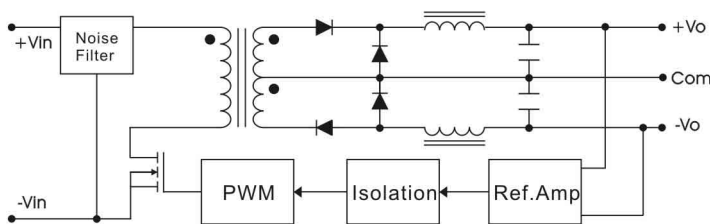
PIN#	Single	Dual
1	ON / OFF CTL (Optional)	ON / OFF CTL (Optional)
2	-DC IN	-DC IN
3	+DC IN	+DC IN
4	-DC OUT	-DC OUT
5	NO PIN	COMMON
6	+DC OUT	+DC OUT

BLOCK DIAGRAM

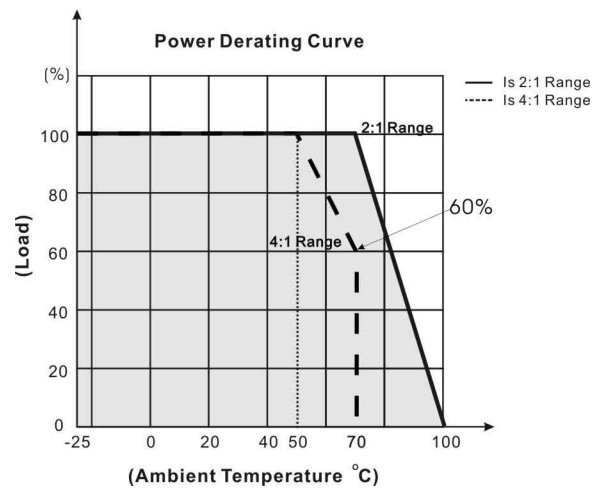
Single Output



Dual Outputs



DERATING



KEY FEATURES

- Power Module for PCB Mountable
- Synchronous Rectifier Topology
- Remote ON/OFF Control (Optional)
- 2:1 Input Range
- Standard 2" x 1" Package and Pinout
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

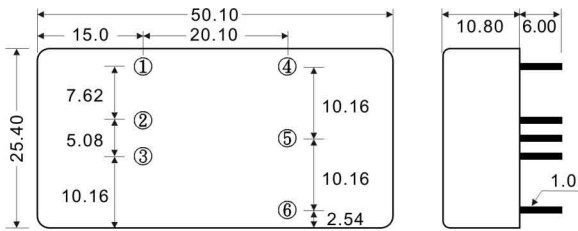
Model No.	ST20-24-2.5S	ST20-24-3.3S	ST20-24-5S
Max. Output Wattage (W)	12.5W	14W	20W
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	2.5V / 4000mA	3.3V / 4000mA	5V / 4000mA
Efficiency	83%	86%	87%

Model No.	ST20-48-2.5S	ST20-48-3.3S	ST20-48-5S
Max. Output Wattage (W)	12.5W	14W	20W
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	2.5V / 4000mA	3.3V / 4000mA	5V / 4000mA
Efficiency	83%	86%	87%

Model No.	ST20-24-2.5S	ST20-24-3.3S	ST20-24-5S	ST20-48-2.5S	ST20-48-3.3S	ST20-48-5S	
Max Output Wattage (W)	12.5W	14W	20W	12.5W	14W	20W	
Input	Input Filter π type						
Output	Voltage (V.DC.)	2.5	3.3	5	2.5	3.3	5
	Voltage Accuracy	$\pm 2\%$					
	Current (mA) max	4000	4000	4000	4000	4000	4000
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$					
	Load Regulation (10-100%) (typ.)	$\pm 1\%$					
	Ripple	110mV max (Vp-p)					
	Noise	200mV max (Vp-p)					
	Efficiency	83%	86%	87%	83%	86%	87%
Protection	Switching Frequency	400KHz					
	Over Power Protection	Works over 120% of rating and recovers automatically.					
	Over Voltage Protection	Zener diode clamp					
	Short Circuit Protection	Current limit, auto-recovery					
Isolation	Transient Response	500 us (100% to 50% full load at $\pm 1\%$ error band)					
	Voltage	1600 VDC.					
	Resistance	10^8 ohms					
Environment	Capacitance	1000 pF					
	Operating Temperature	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)					
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$					
	Case Temperature	$+100^{\circ}\text{C}$ max.					
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$					
	Humidity	95% RH					
Physical	MTBF	$>550,000$ h @ 25°C (MIL-HDBK-217F)					
	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm					
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded					
	Weight	32 g					
Safety	Cooling Method	Free-air convection					
	Agency Approvals	CE, UL					
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A					

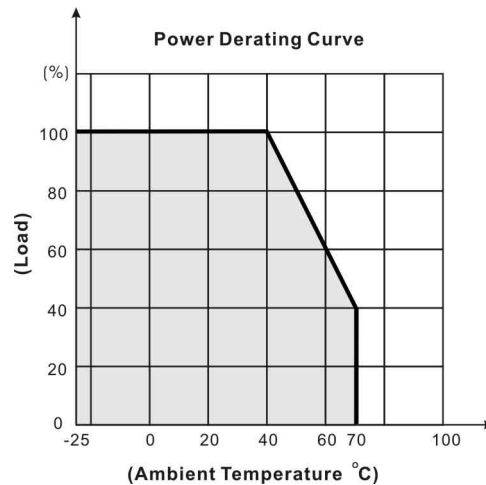
All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

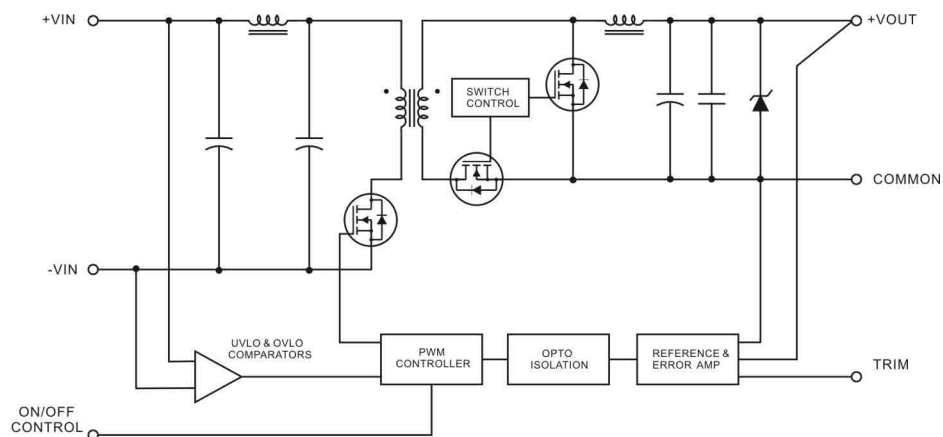


PIN#	Single
1	ON / OFF CTL (Optional)
2	-DC IN
3	+DC IN
4	-DC OUT
5	NO PIN
6	+DC OUT

DERATING



BLOCK DIAGRAM



ST30 SERIES
30 Watts
KEY FEATURES

- Power Module for PCB Mountable
- Synchronous Rectifier Topology
- Remote ON/OFF Control (Optional)
- 2:1 Input Range
- Standard 2" x 1" Package and Pinout
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

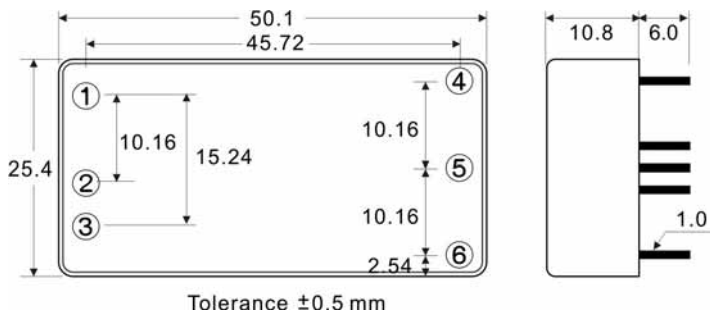
Model No.	ST30-24-2.5S	ST30-24-3.3S	ST30-24-5S	ST30-24-12S	ST30-24-15S	ST30-24-24S
Max. Output Wattage (W)	15W	19.8W	30W	30W	30W	30W
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	2.5V / 6000mA	3.3V / 6000mA	5V / 6000mA	12V / 2500mA	15V / 2000mA	24V / 1250mA
Efficiency	84%	86%	86%	88%	88%	88%

Model No.	ST30-48-2.5S	ST30-48-3.3S	ST30-48-5S	ST30-48-12S	ST30-48-15S	ST30-48-24S
Max. Output Wattage (W)	15W	19.8W	30W	30W	30W	30W
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	2.5V / 6000mA	3.3V / 6000mA	5V / 6000mA	12V / 2500mA	15V / 2000mA	24V / 1250mA
Efficiency	84%	86%	86%	88%	88%	88%

Model No.	ST30-24-2.5S ST30-48-2.5S	ST30-24-3.3S ST30-48-3.3S	ST30-24-5S ST30-48-5S	ST30-24-12S ST30-48-12S	ST30-24-15S ST30-48-15S	ST30-24-24S ST30-48-24S	
Max Output Wattage (W)	15W	19.8W	30W	30W	30W	30W	
Input	Input Filter π type						
Output	Input Voltage (V.DC.)	2.5	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$					
	Current (mA) max	6000	6000	6000	2500	2000	1250
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$					
	Load Regulation (10-100%) (typ.)	$\pm 1\%$					
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$					
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$					
	Efficiency	84%	86%	88%	88%	88%	88%
Protection	Switching Frequency	300KHz					
	Over Power Protection	Works over 120% of rating and recovers automatically.					
	Over Voltage Protection	Zener diode clamp					
	Short Circuit Protection	Current limit, auto-recovery					
Isolation	Transient Response	500 us (100% to 50% full load at $\pm 1\%$ error band)					
	Voltage	1600 VDC.					
	Resistance	10^8 ohms					
Environment	Capacitance	1000 pF					
	Operating Temperature	$-25^{\circ}\text{C} \dots +50^{\circ}\text{C}$ (with derating)					
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$					
	Case Temperature	$+100^{\circ}\text{C}$ max.					
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$					
	Humidity	95% RH					
Physical	MTBF	$> 550,000$ h @ 25°C (MIL-HDBK-217F)					
	Dimension (L x W x H)	1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm					
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded					
	Weight	32 g					
Safety	Cooling Method	Free-air convection					
	Agency Approvals	CE, UL					
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A					

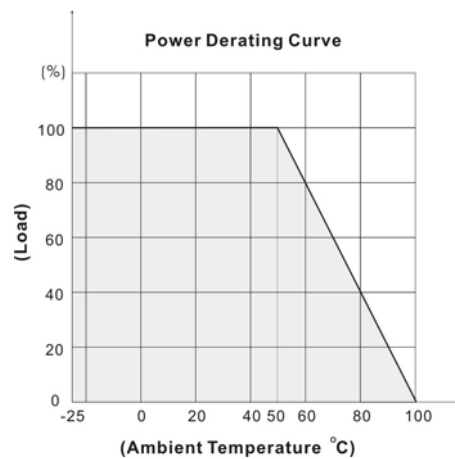
 All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)



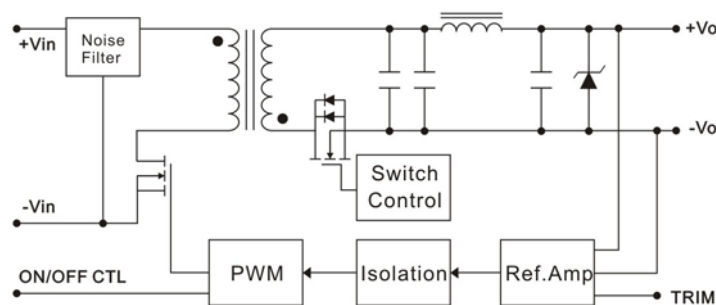
PIN#	Single
1	ON / OFF CTL (Optional)
2	-DC IN
3	+DC IN
4	TRIM
5	-DC OUT
6	+DC OUT

DERATING



BLOCK DIAGRAM

Single Output



SU20 SERIES
20 Watts
KEY FEATURES

- Power Module for PCB Mountable
- 2:1 & 4:1 Wide Input Range
- Low Ripple and Noise
- Regulated Output
- Vout Trim and ON/OFF Control Function
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SU20-12-3.3S	SU20-12-5S	SU20-12-12S	SU20-12-15S	SU20-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Efficiency	76%	78%	81%	82%	83%
capacitor Load max	28000μF	10000μF	2000μF	755μF	330μF

Model No. (Single Output)	SU20-24-3.3S	SU20-24-5S	SU20-24-12S	SU20-24-15S	SU20-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Efficiency	78%	81%	86%	85%	88%
capacitor Load max	28000μF	10000μF	2000μF	755μF	330μF

Model No. (Single Output)	SU20-24F-3.3S	SU20-24F-5S	SU20-24F-12S	SU20-24F-15S	SU20-24F-24S
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Efficiency	82%	84%	82%	82%	82%
capacitor Load max	18000μF	9600μF	750μF	370μF	160μF

Model No. (Single Output)	SU20-48-3.3S	SU20-48-5S	SU20-48-12S	SU20-48-15S	SU20-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Efficiency	76%	82%	84%	85%	87%
capacitor Load max	28000μF	10000μF	2000μF	755μF	330μF

Model No. (Single Output)	SU20-48F-3.3S	SU20-48F-5S	SU20-48F-12S	SU20-48F-15S	SU20-48F-24S
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Efficiency	83%	85%	82%	82%	82%
capacitor Load max	18000μF	9600μF	750μF	370μF	160μF

Model No. (Dual · Triple Output)	SU20-12-5D	SU20-12-12D	SU20-12-15D	SU20-12-5S12D	SU20-12-5S15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Efficiency	77%	81%	82%	79%	77%
capacitor Load max	±3000μF	±680μF	±330μF	6000/ ±150μF	4000/ ±150μF

Model No. (Dual · Triple Output)	SU20-24-5D	SU20-24-12D	SU20-24-15D	SU20-24-5S12D	SU20-24-5S15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Efficiency	82%	84%	85%	83%	81%
capacitor Load max	±3000μF	±680μF	±330μF	6000/ ±150μF	4000/ ±150μF

Model No. (Dual · Triple Output)	SU20-24F-5D	SU20-24F-12D	SU20-24F-15D
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Efficiency	81%	82%	82%
capacitor Load max	±4800μF	±370μF	±270μF

Model No. (Dual · Triple Output)	SU20-48-5D	SU20-48-12D	SU20-48-15D	SU20-48-5S12D	SU20-48-5S15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Efficiency	83%	85%	84%	83%	84%
capacitor Load max	±3000μF	±680μF	±330μF	6000/ ±150μF	4000/ ±150μF

Model No. (Dual · Triple Output)	SU20-48F-5D	SU20-48F-12D	SU20-48F-15D
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Efficiency	81%	83%	82%
capacitor Load max	±4800μF	±370μF	±270μF

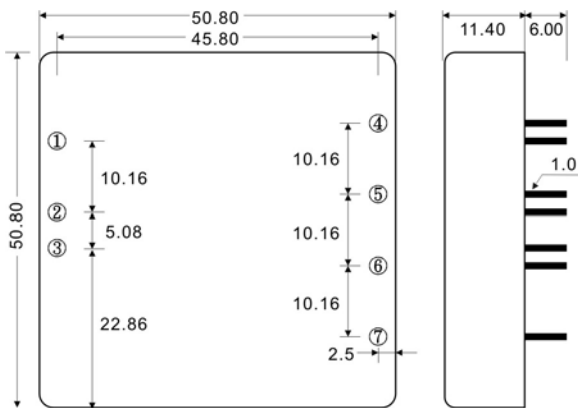
SU20 SERIES
20 Watts

Model No. (Single Output)		SU20-12-3.3S SU20-24-3.3S SU20-24F-3.3S SU20-48-3.3S SU20-48F-3.3S	SU20-12-5S SU20-24-5S SU20-24F-5S SU20-48-5S SU20-48F-5S	SU20-12-12S SU20-24-12S SU20-24F-12S SU20-48-12S SU20-48F-12S	SU20-12-15S SU20-24-15S SU20-24F-15S SU20-48-15S SU20-48F-15S	SU20-12-24S SU20-24-24S SU20-24F-24S SU20-48-24S SU20-48F-24S
Max Output Wattage (W)		13.2W	20W	20W	20W	20W
Input	Input Filter	π type				
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	4000	4000	1670	1330	833
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 0.5\%$				
	Ripple	$< 0.2\%$ Vout +20mV max (Vp-p)				
	Noise	$< 0.5\%$ Vout +50mV max (Vp-p)				
	Trim	$\pm 10\%$				
Protection	Switching Frequency	2:1 Range :200KHz		4:1 Range :250KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
	Short Circuit Protection	Hiccup, auto-recovery				
Isolation	Voltage	1600 VDC.				
	Resistance	10^8 ohms				
	Capacitance	1000 pF				
Environment	Operating Temperature	2:1 Range: -25°C...+70°C (at Full Load)		4:1 Range: -25°C...+70°C (with derating)		
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	$\pm 0.02\%$ Per°C				
	Humidity	95% RH				
	MTBF	$> 550,000$ h @ 25°C (MIL-HDBK-217F)				
Physical	Dimension (L x W x H)	2.0 x 2.0 x 0.45 Inches (50.8 x 50.8 x 11.4 mm) Tolerance ± 0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	70 g				
	Cooling Method	Free-air convection				
Safety	Agency Approvals	CE (Pending)				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Dual · Triple Output)		SU20-12-5D SU20-24-5D SU20-24F-5D SU20-48-5D SU20-48F-5D	SU20-12-12D SU20-24-12D SU20-24F-12D SU20-48-12D SU20-48F-12D	SU20-12-15D SU20-24-15D SU20-24F-15D SU20-48-15D SU20-48F-15D	SU20-12-5S12D SU20-24-5S12D SU20-24F-5S12D SU20-48-5S12D	SU20-12-5S15D SU20-24-5S15D SU20-24F-5S15D SU20-48-5S15D
Max Output Wattage (W)		20W	20W	20W	20W	20W
Input	Input Filter	π type				
Output	Voltage (V.DC.)	± 5	± 12	± 15	5/±12	5/±15
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	± 2000	± 833	± 660	2500 / ± 300	2500 / ± 250
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		$\pm 1\%$ / $\pm 5\%$		
	Load Regulation (10-100%) (typ.)	$\pm 3\%$		$\pm 3\%$ / $\pm 5\%$		
	Ripple	$< 0.2\%$ Vout +20mV max (Vp-p)				
	Noise	$< 0.5\%$ Vout +50mV max (Vp-p)				
	Trim	$\pm 10\%$				None
Protection	Switching Frequency	2:1 Range :200KHz		4:1 Range :250KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
	Short Circuit Protection	Hiccup, auto-recovery				
Isolation	Voltage	1600 VDC.				
	Resistance	10^8 ohms				
	Capacitance	1000 pF				
Environment	Operating Temperature	2:1 Range: -25°C...+70°C (at Full Load)		4:1 Range: -25°C...+70°C (with derating)		
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	$\pm 0.02\%$ Per°C				
	Humidity	95% RH				
	MTBF	$> 550,000$ h @ 25°C (MIL-HDBK-217E)				
Physical	Dimension (L x W x H)	2.0 x 2.0 x 0.45 Inches (50.8 x 50.8 x 11.4 mm) Tolerance ± 0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	70 g				
	Cooling Method	Free-air convection				
Safety	Agency Approvals	CE (Pending)				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

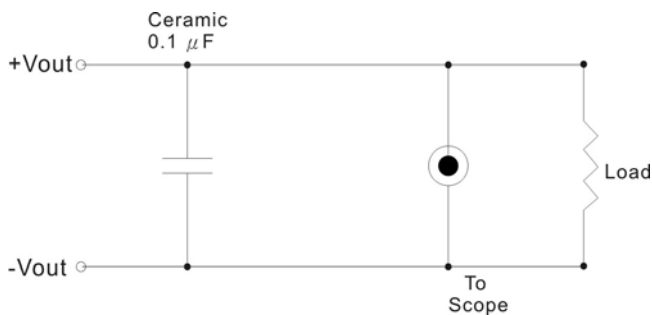
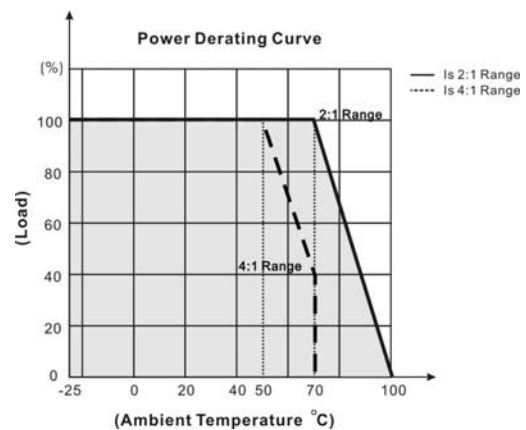
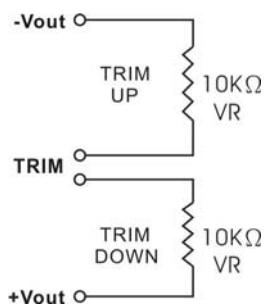
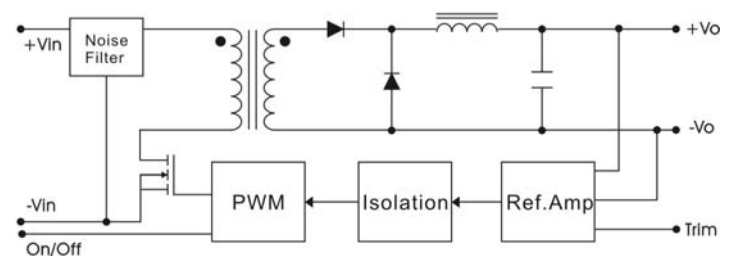
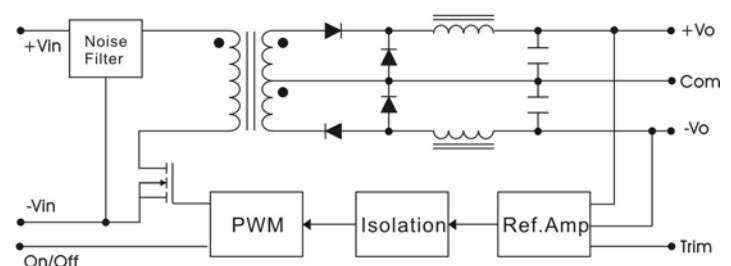
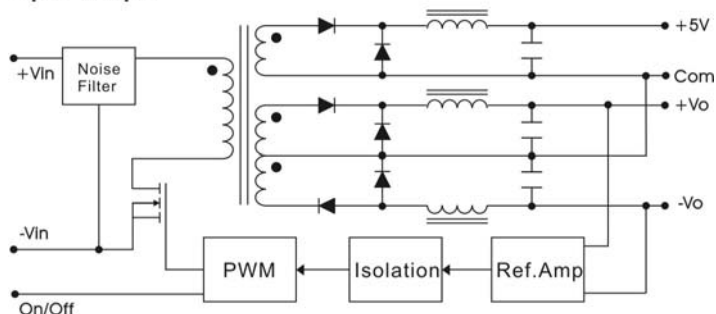
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)


PIN#	Single	Dual	Triple
1	ON / OFF	ON / OFF	ON / OFF
2	-VIN	-VIN	-VIN
3	+VIN	+VIN	+VIN
4	TRIM	TRIM	-VOUT
5	-VOUT	-VOUT	COMMON
6	+VOUT	COMMON	+5V OUT
7	NC	+VOUT	+VOUT

OUTPUT NOISE

The output noise is measured with 0.1 μ F tantalum capacitor.


DERATING

REMOTE ON/OFF CONTROL

BLOCK DIAGRAM
Single Output

Dual Output

Triple Output


SU40 SERIES
40 Watts
KEY FEATURES

- Power Module for PCB Mountable
- 2:1 Input Range
- Low Ripple and Noise
- Regulated Output
- Synchronous-rectifier Topologies
- Vout Trim and ON/OFF Control Function
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SU40-12-5S	SU40-12-12S	SU40-12-15S	SU40-12-24S
Max Output Wattage (W)	40W	40W	40W	40W
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	5V / 8000mA	12V / 3333mA	15V / 2666mA	24V / 1666mA
Efficiency	85%	85%	85%	85%

Model No. (Single Output)	SU40-24-5S	SU40-24-12S	SU40-24-15S	SU40-24-24S
Max Output Wattage (W)	40W	40W	40W	40W
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	5V / 8000mA	12V / 3333mA	15V / 2666mA	24V / 1666mA
Efficiency	87%	86%	86%	86%

Model No. (Single Output)	SU40-48-1.8S	SU40-48-2.5S	SU40-48-3.3S	SU40-48-5S	SU40-48-12S	SU40-48-15S	SU40-48-24S
Max Output Wattage (W)	14.4W	20W	26.4W	40W	40W	40W	40W
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	1.8V / 8000mA	2.5V / 8000mA	3.3V / 8000mA	5V / 8000mA	12V / 3333mA	15V / 2666mA	24V / 1666mA
Efficiency	76%	82%	84%	88%	87%	87%	87%

Model No. (Single Output)	SU40-48-1.8S	SU40-48-2.5S	SU40-48-3.3S	SU40-12-5S SU40-24-5S SU40-48-5S	SU40-12-12S SU40-24-12S SU40-48-12S	SU40-12-15S SU40-24-15S SU40-48-15S	SU40-12-24S SU40-24-24S SU40-48-24S	
Max Output Wattage (W)	14.4W	20W	26.4W	40W	40W	40W	40W	
Input	Input Filter π type							
Output	Voltage (V.DC.)	1.8	2.5	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$						
	Current (mA) max	8000	8000	8000	8000	3333	2666	1666
	Minimum Load	0%						
	Line Regulation(LL-HL) (typ)	$\pm 0.5\%$						
	Load Regulation (10-100%) (typ.)	$\pm 1\%$						
	Ripple	50 mV max.				$\pm 1\%$ max.		
	Noise	100 mV max.				$\pm 1\%$ max.		
Trim	$\pm 10\%$							
Switching Frequency	5V Output: 250KHz		12V Input: 200KHz		others: 400KHz			
Protection	Over power Protection	Works over 120% of rating and recovers automatically.						
	Over voltage Protection	Zener diode clamp						
	Short Circuit Protection	Hiccup mode, auto-recovery						
Isolation	Voltage	1600 VDC.						
	Resistance	10^8 ohms						
	Capacitance	1000 pF						
Environment	Operating Temperature	-25°C...+70°C (with derating)						
	Storage Temperature	-55°C...+105°C						
	Case Temperature	+100°C max.						
	Temperature Coefficient	$\pm 0.02\%$ Per°C						
	Humidity	95% RH						
MTBF	>550,000 h @ 25°C (MIL-HDBK-217F)							
Physical	Dimension (L x W x H)	2.0 x 2.0 x 0.45 Inches (50.8 x 50.8 x 11.4 mm) Tolerance ± 0.5 mm						
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.						
	Weight	70 g						
	Cooling Method	Free-air convection						

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

ELECTRICAL SPECIFICATIONS

Model No. (Dual · Triple Output)	SU40-12-5D	SU40-12-12D	SU40-12-15D	SU40-12-5S12D	SU40-12-5S15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	±5V / ±3500mA	±12V / ±1666mA	±15V / ±1320mA	5/±12V / 5000/±600mA	5/±15V / 5000/±500mA
Efficiency	82%	85%	85%	85%	85%

Model No. (Dual · Triple Output)	SU40-24-5D	SU40-24-12D	SU40-24-15D	SU40-24-5S12D	SU40-24-5S15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	±5V / ±3500mA	±12V / ±1666mA	±15V / ±1320mA	5/±12V / 5000/±600mA	5/±15V / 5000/±500mA
Efficiency	83%	86%	86%	86%	86%

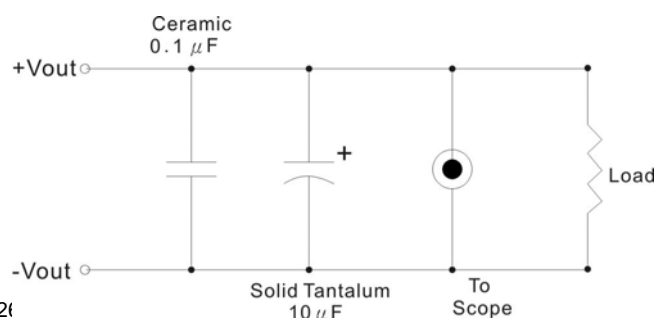
Model No. (Dual · Triple Output)	SU40-48-5D	SU40-48-12D	SU40-48-15D	SU40-48-5S12D	SU40-48-5S15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	±5V / ±3500mA	±12V / ±1666mA	±15V / ±1320mA	5/±12V / 5000/±600mA	5/±15V / 5000/±500mA
Efficiency	84%	87%	87%	87%	87%

Model No. (Dual · Triple Output)	SU40-12-5D SU40-24-5D SU40-48-5D	SU40-12-12D SU40-24-12D SU40-48-12D	SU40-12-15D SU40-24-15D SU40-48-15D	SU40-12-5S12D SU40-24-5S12D SU40-48-5S12D	SU40-12-5S15D SU40-24-5S15D SU40-48-5S15D	
Max Output Wattage (W)	35W	40W	40W	40W	40W	
Input	Input Filter π type					
Output	Voltage (V.DC.)	±5	±12	±15	5/±12 5/±15	
	Voltage Accuracy	±2%		±2% / ±5%		
	Current (mA) max	±3500	±1666	±1320	5000 / ±600	5000 / ±500
	Minimum Load	0%		10%		
	Line Regulation (LL-HL) (typ.)	±0.5%		±1% / ±5%		
	Load Regulation (10-100%) (typ.)	±2%		±3% / ±5%		
	Load Cross Regulation (25%) (typ.)	Triple(main): ±2% Triple(auxiliary): ±5%				
	Ripple	<0.2% Vout +20mV max (Vp-p)				
	Noise	<0.5% Vout +50mV max (Vp-p)				
	Trim	±10%			None	
Switching Frequency	5V Output: 250KHz		12V Input: 200KHz	others: 400KHz		
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
	Short Circuit Protection	Hiccup, auto-recovery				
Isolation	Voltage	1600 VDC.				
	Resistance	10 ⁸ ohms				
	Capacitance	1000 pF				
Environment	Operating Temperature	-25°C...+70°C (with derating)				
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	±0.02% Per°C				
	Humidity	95% RH				
	MTBF	>550,000 h @ 25°C (MIL-HDBK-217E)				
Physical	Dimension (L x W x H)	2.0 x 2.0 x 0.45 Inches (50.8 x 50.8 x 11.4 mm) Tolerance ±0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	70 g				
	Cooling Method	Free-air convection				
Safety	Agency Approvals CE (Pending)					
EMC	EMI (Conducted & Radiated Emission) EN 55022 class A					

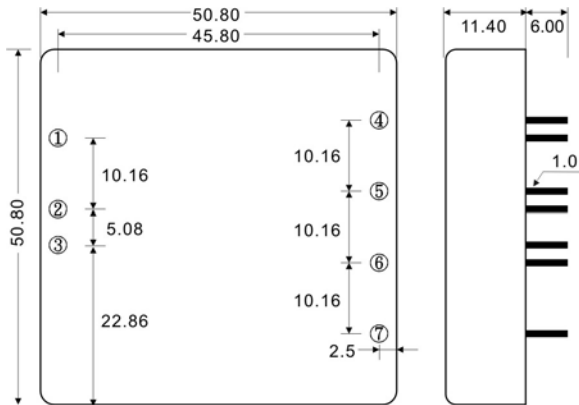
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

OUTPUT NOISE

The output noise is measured with 10 μ F tantalum capacitor and 0.1 μ F ceramic capacitor across output.



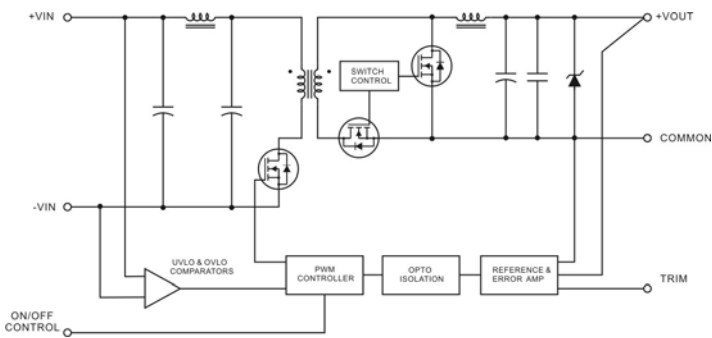
MECHANICAL DIMENSION (Top View)



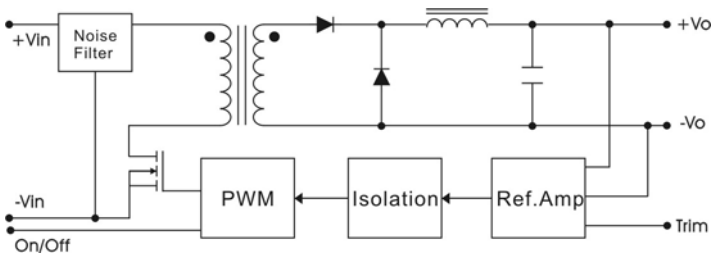
PIN#	Single	Dual	Triple
1	ON / OFF	ON / OFF	ON / OFF
2	-VIN	-VIN	-VIN
3	+VIN	+VIN	+VIN
4	TRIM	TRIM	-VOUT
5	-VOUT	-VOUT	COMMON
6	+VOUT	COMMON	+5V OUT
7	NC	+VOUT	+VOUT

BLOCK DIAGRAM

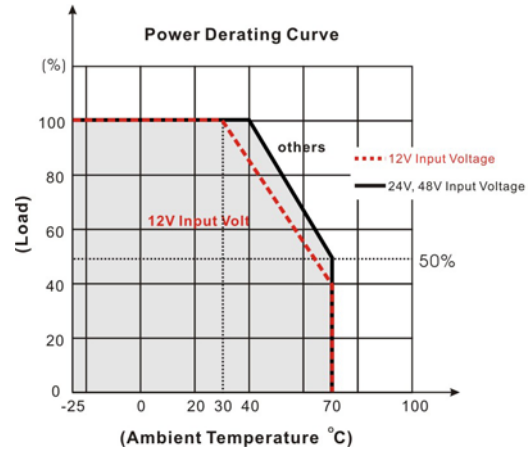
Output Voltage (V.DC) : 1.8, 2.5V, 3.3V, 5V



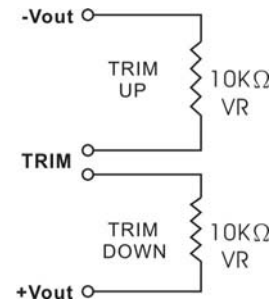
Output Voltage (V.DC) : 12V, 15V, 24V



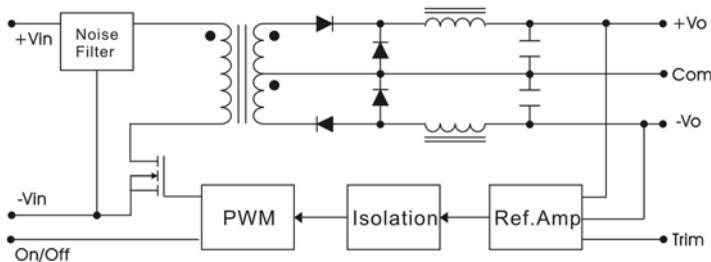
DERATING



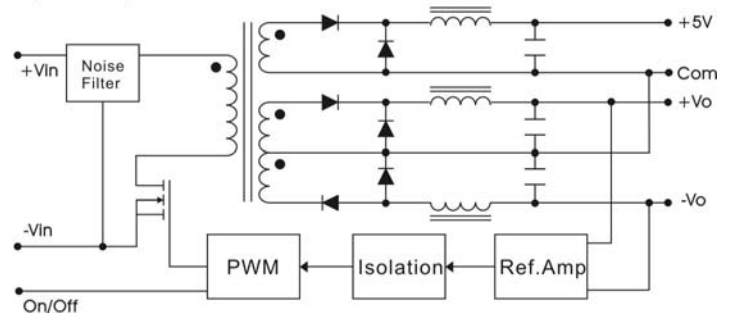
REMOTE



Dual Output



Triple Output



SF30 SERIES
30 Watts
KEY FEATURES

- Power Module for PCB Mountable
- Six-sided Continuous Shield
- 4:1 Wide Input Range
- High Efficiency
- Standard Package
- 2 Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	SF30-24-2.5S	SF30-24-3.3S	SF30-24-5S	SF30-24-12S	SF30-24-15S	SF30-24-24S
Max. Output Wattage (W)	15W	19.8W	30W	30W	30W	30W
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	2.5V / 6000mA	3.3V / 6000mA	5V / 6000mA	12V / 2500mA	15V / 2000mA	24V / 1250mA
Efficiency (%)	80%	83%	85%	83%	83%	84%
capacitor Load max	33000μF	19500μF	10200μF	820μF	420μF	180μF

Model No. (Single Output)	SF30-48-2.5S	SF30-48-3.3S	SF30-48-5S	SF30-48-12S	SF30-48-15S	SF30-48-24S
Max. Output Wattage (W)	15W	19.8W	30W	30W	30W	30W
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	2.5V / 6000mA	3.3V / 6000mA	5V / 6000mA	12V / 2500mA	15V / 2000mA	24V / 1250mA
Efficiency (%)	81%	85%	87%	84%	84%	84%
capacitor Load max	33000μF	19500μF	10200μF	820μF	420μF	180μF

Model No. (Dual Output)	SF30-24-5D	SF30-24-12D	SF30-24-15D	SF30-48-5D	SF30-48-12D	SF30-48-15D
Max. Output Wattage (W)	30W	30W	30W	30W	30W	30W
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±3000mA	±12V / ±1250mA	±15V / ±1000mA	±5V / ±3000mA	±12V / ±1250mA	±15V / ±1000mA
Efficiency (%)	81%	83%	83%	82%	84%	83%
capacitor Load max	±4800μF	±560μF	±470μF	±4800μF	±560μF	±470μF

Model No. (Single Output)	SF30-24-2.5S	SF30-24-3.3S	SF30-24-5S	SF30-24-12S	SF30-24-15S	SF30-24-24S	
Max Output Wattage (W)	15W	19.8W	30W	30W	30W	30W	
Output	Voltage (V.DC.)	2.5	3.3	5	12	15	24
	Voltage Accuracy	±2%					
	Current (mA) max	6000	6000	6000	2500	2000	1250
	Line Regulation (LL-HL) (typ.)	±0.5%					
	Load Regulation (10-100%) (typ.)	±1%					
	Ripple	100 mV max.			±1% max.		
	Noise	100 mV max.			±1% max.		
	Trim	±10%					
Protection	Switching Frequency	250KHz					
	Over Power Protection	Works over 120% of rating and recovers automatically.					
	Over Voltage Protection	Zener diode clamp					
Isolation	Short Circuit Protection	Hiccup mode, auto-recovery					
	Voltage	1600 VDC.					
	Resistance	10 ⁸ ohms					
Environment	Capacitance	1000 pF					
	Operating Temperature	-25°C...+70°C (with derating)					
	Storage Temperature	-55°C...+105°C					
	Case Temperature	+100°C max.					
	Temperature Coefficient	±0.02% Per°C					
	Humidity	95% RH					
Physical	MTBF	>550,000 h @ 25°C (MIL-HDBK-217F)					
	Dimension (L x W x H)	2.0 x 1.60 x 0.47 Inches (50.80 x 40.6 x 11.90 mm) Tolerance ±0.5 mm					
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.					
	Weight	58 g					
Cooling Method	Free-air convection						

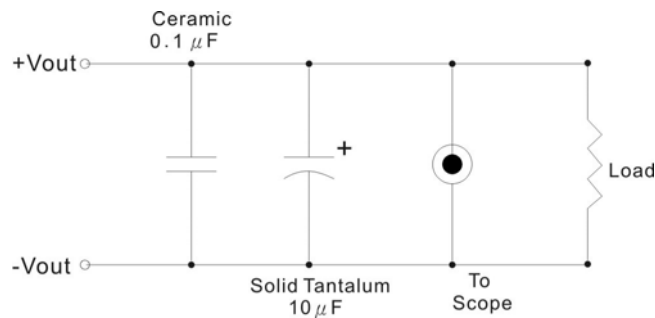
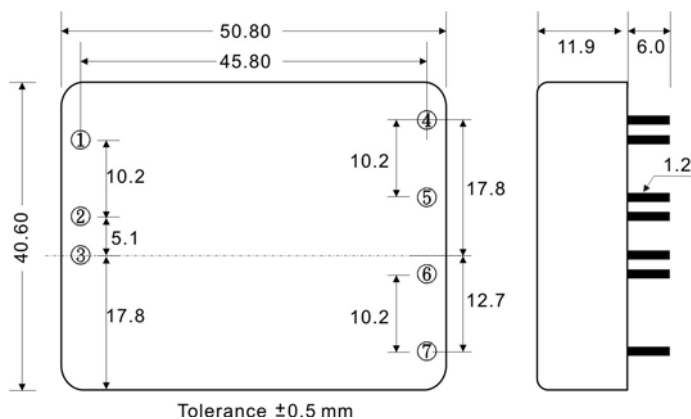
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

SF30 SERIES
30 Watts

Model No. (Dual Output)	SF30-24-5D SF30-48-5D	SF30-24-12D SF30-48-12D	SF30-24-15D SF30-48-15D
Max Output Wattage (W)	30W		
Input	Input Filter	π type	
Output	Voltage (V.DC.)	± 5	± 12
	Voltage Accuracy	$\pm 2\%$	± 15
	Current (mA) max	± 3000	± 1250
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$	
	Load Regulation (10-100%) (typ.)	$\pm 1\%$	
	Ripple	$\pm 1\%$	
	Noise	$\pm 1\%$	
	Trim	$\pm 10\%$	
	Switching Frequency	250KHz	
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.	
	Over Voltage Protection	Zener diode clamp	
	Short Circuit Protection	Hiccup mode, auto-recovery	
Isolation	Voltage	1600 VDC.	
	Resistance	10^8 ohms	
	Capacitance	1000 pF	
Environment	Operating Temperature	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)	
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$	
	Case Temperature	$+100^{\circ}\text{C}$ max.	
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$	
	Humidity	95% RH	
	MTBF	$>550,000$ h @ 25°C (MIL-HDBK-217F)	
Physical	Dimension (L x W x H)	2.0 x 1.60 x 0.47 Inches (50.80 x 40.6 x 11.90 mm) Tolerance ± 0.5 mm	
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.	
	Weight	58 g	
	Cooling Method	Free-air convection	

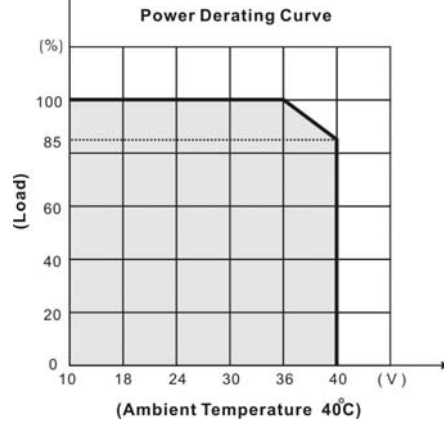
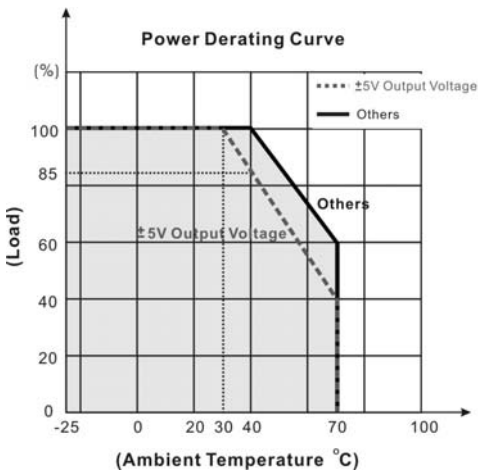
 All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

OUTPUT NOISE

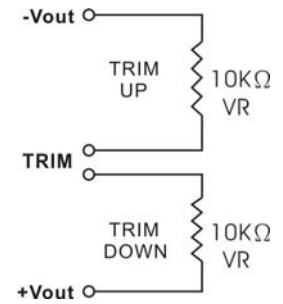
 The output noise is measured with $10\mu\text{F}$ tantalum capacitor and $0.1\mu\text{F}$ ceramic capacitor across output.

MECHANICAL DIMENSION (Top View)


PIN#	Single	Dual
1	CTRL	CTRL
2	-DC IN	-DC IN
3	+DC IN	+DC IN
4	TRIM	TRIM
5	-DC OUT	-DC OUT
6	+DC OUT	COMMON
7	NO PIN	+DC OUT

DERATING



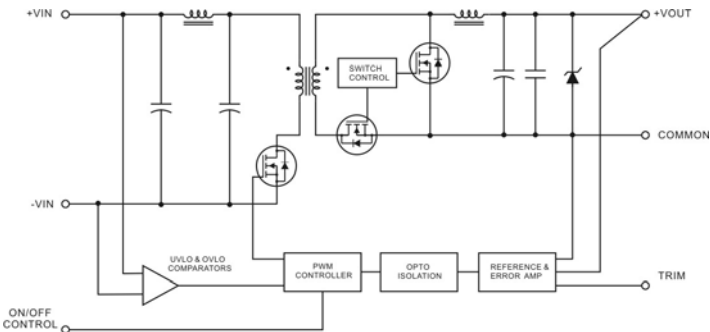
REMOTE ON/OFF CONTROL



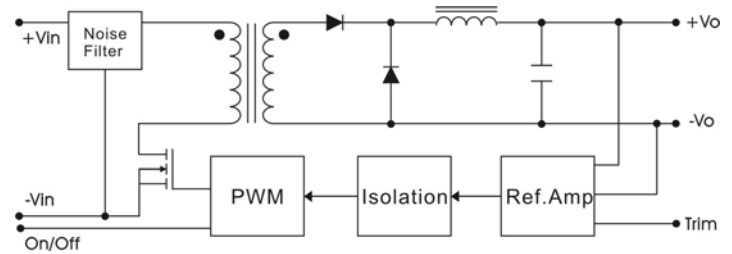
BLOCK DIAGRAM

Single Output

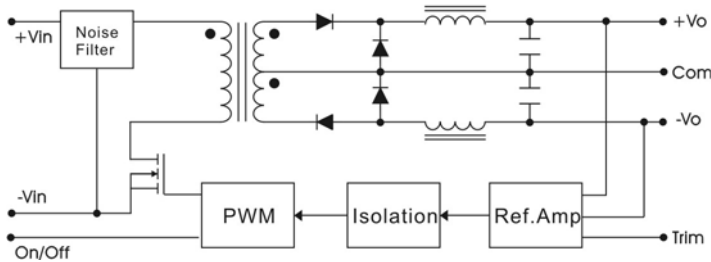
Output Voltage (V.DC) : 2.5V, 3.3V, 5V



Output Voltage (V.DC) : 12V, 15V, 24V



Dual Output



KEY FEATURES

- Power Module for PCB Mountable
- Six-sided Continuous Shield
- High Efficiency
- Standard Package
- 2 Years Product Warranty


ELECTRICAL SPECIFICATIONS

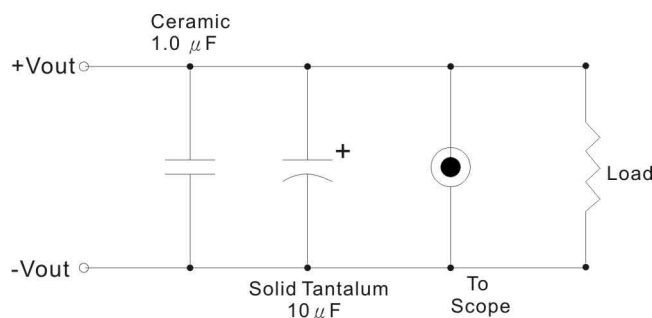
Model No.	SK30-48-1.8S	SK30-48-2.5S	SK30-48-3.3S	SK30-48-5S	SK30-48-12S	SK30-48-15S	SK30-48-24S
Max. Output Wattage (W)	10.8W	15W	19.8W	30W	30W	30W	30W
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	1.8V / 6000mA	2.5V / 6000mA	3.3V / 6000mA	5V / 6000mA	12V / 2500mA	15V / 2000mA	24V / 1250mA
Efficiency (%)	83%	83%	83%	87%	83%	83%	83%

Model No. (Single Output)	SK30-48-1.8S	SK30-48-2.5S	SK30-48-3.3S	SK30-48-5S	SK30-48-12S	SK30-48-15S	SK30-48-24S	
Max Output Wattage (W)	10.8W	15W	19.8W	30W	30W	30W	30W	
Input	Input Filter π type							
Output	Voltage (V.DC.)	1.8	2.5	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$						
	Current (mA) max	6000	600	6000	6000	2500	2000	1250
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$						
	Load Regulation (10-100%) (typ.)	$\pm 1\%$						
	Ripple (Vp-p)	50 mV max.			$\pm 1\%$ max.			
	Noise (Vp-p)	100 mV max.			$\pm 1\%$ max.			
	Trim	$\pm 10\%$						
Protection	Switching Frequency	400KHz						
	Over Power Protection	Works over 120% of rating and recovers automatically.						
	Over Voltage Protection	Zener diode clamp						
Isolation	Short Circuit Protection	Hiccup mode, auto-recovery						
	Voltage	1600 VDC.						
	Resistance	10^8 ohms						
Environment	Capacitance	1000 pF						
	Operating Temperature	-25°C...+70°C (with derating)						
	Storage Temperature	-55°C...+105°C						
	Case Temperature	+100°C max.						
	Temperature Coefficient	$\pm 0.02\%$ Per°C						
	Humidity	95% RH						
	MTBF	>550,000 h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H)	2.0 x 1.60 x 0.47 Inches (50.80 x 40.6 x 11.90 mm) Tolerance ± 0.5 mm						
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.						
	Weight	58 g						
	Cooling Method	Free-air convection						

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

OUTPUT NOISE

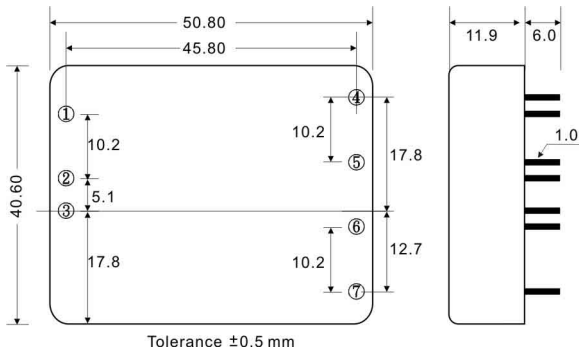
The output noise is measured with 10 μ F tantalum capacitor and 1 μ F ceramic capacitor across output.



SK30 SERIES

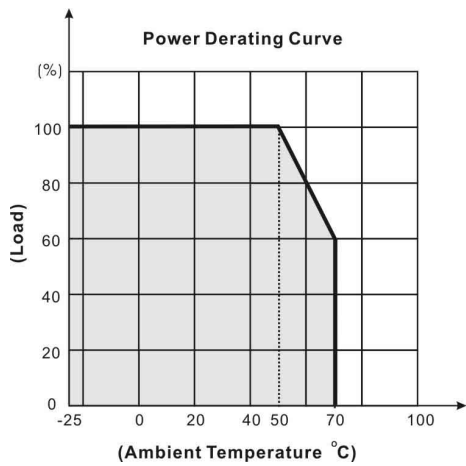
30 Watts

MECHANICAL DIMENSION (Top View)

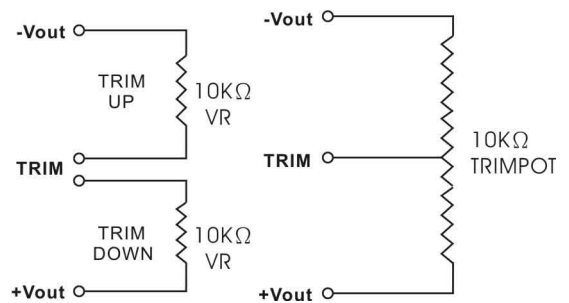


PIN#	Single
1	CTRL
2	-DC IN
3	+DC IN
4	TRIM
5	-DC OUT
6	+DC OUT
7	NO PIN

DERATING

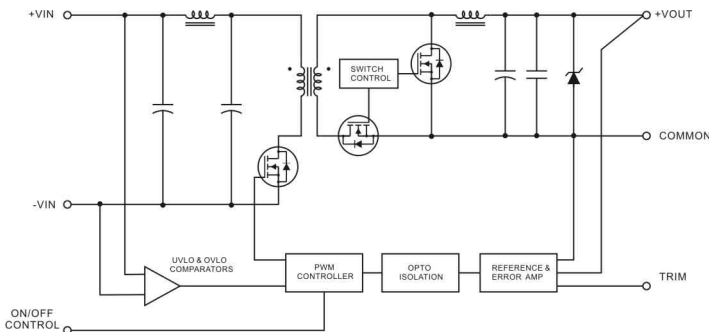


REMOTE ON/OFF CONTROL

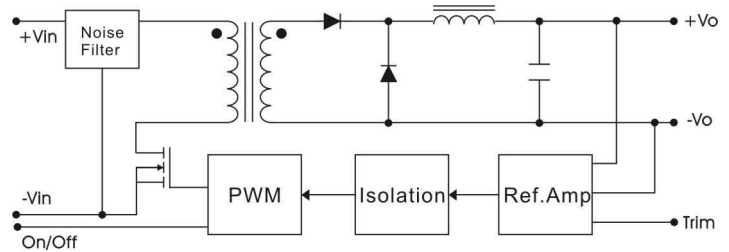


BLOCK DIAGRAM

Output Voltage (V.DC) : 1.8V, 2.5V, 3.3V, 5V



Output Voltage (V.DC) : 12V, 15V, 24V



KEY FEATURES

- Power Module for PCB Mountable
- Six-sided Continuous Shield
- High Efficiency
- Standard Package
- 2 Years Product Warranty


ELECTRICAL SPECIFICATIONS

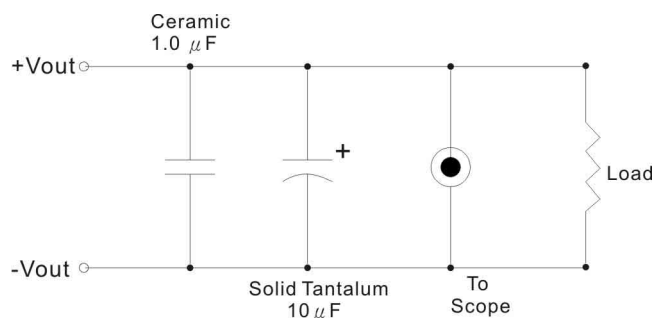
Model No.	SK40-48-1.8S	SK40-48-2.5S	SK40-48-3.3S	SK40-48-5S	SK40-48-12S	SK40-48-15S	SK40-48-24S
Max. Output Wattage (W)	14.4W	20W	26.4W	40W	40W	40W	40W
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	1.8V / 8000mA	2.5V / 8000mA	3.3V / 8000mA	5V / 8000mA	12V / 3333mA	15V / 2666mA	24V / 1666mA
Efficiency (%)	78%	82%	84%	86%	83%	83%	84%

Model No. (Single Output)	SK40-48-1.8S	SK40-48-2.5S	SK40-48-3.3S	SK40-48-5S	SK40-48-12S	SK40-48-15S	SK40-48-24S	
Max output wattage (W)	14.4W	20W	26.4W	40W	40W	40W	40W	
Input	Input Filter π type							
Output	Voltage (V.DC.)	1.8	2.5	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$						
	Current (mA) max	8000	8000	8000	8000	3333	2666	1666
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$						
	Load Regulation (10-100%) (typ.)	$\pm 1\%$						
	Ripple (Vp-p)	50 mV max.			$\pm 1\%$ max.			
	Noise (Vp-p)	100 mV max.			$\pm 1\%$ max.			
	Trim	$\pm 10\%$						
Protection	Switching Frequency	400KHz						
	Over Power Protection	Works over 120% of rating and recovers automatically.						
	Over Voltage Protection	Zener diode clamp						
Isolation	Short Circuit Protection	Hiccup mode, auto-recovery						
	Voltage	1600 VDC.						
	Resistance	10^8 ohms						
Environment	Capacitance	1000 pF						
	Operating Temperature	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating) (40°C full load with 18 CFM Air Flow)						
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$						
	Case Temperature	$+100^{\circ}\text{C}$ max.						
	Temperature Coefficient	$\pm 0.02\%$ Per°C						
	Humidity	95% RH						
	MTBF	$>550,000$ h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H)	2.0 x 1.60 x 0.47 Inches (50.80 x 40.6 x 11.90 mm) Tolerance ± 0.5 mm						
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.						
	Weight	58 g						
	Cooling Method	Free-air convection						

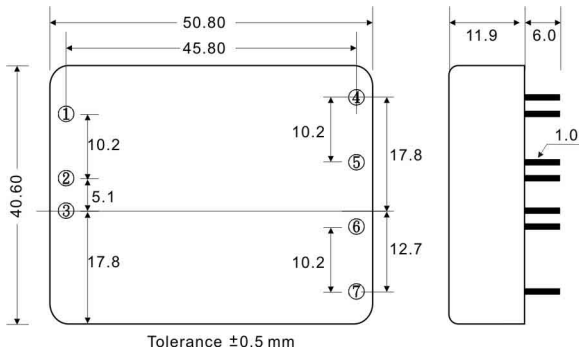
All specifications valid at nominal input voltage, full load and $+25^{\circ}\text{C}$ after warm-up time unless otherwise stated.

OUTPUT NOISE

The output noise is measured with $10\mu\text{F}$ tantalum capacitor and $1\mu\text{F}$ ceramic capacitor across output.

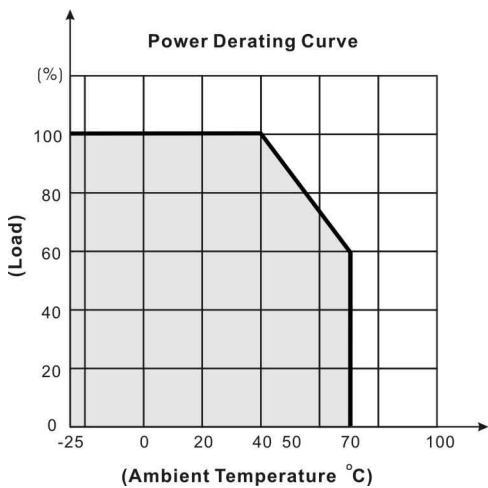


MECHANICAL DIMENSION (Top View)

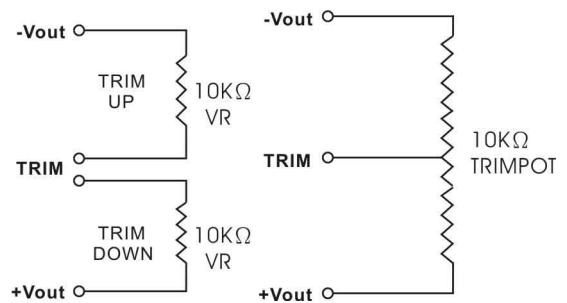


PIN#	Single
1	CTRL
2	-DC IN
3	+DC IN
4	TRIM
5	-DC OUT
6	+DC OUT
7	NO PIN

DERATING

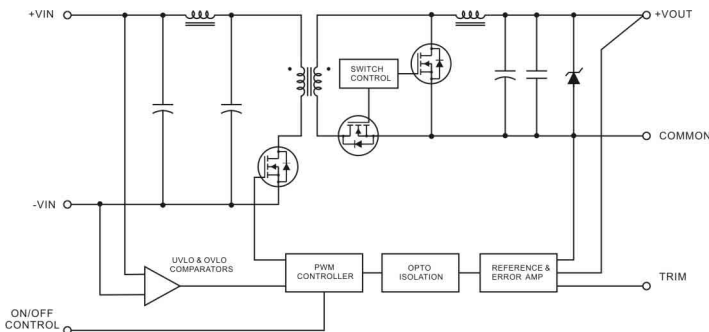


REMOTE ON/OFF CONTROL

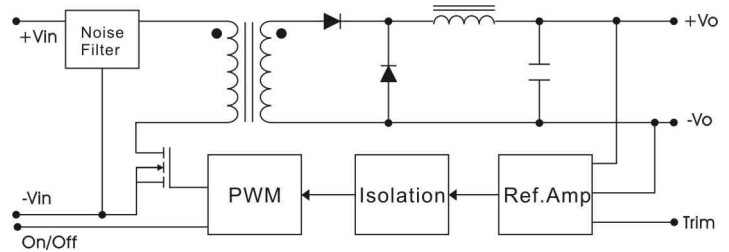


BLOCK DIAGRAM

Output Voltage (V.DC) : 1.8V, 2.5V, 3.3V, 5V



Output Voltage (V.DC) : 12V, 15V, 24V



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, UL Approval
- 2-Years Product Warranty



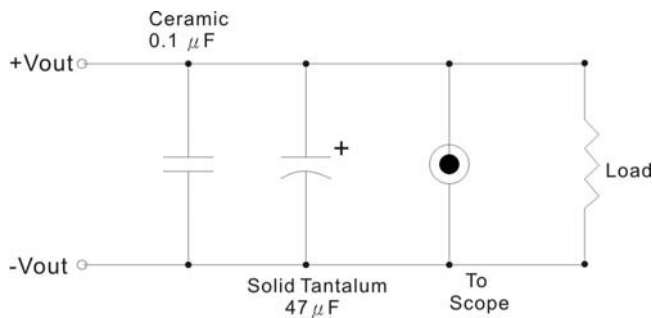
ELECTRICAL SPECIFICATIONS

Model No.	AHC-3.3S	AHC-5S	AHC-12S	AHC-15S	AHC-24S
Max Output Wattage (W)	4W	5W	5W	5W	5.5W
Input	Voltage				
	90-264 VAC or 120-370 VDC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	110 mA max. (115 VAC) / 70 mA max. (230 VAC)				
Inrush Current (<2ms)					
10 A max. (115 VAC) / 20 A max. (230 VAC)					
Leakage Current					
0.75 mA max.					
External Fuse (recommend)					
1.5 A slow blow type					
Output	Voltage (V.DC.)				
	3.3V	5V	12V	15V	24V
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	1250	1000	420	333	230
	Line Regulation (LL-HL) (typ.)				
	±0.3%				
	Load Regulation (5-100%) (typ.)				
	±0.5%				
	Minimum Load				
0%					
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
64%	67%	73%	73%	75%	
Hold-up Time					
15 ms min.					
Switching Frequency					
132 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
3000V					
Environment	Operating Temperature				
	-25°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
±0.02%/°C					
Humidity					
95% RH					
MTBF					
>360,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)				
	2.0 x 1.0 x 0.597 Inches (50.8 x 25.4 x 15.16 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
30 g					
Cooling Method					
Free air convection					
Safety	Agency Approvals				
UL/cUL, CE					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 55024					

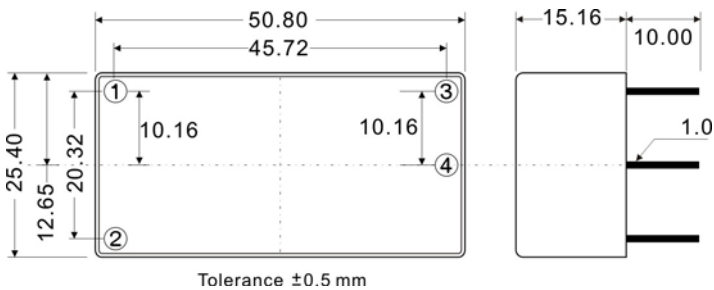
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

OUTPUT NOISE

The output noise is measured with 47 μ F tantalum capacitor and 0.1 μ F ceramic capacitor across output.

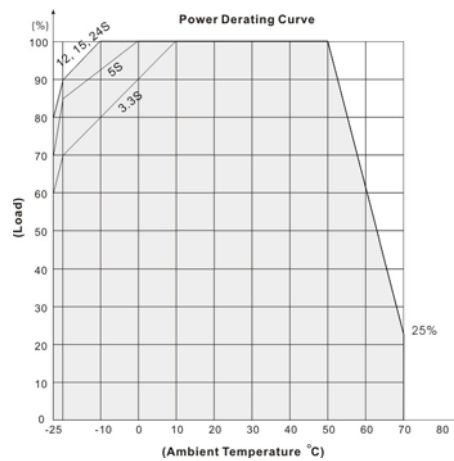


MECHANICAL DIMENSION (Top View)



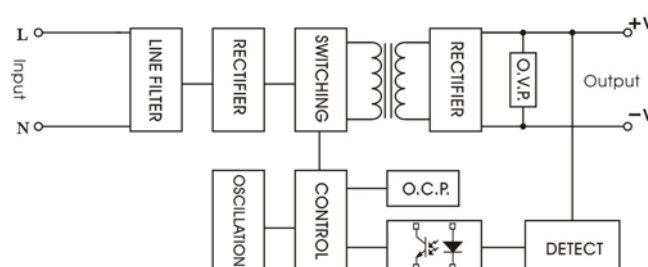
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



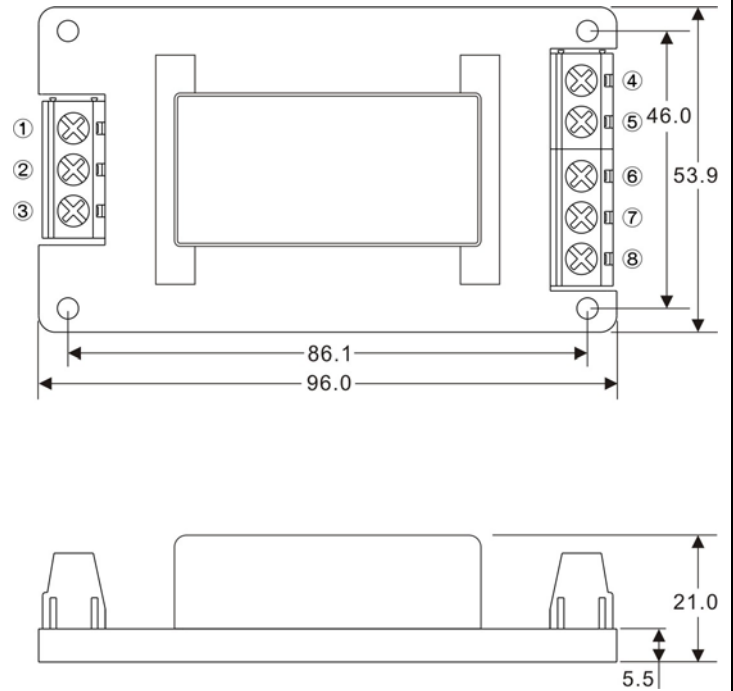
BLOCK DIAGRAM

Single Output

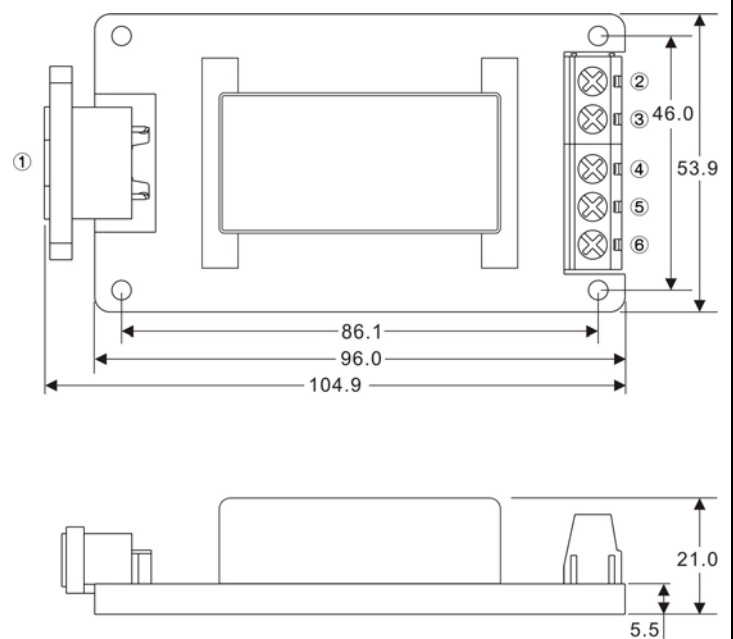


SCREW TERMINAL
AHC-A2


PIN#	Single
1	NO CONNECT
2	AC IN (N)
3	AC IN (L)
4	NO CONNECT
5	+DC OUT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT

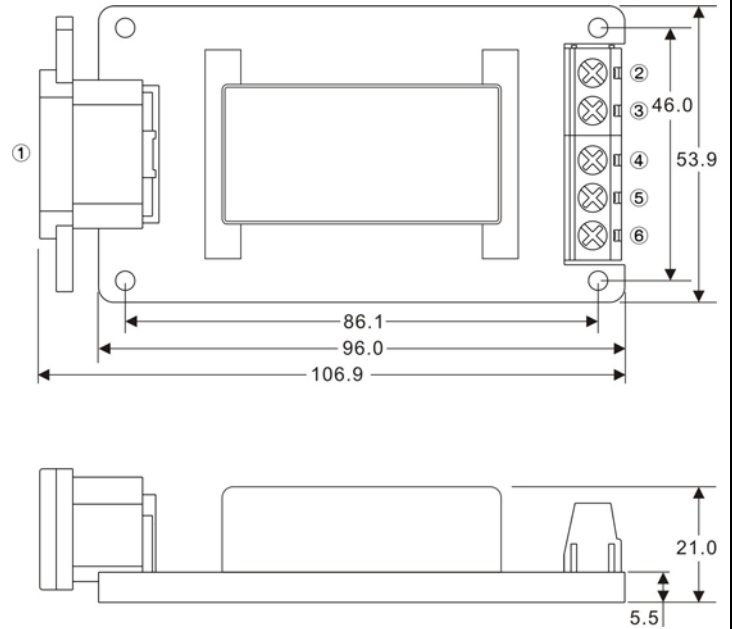

AHC-A3


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT

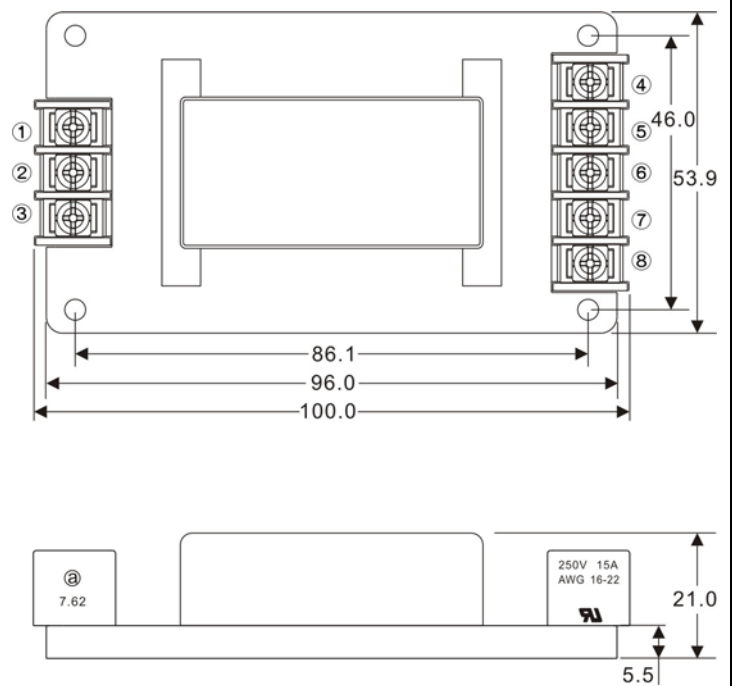


AHC SERIES
5 Watts
AHC-A4


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT

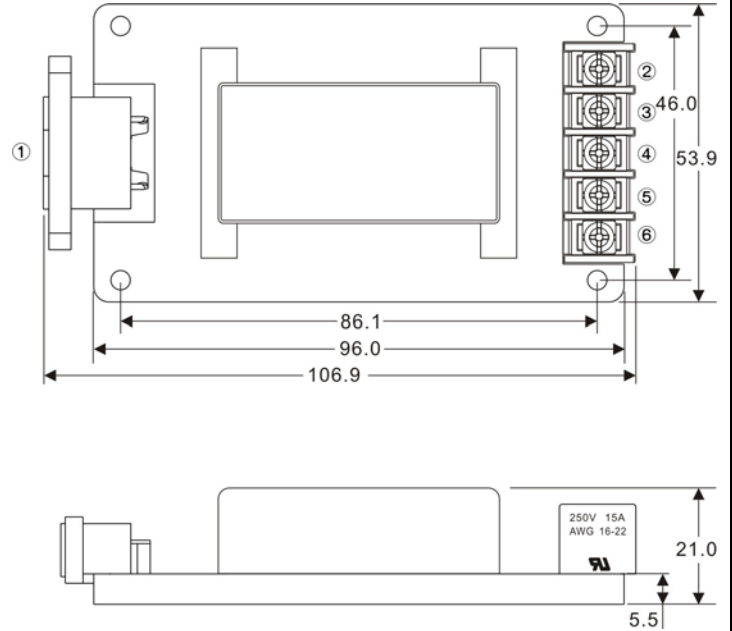

AHC-A5


PIN#	Single
1	NO CONNECT
2	AC IN (N)
3	AC IN (L)
4	NO CONNECT
5	+DC OUT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT

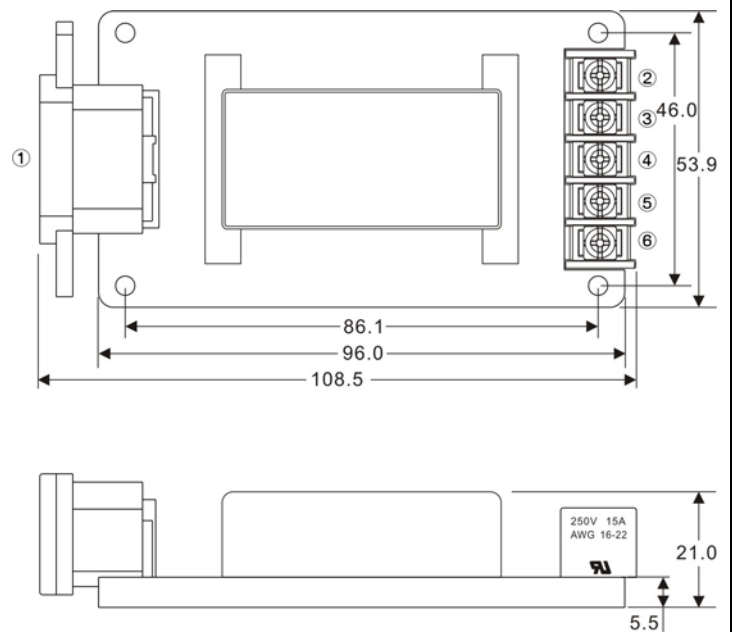


AHC SERIES
5 Watts
AHC-A6


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT


AHC-A7


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, UL, TUV Approval
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

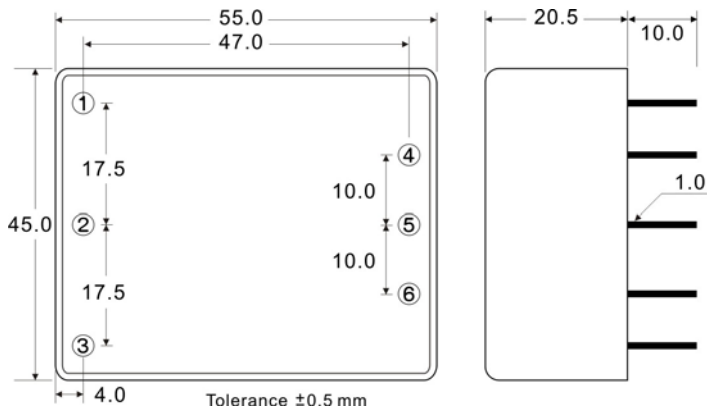
Model No. (Single Output)	APC-3.3S	APC-5S	APC-12S	APC15S	APC24S
Max Output Wattage (W)	5W	5W	5W	5W	5W
Input	Voltage				
	90-264 VAC or 120-370 VDC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	110 mA max. (115 VAC) / 70 mA max. (230 VAC)				
Inrush Current (<2ms)					
10 A max. (115 VAC) / 20 A max. (230 VAC)					
Leakage Current					
0.75 mA max.					
External Fuse (recommend)					
1.5 A slow blow type					
Output	Voltage (V.DC.)				
	3.3V	5V	12V	15V	24V
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	1500	1000	416	333	200
	Line Regulation (LL-HL) (typ.)				
	±0.3%				
	Load Regulation (5-100%) (typ.)				
	±0.5%				
	Minimum Load				
	4%	1%	1%	0%	0%
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
62%	65%	70%	70%	71%	
Hold-up Time					
15 ms min.					
Switching Frequency					
100 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
	3000V				
	Input-FG (V.AC)				
1500V					
Output-FG (V.AC)					
500V					
Environment	Operating Temperature				
	-25°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
±0.02%/°C					
Humidity					
95% RH					
MTBF					
>300,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)				
	2.17 x 1.77 x 0.81 Inches (55.0 x 45.0 x 20.5 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
80 g					
Cooling Method					
Free air convection					
Safety	Agency Approvals				
UL/cUL, CE, TUV					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 50082-1					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

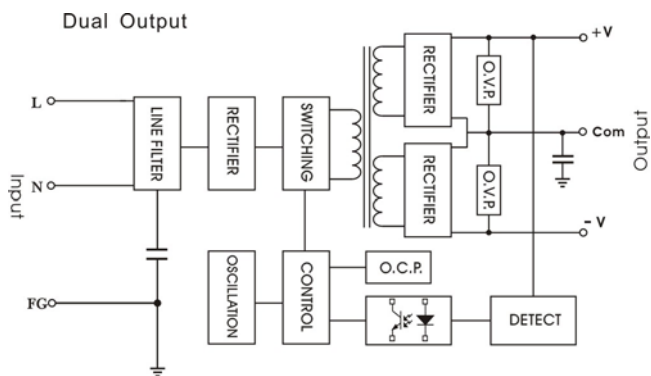
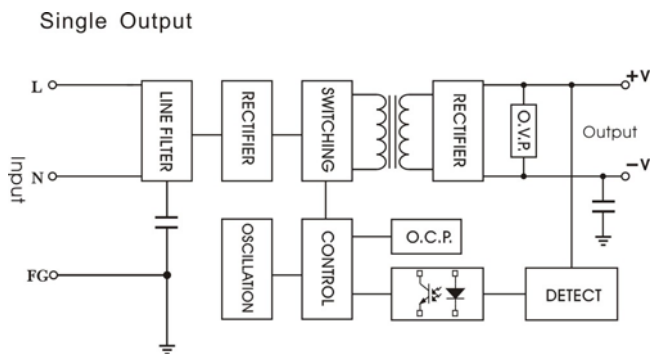
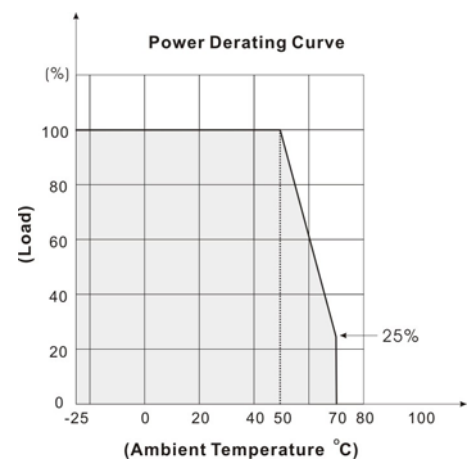
ELECTRICAL SPECIFICATIONS

Model No. (Dual Output)	APC-5D	APC-12D	APC15D	
Max Output Wattage (W)	5W	5W	5W	
Input	Voltage			
	90-260 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-440 Hz			
	Current (Full load)			
	110 mA max. (115 VAC) / 70 mA max. (230 VAC)			
Inrush Current (<2ms)				
10 A max. (115 VAC) / 20 A max. (230 VAC)				
Leakage Current				
0.75 mA max.				
External Fuse (recommend)				
1.5 A slow blow type				
Output	Voltage (V.DC.)	±5V	±12V	±15V
	Voltage Accuracy	±2%		
	Current (mA) max	±500	±200	±160
	Line Regulation (LL-HL) (typ.)	±0.3%		
	Load Regulation (5-100%) (typ.)	±0.5%		
	Minimum Load	0%	0%	3%
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple	<0.2% Vout +40mV max (Vp-p)		
	Noise	<0.5% Vout +50mV max (Vp-p)		
	Efficiency	70%	67%	67%
	Hold-up Time	15 ms min.		
	Switching Frequency	100 kHz		
Protection	Over Power Protection	Hiccup technique, auto-recovery		
	Over Voltage Protection	Zener diode clamp		
	Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)		
Isolation	Input-Output (V.AC)	3000V		
	Input-FG (V.AC)	1500V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-25°C...+70°C (with derating)		
	Storage Temperature	-40°C...+85°C		
	Temperature Coefficient	±0.02%/°C		
	Humidity	95% RH		
	MTBF	>300,000 h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	2.17 x 1.77 x 0.81 Inches (55.0 x 45.0 x 20.5 mm) Tolerance ±0.5 mm		
	Case Material	Plastic resin with Fiberglass (flammability to UL 94V-0)		
	Weight	80 g		
	Cooling Method	Free air convection		
Safety	Agency Approvals	UL/cUL, CE, TUV		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B		
	EMS (Noise Immunity)	EN 50082-1		

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

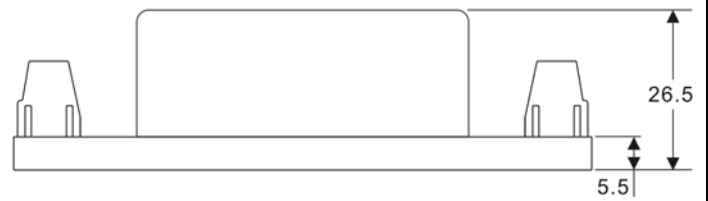
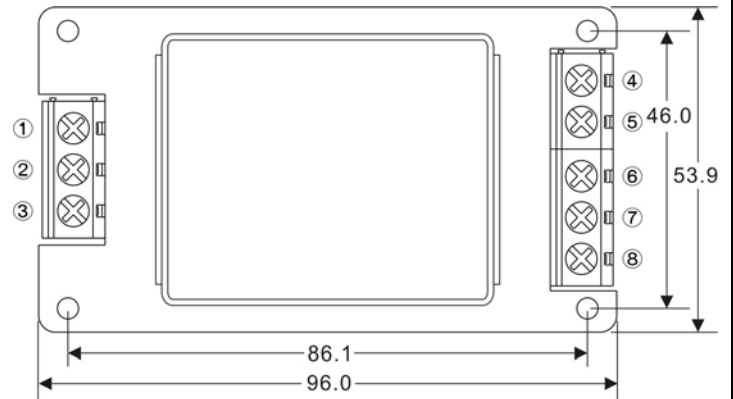
MECHANICAL DIMENSION (Top View)


PIN#	SINGLE	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	-DC OUT	-DC OUT
5	NO PIN	COMMON
6	+DC OUT	+DC OUT

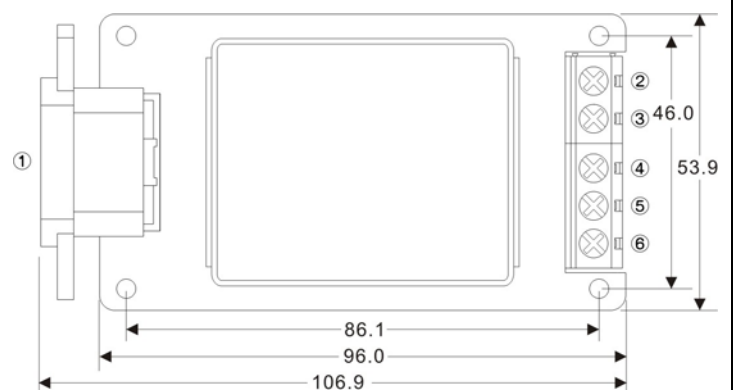
BLOCK DIAGRAM

DERATING


SCREW TERMINAL
APC-A2


PIN#	Single	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT
5	-DC OUT	-DC OUT
6	NO CONNECT	COMMON
7	+DC OUT	+DC OUT
8	NO CONNECT	NO CONNECT

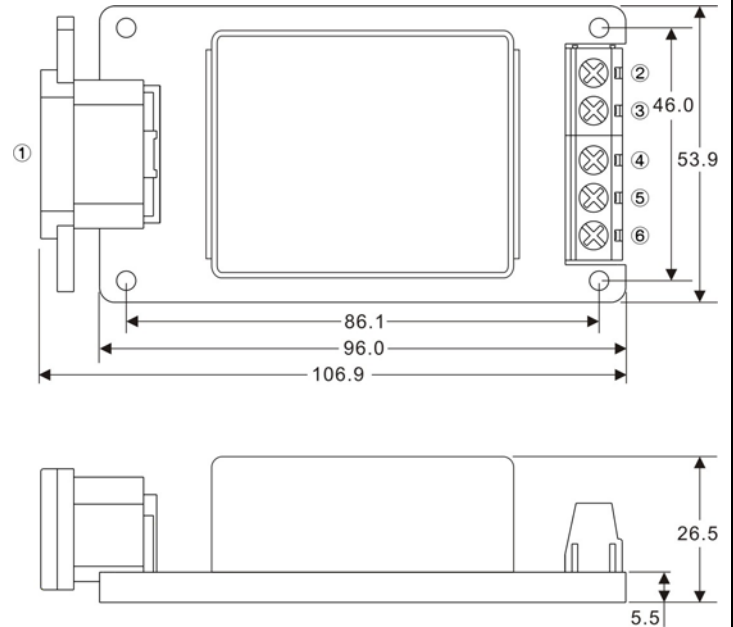

APC-A3


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT

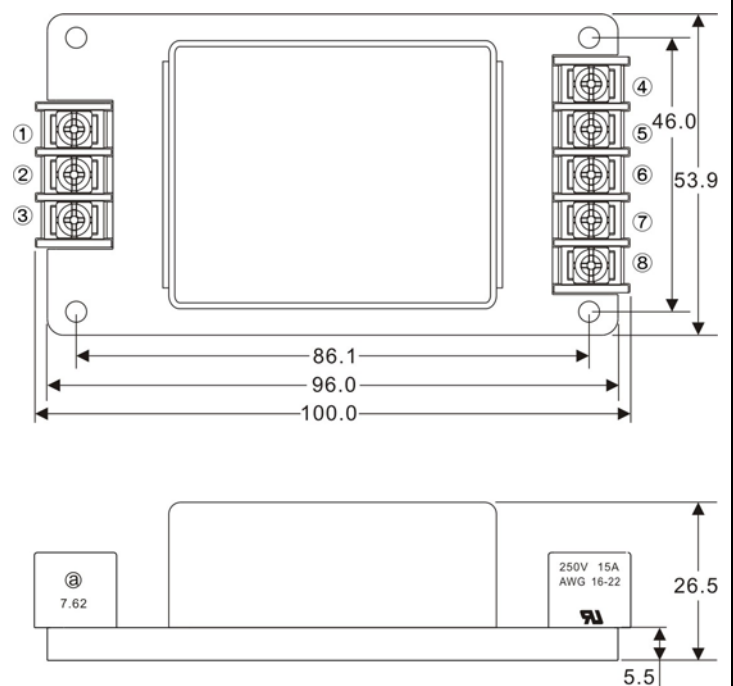


APC SERIES
5 Watts
APC-A4


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT

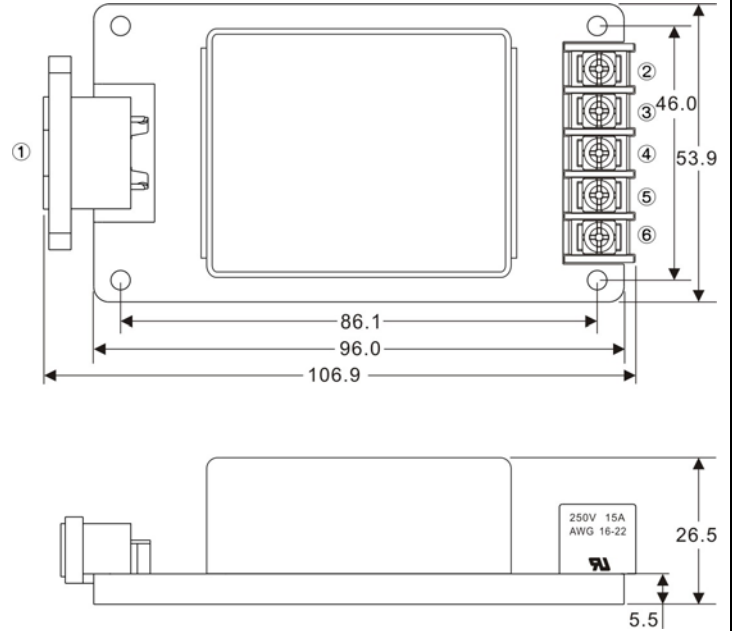

APC-A5


PIN#	Single	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT
5	-DC OUT	-DC OUT
6	NO CONNECT	COMMON
7	+DC OUT	+DC OUT
8	NO CONNECT	NO CONNECT

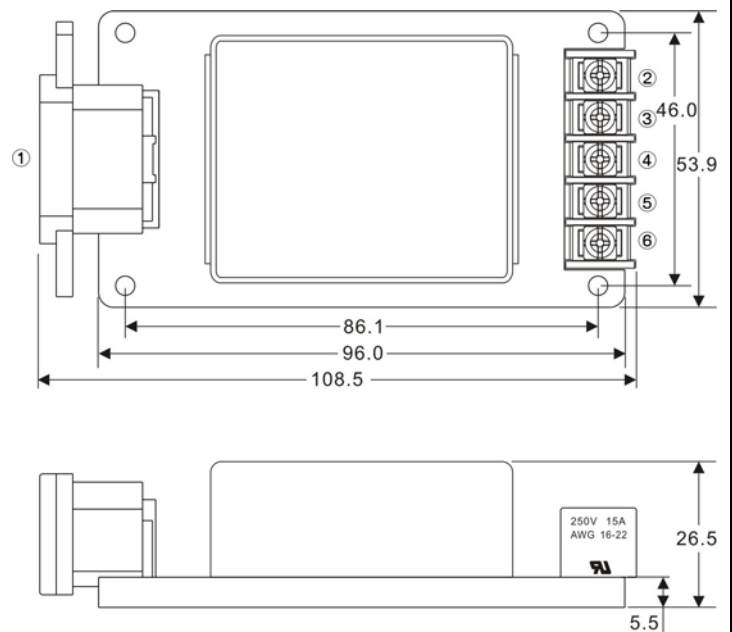


APC SERIES
5 Watts
APC-A6


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT


APC-A7


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, UL Approval
- 2-Years Product Warranty

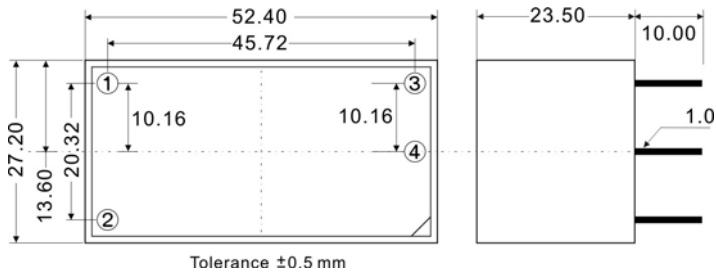


ELECTRICAL SPECIFICATIONS

Model No.	AFC-3.3S	AFC-5S	AFC-12S	AFC-15S	AFC-24S
Max Output Wattage (W)	10W	10W	10W	10W	10W
Input	Voltage				
	90-264 VAC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
220 mA max. (115 VAC) / 150 mA max. (230 VAC)					
Inrush Current (<2ms)					
10 A max. (115 VAC) / 20 A max. (230 VAC)					
Leakage Current					
0.25 mA max.					
Output	Voltage (V.DC.)				
	3.3V	5V	12V	15V	24V
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	2500	2000	833	667	417
	Line Regulation (LL-HL) (typ.)				
	±0.3%				
	Load Regulation (5-100%) (typ.)				
	±0.5%				
	Minimum Load				
	0%				
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
70%	72%	76%	75%	72%	
Hold-up Time					
15 ms min.					
Switching Frequency					
125 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
3000V					
Environment	Operating Temperature				
	-25°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
±0.02%/°C					
Humidity					
20-85% RH					
MTBF					
>330,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)				
	2.06 x 1.07 x 0.93 Inches (52.4 x 27.2 x 23.5 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
54 g					
Cooling Method					
Free air convection					
Genera	Vibration				
	10-55 Hz 0.5 mm width/ 1 minute cycle				
Shock					
20 G (3 directions each 3 times.)					
Safety	Agency Approvals				
UL/cUL, CE, CB					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 55024					

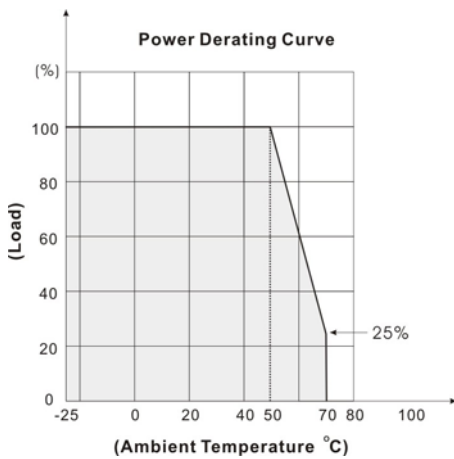
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)



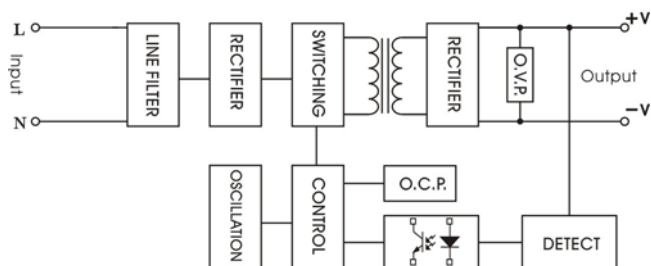
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



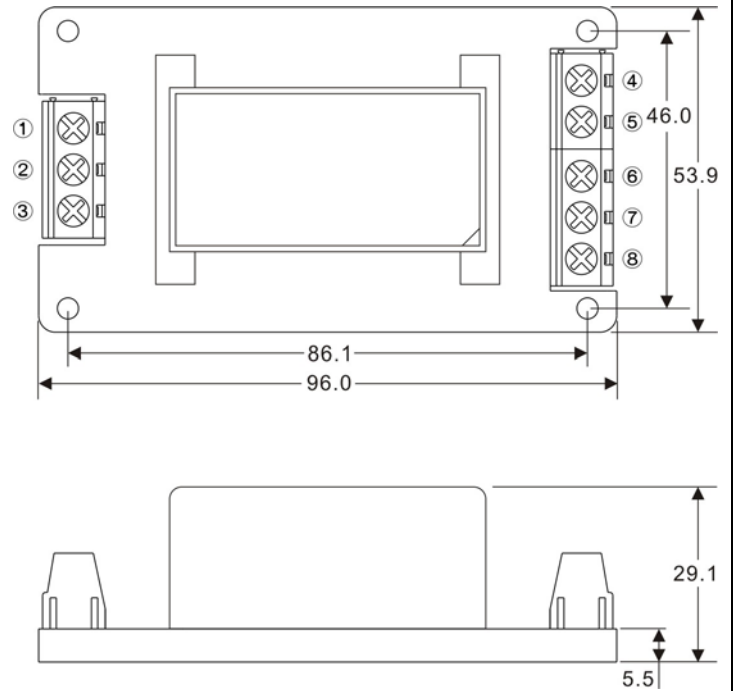
BLOCK DIAGRAM

Single Output

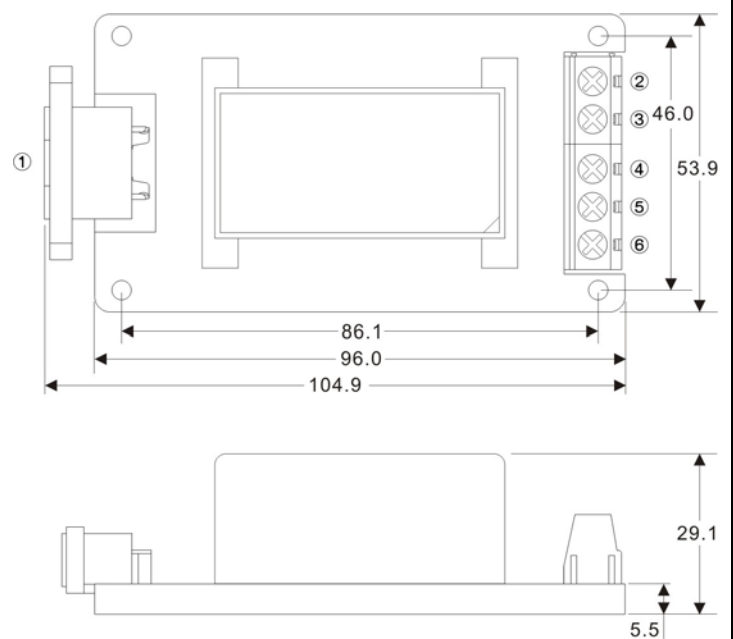


SCREW TERMINAL
AFC-A2


PIN#	Single
1	NO CONNECT
2	AC IN (N)
3	AC IN (L)
4.	NO CONNECT
5	+DC OUT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT


AFC-A3


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4.	-DC OUT
5	NO CONNECT
6	NO CONNECT



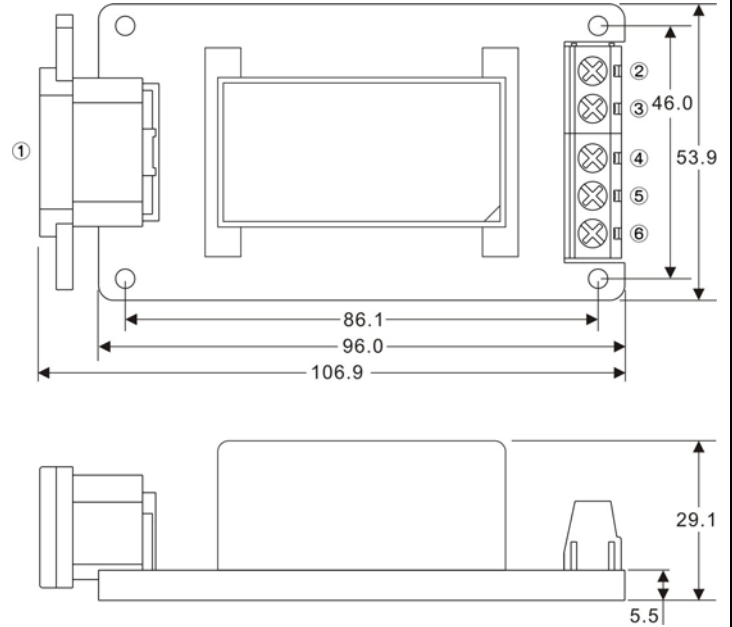
AFC SERIES

10 Watts

AFC-A4



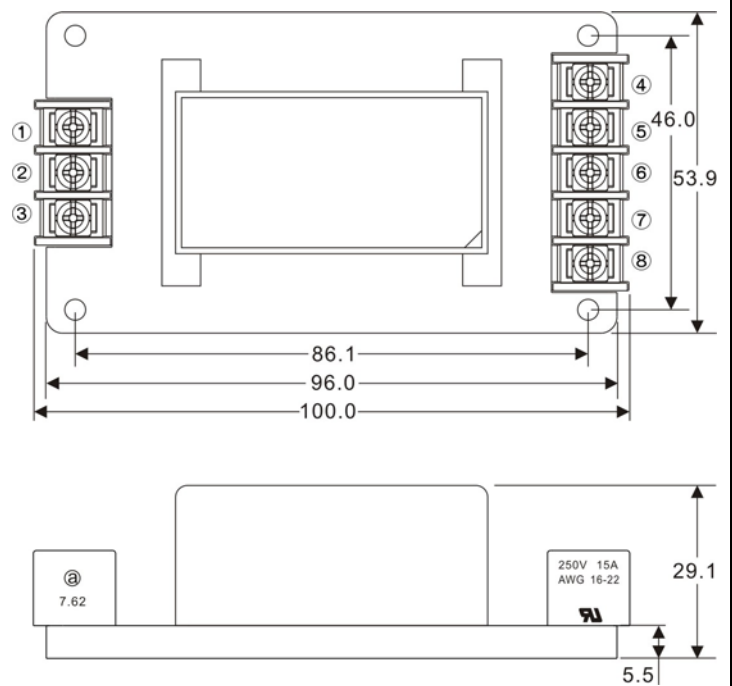
PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT



AFC-A5

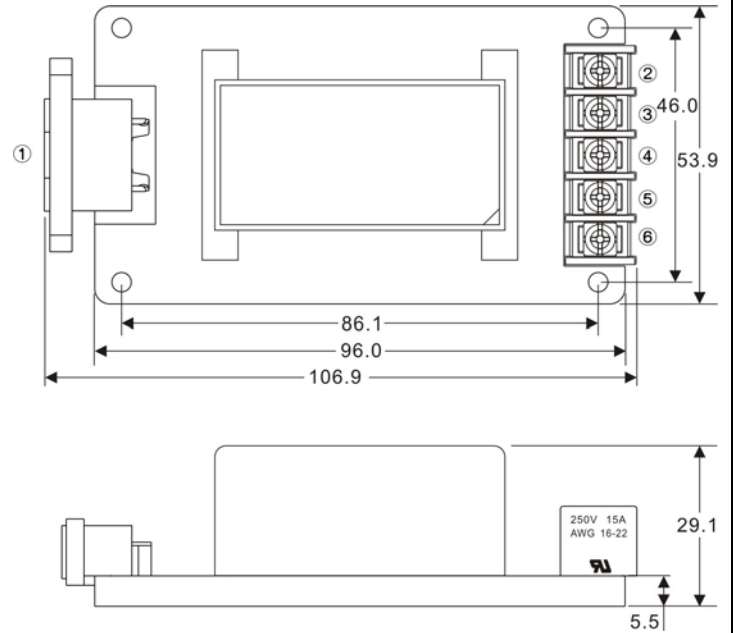


PIN#	Single
1	NO CONNECT
2	AC IN (N)
3	AC IN (L)
4	NO CONNECT
5	+DC OUT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT

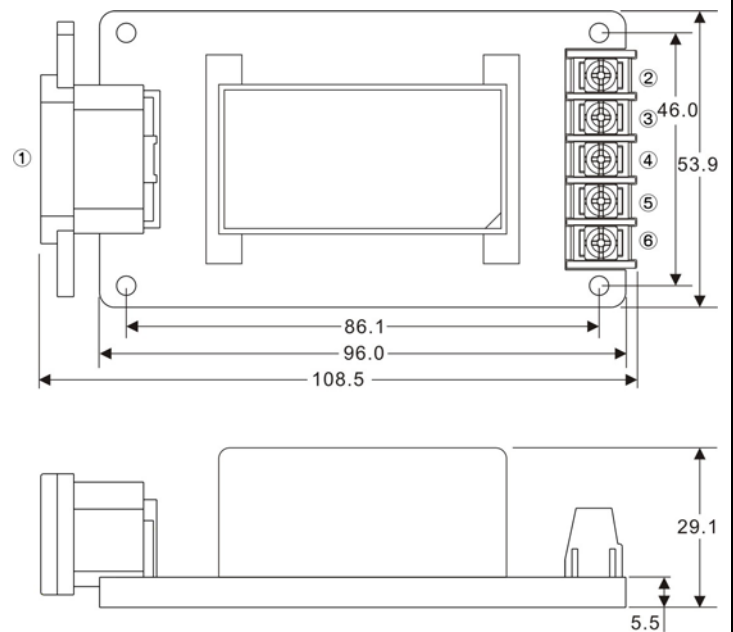


AFC SERIES
10 Watts
AFC-A6


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT


AFC-A7


PIN#	Single
1	AC IN
2	NO CONNECT
3	+DC OUT
4	-DC OUT
5	NO CONNECT
6	NO CONNECT



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, UL, TUV Approval
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	ATC-3.3S	ATC-5S	ATC-12S	ATC-15S	ATC-24S
Max Output Wattage (W)	10W	10W	10W	10W	10W
Input	Voltage				
	90-264 VAC or 120-370 VDC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	200 mA max. (115 VAC) / 130 mA max. (230 VAC)				
Inrush Current (<2ms)					
10 A max. (115 VAC) / 20 A max. (230 VAC)					
Leakage Current					
0.75 mA max.					
External Fuse (recommend)					
1.5 A slow blow type					
Output	Voltage (V.DC.)				
	3.3V	5V	12V	15V	24V
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	3000	2000	833	666	426
	Line Regulation (LL-HL) (typ.)				
	±0.3%				
	Load Regulation (5-100%) (typ.)				
	±0.5%				
	Minimum Load				
	4%	5%	5%	3%	5%
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
65%	71%	74%	71%	74%	
Hold-up Time					
15 ms min.					
Switching Frequency					
100 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
	3000V				
	Input-FG (V.AC)				
1500V					
Output-FG (V.AC)					
500V					
Environment	Operating Temperature				
	-25°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
±0.02%/°C					
Humidity					
95% RH					
MTBF					
>250,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)				
	2.52 x 1.77 x 0.85 Inches (64.0 x 45.0 x 21.5 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
100 g					
Cooling Method					
Free air convection					
Safety	Agency Approvals				
UL/cUL, CE, TUV					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 50082-1					

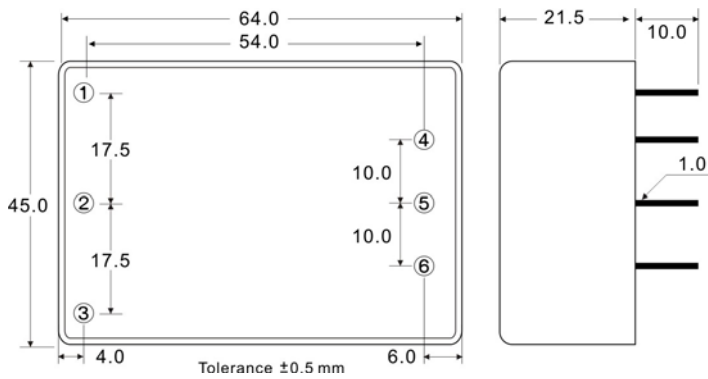
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

ELECTRICAL SPECIFICATIONS

Model No. (Dual Output)	ATC-5D	ATC-12D	ATC-15D	
Max Output Wattage (W)	8W	10W	10W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-440 Hz			
	Current (Full load)			
	200 mA max. (115 VAC) / 130 mA max. (230 VAC)			
Inrush Current (<2ms)				
10 A max. (115 VAC) / 20 A max. (230 VAC)				
Leakage Current				
0.75 mA max.				
External Fuse (recommend)				
1.5 A slow blow type				
Output	Voltage (V.DC.)	±5V	±12V	±15V
	Voltage Accuracy	±2%		
	Current (mA) max	±800	±380	±300
	Line Regulation (LL-HL) (typ.)	±0.3%		
	Load Regulation (5-100%) (typ.)	±0.5%		
	Minimum Load	1%	3%	1%
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple	<0.2% Vout +40mV max (Vp-p)		
	Noise	<0.5% Vout +50mV max (Vp-p)		
	Efficiency	71%	75%	72%
	Hold-up Time	15 ms min.		
	Switching Frequency	100 kHz		
Protection	Over Power Protection	Hiccup technique, auto-recovery		
	Over Voltage Protection	Zener diode clamp		
	Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)		
Isolation	Input-Output (V.AC)	3000V		
	Input-FG (V.AC)	1500V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-25°C...+70°C (with derating)		
	Storage Temperature	-40°C...+85°C		
	Temperature Coefficient	±0.02%/°C		
	Humidity	95% RH		
	MTBF	>250,000 h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	2.52 x 1.77 x 0.85 Inches (64.0 x 45.0 x 21.5 mm) Tolerance ±0.5 mm		
	Case Material	Plastic resin with Fiberglass (flammability to UL 94V-0)		
	Weight	100 g		
	Cooling Method	Free air convection		
Safety	Agency Approvals	UL/cUL, CE, TUV		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B		
	EMS (Noise Immunity)	EN 50082-1		

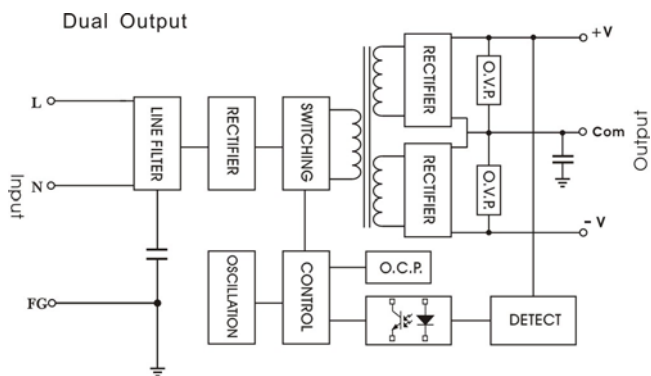
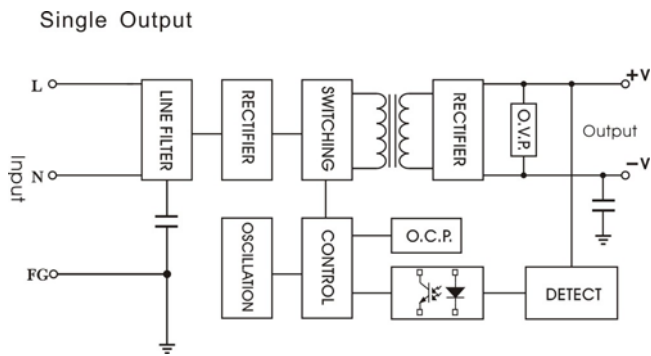
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

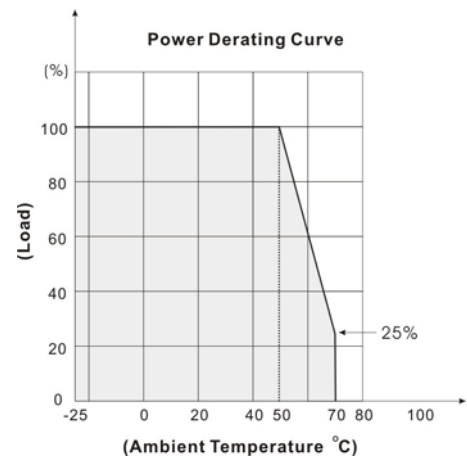


PIN#	SINGLE	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	-DC OUT	-DC OUT
5	NO PIN	COMMON
6	+DC OUT	+DC OUT

BLOCK DIAGRAM

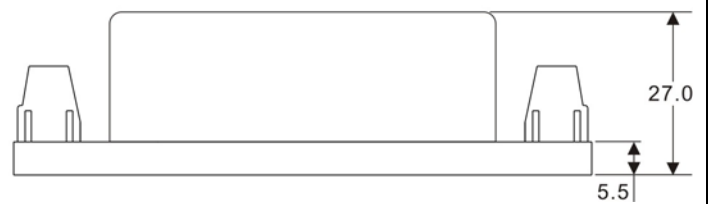
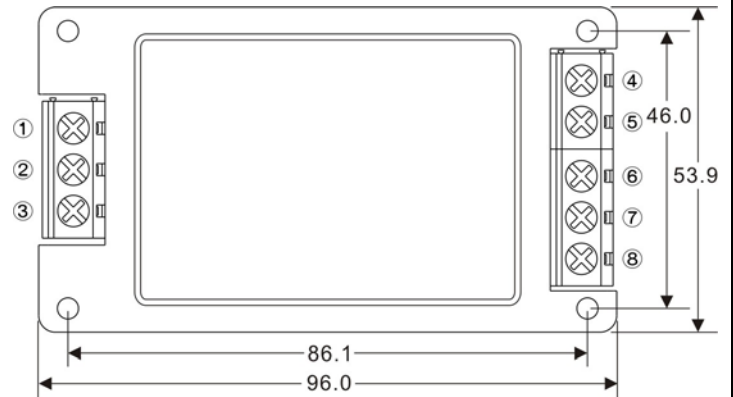


DERATING

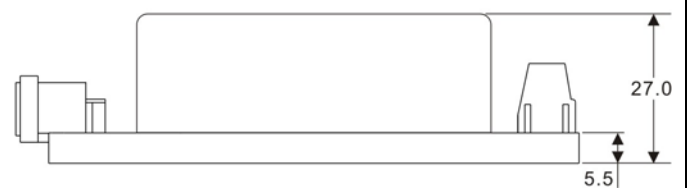
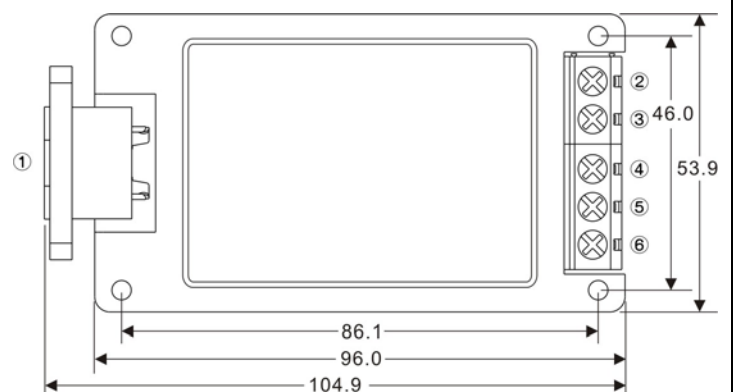


SCREW TERMINAL
ATC-A2


PIN#	Single	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT
5	-DC OUT	-DC OUT
6	NO CONNECT	COMMON
7	+DC OUT	+DC OUT
8	NO CONNECT	NO CONNECT

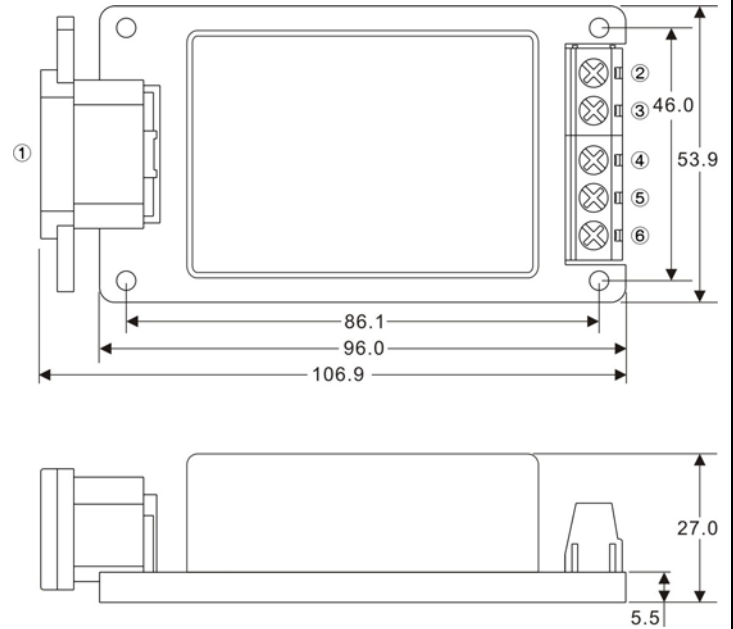

ATC-A3


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT

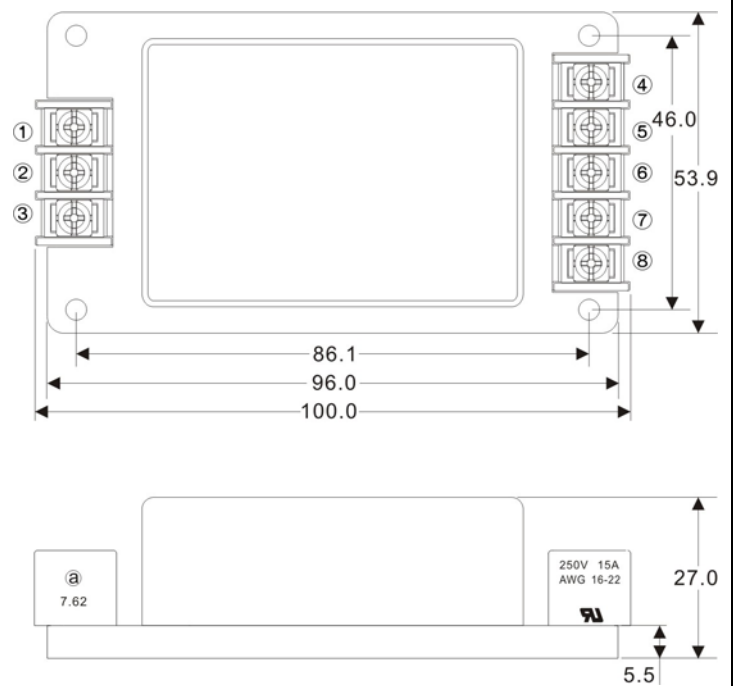


ATC SERIES
10 Watts
ATC-A4


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT

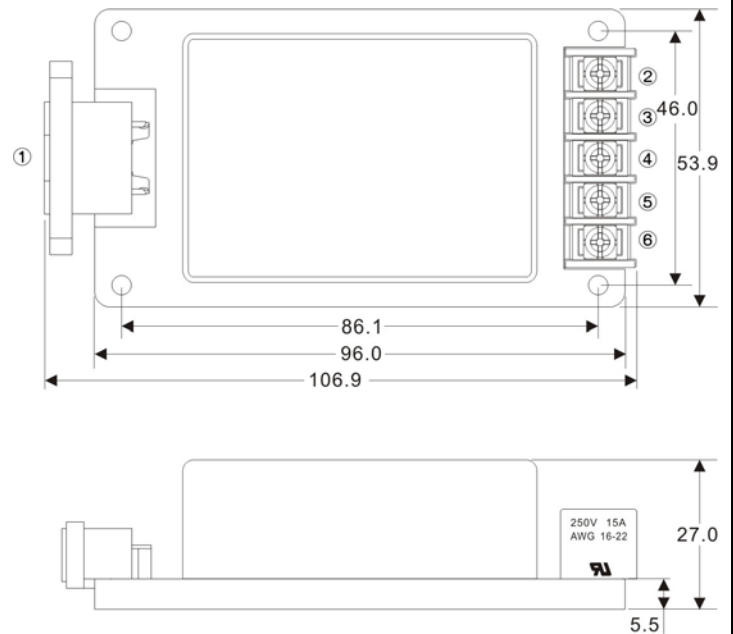

ATC-A5


PIN#	Single	Dual
1	FG	FG
2	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT
5	-DC OUT	-DC OUT
6	NO CONNECT	COMMON
7	+DC OUT	+DC OUT
8	NO CONNECT	NO CONNECT

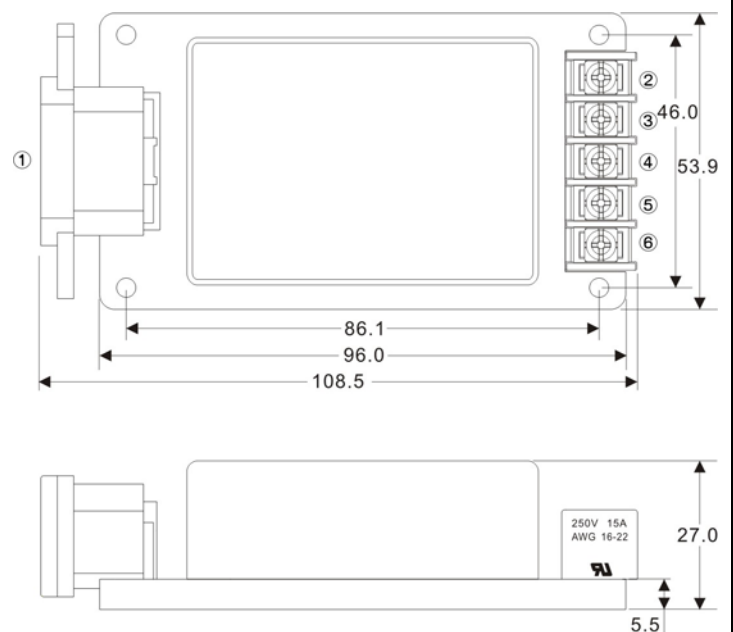


ATC SERIES
10 Watts
ATC-A6


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT


ATC-A7


PIN#	Single	Dual
1	AC IN	FG
2	NO CONNECT	NO CONNECT
3	-DC OUT	-DC OUT
4	NO CONNECT	COMMON
5	+DC OUT	+DC OUT
6	NO CONNECT	NO CONNECT



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, cUL, TUV Approval
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	ANC-5S	ANC-12S	ANC-15S	ANC-24S
Max Output Wattage (W)	15W	15W	15W	15W
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-440 Hz			
	Current (Full load)			
	280 mA max. (115 VAC) / 170 mA max. (230 VAC)			
Inrush Current (<2ms)				
10 A max. (115 VAC) / 20 A max. (230 VAC)				
Leakage Current				
0.75 mA max.				
External Fuse (recommend)				
1.5 A slow blow type				
Output	Voltage (V.DC.)			
	5V	12V	15V	24V
	Voltage Accuracy			
	±2%			
	Current (mA) max			
	3000	1250	1000	625
	Line Regulation (LL-HL) (typ.)			
	±0.5%			
	Load Regulation (5-100%) (typ.)			
	±0.5%			
	Minimum Load			
	4%	2%	0%	0%
Maximum Capacitive Load				
470-23,000µF depending on model				
Ripple				
<0.2% Vout +40mV max (Vp-p)				
Noise				
<0.5% Vout +50mV max (Vp-p)				
Efficiency				
70%	73%	73%	77%	
Hold-up Time				
15 ms min.				
Switching Frequency				
100 kHz				
Protection	Over Power Protection			
	Hiccup technique, auto-recovery			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Hiccup mode, indefinite (automatic recovery)				
Isolation	Input-Output (V.AC)			
	3000V			
	Input-FG (V.AC)			
1500V				
Output-FG (V.AC)				
500V				
Environment	Operating Temperature			
	-25°C...+70°C (with derating)			
	Storage Temperature			
	-40°C...+85°C			
	Temperature Coefficient			
±0.02%/°C				
Humidity				
95% RH				
MTBF				
>200,000 h @ 25°C (MIL-HDBK-217F)				
Physical	Dimension (L x W x H)			
	2.91 x 2.13 x 0.87 Inches (74.0 x 54.0 x 22.0 mm) Tolerance ±0.5 mm			
	Case Material			
	Plastic resin with Fiberglass (flammability to UL 94V-0)			
Weight				
140 g				
Cooling Method				
Free air convection				
Safety	Agency Approvals			
UL/cUL, CE, TUV				
EMC	EMI (Conducted & Radiated Emission)			
	EN 55022 class B			
EMS (Noise Immunity)				
EN 55024				

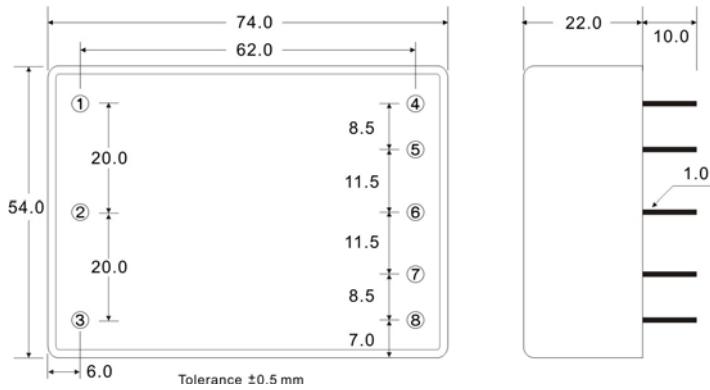
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

ELECTRICAL SPECIFICATIONS

Model No. (Dual / Triple Output)	ANC-5D	ANC-12D	ANC-15D	ANC-5S12D	ANC-5S15D		
Max Output Wattage (W)	15W	15W	15W	15W	15W		
Input	Voltage						
	90-264 VAC or 120-370 VDC						
	Frequency (Hz)						
	47-440 Hz						
	Current (Full load)						
	280 mA max. (115 VAC) / 170 mA max. (230 VAC)						
Inrush Current (<2ms)							
10 A max. (115 VAC) / 20 A max. (230 VAC)							
Leakage Current							
0.75 mA max.							
External Fuse (recommend)							
1.5 A slow blow type							
Output	Voltage (V.DC.)		±5V	±12V	±15V	5/±12	5/±15
	Voltage Accuracy			±5%		±2%	
	Current (mA) max		±1500	±650	±500	2000/±200	2000/±150
	Line Regulation (LL-HL) (typ.)			±0.5%		±1% / ±5%	
	Load Regulation (5-100%) (typ.)			±3%		±2% / ±5%	
	Minimum Load			0%		5V 10% (200 mA)	
	Maximum Capacitive Load					470-23,000µF depending on model	
	Ripple					<0.2% Vout +40mV max (Vp-p)	
	Noise					<0.5% Vout +50mV max (Vp-p)	
	Efficiency		71%	76%	65%	68%	68%
	Hold-up Time					15 ms min.	
	Switching Frequency					100 kHz	
	Protection	Over Power Protection					Hiccup technique, auto-recovery
Over Voltage Protection					Zener diode clamp		
Short Circuit Protection					Hiccup mode, indefinite (automatic recovery)		
Isolation	Input-Output (V.AC)					3000V	
	Input-FG (V.AC)					1500V	
	Output-FG (V.AC)					500V	
Environment	Operating Temperature					-25°C...+70°C (with derating)	
	Storage Temperature					-40°C...+85°C	
	Temperature Coefficient					±0.02%/°C	
	Humidity					95% RH	
	MTBF					>200,000 h @ 25°C (MIL-HDBK-217F)	
Physical	Dimension (L x W x H)					2.91 x 2.13 x 0.87 Inches (74.0 x 54.0 x 22.0 mm) Tolerance ±0.5 mm	
	Case Material					Plastic resin with Fiberglass (flammability to UL 94V-0)	
	Weight					140 g	
	Cooling Method					Free air convection	
Safety	Agency Approvals					UL/cUL, CE, TUV	
EMC	EMI (Conducted & Radiated Emission)					EN 55022 class B	
	EMS (Noise Immunity)					EN 55024	

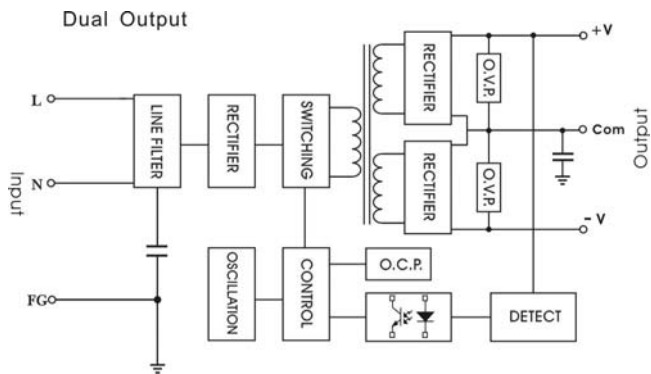
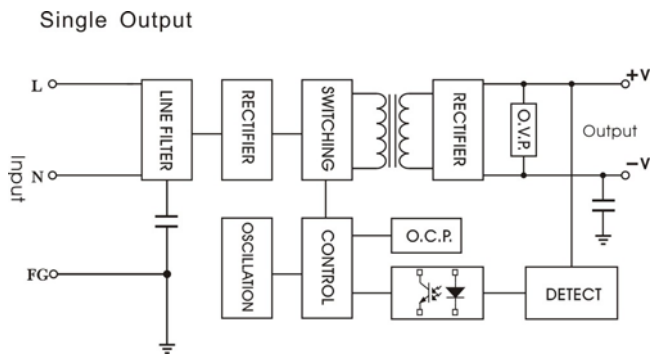
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

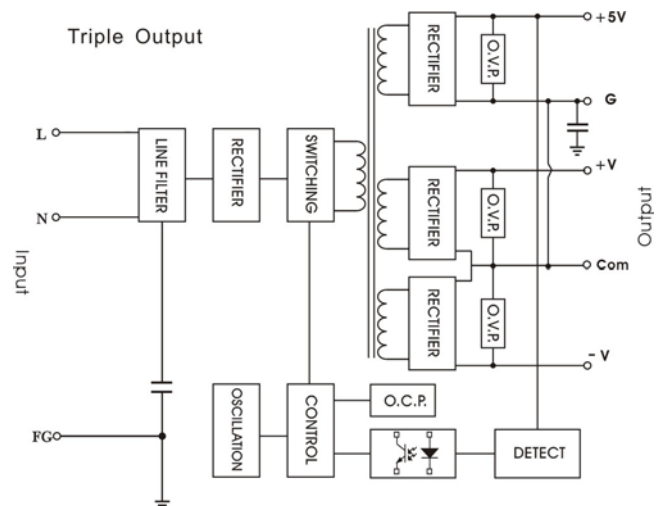
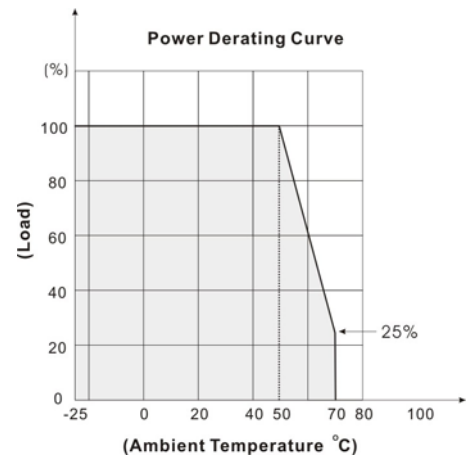


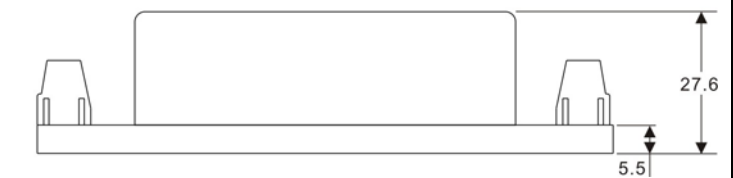
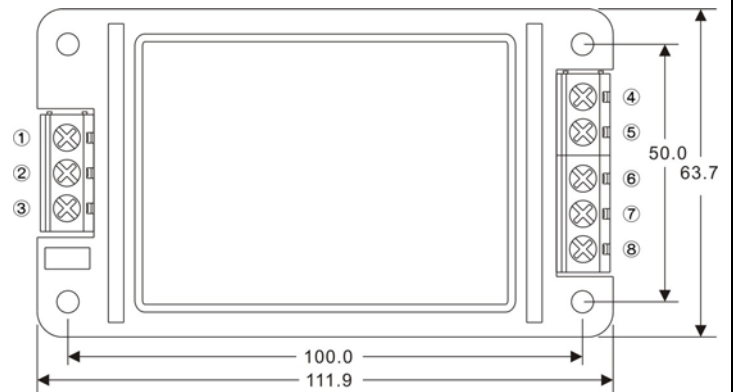
PIN#	SINGLE	Dual	Triple
1	FG	FG	FG
2	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)
4	NO PIN	NO PIN	-DC OUT
5	-DC OUT	-DC OUT	COMMON
6	NO PIN	COMMON	+DC OUT
7	+DC OUT	+DC OUT	+5V RTN
8	NO PIN	NO PIN	+5V OUT

BLOCK DIAGRAM

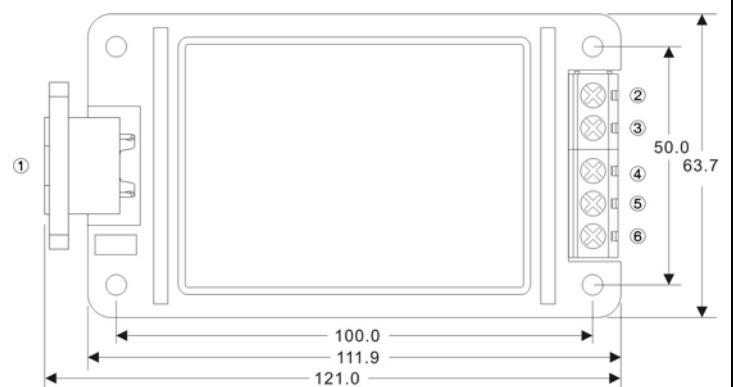


DERATING

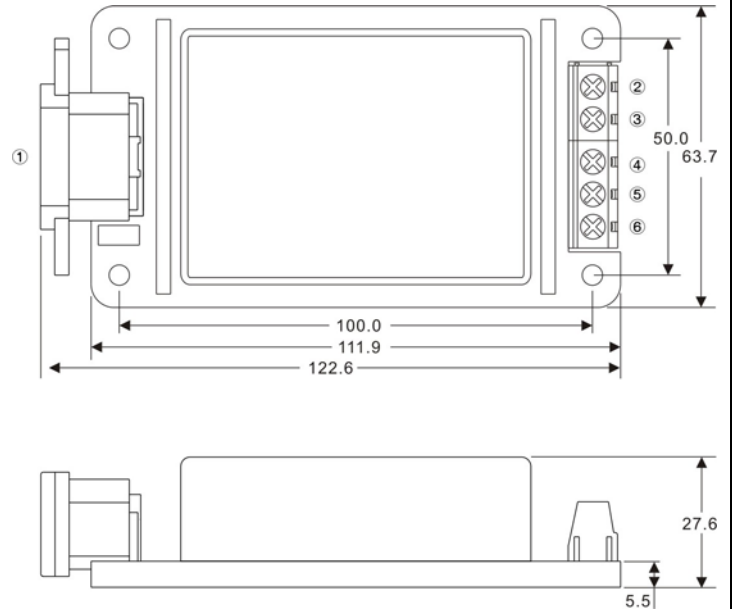


ANC SERIES
15 Watts
SCREW TERMINAL
ANC-A2


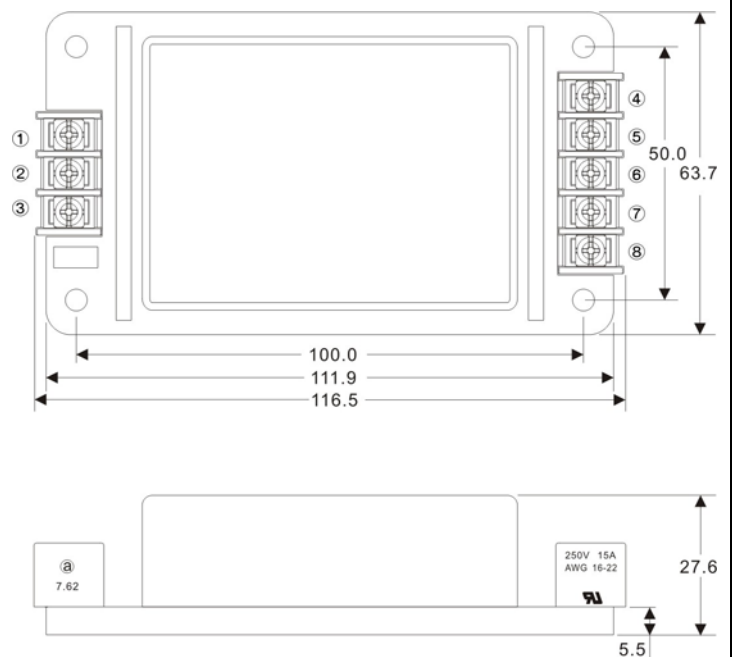
PIN#	Single	Dual	Triple
1	FG	FG	FG
2	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT	-DC OUT
5	-DC OUT	-DC OUT	COMMON
6	NO CONNECT	COMMON	+DC OUT
7	+DC OUT	+DC OUT	+5V RTN
8	NO CONNECT	NO CONNECT	+5V OUT

ANC-A3


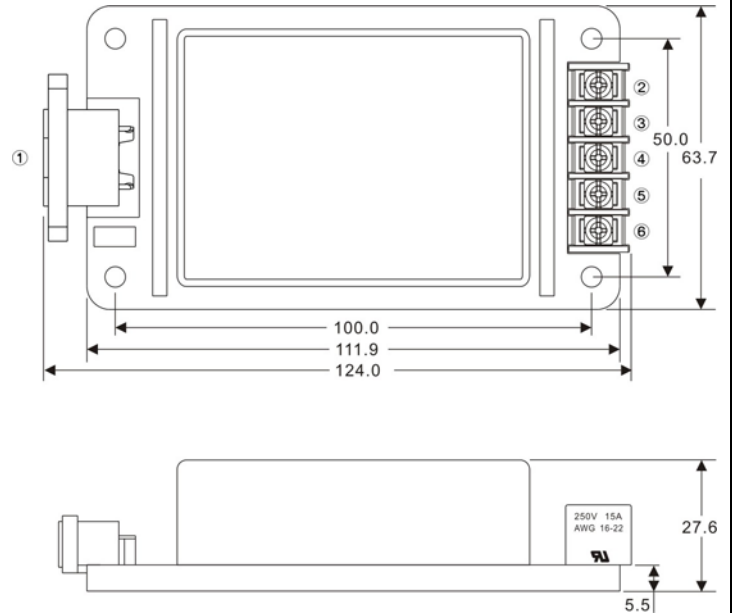
PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	-DC OUT
3	-DC OUT	-DC OUT	COMMON
4	NO CONNECT	COMMON	+DC OUT
5	+DC OUT	+DC OUT	+5V RTN
6	NO CONNECT	NO CONNECT	+5V OUT

ANC SERIES
15 Watts
ANC-A4


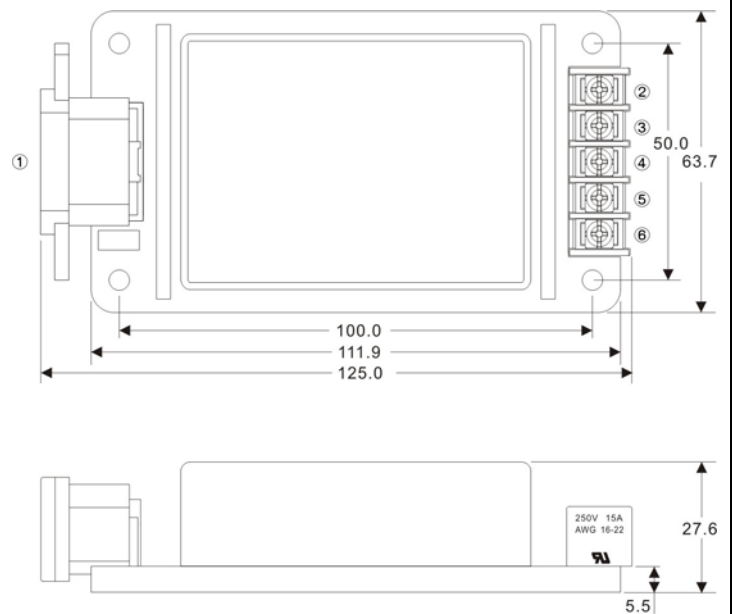
PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	-DC OUT
3	-DC OUT	-DC OUT	COMMON
4	NO CONNECT	COMMON	+DC OUT
5	+DC OUT	+DC OUT	+5V RTN
6	NO CONNECT	NO CONNECT	+5V OUT

ANC-A5


PIN#	Single	Dual	Triple
1	FG	FG	FG
2	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)
4	NO CONNECT	NO CONNECT	-DC OUT
5	-DC OUT	-DC OUT	COMMON
6	NO CONNECT	COMMON	+DC OUT
7	+DC OUT	+DC OUT	+5V RTN
8	NO CONNECT	NO CONNECT	+5V OUT

ANC SERIES
15 Watts
ANC-A6


PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	-DC OUT
3	-DC OUT	-DC OUT	COMMON
4	NO CONNECT	COMMON	+DC OUT
5	+DC OUT	+DC OUT	+5V RTN
6	NO CONNECT	NO CONNECT	+5V OUT

ANC-A7


PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	-DC OUT
3	-DC OUT	-DC OUT	COMMON
4	NO CONNECT	COMMON	+DC OUT
5	+DC OUT	+DC OUT	+5V RTN
6	NO CONNECT	NO CONNECT	+5V OUT

KEY FEATURES

- Switching Power Module for PCB Mountable
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- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
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- High Efficiency
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- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS


Model No. (Single Output)	AKC-3.3S	AKC-5S	AKC-7.35S	AKC-9S	AKC-12S	AKC-15S	AKC-24S	
Max output wattage (W)	14.85W	20W	20W	20W	20W	20W	20W	
Output	Voltage (V.DC.)	3.3V	5V	7.35V	9V	12V	15V	24V
	Current (mA) max	4500	4000	2730	2230	1670	1340	840
	Voltage set accuracy	±2%	±2%	±2%	±2%	±2%	±2%	±2%
	Line Regulation (LL-HL) (typ.)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Load Regulation (0-100%) (typ.)	1%	1%	1%	1%	1%	1%	1%
	Minimum load	0%	0%	0%	0%	0%	0%	0%
	Efficiency (typ.)	75%	79%	82%	82%	83%	83%	84%
	Capacitor Load (max.)	6900 uF	6900 uF	2200 uF	1200 uF	560 uF	330 uF	100 uF

Model No. (Dual Output)	AKC-5D		AKC-12D		AKC-15D		
Max output wattage (W)	20W		20W		20W		
Output	Output 1	Output 2	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	+5V	-5V	+12V	-12V	+15V	-15V
	Current (mA) max	2000	2000	833	833	667	667
	Voltage set accuracy	±2%		±2%		±2%	
	Line Regulation (LL-HL) (typ.)	±0.5%		±0.5%		±0.5%	
	Load Regulation (10-100%) (typ.)	±3%		±3%		±3%	
	Minimum load	0%		0%		0%	
	Efficiency (typ.)	79%		82%		82%	
	Capacitor Load (max.)	±4700 uF		±560 uF		±330 uF	

Model No. (Triple Output)	AKC-5S12D			AKC-5S15D			
Max output wattage (W)	20W			20W			
Output	Output 1	Output 2	Output 3	Output 1	Output 2	Output 3	
	Voltage (V.DC.)	5	+12	-12	5	+15	-15
	Current (mA) max	2800	250	250	2800	200	200
	Voltage set accuracy	±2%	±2%		±2%	±2%	
	Line Regulation (LL-HL) (typ.)	1%	5%		1%	5%	
	Load Regulation (20-100%) (typ.)	2%	5%		2%	5%	
	Minimum load	10%			10%		
	Efficiency (typ.)	79%			79%		
Capacitor Load (max.)	3000 uF / ±220 uF			3000 uF / ±150 uF			

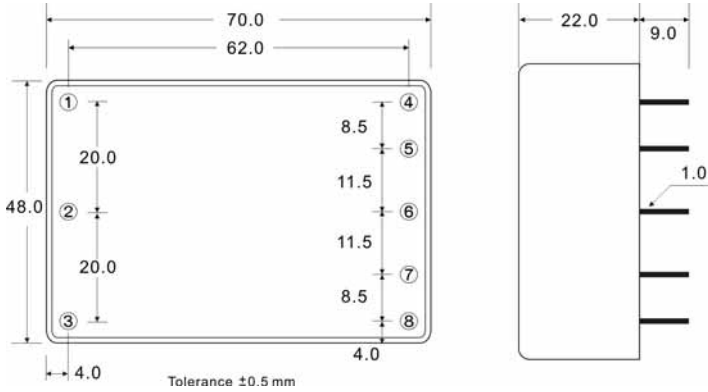
Input	Voltage	90-264 VAC or 100-375 VDC
	Frequency (Hz)	47-440 Hz
	Current (Full load)	380 mA max. (115 VAC) / 240 mA max. (230 VAC)
	Inrush current (<2ms)	30 A max. (115 VAC) / 50 A max. (230 VAC)
	Leakage Current	0.75 mA max.
	External Fuse (recommend)	2 A slow blow type
	Power Saving	230V < 0.5W
Output	Ripple	<0.2% Vout +40mV max (Vp-p)
	Noise	<0.5% Vout +50mV max (Vp-p)
	Hold-up time (typ.)	13 ms min.
	Switching frequency	100 kHz
Protection	Over current protection	Above 105% rated output power
	Over voltage protection	Zener diode clamp
	Short circuit protection	Hiccup mode, indefinite (automatic recovery)
Isolation	Input-Output (V.AC)	3000V
	Input-FG (V.AC)	1500V
	Output-FG (V.AC)	500V
Environment	Operating temperature	-25°C...+70°C (with derating)
	Storage temperature	-40°C...+85°C
	Temperature coefficient	0.02%/°C
	Humidity	95% RH
	MTBF	>200,000 h @ 25°C (MIL-HDBK-217F)
Physical	Dimension (L x W x H)	2.76 x 1.89 x 0.87 Inches (70.0 x 48.0 x 22.0 mm) Tolerance ±0.5 mm
	Case Material	Plastic resin + Fiberglass (flammability to UL 94V-0)
	Weight	110 g
	Cooling method	Free air convection
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B
	EMS (Noise Immunity)	EN 55024

1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

Note

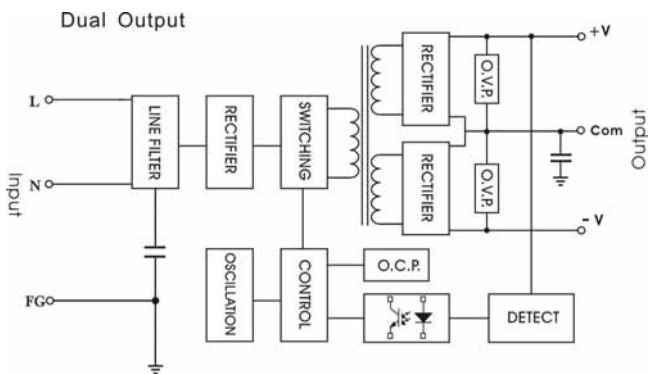
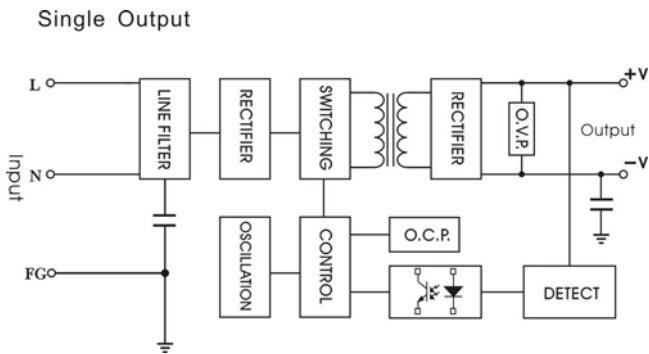
1. The triple output required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices; however they may not meet all listed specification.
2. Load regulation for triple output:
Main output (V1): 20% to 100% with 20% to 100% balanced on auxiliaries.
Auxiliary outputs (V2 and V3): 20% to 100% balanced on all outputs.
3. Cross regulation for dual output: asymmetrical load 25% / 100% FL
Cross regulation for triple output:
Main output 100% load, auxiliary 100%, other auxiliary 25% to 100%.
Auxiliary outputs (V2 and V3): main output 100% load, auxiliary 100%, other auxiliary 25% to 100% or main output 25%, auxiliary 25%, other auxiliary 25% to 100%.

MECHANICAL DIMENSION (Top View)

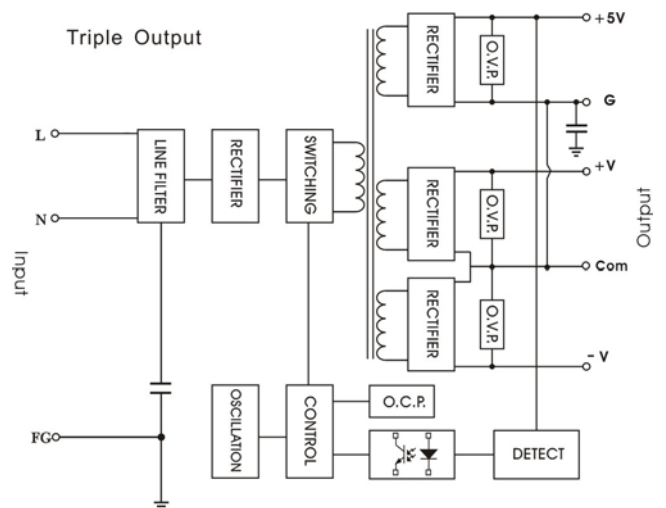
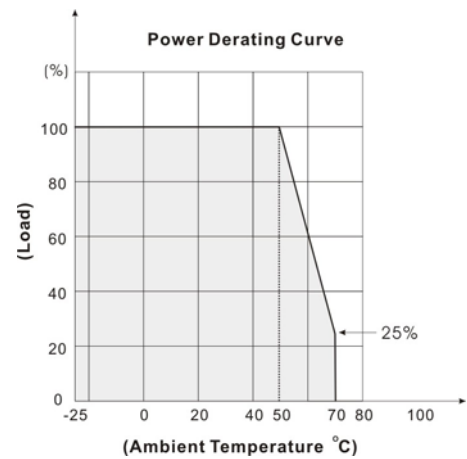


PIN#	SINGLE	Dual	Triple
1	FG	FG	FG
2	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)
4	NO PIN	NO PIN	-DC OUT
5	-DC OUT	-DC OUT	COMMON
6	NO PIN	COMMON	+DC OUT
7	+DC OUT	+DC OUT	+5V RTN
8	NO PIN	NO PIN	+5V OUT

BLOCK DIAGRAM



DERATING



KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
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- High Efficiency
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- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	ASC-3.3S	ASC-5S	ASC-12S	ASC-15S	ASC-24S
Max Output Wattage (W)	20W	30W	30W	30W	30W
Input	Voltage				
	90-264 VAC or 120-370 VDC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	520 mA max. (115 VAC) / 320 mA max. (230 VAC)				
Inrush Current (<2ms)					
10 A max. (115 VAC) / 20 A max. (230 VAC)					
Leakage Current					
0.75 mA max.					
External Fuse (recommend)					
1.5 A slow blow type					
Output	Voltage (V.DC.)				
	3.3V	5V	12V	15V	24V
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	6000	6000	2500	2000	1250
	Line Regulation (LL-HL) (typ.)				
	±1%				
	Load Regulation (5-00%) (typ.)				
	±1%				
	Minimum Load				
5%	4%	2%	2%	2%	
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
70%	75%	80%	80%	77%	
Hold-up Time					
15 ms min.					
Switching Frequency					
100 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
3000 V					
Environment	Operating Temperature				
	-25°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
±0.02%/°C					
Humidity					
95% RH					
MTBF					
>200,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)				
	3.5 x 2.5 x 0.98 Inches (89.0 x 63.5 x 25.0 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
220 g					
Cooling Method					
Free air convection					
Safety	Agency Approvals				
UL/cUL, CE, TUV, CB					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 55024					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

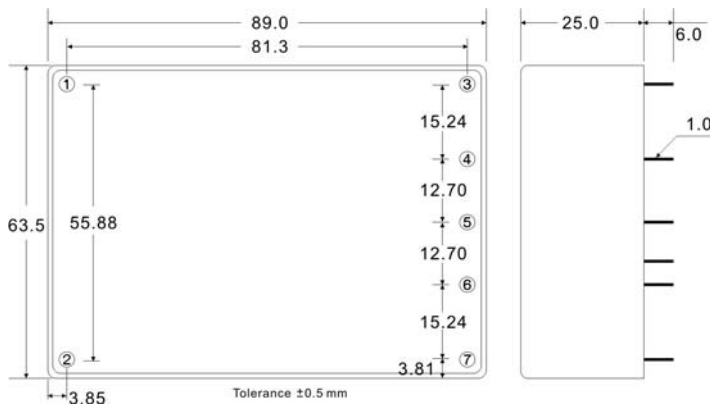
ELECTRICAL SPECIFICATIONS

Model No. (Dual \ Triple Output)	ASC-5D	ASC-12D	ASC-15D	ASC-5S12S	ASC-5S12D	ASC-5S15D		
Max Output Wattage (W)	30W	30W	30W	30W	30W	30W		
Input	Voltage							
	90-264 VAC or 120-370 VDC							
	Frequency (Hz)							
	47-440 Hz							
	Current (Full load)							
	520 mA max. (115 VAC) / 320 mA max. (230 VAC)							
Inrush Current (<2ms)								
10 A max. (115 VAC) / 20 A max. (230 VAC)								
Leakage Current								
0.75 mA max.								
External Fuse (recommend)								
1.5 A slow blow type								
Output	Voltage (V.DC.)		±5V	±12V	±15V	5/12	5/±12	5/±15
	Voltage Accuracy		±5%			±2%		
	Current (mA) max		±3000	±1250	±1000	3000/1250	3000/±630	3000/±500
	Line Regulation (LL-HL) (typ.)		±1%			±1% / ±5%		
	Load Regulation (5-00%) (typ.)		±3%			±2% / ±6%		
	Minimum Load		2%	3%	1%	20%	20%	20%
	Maximum Capacitive Load		470-23,000µF depending on model					
	Ripple		<0.2% Vout +40mV max (Vp-p)					
	Noise		<0.5% Vout +50mV max (Vp-p)					
	Efficiency		73%	78%	76%	77%	77%	76%
	Hold-up Time		15 ms min.					
	Switching Frequency		100 kHz					
	Protection	Over Power Protection		Hiccup technique, auto-recovery				
Over Voltage Protection		Zener diode clamp						
Short Circuit Protection		Hiccup mode, indefinite (automatic recovery)						
Isolation	Input-Output (V.AC)		3000 V					
Environment	Operating Temperature		-25°C...+70°C (with derating)					
	Storage Temperature		-40°C...+85°C					
	Temperature Coefficient		±0.02%/°C					
	Humidity		95% RH					
	MTBF		>200,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)		3.5 x 2.5 x 0.98 Inches (89.0 x 63.5 x 25.0 mm) Tolerance ±0.5 mm					
	Case Material		Plastic resin with Fiberglass (flammability to UL 94V-0)					
	Weight		220 g					
	Cooling Method		Free air convection					
Safety	Agency Approvals		UL/cUL, CE, TUV, CB					
EMC	EMI (Conducted & Radiated Emission)		EN 55022 class B					
	EMS (Noise Immunity)		EN 55024					

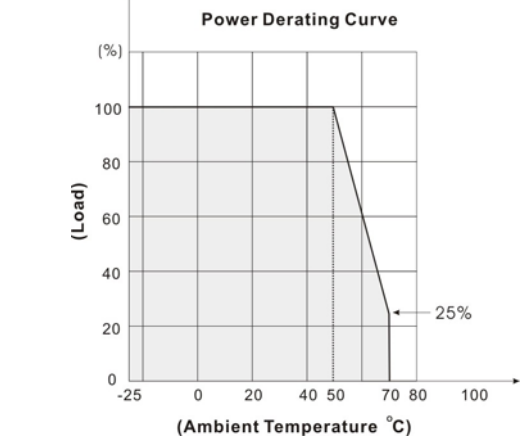
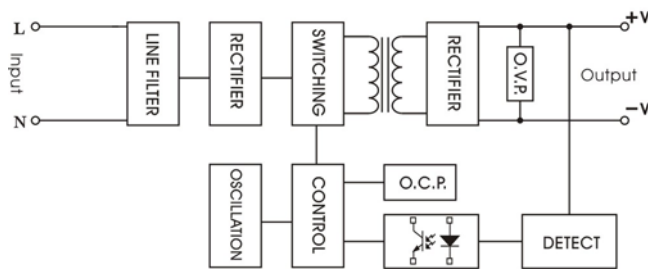
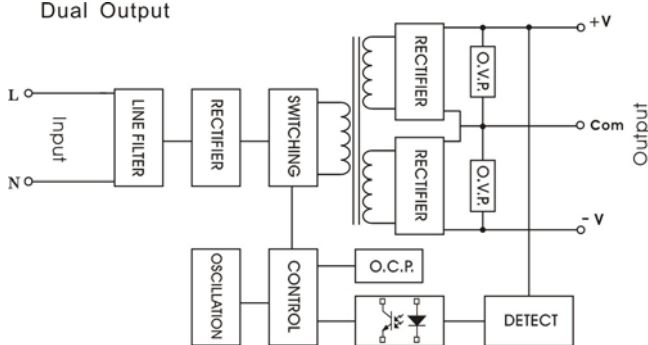
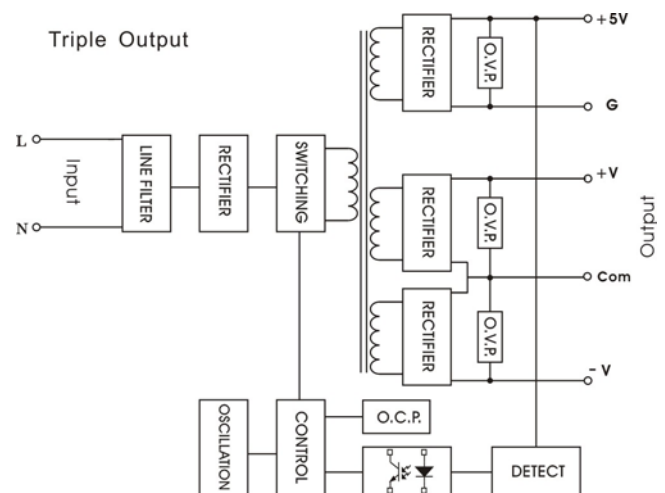
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

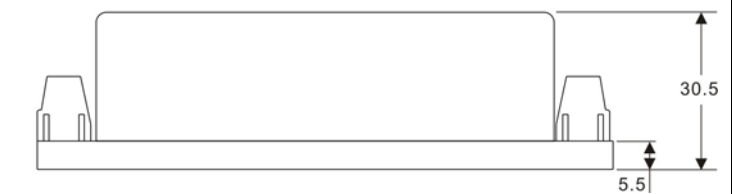
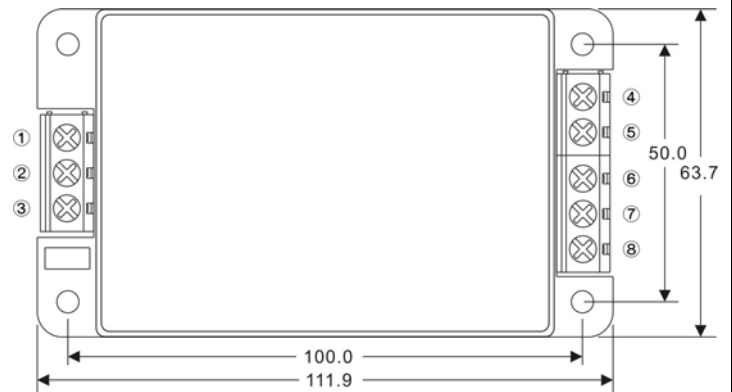
Note

- The triple output required a minimum 20% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices; however they may not meet all listed specification.
- Load regulation for triple output:
Main output (V1): 20% to 100% with 20% to 100% balanced on auxiliaries.
Auxiliary outputs (V2 and V3): 20% to 100% balanced on all outputs.
- Cross regulation for triple output:
Main output 100% load, auxiliary 100%, other auxiliary 25% to 100%.
Auxiliary outputs (V2 and V3): Main output 100% load, auxiliary 100%, other auxiliary 25% to 100% or main output 25%, auxiliary 25%, other auxiliary 25% to 100%.

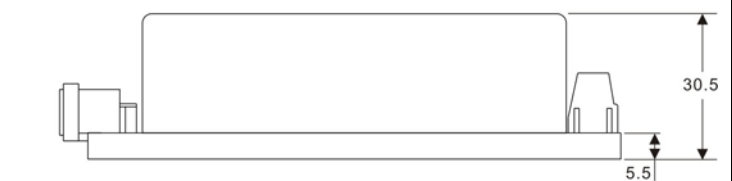
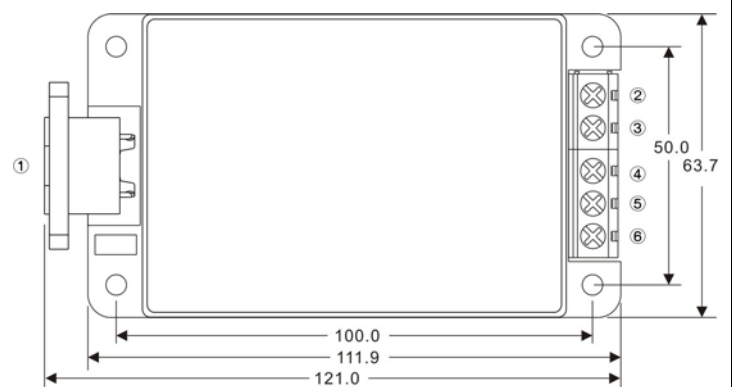
MECHANICAL DIMENSION (Top View)


PIN#	Single	Dual	5S/12S	Triple
1	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	+DC OUT	+DC OUT	+12V OUT	+DC OUT
4	NO PIN	NO PIN	+5V OUT	+5V OUT
5	-DC OUT	COMMON	+12V RTN	COMMON
6	NO PIN	NO PIN	+5 VRTN	+5V RTN
7	NOCONNECT	-DC OUT	NO PIN	-DC OUT

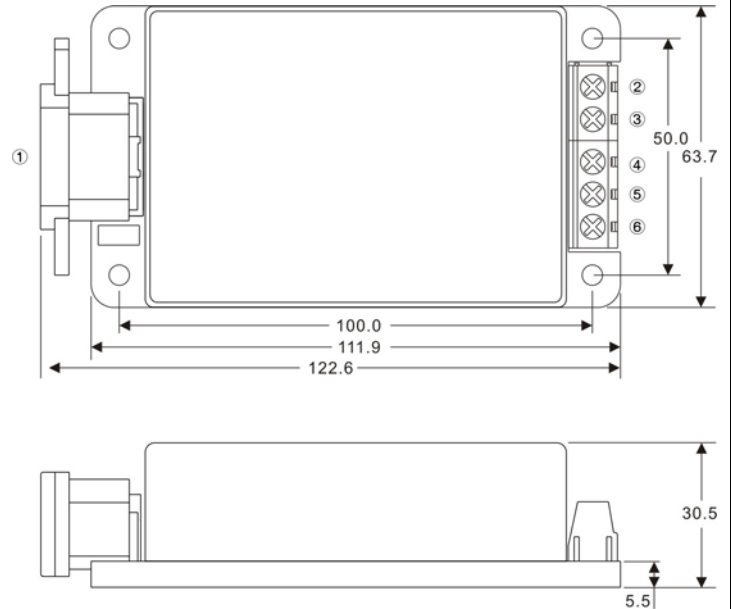
BLOCK DIAGRAM
DERATING
Single Output

Dual Output

Triple Output


SCREW TERMINAL
ASC-A2


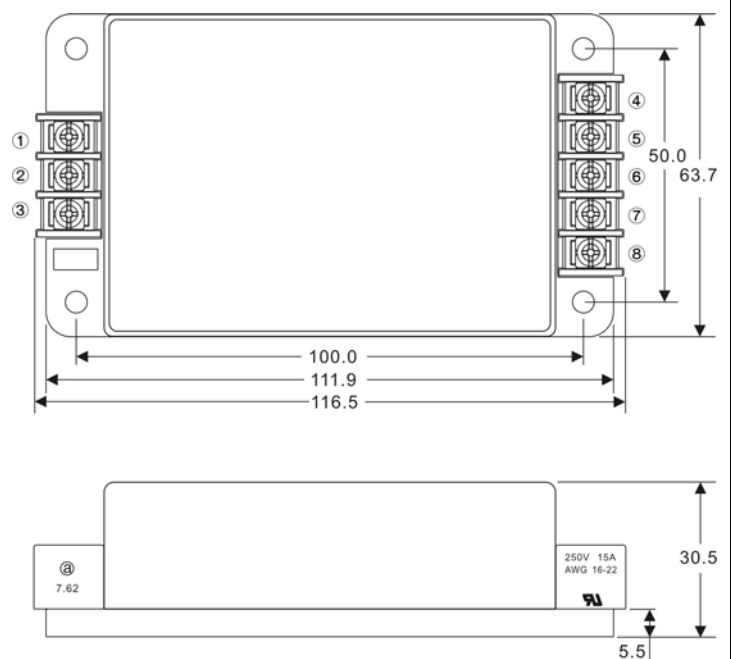
PIN#	Single	Dual	5S/12S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
4	+DC OUT	+DC OUT	+12V OUT	+DC OUT
5	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
6	-DC OUT	COMMON	+12V RTN	COMMON
7	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

ASC-A3


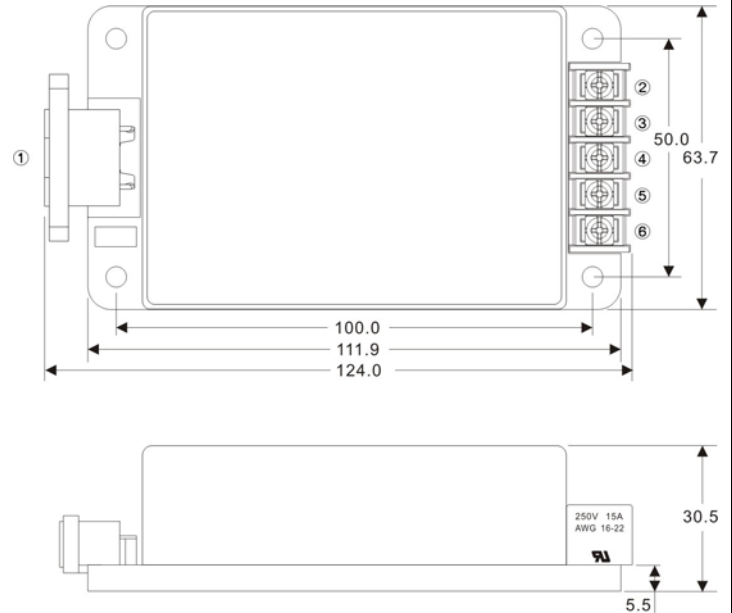
PIN#	Single	Dual	5S/12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

ASC-A4


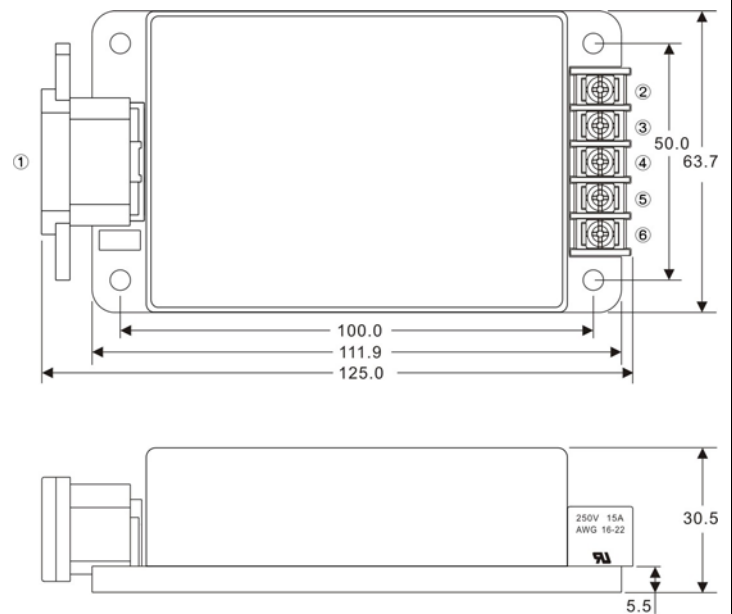
PIN#	Single	Dual	5S/12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

ASC-A5


PIN#	Single	Dual	5S/12S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
4	+DC OUT	+DC OUT	+12V OUT	+DC OUT
5	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
6	-DC OUT	COMMON	+12V RTN	COMMON
7	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

ASC-A6


PIN#	Single	Dual	5S/12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

ASC-A7


PIN#	Single	Dual	5S/12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NOCONNECT	NOCONNECT	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NOCONNECT	NOCONNECT	+5V RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

KEY FEATURES

- Switching Power Modules for PCB Mounting
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, UL, Approval
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	AJC-3.3S	AJC-5S	AJC-9S	AJC-12S	AJC-15S	AJC-24S	
Max output wattage (W)	26.4W	40W	40W	40W	40W	40W	
Output	Voltage (V.DC.)	3.3V	5V	9V	12V	15V	24V
	Current (mA) max	8000	8000	4444	3333	2666	1667
	Voltage set accuracy	±2%	±2%	±2%	±2%	±2%	±2%
	Line regulation (Typ.)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Load regulation (1-100%) (Typ.)	1%	1%	1%	1%	1%	1%
	Minimum load	1%	1%	1%	1%	1%	1%
	Efficiency (Typ)	75%	79%	82%	83%	83%	83%

Model No. (Dual Output)	AJC-5D		AJC-12D		AJC-15D		
Max output wattage (W)	40W		40W		40W		
Output	Output 1	Output 2	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	+5V	-5V	+12V	-12V	+15V	-15V
	Current (mA) max	4000	4000	1666	1666	1333	1333
	Voltage set accuracy	±2%		±2%		±2%	
	Line regulation (Typ.)	0.5%		0.5%		0.5%	
	Load regulation (10-100%) (Typ.)	1% (symmetric load)		1% (symmetric load)		1% (symmetric load)	
	Cross regulation (Typ.)	5%		5%		5%	
	Minimum load	10%		10%		10%	
	Efficiency (Typ)	79%		83%		83%	

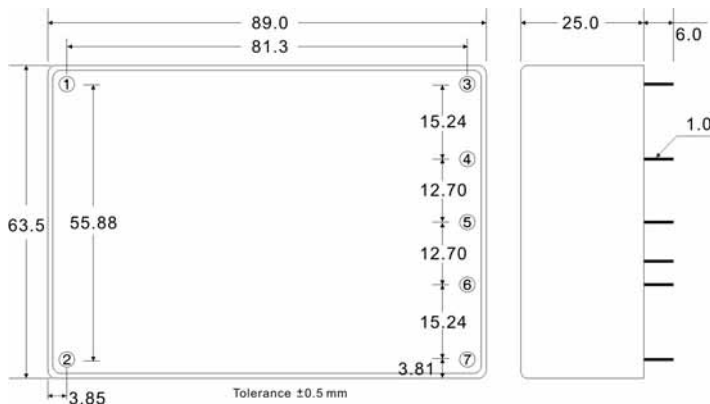
Model No. (Dual Output)	AJC-5S12S		AJC-5S24S		
Max output wattage (W)	40W		40W		
Output	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	5V	12V	5V	24V
	Current (mA) max	5000	1250	5000	625
	Voltage set accuracy	±3%	±5%	±3%	±5%
	Line regulation (Typ.)	0.5%	5%	0.5%	5%
	Load regulation (10-100%) (Typ.)	2% (symmetric load)	6% (symmetric load)	2% (symmetric load)	6% (symmetric load)
	Cross regulation (Typ.)	1%	7%	1%	7%
	Minimum load	25%		25%	
	Efficiency (Typ)	80%		80%	

Model No. (Triple Output)	AJC-5S12D			AJC-5S15D		
Max output wattage (W)	40W			40W		
Output		Output 2	Output 3	Output 1	Output 2	Output 3
	Voltage (V.DC.)	+12	-12	5	+15	-15
	Current (mA) max	600	600	5000	500	500
	Voltage set accuracy	±5%		±3%	±5%	
	Line regulation (Typ.)	5%		0.5%	5%	
	Load regulation (25-100%) (Typ.) (symmetric load)	7%		3%	7%	
	Cross regulation (Typ.)	7%		3%	7%	
	Minimum load	25%			25%	
	Efficiency (Typ)	80%			80%	

Input	Voltage	90-264 VAC or 100-375 VDC	
	Frequency (Hz)	47-440 Hz	
	Current (Full load)	860 mA max. (115 VAC) / 460 mA max. (230 VAC)	
	Inrush current (<2ms)	10 A max. (115 VAC) / 20 A max. (230 VAC)	
	Leakage Current	0.1 mA max. (115 VAC) / 0.2 mA max. (230 VAC)	
	External fuse (recommend)	3.15 A slow blow type	
Output	Maximum capacitive load	470-23,000µF depending on model	
	Ripple & Noise	3.3V : 50mV of Vout	5V~24V : 1% of Vout
	Hold-up time	18 ms min.	
	Switching frequency	132 kHz	
Protection	Over current protection	Above 105% rated output power	
	Over voltage protection	Zener diode clamp	
	Short circuit protection	Hiccup mode, indefinite (automatic recovery)	
	OTP	100°C	
Isolation	Input-Output (V.AC)	3000V	
Environment	Operating temperature	-25°C...+70°C (Case Temperature max. +95°C)	
	Storage temperature	-40°C...+100°C	
	Temperature coefficient	0.01%/°C	
	Humidity	95% RH	
	MTBF	200,000 h~400,000 h @ 25°C	
Physical	Dimension (L x W x H)	3.5 x 2.5 x 0.98 Inches (89.0 x 63.5 x 25.0 mm) Tolerance ±0.5 mm	
	Case Material	Plastic resin + Fiberglass (flammability to UL 94V-0)	
	Weight	280 g	
	Cooling method	Free air convection	
Safety	Agency Approvals	UL/cUL, CE	
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B	
	EMS (Noise Immunity)	EN 55024	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

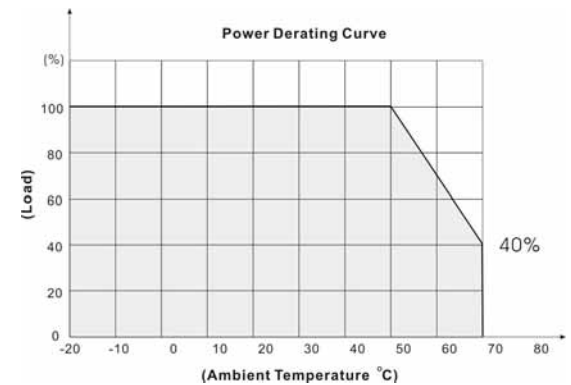
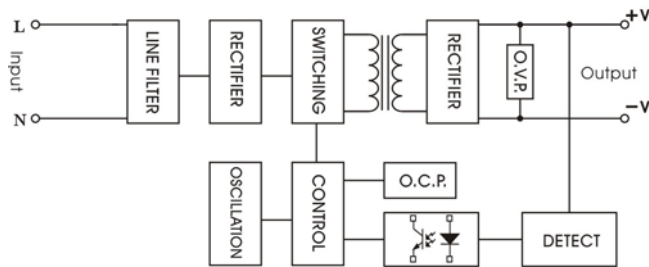


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	+DC OUT	+DC OUT	+OUT2	+DC OUT
4	NO PIN	NO PIN	+OUT1	+5V
5	-DC OUT	COMMON	+OUT2 RTN	COMMON
6	NO PIN	NO PIN	+OUT1 RTN	+5 RTN
7	NOCONNECT	-DC OUT	NO PIN	-DC OUT

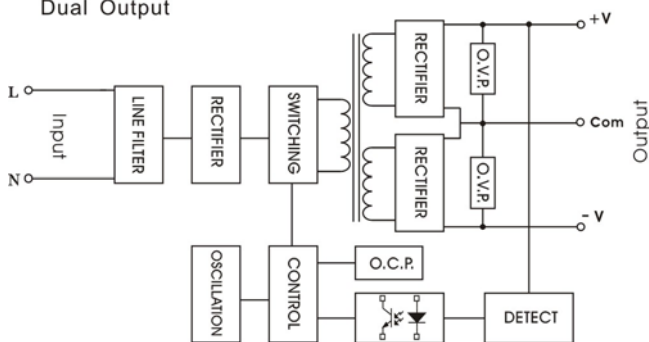
BLOCK DIAGRAM

DERATING

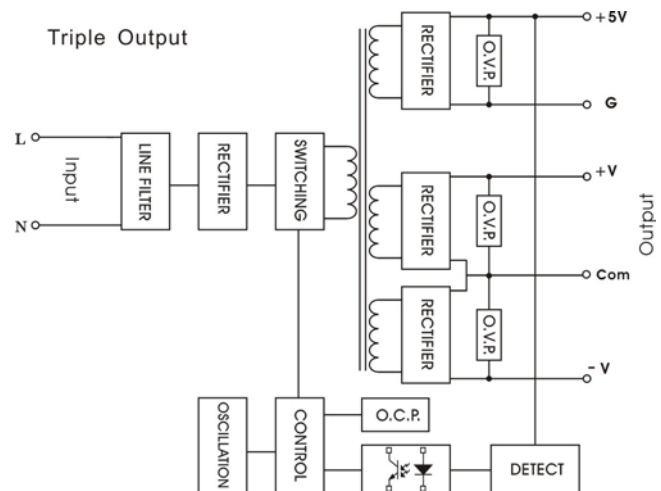
Single Output



Dual Output



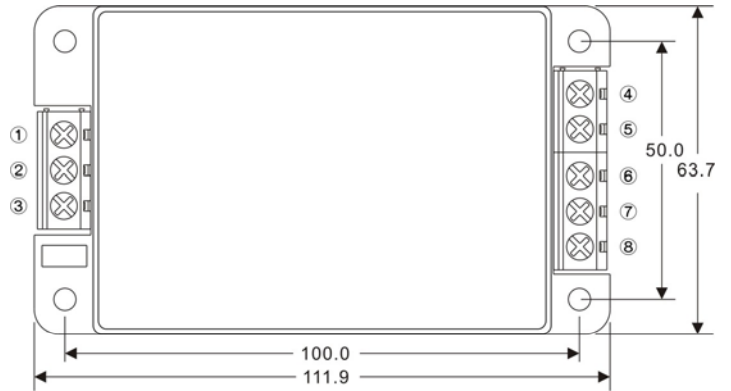
Triple Output



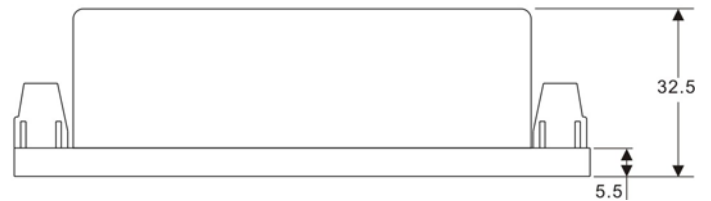
AJC SERIES**40 Watts**

SCREW TERMINAL

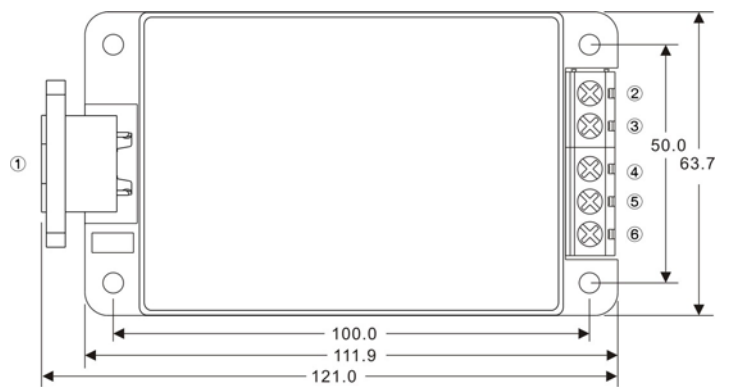
AJC-A2



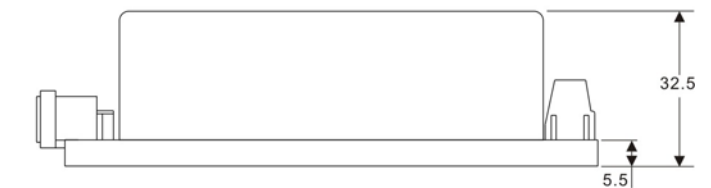
PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
4	+DC OUT	+DC OUT	+OUT2	+DC OUT
5	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
6	-DC OUT	COMMON	+OUT2 RTN	COMMON
7	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT



AJC-A3

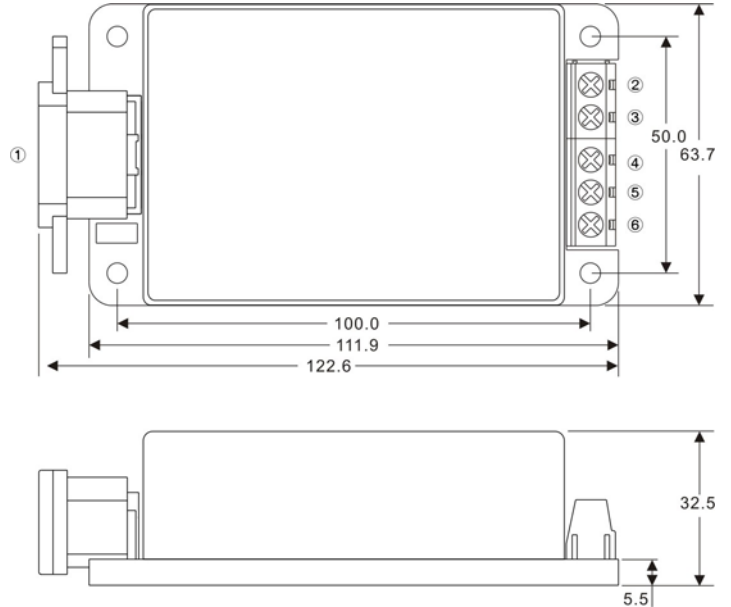


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT



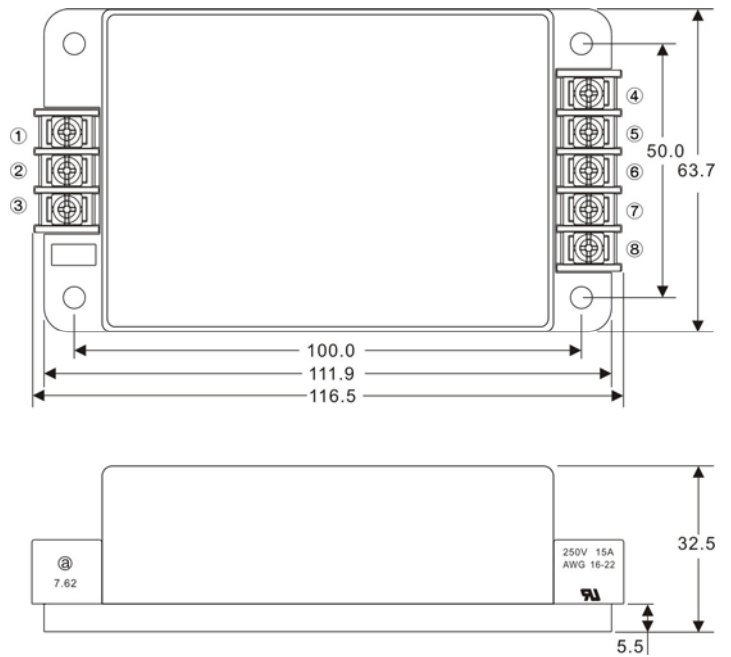
AJC SERIES40 Watts

AJC-A4



PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

AJC-A5

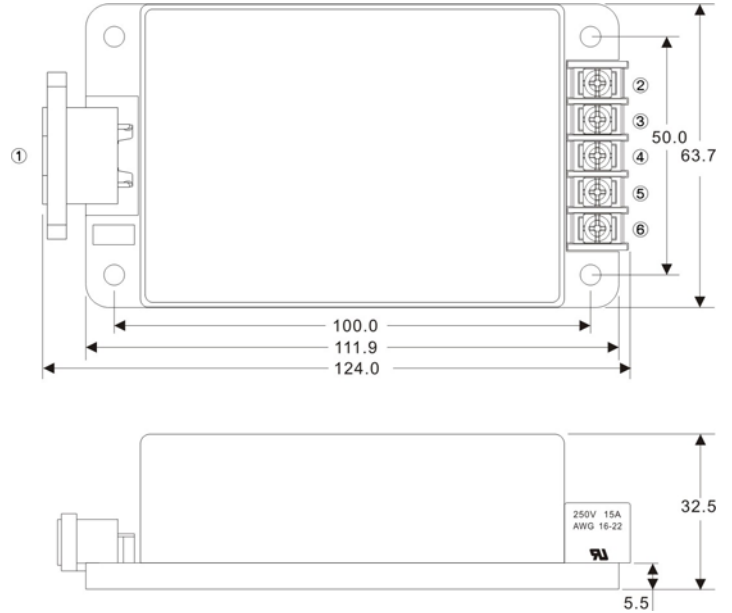


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
4	+DC OUT	+DC OUT	+OUT2	+DC OUT
5	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
6	-DC OUT	COMMON	+OUT2 RTN	COMMON
7	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

AJC SERIES

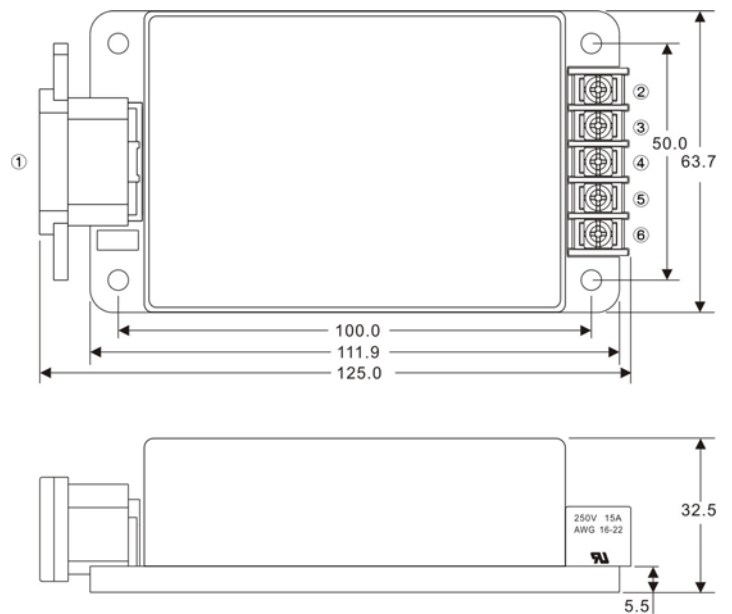
40 Watts

AJC-A6



PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

AJC-A7



PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

KEY FEATURES

- Switching Power Module for PCB Mountable
- Universal Input: 85-265 VAC
- Single Output
- 5 VDC to 48 VDC Output
- 4000 VAC Input to Output Isolation
- CE, UL, Approval
- 2-Years Product Warranty

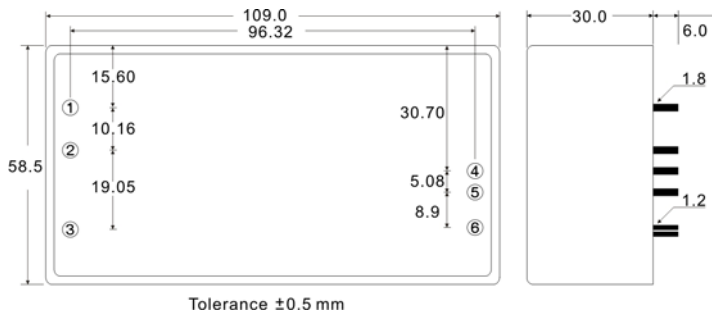

ELECTRICAL SPECIFICATIONS

Model No.	AEC60-5S	AEC60-9S	AEC60-12S	AEC60-15S	AEC60-24S	AEC60-48S	
Max Output Wattage (W)	50W	60W	60W	60W	60W	60W	
Input	Voltage						
	85-265 VAC or 100-370 VDC						
	Frequency (Hz)						
	47-65 Hz						
	Current (Full load)						
2 A max. (115 VAC) / 1 A max. (230 VAC)							
Inrush Current (<2ms)							
30 A max. (115 VAC) / 50 A max. (230 VAC)							
Leakage Current							
0.5 mA max.							
Output	Voltage (V.DC.)	5V	9V	12V	15V	24V	48V
	Voltage Accuracy	±2%					
	Current (mA) max	10,000	6,660	5,000	4,000	2,500	1,250
	Line Regulation (LL-HL) (typ.)	±1%					
	Load Regulation (5-100%) (typ.)	±1%					
	Minimum Load	1%					
	Maximum Capacitive Load	470-23,000µF depending on model					
	Ripple	<0.2% Vout +40mV max (Vp-p)					
	Noise	<0.5% Vout +50mV max (Vp-p)					
	Efficiency (at 230V)	82%	84%	86%	86%	86%	86%
	Trim	±10%					
	Hold-up Time	10 ms min.					
	Switching Frequency	100 kHz					
Protection	Over Power Protection	Auto recovery					
	Over Voltage Protection	Zener diode clamp					
	Short Circuit Protection	Auto recovery					
Isolation	Input-Output (V.AC)	4000V					
	Input-FG (V.AC)	2000V					
	Output-FG (V.AC)	500V					
Environment	Operating Temperature	-40°C...+70°C (with derating)					
	Storage Temperature	-50°C...+85°C					
	Temperature coefficient	±0.02%/°C					
	Humidity	95% RH					
	MTBF	>130,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)	4.3 x 2.3 x 1.18 Inches (109.0 x 58.5 x 30 mm) Tolerance ±0.5 mm					
	Weight	310 g					
	Cooling Method	Free air convection					
Safety	Agency Approvals	CE, UL (Pending)					
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B (Pending)					
	EMS (Noise Immunity)	EN 55024 (Pending)					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

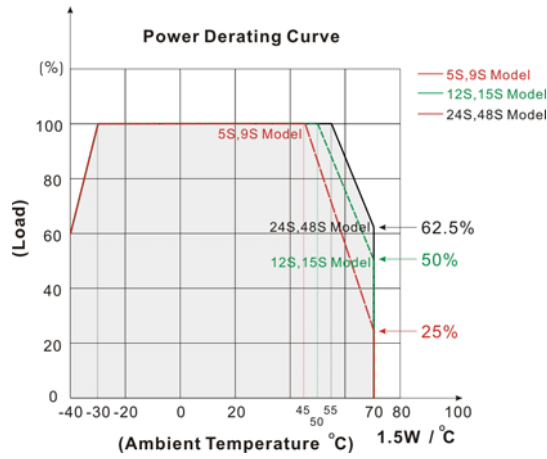
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)

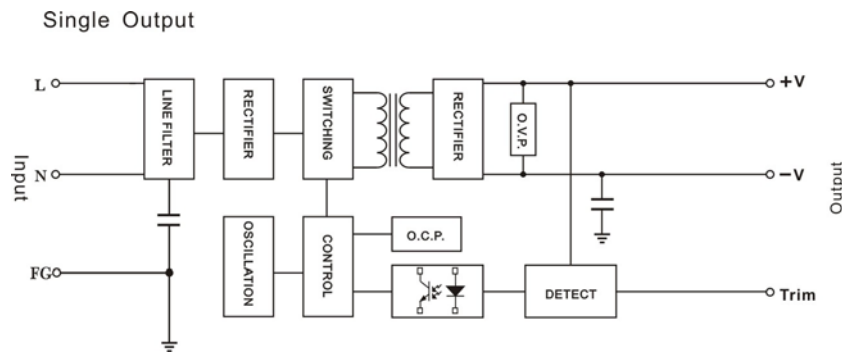


PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	FG
4	+DC OUT
5	-DC OUT
6	Trim

DERATING



BLOCK DIAGRAM



KEY FEATURES

- Open Frame Switching Power Supply
- Universal Input: 90-264 VAC
- Single Output
- 5 VDC to 24 VDC Output
- 3000 VAC Input to Output Isolation
- Ultra Compact Size: 4.1 x 2.05 x 1.26 Inches
- 2-Years Product Warranty

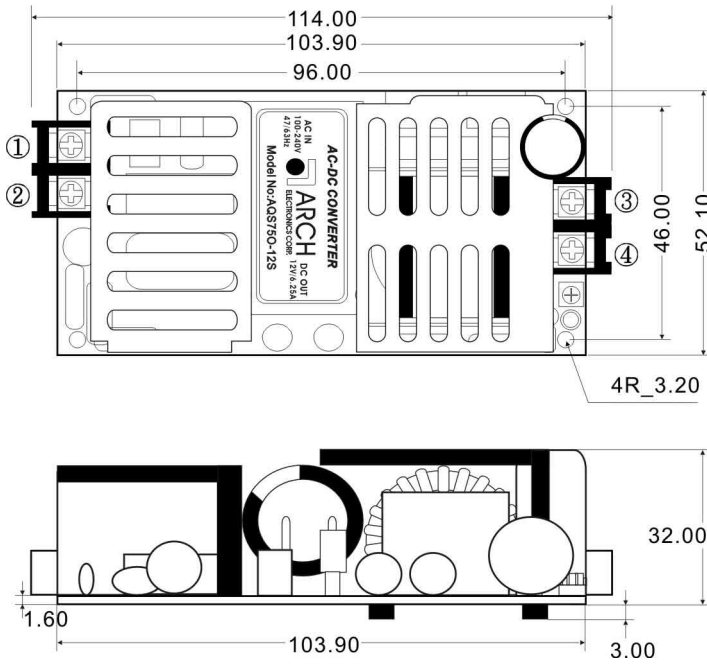

ELECTRICAL SPECIFICATIONS

Model No.	AQS750-5S	AQS750-12S	AQS750-15S	AQS750-24S
Max Output Wattage (W)	50W	75W	75W	75W
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
2 A max. (115 VAC) / 1 A max. (230 VAC)				
Inrush Current (<2ms)				
20 A max. (115 VAC) / 40 A max. (230 VAC)				
Leakage Current				
3.5 mA max.				
Output	Voltage (V.DC.)			
	5V	12V	15V	24V
	Voltage Accuracy			
	±2%			
	Current (mA) max			
	10,000	6,250	5,000	3,130
	Line Regulation (LL-HL) (typ.)			
	±1%			
	Load Regulation (5-100%) (typ.)			
	±1%			
Minimum Load				
1%				
Maximum Capacitive Load				
470-23,000µF depending on model				
Ripple & Noise (Vp-p)				
100 mV max.	150 mV max.	200 mV max.	300 mV max.	
Efficiency				
73%	80%	80%	80%	
Hold-up Time				
18 ms min.				
Switching Frequency				
133 kHz				
Protection	Over Power Protection			
	Auto recovery			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Auto recovery				
Isolation	Input-Output (V.AC)			
	3000V			
	Input-FG (V.AC)			
1500V				
Output-FG (V.AC)				
500V				
Environment	Operating Temperature			
	-25°C...+70°C (with derating)			
	Storage Temperature			
	-40°C...+85°C			
	Temperature Coefficient			
	±0.02%/°C			
Humidity				
95% RH				
MTBF				
>50,000 h @ 25°C (MIL-HDBK-217F)				
Vibration				
10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.				
Physical	Dimension (L x W x H)			
	4.1 x 2.05 x 1.26 Inches (103.9 x 52.1 x 32.0 mm) Tolerance ±0.5 mm			
	Weight			
195 g				
Cooling Method				
Free air convection				
Safety	Agency Approvals			
CE, UL				
EMC	EMI (Conducted & Radiated Emission)			
	EN 55022 class B			
EMS (Noise Immunity)				
EN 55024				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

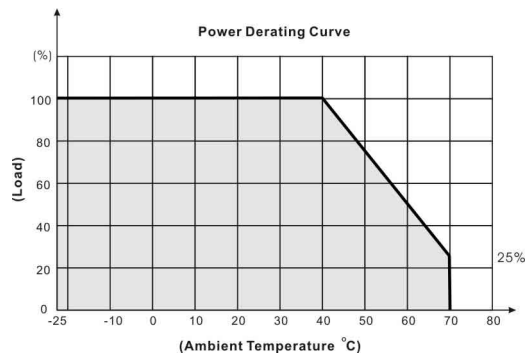
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)



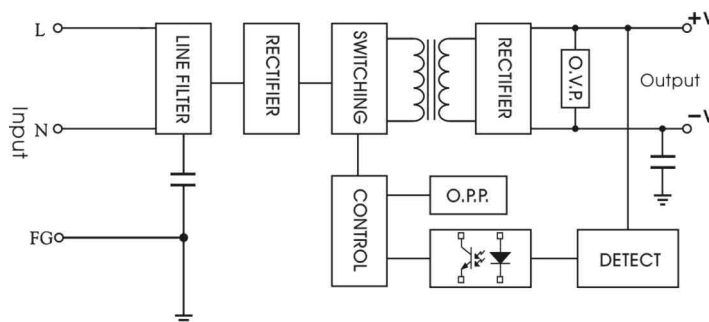
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- Enclosed Switching Power Supply
- Universal Input: 90-264 VAC
- Single Output
- 5 VDC to 24 VDC Output
- 3000 VAC Input to Output Isolation
- Ultra Compact Size: 4.15 x 2.3 x 1.5 Inches
- 2-Years Product Warranty



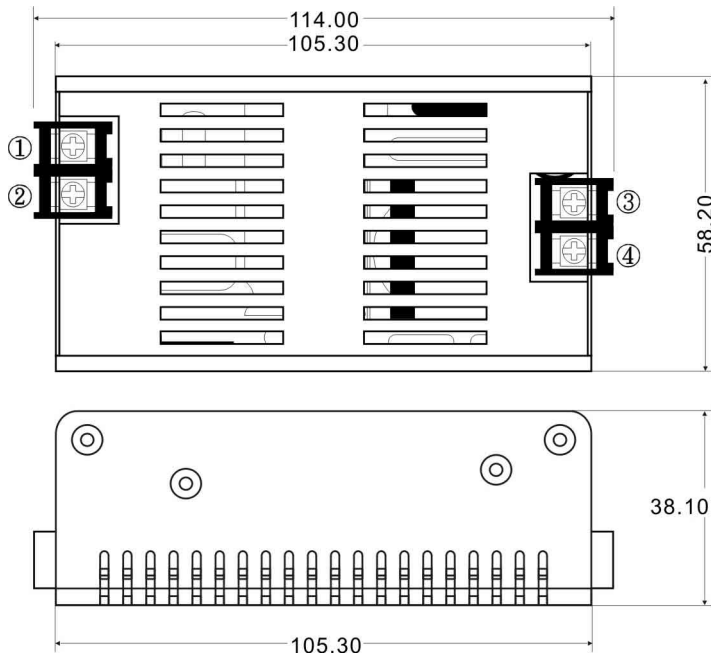
ELECTRICAL SPECIFICATIONS

Model No.	AQS75E-5S	AQS75E-12S	AQS75E-15S	AQS75E-24S
Max Output Wattage (W)	60W	75W	75W	75W
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
2 A max. (115 VAC) / 1 A max. (230 VAC)				
Inrush Current (<2ms)				
20 A max. (115 VAC) / 40 A max. (230 VAC)				
Leakage Current				
3.5 mA max.				
Output	Voltage (V.DC.)			
	5V	12V	15V	24V
	Voltage Accuracy			
	±2%			
	Current (mA) max			
	12,000	6,250	5,000	3,130
	Line Regulation (LL-HL) (typ.)			
	±1%			
	Load Regulation (5-100%) (typ.)			
	±1%			
	Minimum Load			
1%				
Maximum Capacitive Load				
470-23,000µF depending on model				
Ripple & Noise (Vp-p)				
100 mV max.	150 mV max.	200 mV max.	300 mV max.	
Efficiency				
73%	80%	80%	80%	
Hold-up Time				
18 ms min.				
Switching Frequency				
133 kHz				
Protection	Over Power Protection			
	Auto recovery			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Auto recovery				
Isolation	Input-Output (V.AC)			
	3000V			
	Input-FG (V.AC)			
1500V				
Output-FG (V.AC)				
500V				
Environment	Operating Temperature			
	-25°C...+70°C (with derating)			
	Storage Temperature			
	-40°C...+85°C			
	Temperature Coefficient			
	±0.02%/°C			
Humidity				
95% RH				
MTBF				
>130,000 h @ 25°C (MIL-HDBK-217F)				
Vibration				
10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.				
Physical	Dimension (L x W x H)			
	4.15 x 2.3 x 1.5 Inches (105.3 x 58.2 x 38.1 mm) Tolerance ±0.5 mm			
	Weight			
290 g				
Cooling Method				
Free air convection				
Safety	Agency Approvals			
CE, UL				
EMC	EMI (Conducted & Radiated Emission)			
	EN 55022 class B			
EMS (Noise Immunity)				
EN 55024				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

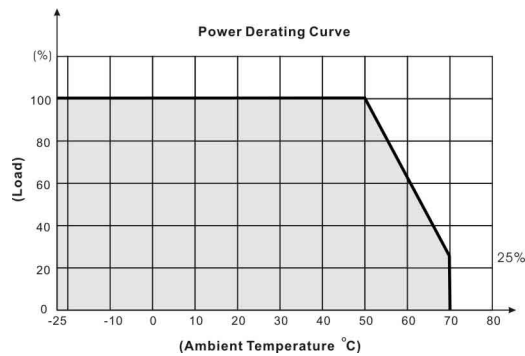
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)



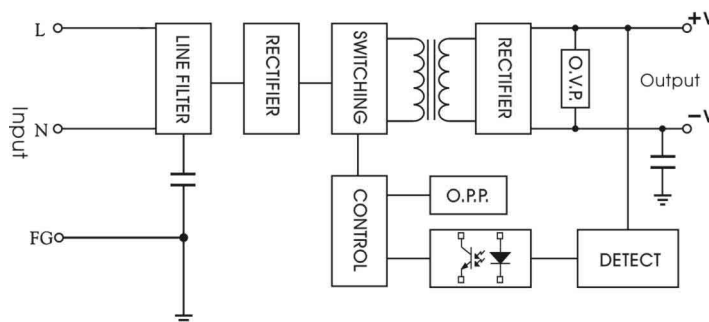
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- U Bracket Switching Power Supply
- Universal Input: 90-264 VAC
- Single Output
- 5 VDC to 24 VDC Output
- 3000 VAC Input to Output Isolation
- Ultra Compact Size: 4.15 x 2.3 x 1.5 Inches
- 2-Years Product Warranty



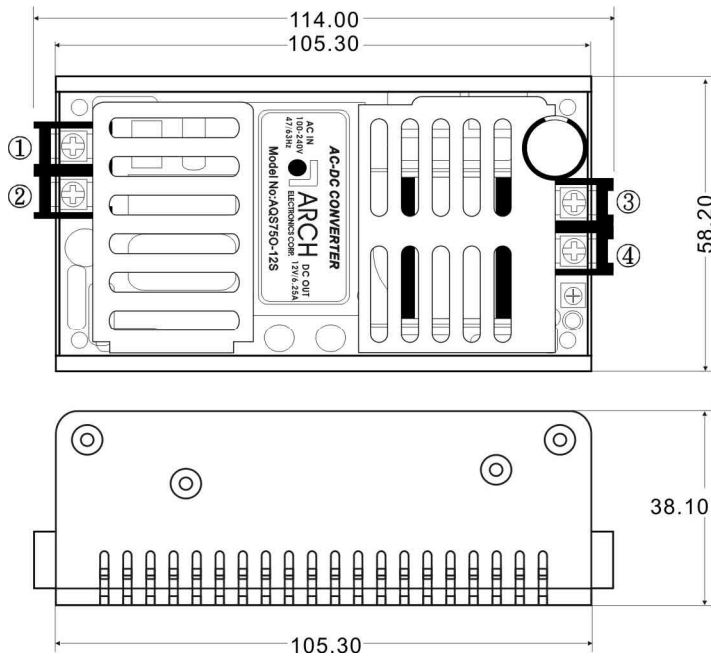
ELECTRICAL SPECIFICATIONS

Model No.	AQS75U-5S	AQS75U-12S	AQS75U-15S	AQS75U-24S
Max Output Wattage (W)	60W	75W	75W	75W
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
2 A max. (115 VAC) / 1 A max. (230 VAC)				
Inrush Current (<2ms)				
20 A max. (115 VAC) / 40 A max. (230 VAC)				
Leakage Current				
3.5 mA max.				
Output	Voltage (V.DC.)			
	5V	12V	15V	24V
	Voltage Accuracy			
	±2%			
	Current (mA) max			
	12,000	6,250	5,000	3,130
	Line Regulation (LL-HL) (typ.)			
	±1%			
	Load Regulation (5-100%) (typ.)			
	±1%			
Minimum Load				
1%				
Maximum Capacitive Load				
470-23,000µF depending on model				
Ripple & Noise (Vp-p)				
100 mV max.	150 mV max.	200 mV max.	300 mV max.	
Efficiency				
73%	80%	80%	80%	
Hold-up Time				
18 ms min.				
Switching Frequency				
133 kHz				
Protection	Over Power Protection			
	Auto recovery			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Auto recovery				
Isolation	Input-Output (V.AC)			
	3000V			
	Input-FG (V.AC)			
1500V				
Output-FG (V.AC)				
500V				
Environment	Operating Temperature			
	-25°C...+70°C (with derating)			
	Storage Temperature			
	-40°C...+85°C			
	Temperature Coefficient			
	±0.02%/°C			
Humidity				
95% RH				
MTBF				
>130,000 h @ 25°C (MIL-HDBK-217F)				
Vibration				
10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.				
Physical	Dimension (L x W x H)			
	4.15 x 2.3 x 1.5 Inches (105.3 x 58.2 x 38.1 mm) Tolerance ±0.5 mm			
	Weight			
285 g				
Cooling Method				
Free air convection				
Safety	Agency Approvals			
CE, UL				
EMC	EMI (Conducted & Radiated Emission)			
	EN 55022 class B			
EMS (Noise Immunity)				
EN 55024				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

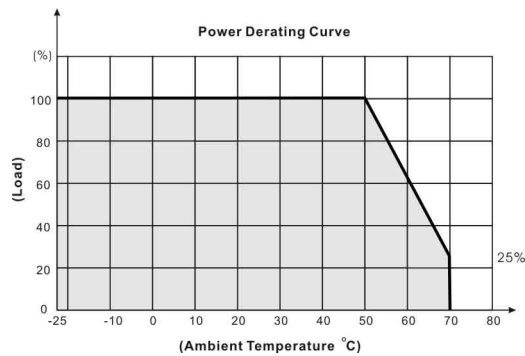
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)



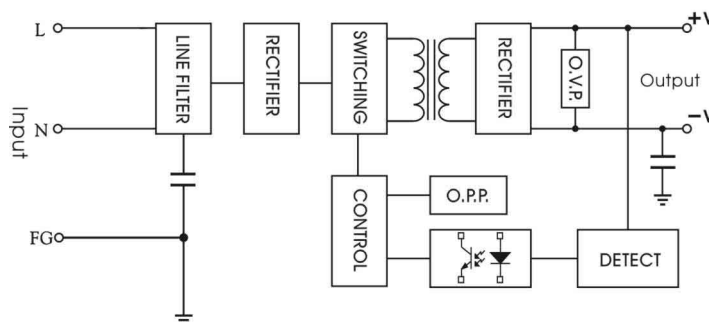
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- Din Rail Switching Power Supply
- Universal Input: 90-264 VAC
- Single Output
- 5 VDC to 24 VDC Output
- 3000 VAC Input to Output Isolation
- 2-Years Product Warranty



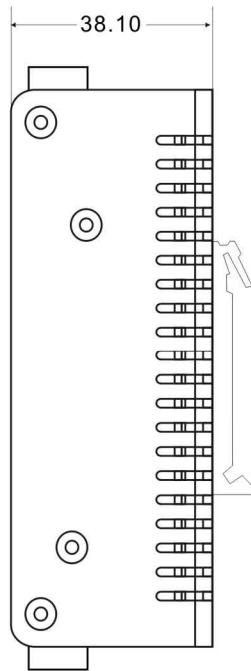
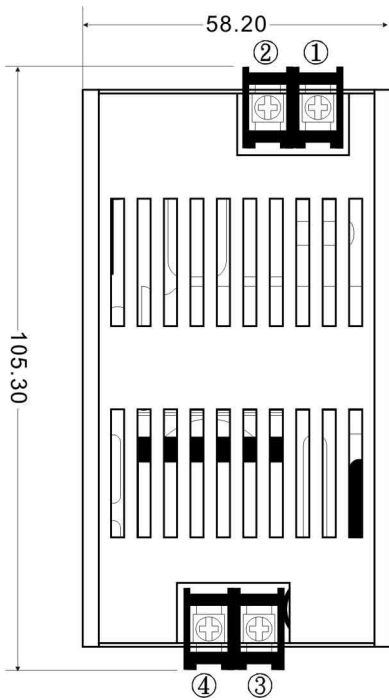
ELECTRICAL SPECIFICATIONS

Model No.		AQS75D-5S	AQS75D-12S	AQS75D-15S	AQS75D-24S
Max Output Wattage (W)		60W	75W	75W	75W
Input	Voltage	90-264 VAC or 120-370 VDC			
	Frequency (Hz)	47-63 Hz			
	Current (Full load)	2 A max. (115 VAC) / 1 A max. (230 VAC)			
	Inrush Current (<2ms)	20 A max. (115 VAC) / 40 A max. (230 VAC)			
	Leakage Current	3.5 mA max.			
Output	Voltage (V.DC.)	5V	12V	15V	24V
	Voltage Accuracy	±2%			
	Current (mA) max	12,000	6,250	5,000	3,130
	Line Regulation (LL-HL) (typ.)	±1%			
	Load Regulation (5-100%) (typ.)	±1%			
	Minimum Load	1%			
	Maximum Capacitive Load	470-23,000µF depending on model			
	Ripple & Noise (Vp-p)	100 mV max.	150 mV max.	200 mV max.	300 mV max.
	Efficiency	73%	80%	80%	80%
	Hold-up Time	18 ms min.			
Protection	Over Power Protection	Auto recovery			
	Over Voltage Protection	Zener diode clamp			
	Short Circuit Protection	Auto recovery			
Isolation	Input-Output (V.AC)	3000V			
	Input-FG (V.AC)	1500V			
	Output-FG (V.AC)	500V			
Environment	Operating Temperature	-25°C...+70°C (with derating)			
	Storage Temperature	-40°C...+85°C			
	Temperature Coefficient	±0.02%/°C			
	Humidity	95% RH			
	MTBF	>130,000 h @ 25°C (MIL-HDBK-217F)			
	Vibration	10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.			
Physical	Dimension (L x W x H)	4.15 x 2.3 x 1.5 Inches (105.3 x 58.2 x 38.1 mm) Tolerance ±0.5 mm			
	Weight	290 g			
	Cooling Method	Free air convection			
Safety	Agency Approvals	CE, UL			
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B			
	EMS (Noise Immunity)	EN 55024			

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

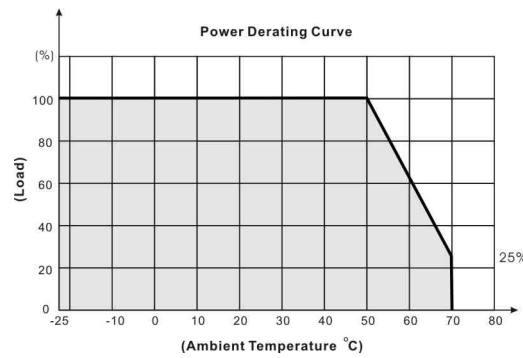
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)



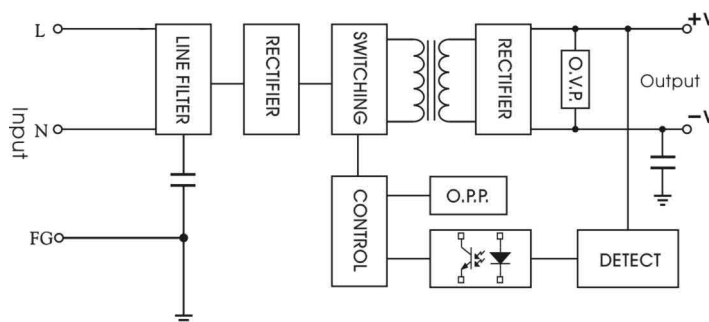
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	-DC OUT

DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- Din Rail Switching Power Supply
- Universal Input: 90-264 VAC
- 87%~92% Efficiency
- With P.F.C. Function
- Free Air Convection
- 3-Years Product Warranty

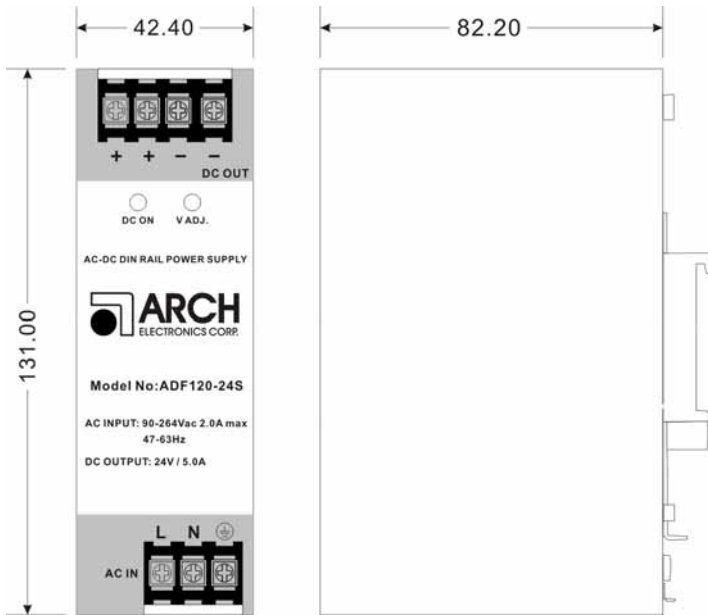

ELECTRICAL SPECIFICATIONS

Model No.	ADF120-12S	ADF120-24S	ADF120-48S	
Max Output Wattage (W)	120W	120W	120W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)			
Inrush Current (<2ms)				
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Leakage Current				
< 3.5 mA max.				
Power Factor				
PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load				
Output	Voltage (V.DC.)	12V	24V	48V
	Voltage Accuracy	±2%		
	Current (Convection) (A) max	10	5	2.5
	Line Regulation	±1%		
	Load Regulation	±1%		
	Minimum Load	0%		
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple & Noise	1% max.		
	Efficiency (typ.)	90%	91%	92%
	Hold-up Time	20 ms min.		
	Switching Frequency	67 kHz		
Protection	Over Power Protection	Auto recovery		
	Over Voltage Protection	Latch Off		
	Short Circuit Protection	Auto recovery		
Isolation	Input-Output (V.AC)	3000V		
	Input-FG (V.AC)	1500V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-10°C...+70°C (with derating)		
	Storage Temperature	-25°C...+85°C		
	Temperature Coefficient	±0.03%/°C (0~50°C)		
	Humidity	95% RH		
	MTBF	>50,000 h @ 25°C (MIL-HDBK-217F)		
Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.			
Physical	Dimension (L x W x H)	1.66 x 5.16 x 3.24 Inches (42.4 x 131.1 x 82.2 mm) Tolerance ±0.5 mm		
	Weight	g		
	Cooling Method	Free convection		
Safety	Agency Approvals	UL 508		
EMC	EMI (Conducted & Radiated Emission)	EN 61000-6-4		
	EMS (Noise Immunity)	EN 61000-6-2		
	HARMONIC CURRENT	EN 61000-3-2		

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

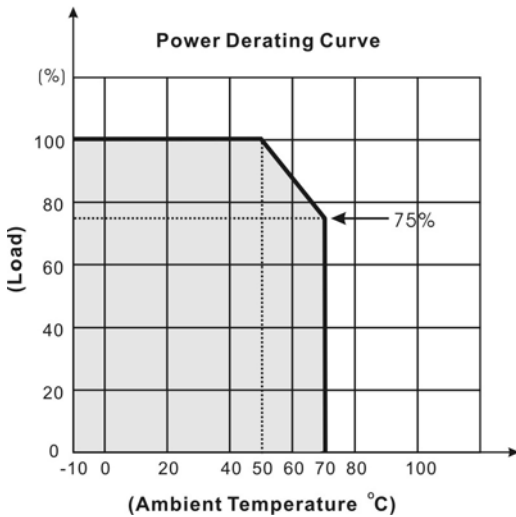
Note: Unapproved draft, for reference only.

MECHANICAL DIMENSION (Top View)



PIN#	SINGLE
L	Neutral Terminal of AC Input (No Polarity at DC Input)
N	Line Terminal of AC Input (No Polarity at DC Input)
⊕	Grounding (Earth)
+	DC Positive Output Terminal
-	DC Negative Output Terminal
V ADJ.	Potentiometer for Output Voltage
DC ON	Green LED Indicator

DERATING



Note: Unapproved draft, for reference only.

KEY FEATURES

- Open Frame Switching Power Supply
- PFC Function
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- 150Watt with 18CFM FAN
- Ultra Compact Size: 5.0 x 3.0 x 1.4 Inches
- 2-Years Product Warranty

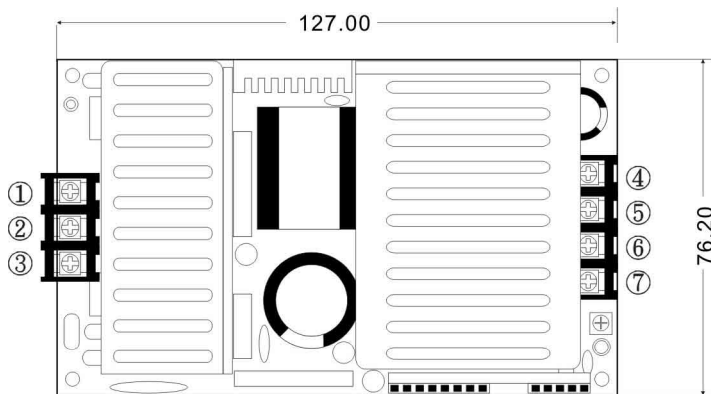


ELECTRICAL SPECIFICATIONS

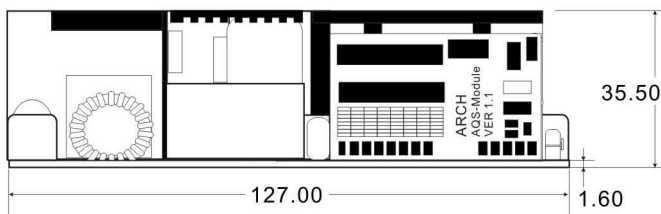
Model No.	AQF1500-3.3S	AQF1500-5S	AQF1500-12S	AQF1500-15S	AQF1500-24S	AQF1500-48S	
Max Output Wattage (Convection) (W)	66W	100W	120W	120W	120W	120W	
Max Output Wattage (18CFM FAN) (W)	82.5W	125W	150W	150W	150W	150W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						3 A max. (115 VAC) / 1.5 A max. (230 VAC)
	Inrush Current (<2ms)						30 A max. (115 VAC) / 60 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (Convection) (A) max						20 20 10 8 5 2.5
	Current (18CFM FAN) (A) max						25 25 12.5 10 6.25 3.13
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max..
	Efficiency						68% 70% 75% 75% 75% 75%
	Hold-up Time						18 ms min.
	Switching Frequency						67 kHz
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Auto recovery
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>100,000 h @ 25°C (MIL-HDBK-217F)
Physical	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
	Dimension (L x W x H)						5.0 x 3.0 x 1.4 Inches (127.0 x 76.2 x 35.5 mm) Tolerance ±0.5 mm
	Weight						365 g
Safety	Cooling Method						Free air convection / 18CFM Forced Air
	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

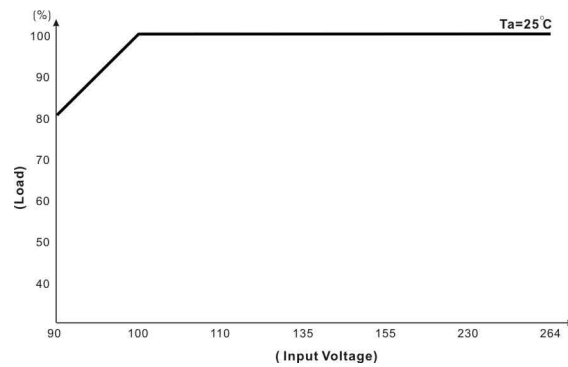
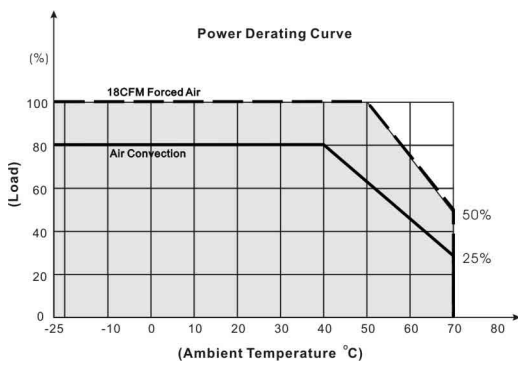
MECHANICAL DIMENSION (Top View)



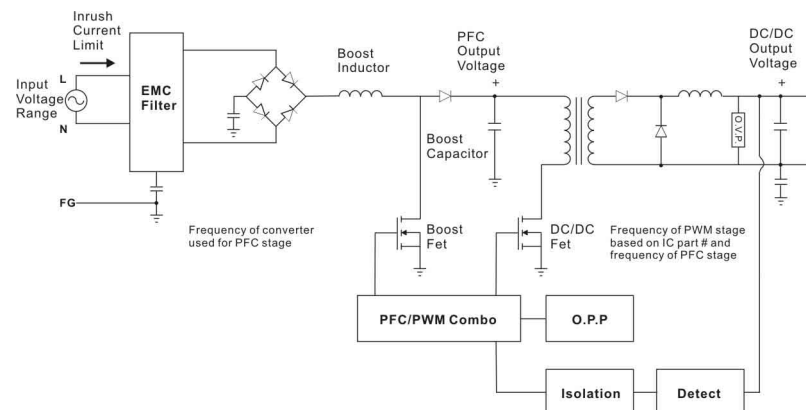
PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT



DERATING



BLOCK DIAGRAM



KEY FEATURES

- Enclosed Switching Power Supply
- PFC Function
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- 150Watt with 18CFM FAN
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 2-Years Product Warranty

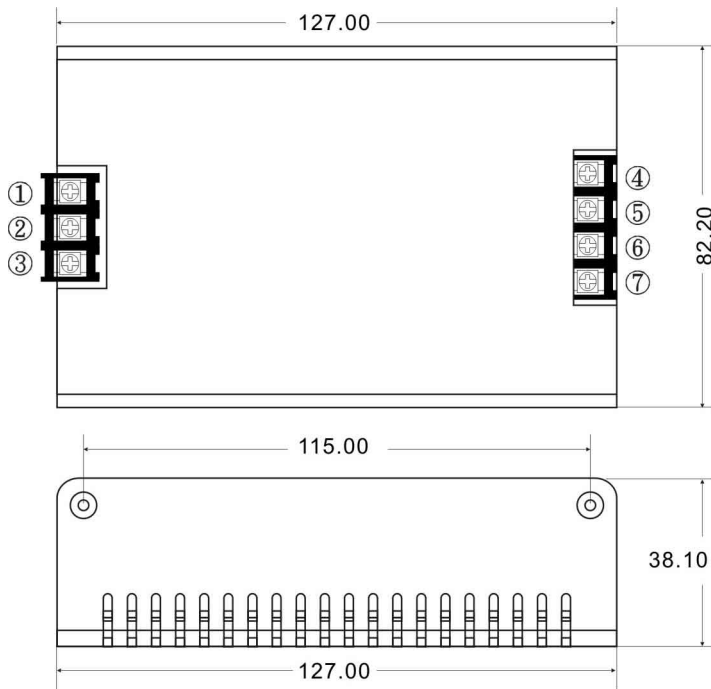


ELECTRICAL SPECIFICATIONS

Model No.	AQF150E-3.3S	AQF150E-5S	AQF150E-12S	AQF150E-15S	AQF150E-24S	AQF150E-48S	
Max Output Wattage (Convection) (W)	52W	80W	95W	95W	95W	95W	
Max Output Wattage (18CFM FAN) (W)	82.5W	125W	125W	125W	125W	125W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						3 A max. (115 VAC) / 1.5 A max. (230 VAC)
	Inrush Current (<2ms)						30 A max. (115 VAC) / 60 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (Convection) (A) max						16 16 7.9 6.33 3.95 1.98
	Current (18CFM FAN) (A) max						25 25 10.4 8.33 5.2 2.6
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max..
	Efficiency						68% 70% 75% 75% 75% 75%
	Hold-up Time						18 ms min.
	Switching Frequency						67 kHz
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Auto recovery
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>100,000 h @ 25°C (MIL-HDBK-217F)
	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
Physical	Dimension (L x W x H)						5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm
	Weight						470 g
	Cooling Method						Free air convection / 18CFM Forced Air
Safety	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

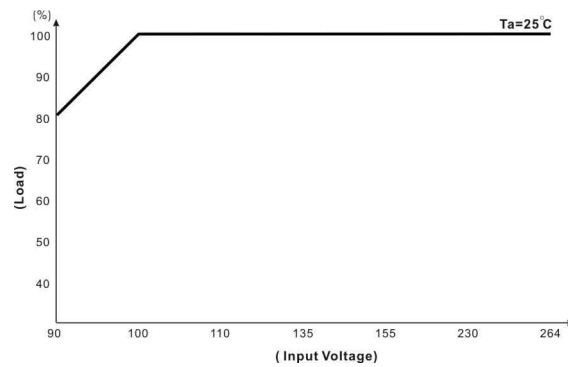
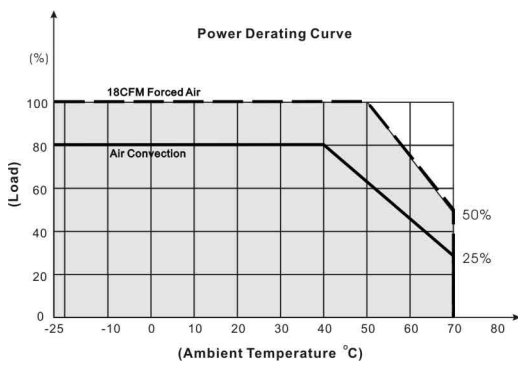
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

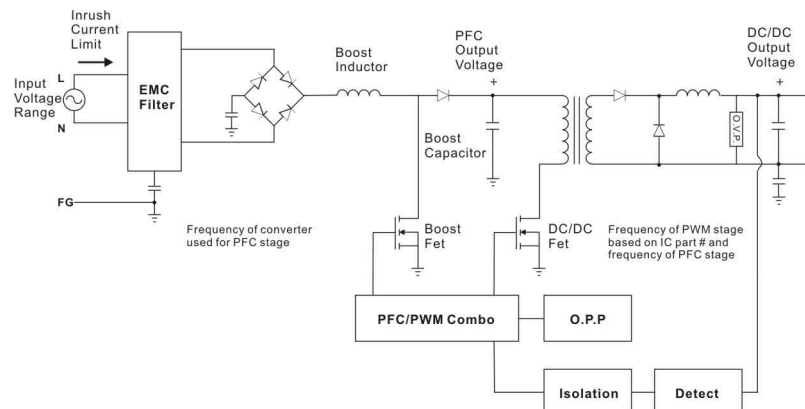


PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- U Bracket Switching Power Supply
- PFC Function
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- 150Watt with 18CFM FAN
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 2-Years Product Warranty

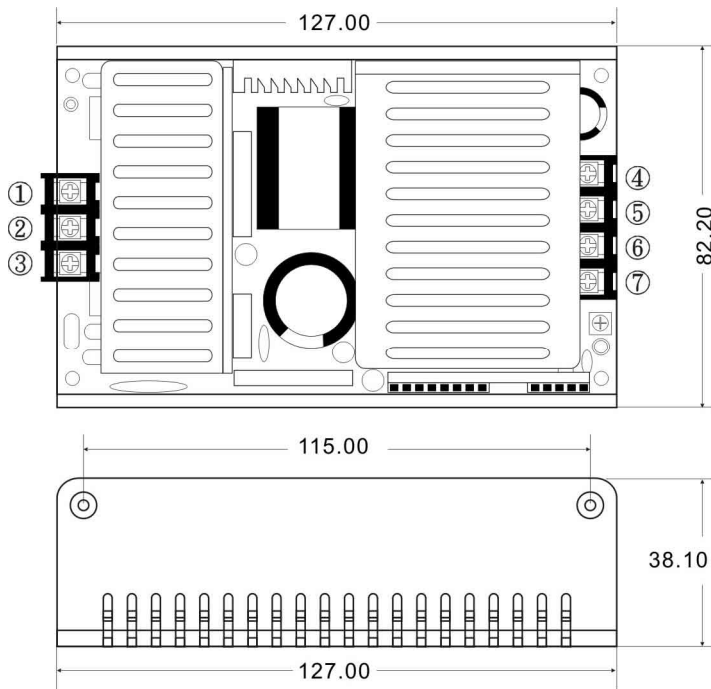


ELECTRICAL SPECIFICATIONS

Model No.	AQF150U-3.3S	AQF150U-5S	AQF150U-12S	AQF150U-15S	AQF150U-24S	AQF150U-48S	
Max Output Wattage (Convection) (W)	66W	100W	120W	120W	120W	120W	
Max Output Wattage (18CFM FAN) (W)	82.5W	125W	150W	150W	150W	150W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						3 A max. (115 VAC) / 1.5 A max. (230 VAC)
	Inrush Current (<2ms)						30 A max. (115 VAC) / 60 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (Convection) (A) max						20 20 10 8 5 2.5
	Current (18CFM FAN) (A) max						25 25 12.5 10 6.25 3.13
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max..
	Efficiency						68% 70% 75% 75% 75% 75%
	Hold-up Time						18 ms min.
	Switching Frequency						67 kHz
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Auto recovery
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>100,000 h @ 25°C (MIL-HDBK-217F)
	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
Physical	Dimension (L x W x H)						5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm
	Weight						452 g
	Cooling Method						Free air convection / 18CFM Forced Air
Safety	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

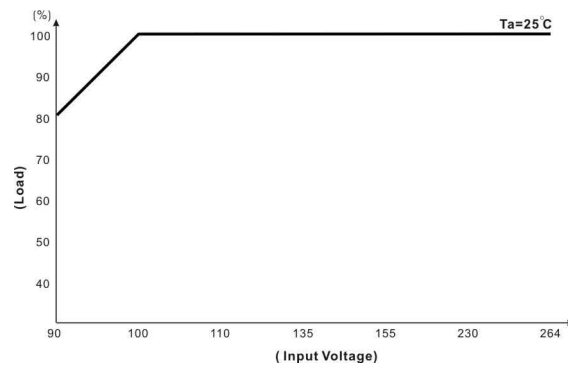
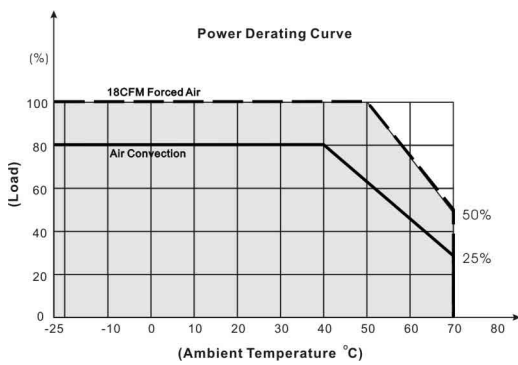
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

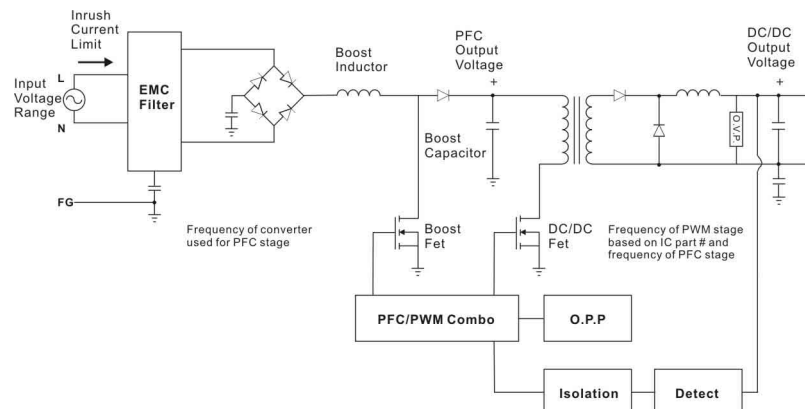


PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- Din Rail Switching Power Supply
- PFC Function
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- 150Watt with 18CFM FAN
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 2-Years Product Warranty

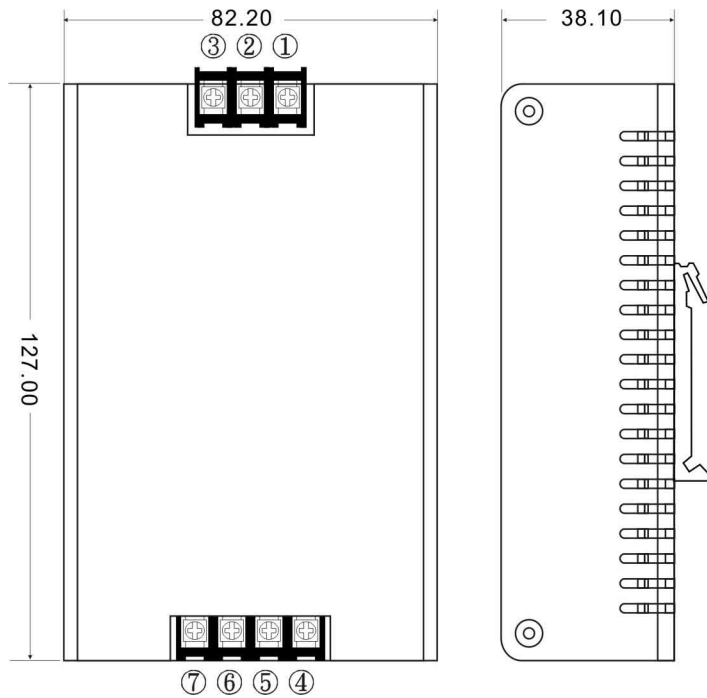


ELECTRICAL SPECIFICATIONS

Model No.	AQF150D-3.3S	AQF150D-5S	AQF150D-12S	AQF150D-15S	AQF150D-24S	AQF150D-48S	
Max Output Wattage (Convection) (W)	52W	80W	95W	95W	95W	95W	
Max Output Wattage (18CFM FAN) (W)	82.5W	125W	125W	125W	125W	125W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						3 A max. (115 VAC) / 1.5 A max. (230 VAC)
	Inrush Current (<2ms)						30 A max. (115 VAC) / 60 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (Convection) (A) max						16 16 7.9 6.33 3.95 1.98
	Current (18CFM FAN) (A) max						25 25 10.4 8.33 5.2 2.6
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max..
	Efficiency						68% 70% 75% 75% 75% 75%
	Hold-up Time						18 ms min.
	Switching Frequency						67 kHz
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Auto recovery
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>100,000 h @ 25°C (MIL-HDBK-217F)
Physical	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
	Dimension (L x W x H)						5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm
	Weight						485 g
Safety	Cooling Method						Free air convection / 18CFM Forced Air
	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

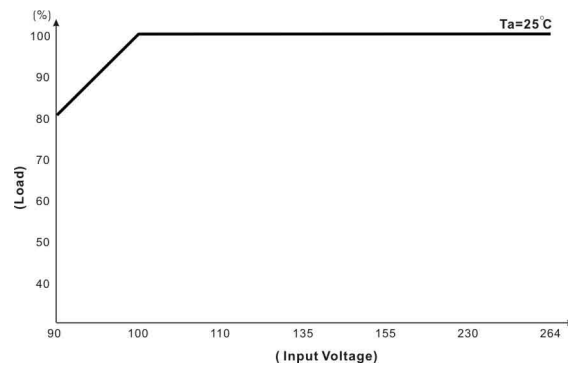
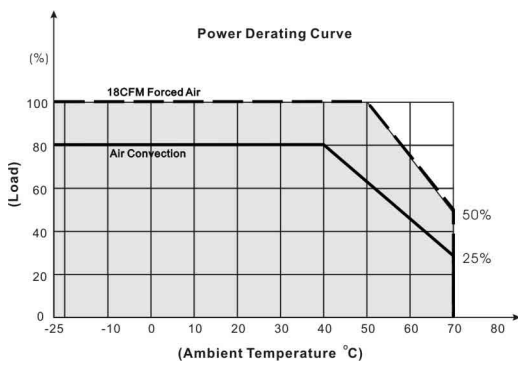
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

MECHANICAL DIMENSION (Top View)

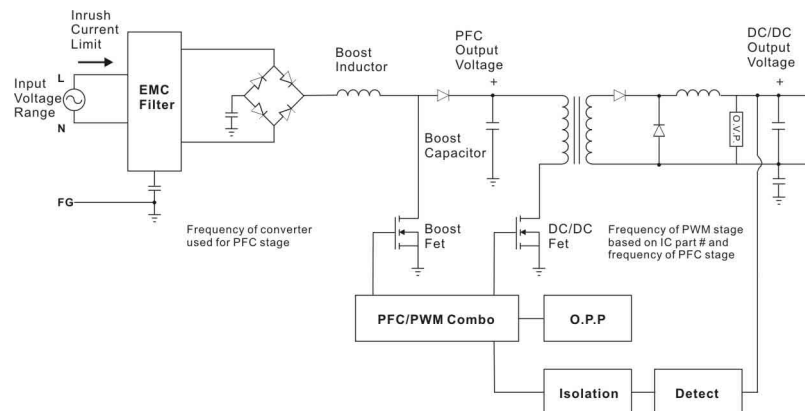


PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM



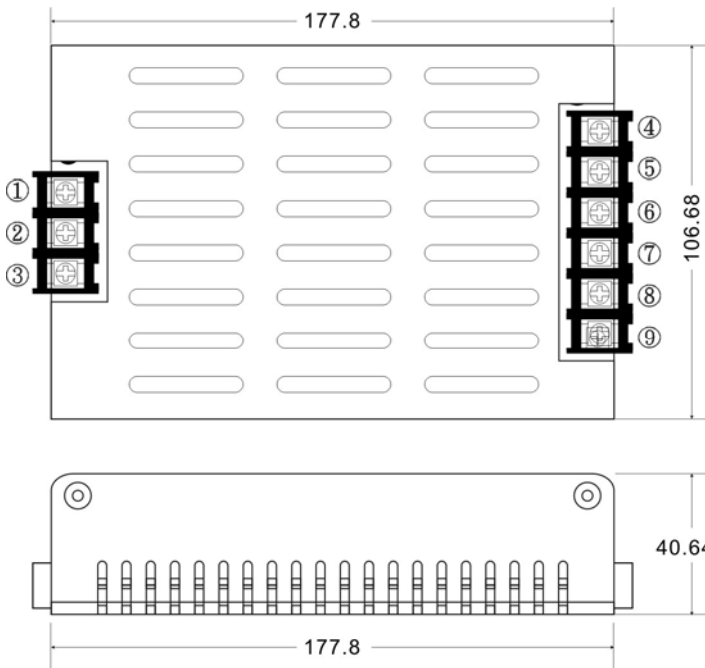
KEY FEATURES

- Enclosed Switching Power Supply
- Universal Input: 90-264 VAC
- 250 Watt with 18CFM FAN
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- Size: 7.0 x 4.2 x 1.6 Inches
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No.	AQF250E-3.3S	AQF250E-5S	AQF250E-12S	AQF250E-15S	AQF250E-24S	AQF250E-48S		
Max Output Wattage (18CFM FAN) (W)	132W	200W	250W	250W	250W	250W		
Max Output Wattage (W)	80W	120W	162W	162W	162W	162W		
Input	Voltage						90-264 VAC or 120-370 VDC	
	Frequency (Hz)						47-63 Hz	
	Current (Full load)						4.0 A max. (115 VAC) / 2.0 A max. (230 VAC)	
	Inrush Current (<2ms)						40 A max. (115 VAC) / 80 A max. (230 VAC)	
	Leakage Current						3.5 mA max.	
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load	
Output	Voltage (V.DC.)		3.3V	5V	12V	15V	24V	48V
	Voltage Accuracy		±2%					
	Current (18CFM FAN) (A) max		40	40	20.83	16.66	10.4	5.2
	Current (Convection) (A) max		24.24	24	13.5	10.8	6.75	3.375
	Line Regulation (LL-HL) (typ.)		±1%					
	Load Regulation (5-100%) (typ.)		±1%					
	Minimum Load		0%					
	Maximum Capacitive Load		470-23,000µF depending on model					
	Ripple & Noise		100 mV max.		1% max.			
	Efficiency (typ.)		69%	75%	80%	80%	80%	80%
	Hold-up Time		18 ms min.					
	Switching Frequency		67 kHz					
Protection	Over Power Protection		Auto recovery					
	Over Voltage Protection		Zener diode clamp					
	Short Circuit Protection		Auto recovery					
Isolation	Input-Output (V.AC)		3000V					
	Input-FG (V.AC)		1500V					
	Output-FG (V.AC)		500V					
Environment	Operating Temperature		-25°C...+70°C (with derating)					
	Storage Temperature		-40°C...+85°C					
	Temperature Coefficient		±0.02%/°C (0~50°C)					
	Humidity		95% RH					
	MTBF		>50,000 h @ 25°C (MIL-HDBK-217F)					
	Vibration		10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.					
Physical	Dimension (L x W x H)		7.0 x 4.2 x 1.6 Inches (177.8 x 106.68 x 40.64 mm) Tolerance ±0.5 mm					
	Weight		823 g					
	Cooling Method		Free air convection / 18CFM Forced Air					
Safety	Agency Approvals		CE, UL					
EMC	EMI (Conducted & Radiated Emission)		EN 55022 class B					
	EMS (Noise Immunity)		EN 55024					

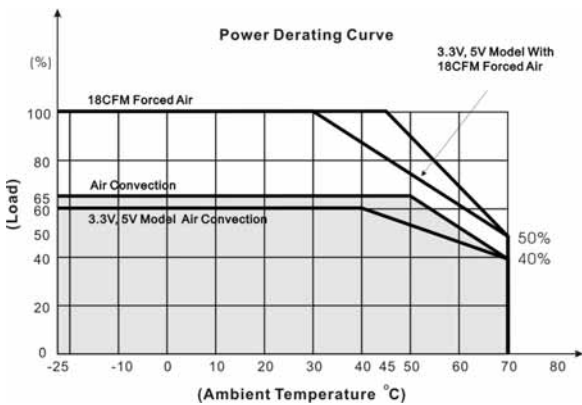
MECHANICAL DIMENSION (Top View)



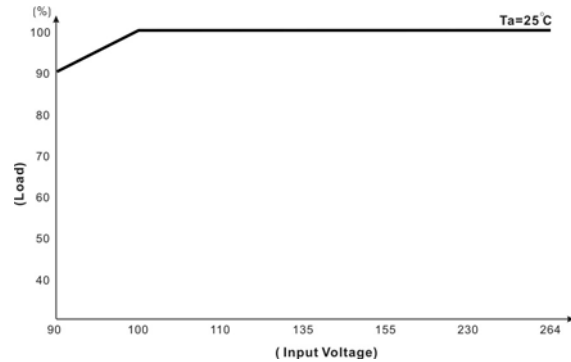
PIN#	SINGLE
1	FG
2	AC IN (N)
3	AC IN (L)
4	+DC OUT
5	+DC OUT
6	+DC OUT
7	-DC OUT
8	-DC OUT
9	-DC OUT

Please note the length of screw do not over 3mm in case breaking through Mylar under PCB board.

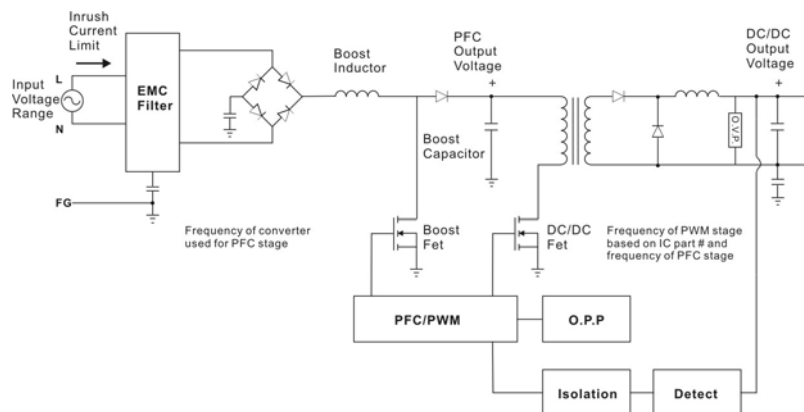
DERATING



STATIC CHARACTERISTICS



BLOCK DIAGRAM

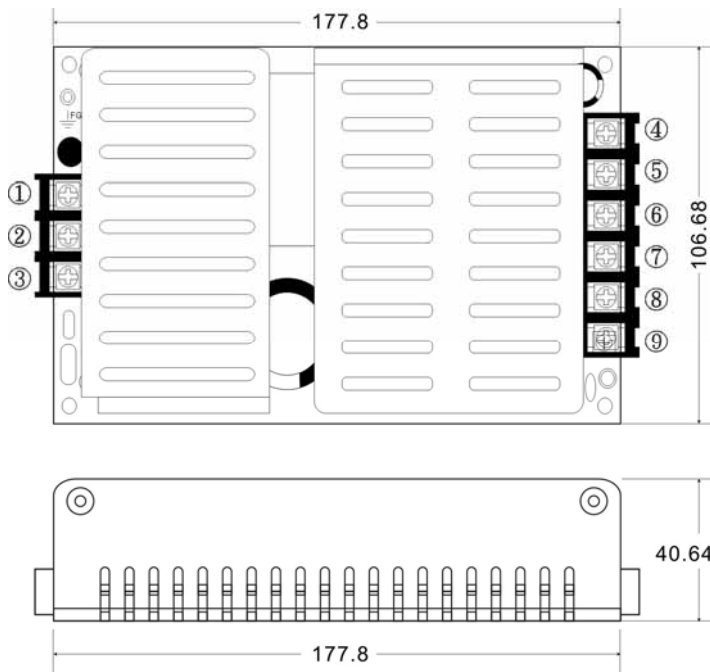


KEY FEATURES

- U Bracket Switching Power Supply
- Universal Input: 90-264 VAC
- 250 Watt with 18CFM FAN
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- Ultra Compact Size: 7.0 x 4.2 x 1.6 Inches
- 2-Years Product Warranty

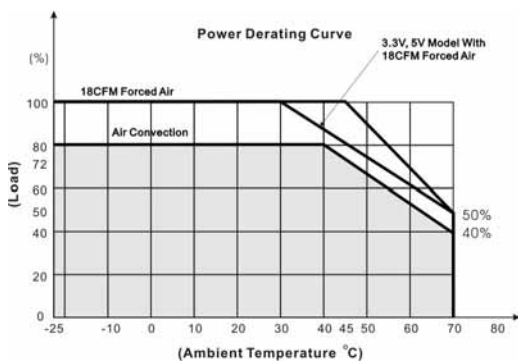
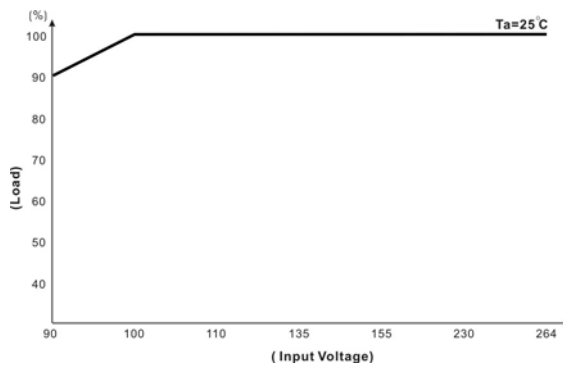
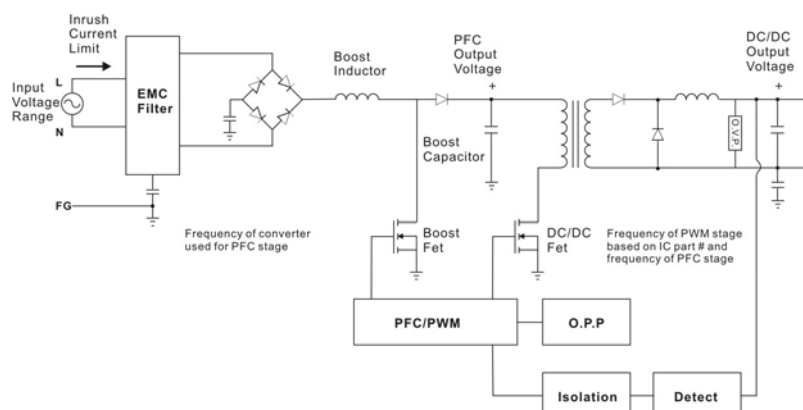

ELECTRICAL SPECIFICATIONS

Model No.	AQF250U-3.3S	AQF250U-5S	AQF250U-12S	AQF250U-15S	AQF250U-24S	AQF250U-48S	
Max Output Wattage (18CFM FAN) (W)	132W	200W	250W	250W	250W	250W	
Max Output Wattage (W)	105W	160W	200W	200W	200W	200W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						4.0 A max. (115 VAC) / 2.0 A max. (230 VAC)
	Inrush Current (<2ms)						40 A max. (115 VAC) / 80 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (18CFM FAN) (A) max						40 40 20.83 16.66 10.4 5.2
	Current (Convection) (A) max						31.81 32 16.67 13.34 8.34 4.17
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max.
	Efficiency (typ.)						69% 75% 80% 80% 80% 80%
	Hold-up Time						18 ms min.
Switching Frequency						67 kHz	
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Zener diode clamp
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>50,000 h @ 25°C (MIL-HDBK-217F)
	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
Physical	Dimension (L x W x H)						7.0 x 4.2 x 1.6 Inches (177.8 x 106.68 x 40.64 mm) Tolerance ±0.5 mm
	Weight						750 g
	Cooling Method						Free air convection / 18CFM Forced Air
Safety	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

MECHANICAL DIMENSION (Top View)


PIN#	SINGLE
1	FG
2	AC IN (N)
3	AC IN (L)
4	+DC OUT
5	+DC OUT
6	+DC OUT
7	-DC OUT
8	-DC OUT
9	-DC OUT

Please note the length of screw do not over 3mm in case breaking through Mylar under PCB board.

DERATING

STATIC CHARACTERISTICS

BLOCK DIAGRAM


KEY FEATURES

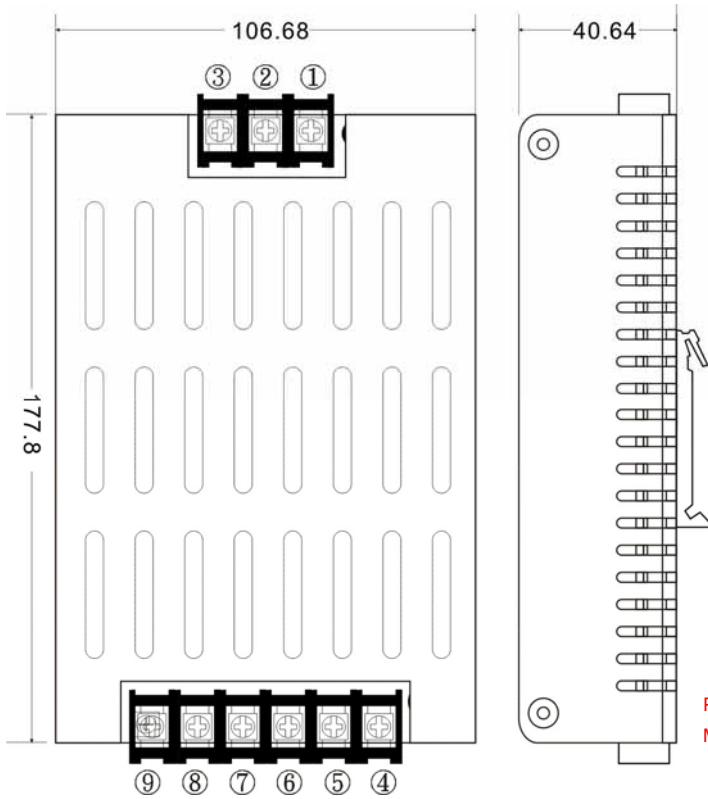
- Din Rail Switching Power Supply
- Universal Input: 90-264 VAC
- 250 Watt with 18CFM FAN
- 3.3 VDC to 48 VDC Single Output
- 3000 VAC Input to Output Isolation
- Size: 7.0 x 4.2 x 1.6 Inches
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No.	AQF250D-3.3S	AQF250D-5S	AQF250D-12S	AQF250D-15S	AQF250D-24S	AQF250D-48S	
Max Output Wattage (18CFM FAN) (W)	132W	200W	250W	250W	250W	250W	
Max Output Wattage (W)	80W	120W	162W	162W	162W	162W	
Input	Voltage						90-264 VAC or 120-370 VDC
	Frequency (Hz)						47-63 Hz
	Current (Full load)						4.0 A max. (115 VAC) / 2.0 A max. (230 VAC)
	Inrush Current (<2ms)						40 A max. (115 VAC) / 80 A max. (230 VAC)
	Leakage Current						3.5 mA max.
	Power Factor						PF>0.97 (115 VAC) / PF>0.93 (230 VAC) at Full Load
Output	Voltage (V.DC.)						3.3V 5V 12V 15V 24V 48V
	Voltage Accuracy						±2%
	Current (18CFM FAN) (A) max						40 40 20.83 16.66 10.4 5.2
	Current (Convection) (A) max						24.24 24 13.5 10.8 6.75 3.375
	Line Regulation (LL-HL) (typ.)						±1%
	Load Regulation (5-100%) (typ.)						±1%
	Minimum Load						0%
	Maximum Capacitive Load						470-23,000µF depending on model
	Ripple & Noise						100 mV max. 1% max.
	Efficiency (typ.)						69% 75% 80% 80% 80% 80%
	Hold-up Time						18 ms min.
	Switching Frequency						67 kHz
Protection	Over Power Protection						Auto recovery
	Over Voltage Protection						Zener diode clamp
	Short Circuit Protection						Auto recovery
Isolation	Input-Output (V.AC)						3000V
	Input-FG (V.AC)						1500V
	Output-FG (V.AC)						500V
Environment	Operating Temperature						-25°C...+70°C (with derating)
	Storage Temperature						-40°C...+85°C
	Temperature Coefficient						±0.02%/°C (0~50°C)
	Humidity						95% RH
	MTBF						>50,000 h @ 25°C (MIL-HDBK-217F)
	Vibration						10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.
Physical	Dimension (L x W x H)						7.0 x 4.2 x 1.6 Inches (177.8 x 106.68 x 40.64 mm) Tolerance ±0.5 mm
	Weight						840 g
	Cooling Method						Free air convection / 18CFM Forced Air
Safety	Agency Approvals						CE, UL
EMC	EMI (Conducted & Radiated Emission)						EN 55022 class B
	EMS (Noise Immunity)						EN 55024

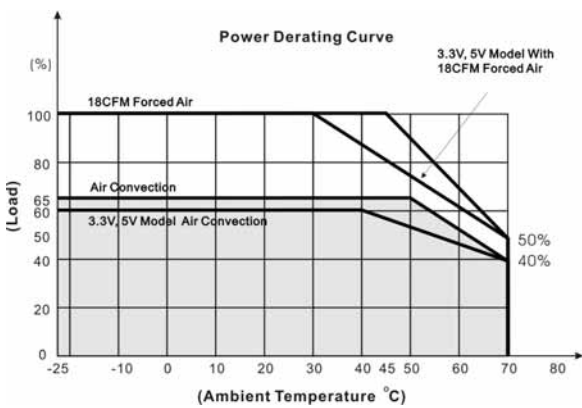
MECHANICAL DIMENSION (Top View)



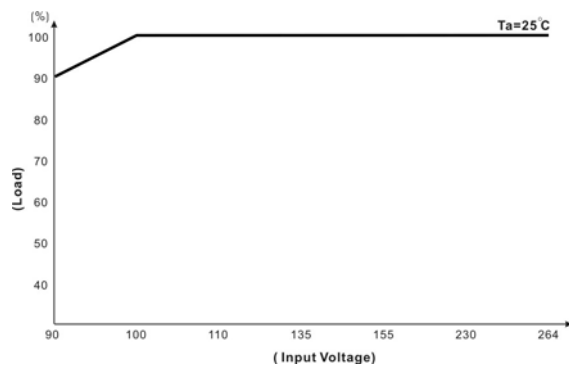
PIN#	SINGLE
1	FG
2	AC IN (N)
3	AC IN (L)
4	+DC OUT
5	+DC OUT
6	+DC OUT
7	-DC OUT
8	-DC OUT
9	-DC OUT

Please note the length of screw do not over 3mm in case breaking through Mylar under PCB board.

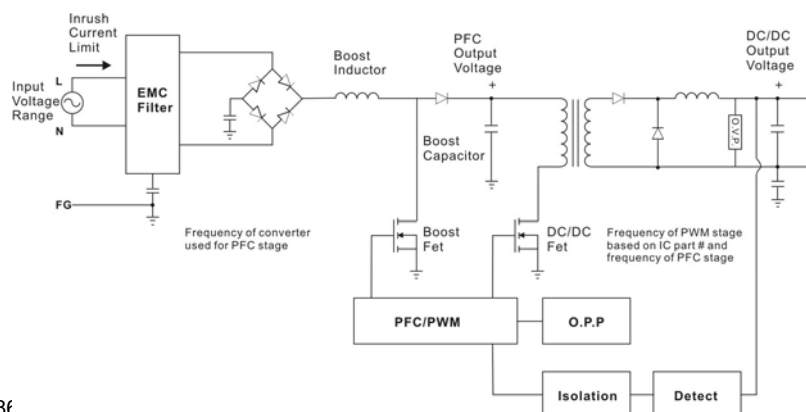
DERATING



STATIC CHARACTERISTICS



BLOCK DIAGRAM



KEY FEATURES

- Switching Power Modules for PCB Mounting
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- Isolation class II
- UL60601-1 / IEC60601-1 / EC60601-1 Medical Safety Approvals
- 2-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	MTC-3.3S	MTC-5S	MTC-7.35S	MTC-9S	MTC-12S	MTC-15S	MTC-24S
Max output wattage (W)	9.9W	15W	15W	15W	15W	15W	15W
Output	Voltage (V.DC.)	3.3V	5V	7.35V	9V	12V	24V
	Current (mA) max	3000	3000	2040	1666	1250	625
	Voltage set accuracy	±2%	±2%	±2%	±2%	±2%	±2%
	Line regulation (Max..)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Load regulation (0-100%) (Max.)	1%	1%	1%	1%	1%	1%
	Minimum load	0%	0%	0%	0%	0%	0%
	Efficiency (Typ)	74%	78%	79%	79%	81%	81%

Model No. (Dual Output)	MTC-5D		MTC-12D		MTC-15D		
Max output wattage (W)	15W		15W		15W		
Output	Output 1	Output 2	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	+5V	-5V	+12V	-12V	+15V	-15V
	Current (mA) max	1500	1500	625	625	500	500
	Voltage set accuracy	±2%		±2%		±2%	
	Line regulation (Max.)	0.5%		0.5%		0.5%	
	Load regulation (10-100%) (Max.)	1% (symmetric load)		1% (symmetric load)		1% (symmetric load)	
	Cross regulation	5%		3%		3%	
	Minimum load	10%		10%		10%	
	Efficiency (Typ)	78%		80%		81%	

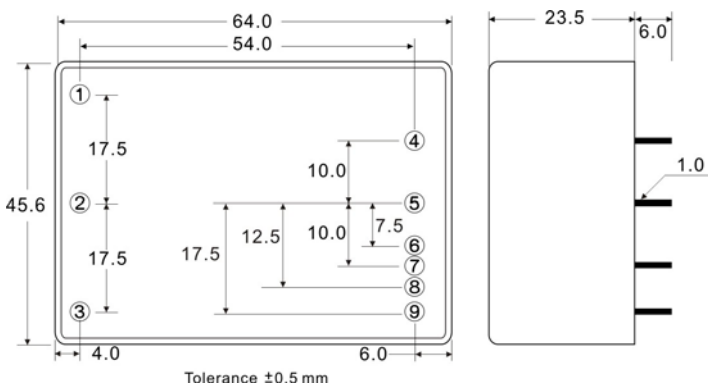
Model No. (Triple Output)	MTC-5S12D			MTC-5S15D			
Max output wattage (W)	15W			15W			
Output	Output 1	Output 2	Output 3	Output 1	Output 2	Output 3	
	Voltage (V.DC.)	5	+12	-12	5	+15	-15
	Current (mA) max	2000	200	200	2000	150	150
	Voltage set accuracy	±2%	±3%		±2%	±3%	
	Line regulation (Max..)	0.5%	2%		0.5%	2%	
	Load regulation (10-100%) (Max.)	1%	5% (symmetric load)		1%	5% (symmetric load)	
	Cross regulation	1%	5%		1%	5%	
	Minimum load	25%			25%		
	Efficiency (Typ)	78%			78%		

MTC SERIES
15 Watts

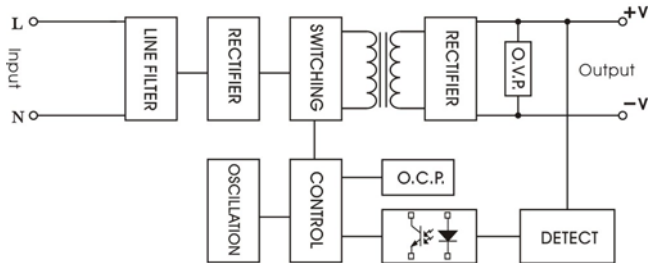
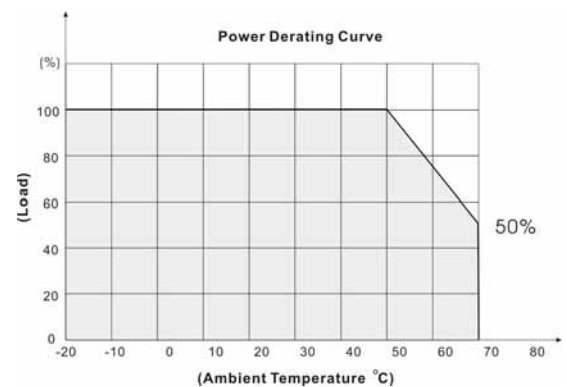
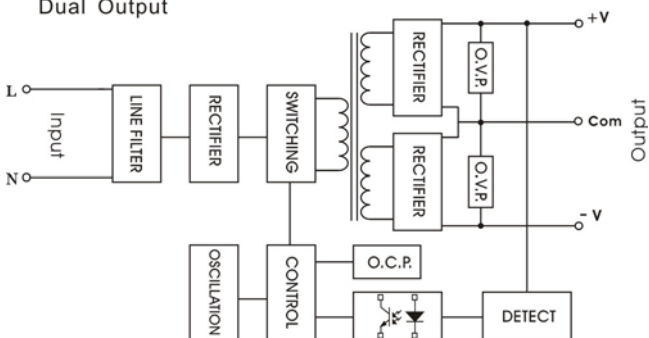
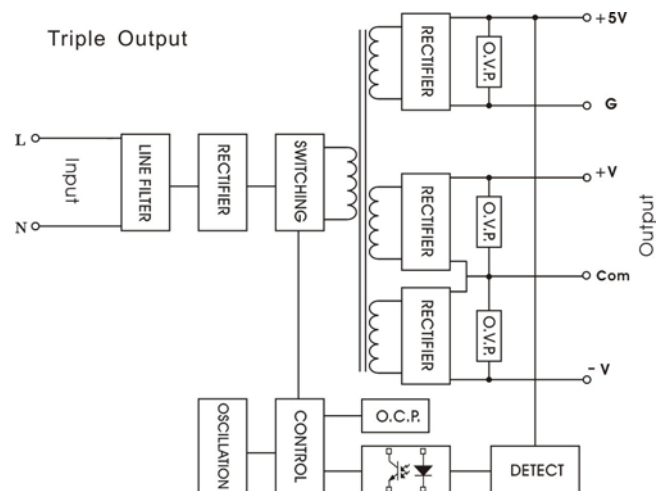
Input	Voltage	90-264 VAC or 100-375 VDC
	Frequency (Hz)	47-440 Hz
	Current (Full load)	220 mA max. (115 VAC) / 118 mA max. (230 VAC)
	Inrush current (<2ms)	10 A max. (115 VAC) / 20 A max. (230 VAC)
	Leakage Current	0.1 mA max. (115 VAC) / 0.2 mA max. (230 VAC)
	External fuse (recommend)	2.0 A slow blow type
Output	Maximum capacitive load	330-23,000 μ F depending on model
	Ripple & Noise	1% of Vout
	Hold-up time	20 ms min.
	Switching frequency	132 kHz
Protection	Over current protection	Above 105% rated output power
	Over voltage protection	Zener diode clamp
	Short circuit protection	Hiccup mode, indefinite (automatic recovery)
	OTP	100°C
Isolation	Input-Output (V.AC)	4000V
Environment	Operating temperature	-25°C...+70°C (Case Temperature max. +95°C)
	Storage temperature	-40°C...+100°C
	Temperature coefficient	0.01%/°C
	Humidity	95% RH
	MTBF	200,000 h~400,000 h @ 25°C
Physical	Dimension (L x W x H)	2.52 x 1.79 x 0.92 Inches (64.0 x 45.6 x 23.5 mm) Tolerance \pm 0.5 mm
	Case Material	Plastic resin + Fiberglass (flammability to UL 94V-0)
	Weight	120 g
	Cooling method	Free air convection
Safety & EMC	Safety Approvals	UL60601-1 / IEC60601-1
	approval	cUL / UL / CB
	EMI / PFI conducted	EN 55011 class B
	EMC Standards	EN60601-1-2
	ESD Susceptibility	EN60601-1-2
	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
Conducted Susceptibility	EN60601-1-2	

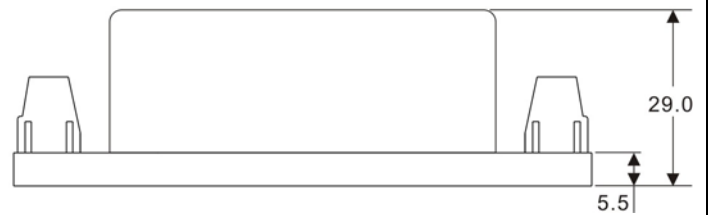
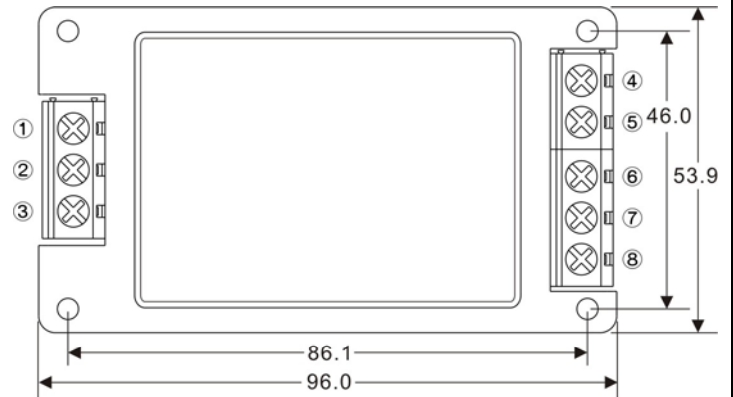
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1 μ F & 47 μ F parallel capacitor.

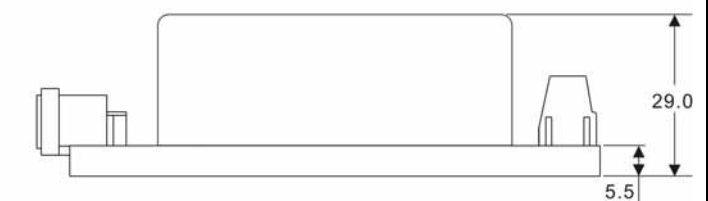
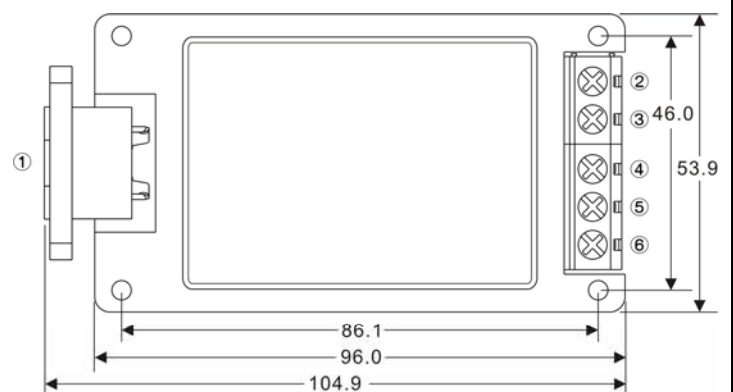
MTC SERIES
15 Watts
MECHANICAL DIMENSION (Top View)


PIN#	SINGLE	Dual	Triple
1	NO PIN	NO PIN	NO PIN
2	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)
4	-DC OUT	-DC OUT	+5V RTN
5	NO PIN	NO PIN	+5V OUT
6	NO PIN	COMMON	-DC OUT
7	+DC OUT	+DC OUT	NO PIN
8	NO PIN	NO PIN	COMMON
9	NO PIN	NO PIN	+DC OUT

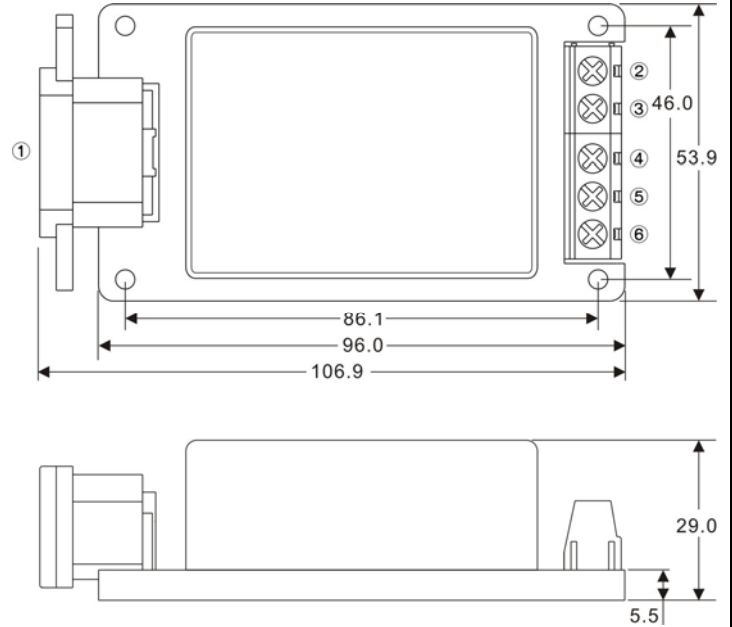
BLOCK DIAGRAM
Single Output

DERATING

Dual Output

Triple Output


SCREW TERMINAL
MTC-A2


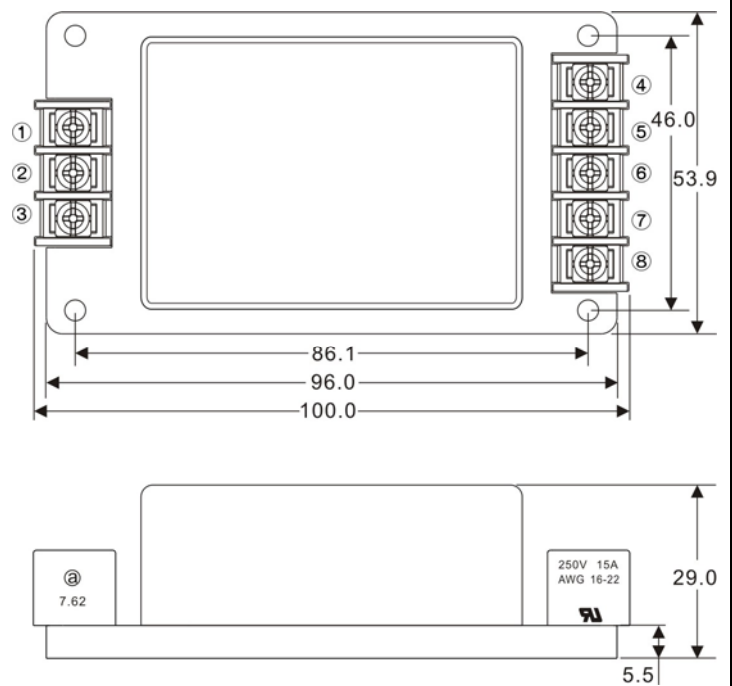
PIN#	Single	Dual	Triple
1	NO CONNECT	NO CONNECT	NO CONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)
4	NO CONNECT	NO CONNECT	+5V RTN
5	-DC OUT	-DC OUT	+5V OUT
6	NO CONNECT	COMMON	-DC OUT
7	+DC OUT	+DC OUT	NO CONNECT
8	NO CONNECT	NO CONNECT	+DC OUT

MTC-A3


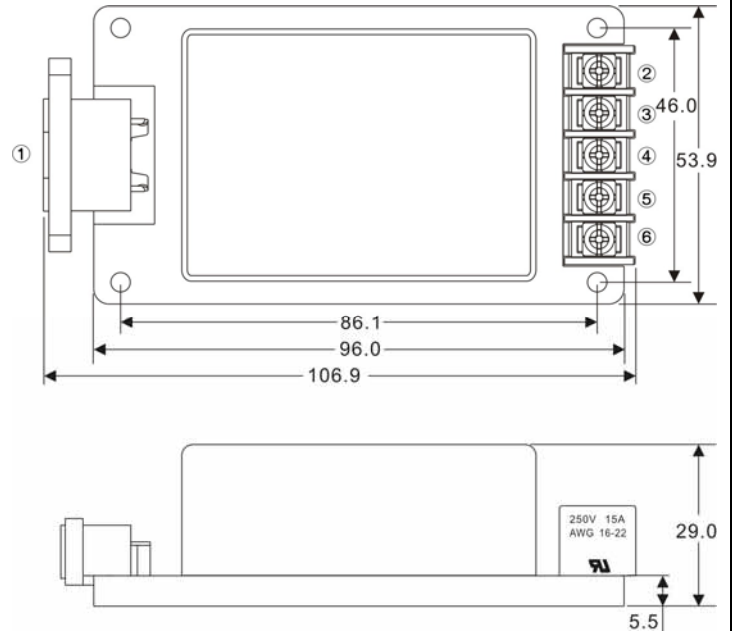
PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	+5V RTN
3	-DC OUT	-DC OUT	+5V OUT
4	NO CONNECT	COMMON	-DC OUT
5	+DC OUT	+DC OUT	NO CONNECT
6	NO CONNECT	NO CONNECT	+DC OUT

MTC-A4


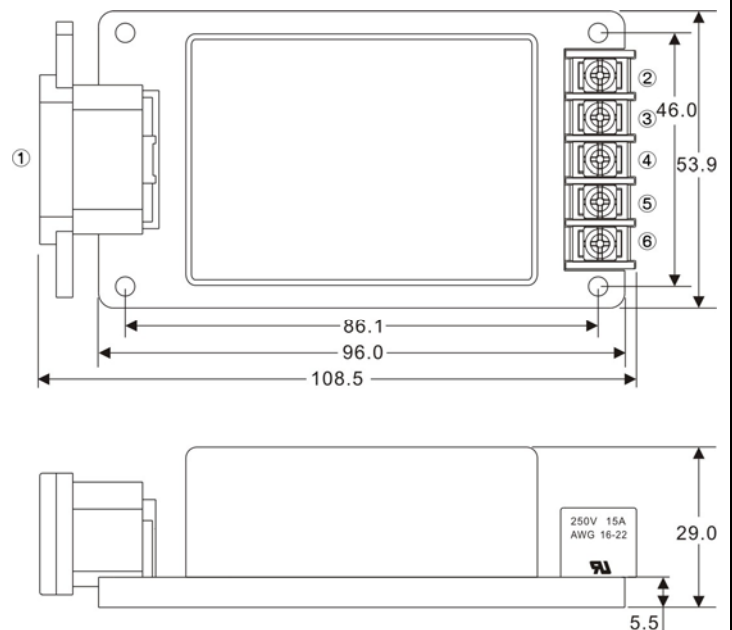
PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	+5V RTN
3	-DC OUT	-DC OUT	+5V OUT
4	NO CONNECT	COMMON	-DC OUT
5	+DC OUT	+DC OUT	NO CONNECT
6	NO CONNECT	NO CONNECT	+DC OUT

MTC-A5


PIN#	Single	Dual	Triple
1	NO CONNECT	NO CONNECT	NO CONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)
4	NO CONNECT	NO CONNECT	+5V RTN
5	-DC OUT	-DC OUT	+5V OUT
6	NO CONNECT	COMMON	-DC OUT
7	+DC OUT	+DC OUT	NO CONNECT
8	NO CONNECT	NO CONNECT	+DC OUT

MTC SERIES
15 Watts
MTC-A6


PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	+5V RTN
3	-DC OUT	-DC OUT	+5V OUT
4	NO CONNECT	COMMON	-DC OUT
5	+DC OUT	+DC OUT	NO CONNECT
6	NO CONNECT	NO CONNECT	+DC OUT

MTC-A7


PIN#	Single	Dual	Triple
1	AC IN	AC IN	AC IN
2	NO CONNECT	NO CONNECT	+5V RTN
3	-DC OUT	-DC OUT	+5V OUT
4	NO CONNECT	COMMON	-DC OUT
5	+DC OUT	+DC OUT	NO CONNECT
6	NO CONNECT	NO CONNECT	+DC OUT

MSC SERIES
40 Watts
KEY FEATURES

- Switching Power Modules for PCB Mounting
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, CB, UL, cUL, TUV Approvals
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No. (Single Output)	MSC-3.3S	MSC-5S	MSC-9S	MSC-12S	MSC-15S	MSC-24S	
Max output wattage (W)	26.4W	40W	40W	40W	40W	40W	
Output	Voltage (V.DC.)	3.3V	5V	9V	12V	15V	24V
	Current (mA) max	8000	8000	4444	3333	2666	1667
	Voltage set accuracy	±2%	±2%	±2%	±2%	±2%	±2%
	Line regulation (Typ.)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Load regulation (1-100%) (Typ.)	1%	1%	1%	1%	1%	1%
	Minimum load	1%	1%	1%	1%	1%	1%
	Efficiency (Typ)	75%	79%	82%	83%	83%	83%

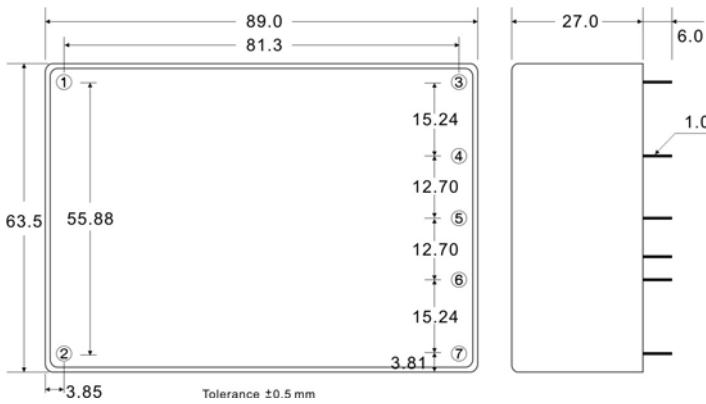
Model No. (Dual Output)	MSC-5D		MSC-12D		MSC-15D		
Max output wattage (W)	40W		40W		40W		
Output	Output 1	Output 2	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	+5V	-5V	+12V	-12V	+15V	-15V
	Current (mA) max	4000	4000	1666	1666	1333	1333
	Voltage set accuracy	±2%		±2%		±2%	
	Line regulation (Typ.)	0.5%		0.5%		0.5%	
	Load regulation (10-100%) (Typ.)	1% (symmetric load)		1% (symmetric load)		1% (symmetric load)	
	Cross regulation (Typ.)	5%		5%		5%	
	Minimum load	10%		10%		10%	
	Efficiency (Typ)	79%		83%		83%	

Model No. (Dual Output)	MSC-5S12S		MSC-5S24S		
Max output wattage (W)	40W		40W		
Output	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	5V	12V	5V	24V
	Current (mA) max	5000	1250	5000	625
	Voltage set accuracy	±3%	±5%	±3%	±5%
	Line regulation (Typ.)	0.5%	5%	0.5%	5%
	Load regulation (10-100%) (Typ.)	2% (symmetric load)	6% (symmetric load)	2% (symmetric load)	6% (symmetric load)
	Cross regulation (Typ.)	1%	7%	1%	7%
	Minimum load	25%		25%	
	Efficiency (Typ)	80%		80%	

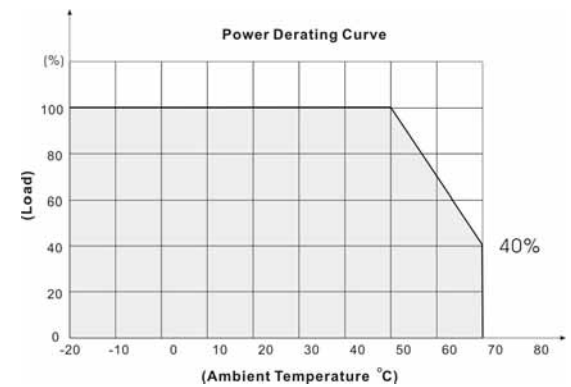
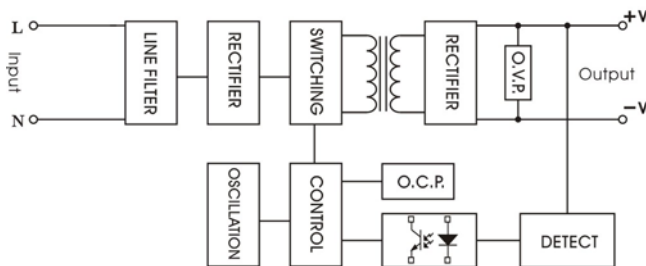
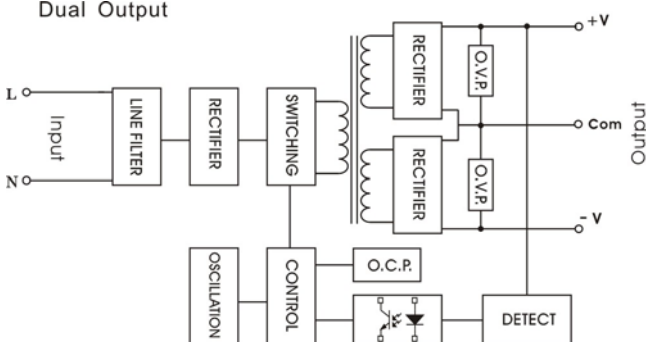
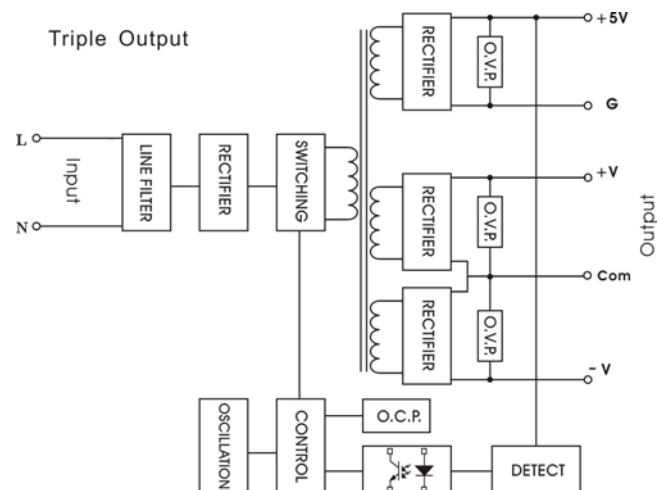
Model No. (Triple Output)	MSC-5S12D			MSC-5S15D		
Max output wattage (W)	40W			40W		
Output	Output 2	Output 3	Output 1	Output 2	Output 3	
	Voltage (V.DC.)	+12	-12	5	+15	-15
	Current (mA) max	600	600	5000	500	500
	Voltage set accuracy	±5%		±3%	±5%	
	Line regulation (Typ.)	5%		0.5%	5%	
	Load regulation (25-100%) (Typ.) (symmetric load)	7%		3%	7%	
	Cross regulation (Typ.)	7%		3%	7%	
	Minimum load	25%			25%	
	Efficiency (Typ)	80%			80%	

Input	Voltage	90-264 VAC or 100-375 VDC	
	Frequency (Hz)	47-440 Hz	
	Current (Full load)	860 mA max. (115 VAC) / 460 mA max. (230 VAC)	
	Inrush current (<2ms)	10 A max. (115 VAC) / 20 A max. (230 VAC)	
	Leakage Current	0.1 mA max. (115 VAC) / 0.2 mA max. (230 VAC)	
	External fuse (recommend)	3.15 A slow blow type	
Output	Maximum capacitive load	470-23,000µF depending on model	
	Ripple & Noise	3.3V : 50mV of Vout	5V~24V : 1% of Vout
	Hold-up time	18 ms min.	
	Switching frequency	132 kHz	
Protection	Over current protection	Above 105% rated output power	
	Over voltage protection	Zener diode clamp	
	Short circuit protection	Hiccup mode, indefinite (automatic recovery)	
	OTP	100°C	
Isolation	Input-Output (V.AC)	4000V	
Environment	Operating temperature	-25°C...+70°C (Case Temperature max. +95°C)	
	Storage temperature	-40°C...+100°C	
	Temperature coefficient	0.01%/°C	
	Humidity	95% RH	
	MTBF	200,000 h~400,000 h @ 25°C	
Physical	Dimension (L x W x H)	3.5 x 2.5 x 1.06 Inches (89.0 x 63.5 x 27.0 mm) Tolerance ±0.5 mm	
	Case Material	Plastic resin + Fiberglass (flammability to UL 94V-0)	
	Weight	280 g	
	Cooling method	Free air convection	
Safety & EMC	Class II approval	To IEC / EN 60536	
	EMI / PFI conducted	cUL / UL / CB	
	EMC Standards	EN 55011 class B	
	ESD Susceptibility	EN60601-1-2	
	Radiated Susceptibility	EN60601-1-2	
	EFT / Burst	EN60601-1-2	
	Surge	EN60601-1-2	
	Conducted Susceptibility	EN60601-1-2	
	Safety Approvals	EN60601-1	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

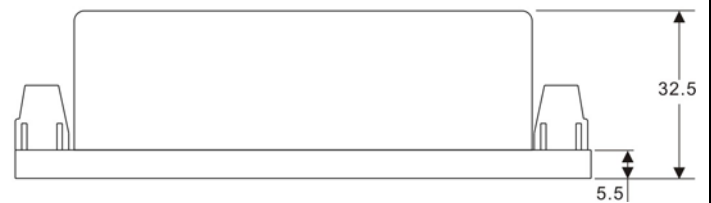
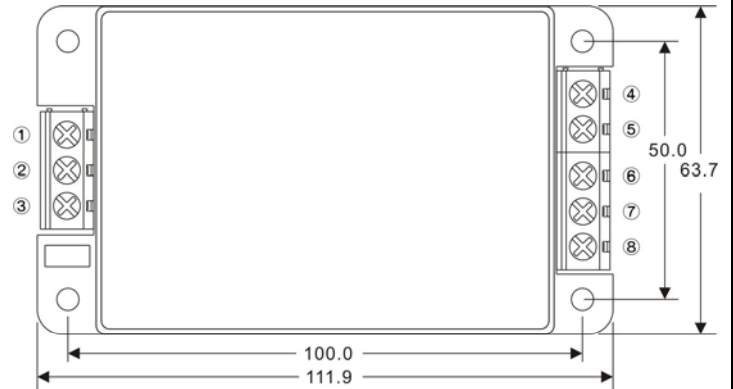
MECHANICAL DIMENSION (Top View)


PIN#	SINGLE	Dual	5S/12S 5S/24S	Triple
1	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	+DC OUT	+DC OUT	+OUT2	+DC OUT
4	NO PIN	NO PIN	+OUT1	+5V
5	-DC OUT	COMMON	+OUT2 RTN	COMMON
6	NO PIN	NO PIN	+OUT1 RTN	+5 RTN
7	NOCONNECT	-DC OUT	NO PIN	-DC OUT

BLOCK DIAGRAM
DERATING
Single Output

Dual Output

Triple Output


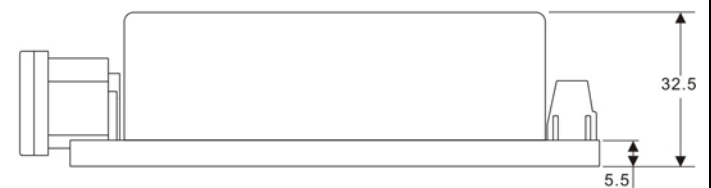
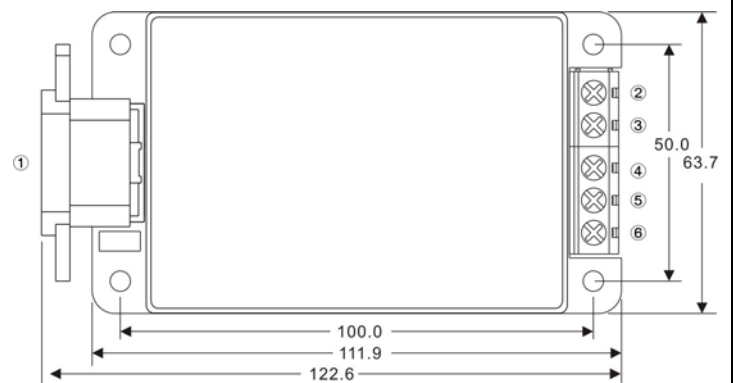
SCREW TERMINAL

MSC-A2

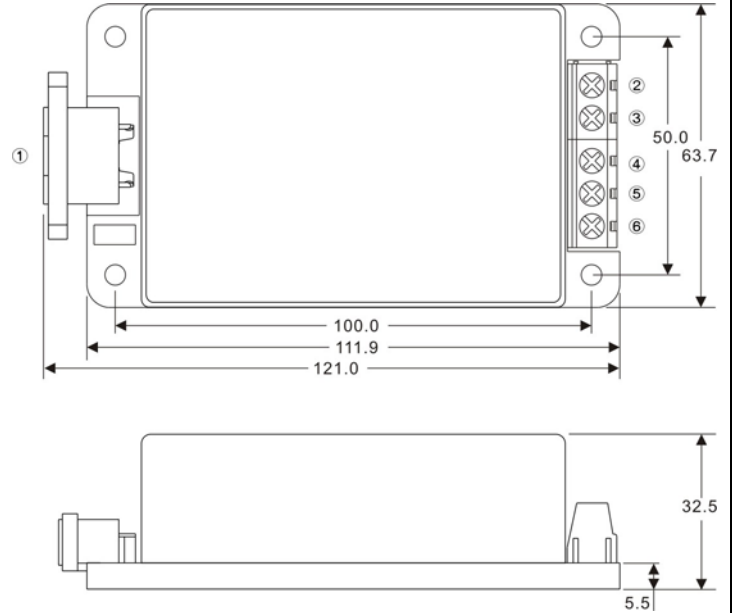


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
4	+DC OUT	+DC OUT	+OUT2	+DC OUT
5	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
6	-DC OUT	COMMON	+OUT2 RTN	COMMON
7	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

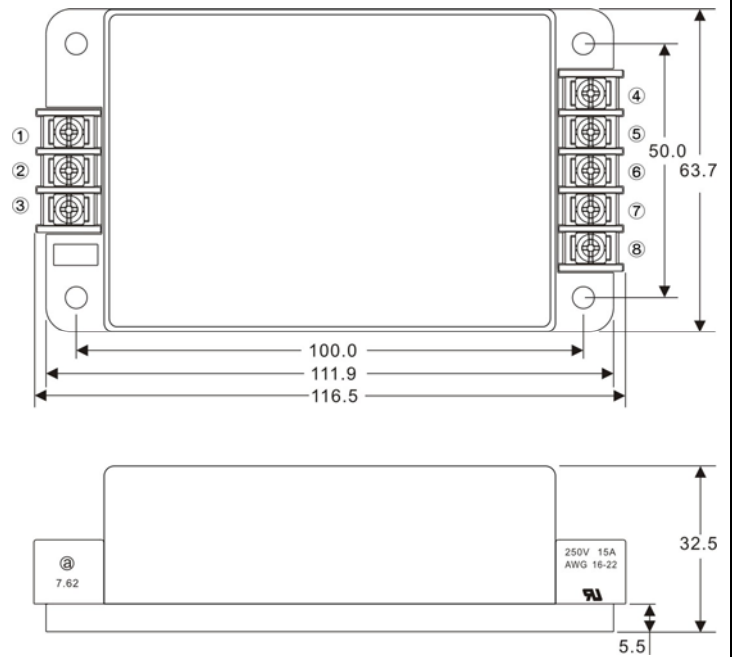
MSC-A3



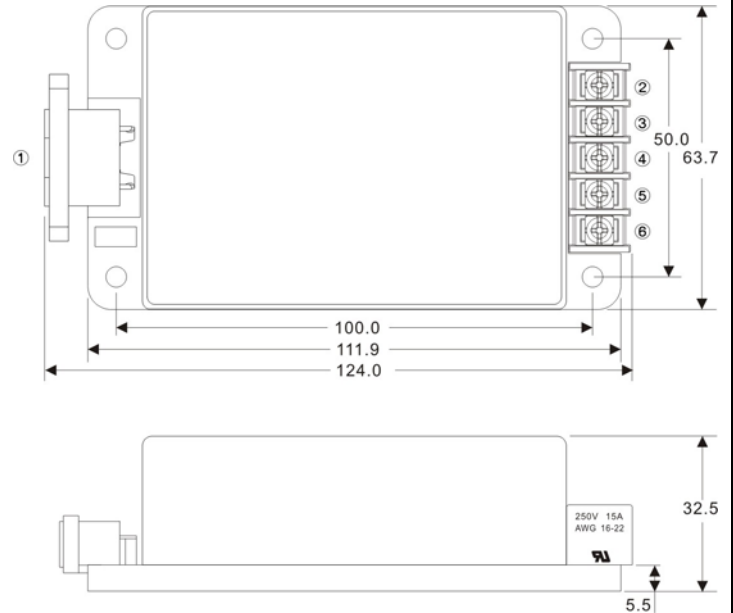
PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

MSC-A4


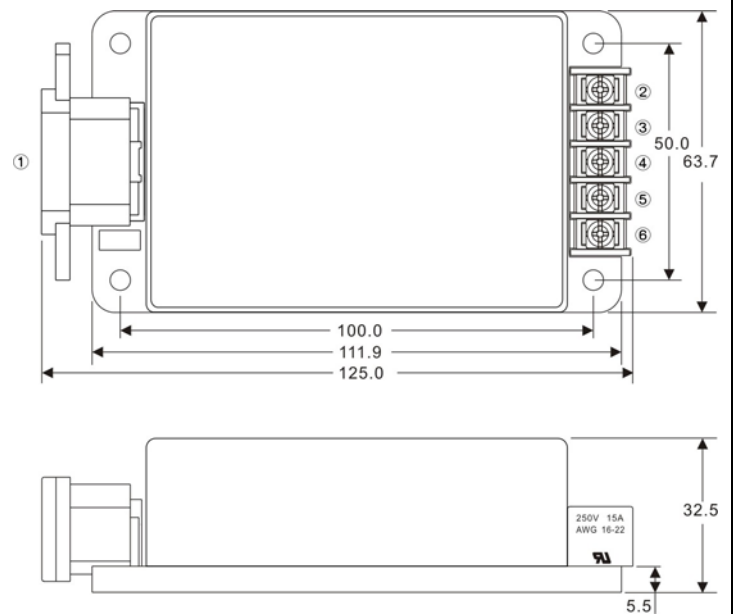
PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

MSC-A5


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	NOCONNECT	NOCONNECT	NOCONNECT	NOCONNECT
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
4	+DC OUT	+DC OUT	+OUT2	+DC OUT
5	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
6	-DC OUT	COMMON	+OUT2 RTN	COMMON
7	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
8	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

MSC-A6


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

MSC-A7


PIN#	Single	Dual	5S/12S 5S/24S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+OUT2	+DC OUT
3	NOCONNECT	NOCONNECT	+OUT1	+5V OUT
4	-DC OUT	COMMON	+OUT2 RTN	COMMON
5	NOCONNECT	NOCONNECT	+OUT1 RTN	+5V RTN
6	NOCONNECT	-DC OUT	NOCONNECT	-DC OUT

KEY FEATURES

- Open Frame Switching Power Supply
- Universal Input: 85-265 VAC
- Single Output
- 5 VDC to 48 VDC Output
- 4000 VAC Input to Output Isolation
- 2-Years Product Warranty

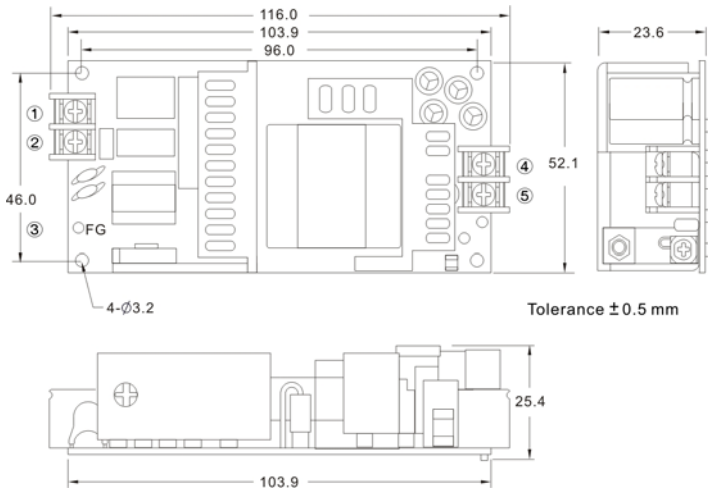

ELECTRICAL SPECIFICATIONS

Model No.	AES600-5S	AES600-9S	AES600-12S	AES600-15S	AES600-24S	AES600-48S
Max Output Wattage (W)	50W	60W	60W	60W	60W	60W
Input	Voltage					
	85-265 VAC or 100-370 VDC					
	Frequency (Hz)					
	47-65 Hz					
	Current (Full load)					
2 A max. (115 VAC) / 1 A max. (230 VAC)						
Inrush Current (<2ms)						
30 A max. (115 VAC) / 50 A max. (230 VAC)						
Leakage Current						
0.5 mA max.						
Output	Voltage (V.DC.)					
	5V	9V	12V	15V	24V	48V
	Voltage Accuracy					
	±2%					
	Current (mA) max					
	10,000	6,660	5,000	4,000	2,500	1,250
	Line Regulation (LL-HL) (typ.)					
	±1%					
	Load Regulation (5-100%) (typ.)					
	±1%					
	Minimum Load					
	1%					
	Maximum Capacitive Load					
470-23,000µF depending on model						
Ripple						
<0.2% Vout +40mV max (Vp-p)						
Noise						
<0.5% Vout +50mV max (Vp-p)						
Efficiency (at 230V)						
82%	84%	86%	86%	86%	86%	
Trim						
±10%						
Hold-up Time						
10 ms min.						
Switching Frequency						
100 kHz						
Protection	Over Power Protection					
	Auto recovery					
	Over Voltage Protection					
Zener diode clamp						
Short Circuit Protection						
Auto recovery						
Isolation	Input-Output (V.AC)					
	4000V					
	Input-FG (V.AC)					
2000V						
Output-FG (V.AC)						
500V						
Environment	Operating Temperature					
	-40°C...+70°C (with derating)					
	Storage Temperature					
	-50°C...+84°C					
	Temperature coefficient					
±0.02%/°C						
Humidity						
95% RH						
MTBF						
>130,000 h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H)					
	4.1 x 2.05 x 1.0 Inches (103.9 x 52.1 x 25.4 mm) Tolerance ±0.5 mm					
	Weight					
150 g						
Cooling Method						
Free air convection						
Safety	Agency Approvals					
CE, UL (Pending)						
EMC	EMI (Conducted & Radiated Emission)					
	EN 55022 class B (Pending)					
EMS (Noise Immunity)						
EN 55024 (Pending)						

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

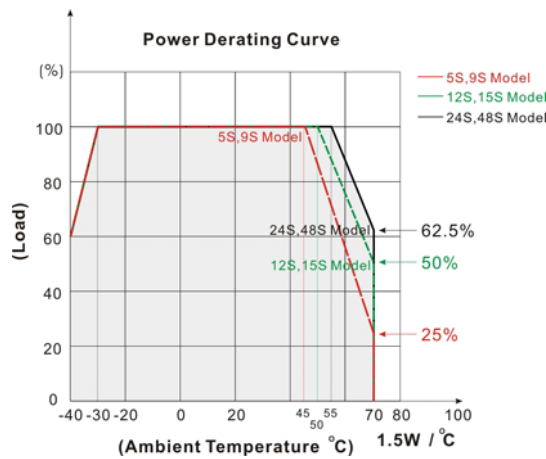
Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

MECHANICAL DIMENSION (Top View)

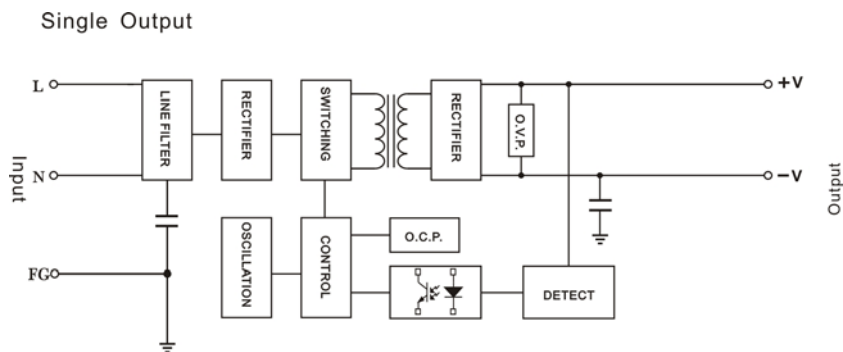


PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	FG
4	+DC OUT
5	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- Enclosed Switching Power Supply
- Universal Input: 85-265 VAC
- Single Output
- 5 VDC to 48 VDC Output
- 5700 VDC Input to Output Isolation
- 2-Years Product Warranty

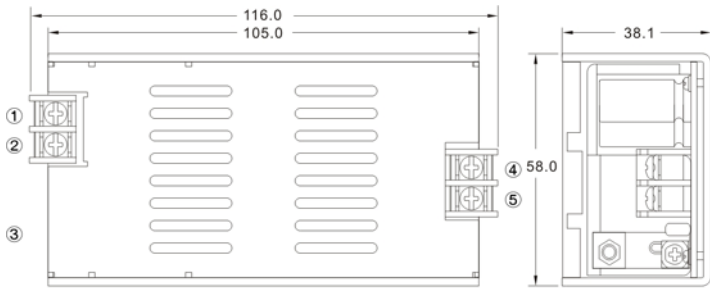

ELECTRICAL SPECIFICATIONS

Model No.	AES60E-5S	AES60E-9S	AES60E-12S	AES60E-15S	AES60E-24S	AES60E-48S
Max Output Wattage (W)	50W	60W	60W	60W	60W	60W
Input	Voltage					
	85-265 VAC or 100-370 VDC					
	Frequency (Hz)					
	47-65 Hz					
	Current (Full load)					
2 A max. (115 VAC) / 1 A max. (230 VAC)						
Inrush Current (<2ms)						
30 A max. (115 VAC) / 50 A max. (230 VAC)						
Leakage Current						
0.5 mA max.						
Output	Voltage (V.DC.)					
	5V	9V	12V	15V	24V	48V
	Voltage Accuracy					
	±2%					
	Current (mA) max					
	10,000	6,660	5,000	4,000	2,500	1,250
	Line Regulation (LL-HL) (typ.)					
	±1%					
	Load Regulation (5-100%) (typ.)					
	±1%					
	Minimum Load					
	1%					
	Maximum Capacitive Load					
470-23,000µF depending on model						
Ripple						
<0.2% Vout +40mV max (Vp-p)						
Noise						
<0.5% Vout +50mV max (Vp-p)						
Efficiency (at 230V)						
82%	84%	86%	86%	86%	86%	
Trim						
±10%						
Hold-up Time						
10 ms min.						
Switching Frequency						
100 kHz						
Protection	Over Power Protection					
	Auto recovery					
	Over Voltage Protection					
Zener diode clamp						
Short Circuit Protection						
Auto recovery						
Isolation	Input-Output (V.DC)					
	5700V					
	Input-FG (V.DC)					
2900V						
Output-FG (V.DC)						
710V						
Environment	Operating Temperature					
	-40°C...+70°C (with derating)					
	Storage Temperature					
	-50°C...+85°C					
	Temperature coefficient					
±0.02%/°C						
Humidity						
95% RH						
MTBF						
>130,000 h @ 25°C (MIL-HDBK-217F)						
Physical	Dimension (L x W x H)					
	4.13 x 2.28 x 1.5 Inches (105.0 x 58.0 x 38.1 mm) Tolerance ±0.5 mm					
	Weight					
260 g						
Cooling Method						
Free air convection						
Safety	Agency Approvals					
CE, UL (Pending)						
EMC	EMI (Conducted & Radiated Emission)					
	EN 55022 class B (Pending)					
EMS (Noise Immunity)						
EN 55024 (Pending)						

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

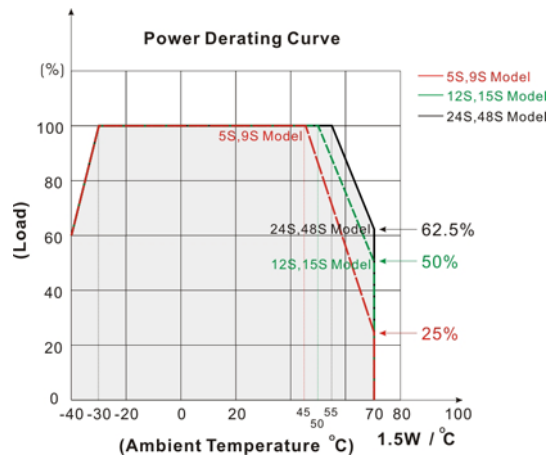
MECHANICAL DIMENSION (Top View)



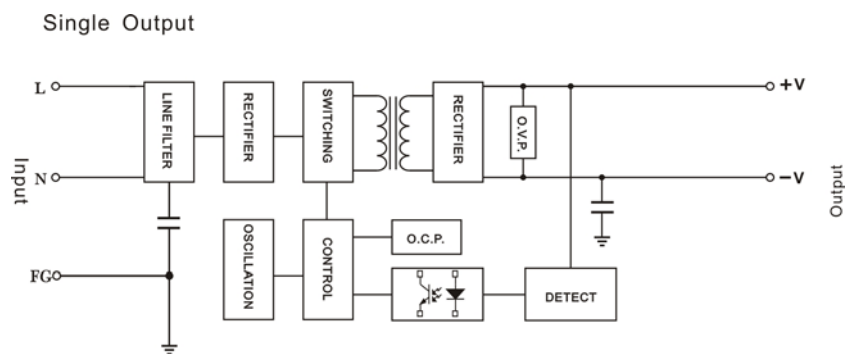
Tolerance ± 0.5 mm

PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	FG
4	+DC OUT
5	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- U Bracket Switching Power Supply
- Universal Input: 85-265 VAC
- Single Output
- 5 VDC to 48 VDC Output
- 5700 VDC Input to Output Isolation
- 2-Years Product Warranty

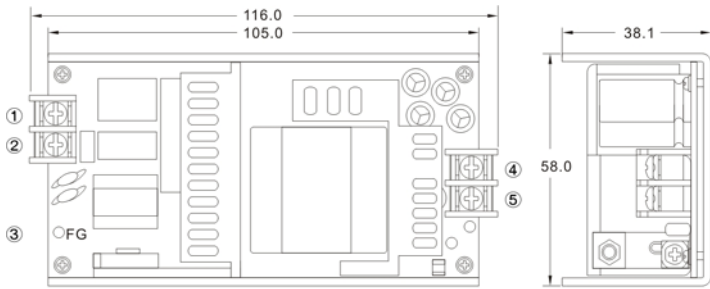

ELECTRICAL SPECIFICATIONS

Model No.	AES60U-5S	AES60U-9S	AES60U-12S	AES60U-15S	AES60U-24S	AES60U-48S	
Max Output Wattage (W)	50W	60W	60W	60W	60W	60W	
Input	Voltage						85-265 VAC or 100-370 VDC
	Frequency (Hz)						47-65 Hz
	Current (Full load)						2 A max. (115 VAC) / 1 A max. (230 VAC)
	Inrush Current (<2ms)						30 A max. (115 VAC) / 50 A max. (230 VAC)
	Leakage Current						0.5 mA max.
Output	Voltage (V.DC.)	5V	9V	12V	15V	24V	48V
	Voltage Accuracy	±2%					
	Current (mA) max	10,000	6,660	5,000	4,000	2,500	1,250
	Line Regulation (LL-HL) (typ.)	±1%					
	Load Regulation (5-100%) (typ.)	±1%					
	Minimum Load	1%					
	Maximum Capacitive Load	470-23,000µF depending on model					
	Ripple	<0.2% Vout +40mV max (Vp-p)					
	Noise	<0.5% Vout +50mV max (Vp-p)					
	Efficiency (at 230V)	82%	84%	86%	86%	86%	86%
	Trim	±10%					
	Hold-up Time	10 ms min.					
Switching Frequency	100 kHz						
Protection	Over Power Protection	Auto recovery					
	Over Voltage Protection	Zener diode clamp					
	Short Circuit Protection	Auto recovery					
Isolation	Input-Output (V.DC)	5700V					
	Input-FG (V.DC)	2900V					
	Output-FG (V.DC)	710V					
Environment	Operating Temperature	-40°C...+70°C (with derating)					
	Storage Temperature	-50°C...+85°C					
	Temperature coefficient	±0.02%/°C					
	Humidity	95% RH					
	MTBF	>130,000 h @ 25°C (MIL-HDBK-217F)					
Physical	Dimension (L x W x H)	4.13 x 2.28 x 1.5 Inches (105.0 x 58.0 x 38.1 mm) Tolerance ±0.5 mm					
	Weight	240 g					
	Cooling Method	Free air convection					
Safety	Agency Approvals	CE, UL (Pending)					
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B (Pending)					
	EMS (Noise Immunity)	EN 55024 (Pending)					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Measured with 0.1µ 50V // 47µ 50V Ceramic Cap. Cross to output

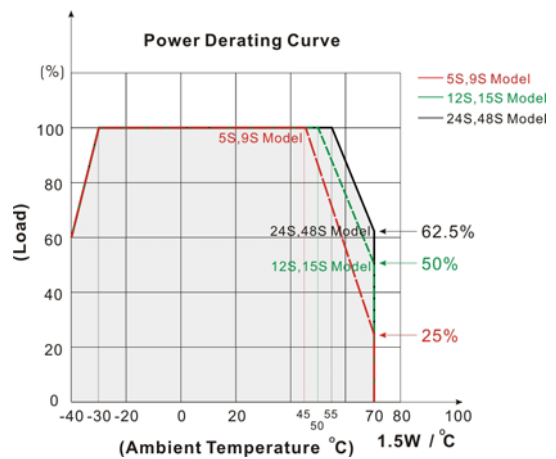
MECHANICAL DIMENSION (Top View)



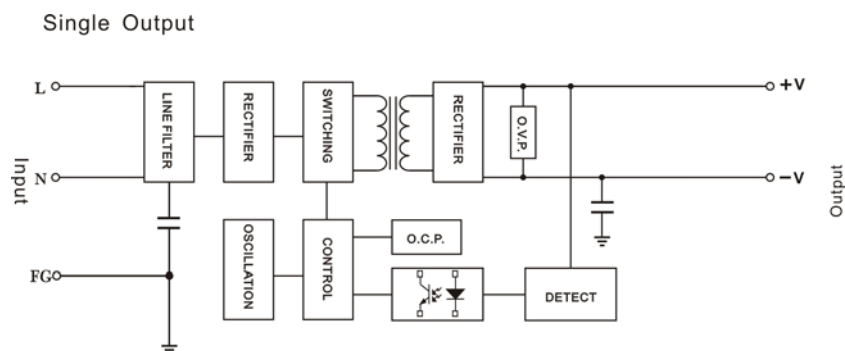
Tolerance ± 0.5 mm

PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	FG
4	+DC OUT
5	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- Open Frame Switching Power Supply
- Universal Input: 90-264 VAC
- With P.F.C. Function
- Free Air Convection
- Ultra Compact Size: 5.0 x 3.0 x 1.16 Inches
- 3-Years Product Warranty



ELECTRICAL SPECIFICATIONS

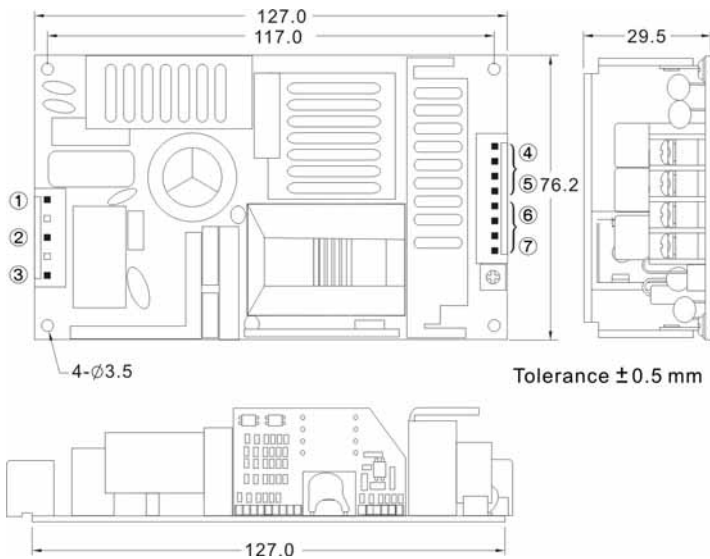
Model No.	AQF1200-12S	AQF1200-24S	AQF1200-48S	
Max Output Wattage (W)	120W	120W	120W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)			
	Inrush Current (<2ms)			
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Output	Leakage Current			
	< 0.5 mA max.			
	Power Factor			
	PF>0.98 (115 VAC) / PF>0.94 (230 VAC) at Full Load			
	Voltage (V.DC.)		12V	24V
	Voltage Accuracy		±2%	
	Current (Convection) (A) max		10	2.5
Output	Line Regulation			
	±1%			
	Load Regulation			
	±1%			
	Minimum Load			
	0%			
	Maximum Capacitive Load			
	470-23,000µF depending on model			
	Ripple & Noise			
	1% max.			
Output	Efficiency (typ.)		90%	
			91%	
			92%	
	Hold-up Time			
20 ms min.				
Switching Frequency				
100 kHz				
Protection	Over Power Protection			
	Auto recovery			
	Over Voltage Protection			
Latch Off				
Short Circuit Protection				
Auto recovery				
Isolation	Input-Output (V.AC)			
	4000V			
	Input-FG (V.AC)			
2000V				
Output-FG (V.AC)				
500V				
Environment	Operating Temperature			
	-10°C...+70°C (with derating)			
	Storage Temperature			
	-25°C...+85°C			
	Temperature Coefficient			
	±0.03%/°C (0~50°C)			
Humidity				
95% RH				
MTBF				
>50,000 h @ 25°C (MIL-HDBK-217F)				
Vibration				
10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.				
Physical	Dimension (L x W x H)			
	5.0 x 3.0 x 1.16 Inches (127.0 x 76.2 x 29.5 mm) Tolerance ±0.5 mm			
	Weight			
280 g				
Cooling Method				
Free convection				
Safety & EMC	Safety Approvals			
	UL60601-1 / IEC60601-1			
	approval			
	cUL / UL			
	EMI / PFI conducted			
EN 55011 class B, EN 55022 class B				
EMC Standards				
EN60601-1-2				
ESD Susceptibility				
EN60601-1-2				

AQF1200 SERIES**120 Watts**

Safety & EMC	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
	Conducted Susceptibility	EN60601-1-2

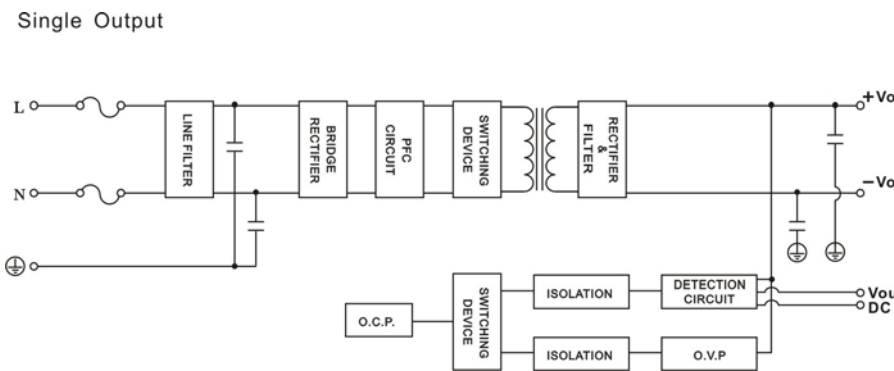
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

MECHANICAL DIMENSION (Top View)

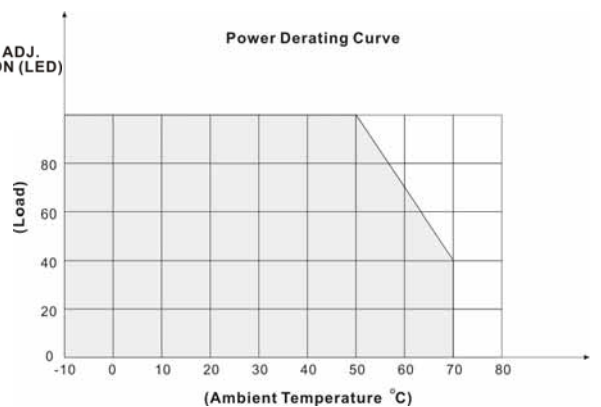
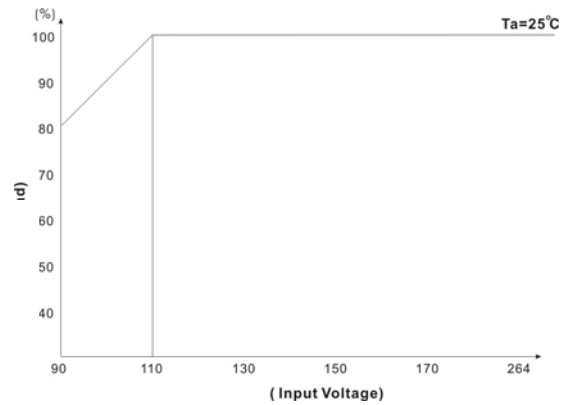


PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

BLOCK DIAGRAM



DERATING



KEY FEATURES

- Enclosed Switching Power Supply
- Universal Input: 90-264 VAC
- With P.F.C. Function
- Free Air Convection
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 3-Years Product Warranty



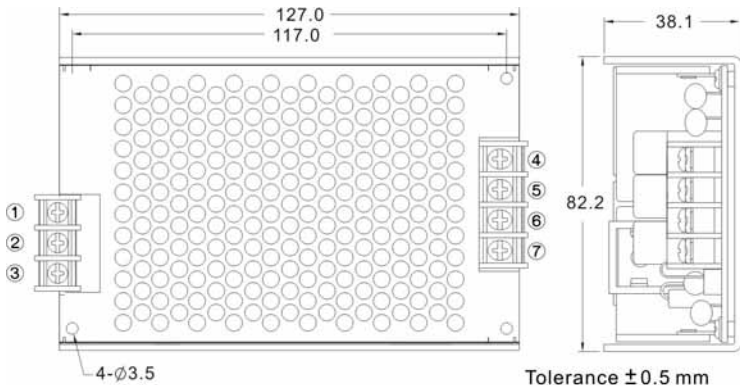
ELECTRICAL SPECIFICATIONS

Model No.	AQF120E-12S	AQF120E-24S	AQF120E-48S	
Max Output Wattage (W)	120W	120W	120W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)			
Inrush Current (<2ms)				
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Leakage Current				
< 0.5 mA max.				
Power Factor				
PF>0.98 (115 VAC) / PF>0.94 (230 VAC) at Full Load				
Output	Voltage (V.DC.)	12V	24V	48V
	Voltage Accuracy	±2%		
	Current (Convection) (A) max	10	5	2.5
	Line Regulation	±1%		
	Load Regulation	±1%		
	Minimum Load	0%		
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple & Noise	1% max.		
	Efficiency (typ.)	90%	91%	92%
	Hold-up Time	20 ms min.		
	Switching Frequency	100 kHz		
Protection	Over Power Protection	Auto recovery		
	Over Voltage Protection	Latch Off		
	Short Circuit Protection	Auto recovery		
Isolation	Input-Output (V.AC)	4000V		
	Input-FG (V.AC)	2000V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-10°C...+70°C (with derating)		
	Storage Temperature	-25°C...+85°C		
	Temperature Coefficient	±0.03%/°C (0~50°C)		
	Humidity	95% RH		
	MTBF	>50,000 h @ 25°C (MIL-HDBK-217F)		
	Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.		
Physical	Dimension (L x W x H)	5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm		
	Weight	400 g		
	Cooling Method	Free convection		
Safety & EMC	Safety Approvals	UL60601-1 / IEC60601-1		
	approval	cUL / UL		
	EMI / PFI conducted	EN 55011 class B, EN 55022 class B		
	EMC Standards	EN60601-1-2		
	ESD Susceptibility	EN60601-1-2		

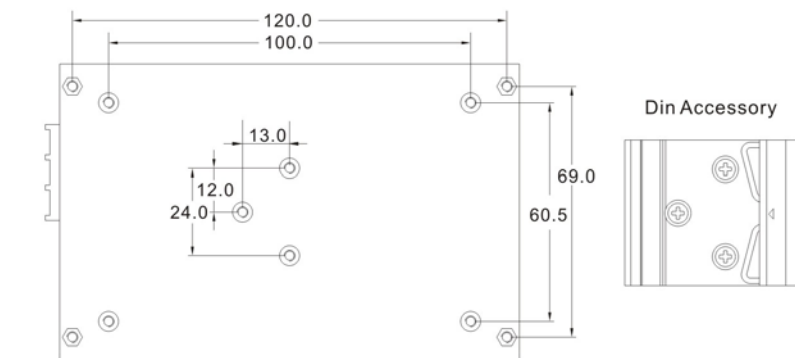
Safety & EMC	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
	Conducted Susceptibility	EN60601-1-2

1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

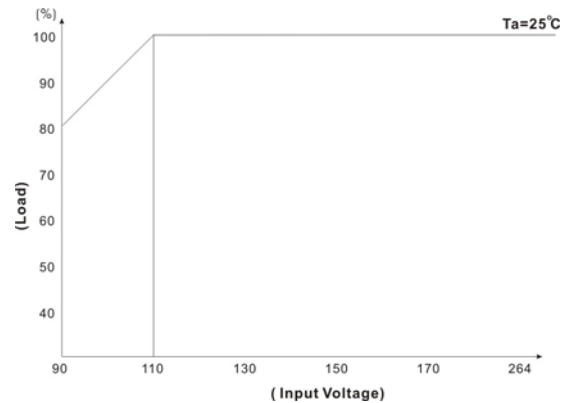
MECHANICAL DIMENSION (Top View)



PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

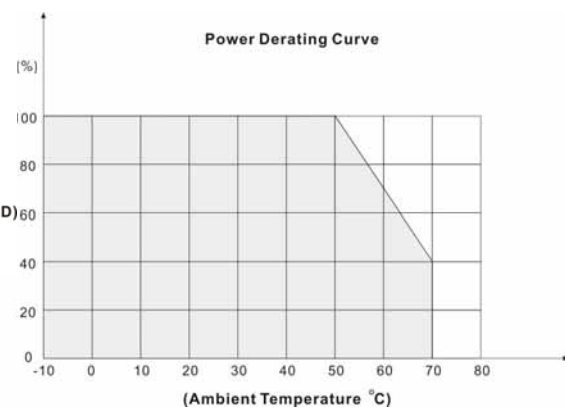
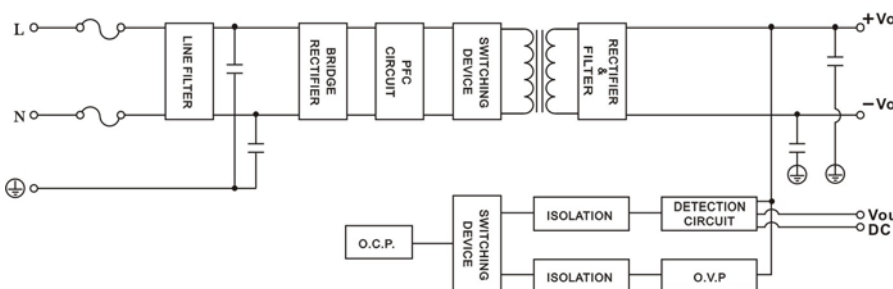


DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- U Bracket Switching Power Supply
- Universal Input: 90-264 VAC
- With P.F.C. Function
- Free Air Convection
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 3-Years Product Warranty



ELECTRICAL SPECIFICATIONS

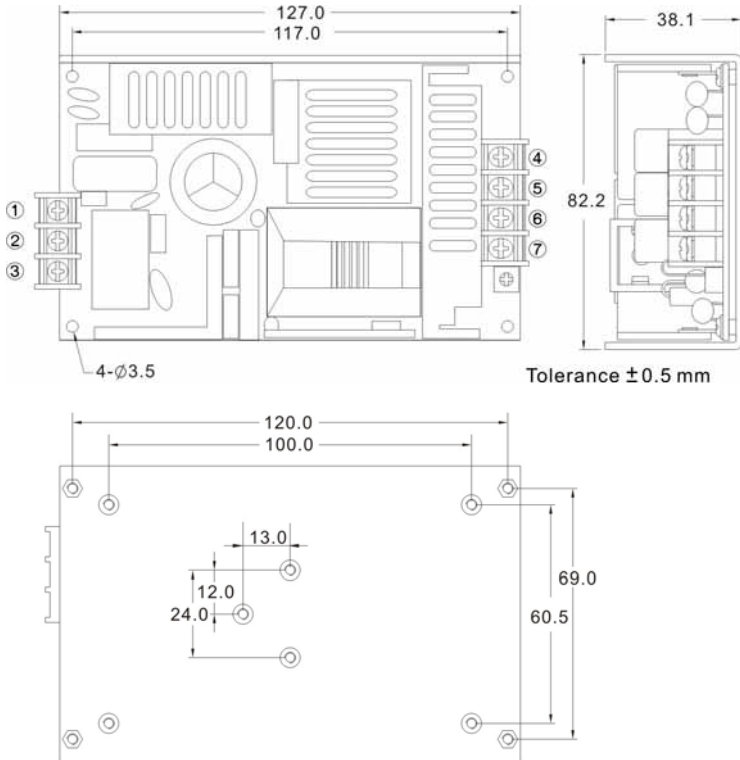
Model No.	AQF120U-12S	AQF120U-24S	AQF120U-48S			
Max Output Wattage (W)	120W	120W	120W			
Input	Voltage			90-264 VAC or 120-370 VDC		
	Frequency (Hz)			47-63 Hz		
	Current (Full load)			<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)		
	Inrush Current (<2ms)			< 30 A max. (115 VAC) / < 60 A max. (230 VAC)		
	Leakage Current			< 0.5 mA max.		
	Power Factor			PF>0.98 (115 VAC) / PF>0.94 (230 VAC) at Full Load		
	Output	Voltage (V.DC.)		12V	24V	48V
Voltage Accuracy		±2%				
Current (Convection) (A) max		10	5	2.5		
Line Regulation		±1%				
Load Regulation		±1%				
Minimum Load		0%				
Maximum Capacitive Load		470-23,000µF depending on model				
Ripple & Noise		1% max.				
Efficiency (typ.)		90%	91%	92%		
Hold-up Time		20 ms min.				
Switching Frequency		100 kHz				
Protection	Over Power Protection		Auto recovery			
	Over Voltage Protection		Latch Off			
	Short Circuit Protection		Auto recovery			
Isolation	Input-Output (V.AC)		4000V			
	Input-FG (V.AC)		2000V			
	Output-FG (V.AC)		500V			
Environment	Operating Temperature		-10°C...+70°C (with derating)			
	Storage Temperature		-25°C...+85°C			
	Temperature Coefficient		±0.03%/°C (0~50°C)			
	Humidity		95% RH			
	MTBF		>50,000 h @ 25°C (MIL-HDBK-217F)			
	Vibration		10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.			
Physical	Dimension (L x W x H)		5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm			
	Weight		382 g			
	Cooling Method		Free convection			
Safety & EMC	Safety Approvals		UL60601-1 / IEC60601-1			
	approval		cUL / UL			
	EMI / PFI conducted		EN 55011 class B, EN 55022 class B			
	EMC Standards		EN60601-1-2			
	ESD Susceptibility		EN60601-1-2			

AQF120U SERIES**120 Watts**

Safety & EMC	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
	Conducted Susceptibility	EN60601-1-2

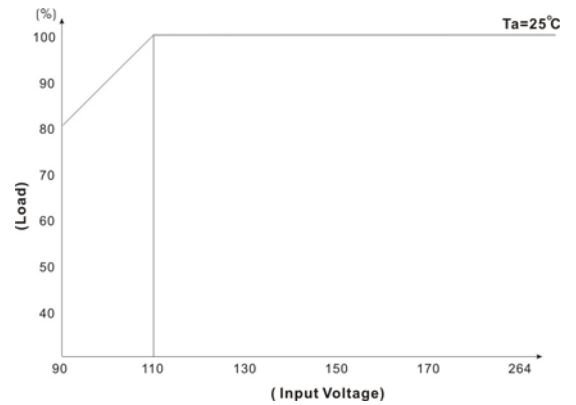
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

MECHANICAL DIMENSION (Top View)



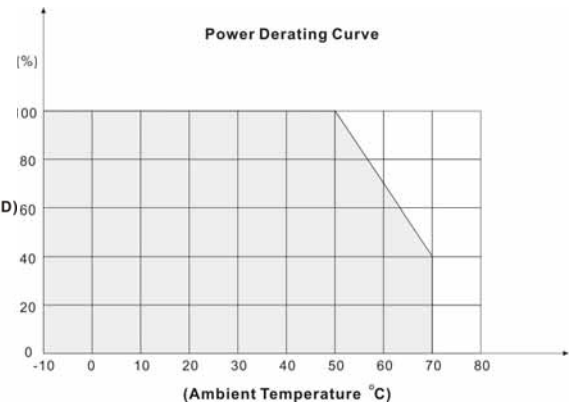
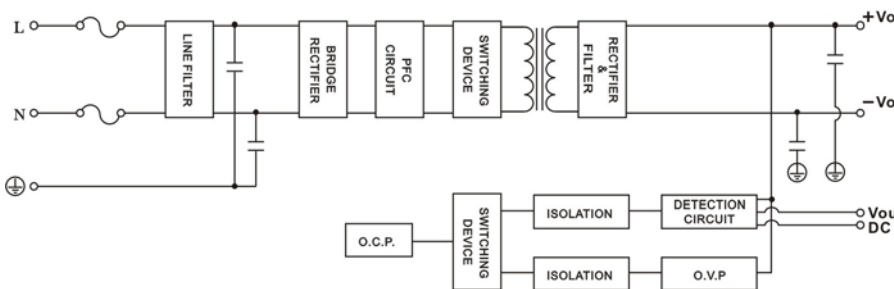
PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM

Single Output



KEY FEATURES

- Enclosed Switching Power Supply
- Universal Input: 90-264 VAC
- With P.F.C. Function, PF>0.95
- Free Air Convection
- High Efficiency up to 93%
- RoHS Compliant Design
- Ultra Compact Size: 6.0 x 4.21 x 1.42 Inches
- 2-Years Product Warranty



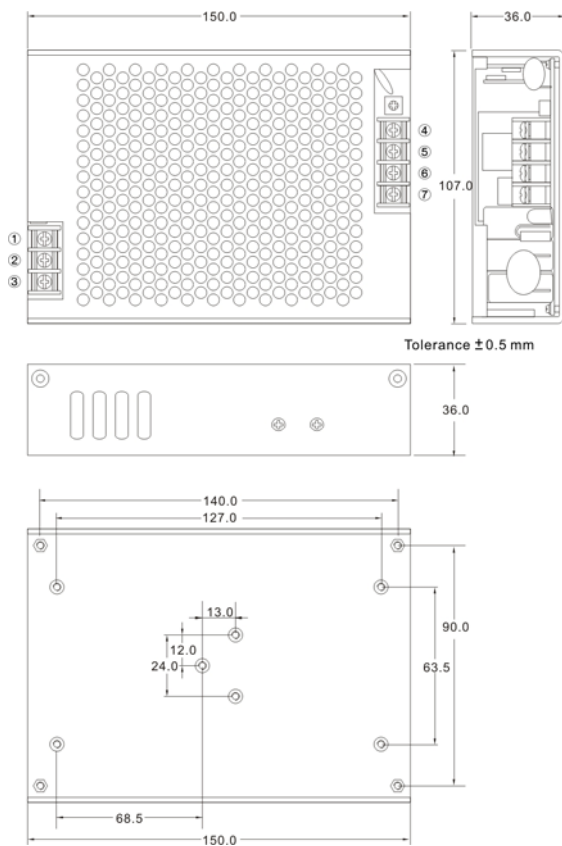
ELECTRICAL SPECIFICATIONS

Model No.	AQF240E-12S	AQF240E-24S	AQF240E-48S	
Max Output Wattage (W)	240W	240W	240W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<3.0 A max. (115 VAC) / <1.5 A max. (230 VAC)			
Inrush Current (<2ms)				
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Leakage Current				
< 0.5 mA max.				
Power Factor				
PF>0.98 (115 VAC) / PF>0.95 (230 VAC) at Full Load				
Output	Voltage (V.DC.)	12V	24V	48V
	Voltage Accuracy	±2%		
	Current (Convection) (A) max	20	10	5
	Line Regulation	±1%		
	Load Regulation	±1%		
	Minimum Load	0%		
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple & Noise	1% max.		
	Efficiency (typ.)	90%	93%	92%
	Hold-up Time	20 ms min.		
	Switching Frequency	100 kHz		
Protection	Over Power Protection	Auto recovery		
	Over Voltage Protection	Latch Off		
	Short Circuit Protection	Auto recovery		
Isolation	Input-Output (V.AC)	4000V		
	Input-FG (V.AC)	2000V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-10°C...+70°C (with derating)		
	Storage Temperature	-25°C...+85°C		
	Temperature Coefficient	±0.03%/°C (0~50°C)		
	Humidity	95% RH		
	MTBF	>50,000 h @ 25°C (MIL-HDBK-217F)		
	Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.		
Physical	Dimension (L x W x H)	6.0 x 4.21 x 1.42 Inches (150.0 x 107 x 36.0 mm) Tolerance ±0.5 mm		
	Weight	590 g		
	Cooling Method	Free convection		
Safety & EMC	Safety Approvals	UL60601-1 / IEC60601-1		
	approval	CE, UL, cUL		

Safety & EMC	EMI / PFI conducted	EN 55011 class B, EN 55022 class B
	EMC Standards	EN60601-1-2
	ESD Susceptibility	EN60601-1-2
	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
	Conducted Susceptibility	EN60601-1-2

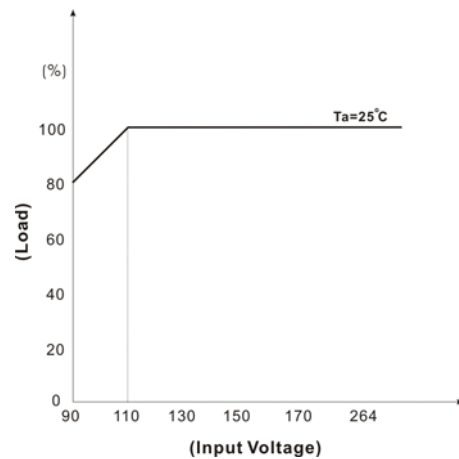
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

MECHANICAL DIMENSION (Top View)

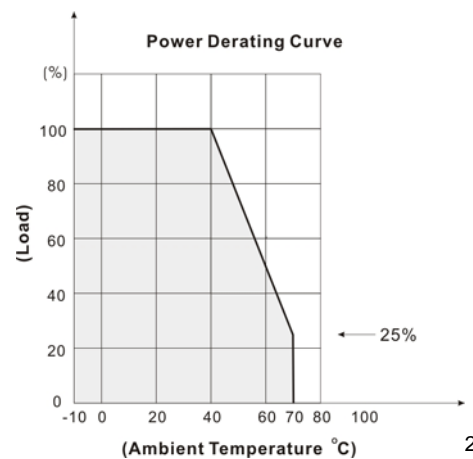
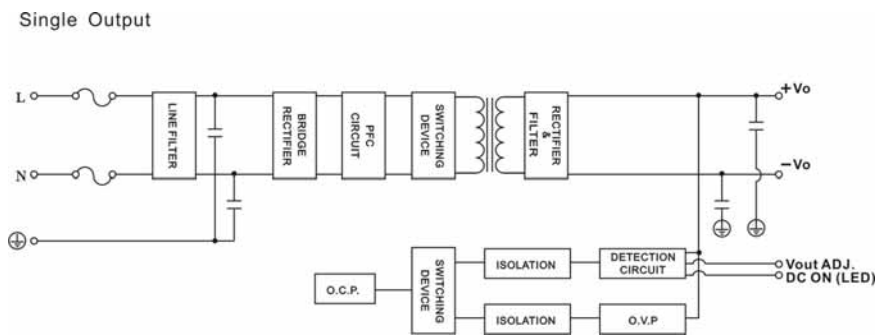


PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM



KEY FEATURES

- U Bracket Switching Power Supply
- Universal Input: 90-264 VAC
- With P.F.C. Function, PF>0.95
- Free Air Convection
- High Efficiency up to 93%
- RoHS Compliant Design
- Ultra Compact Size: 6.0 x 4.21 x 1.42 Inches
- 2-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No.	AQF240U-12S	AQF240U-24S	AQF240U-48S	
Max Output Wattage (W)	240W	240W	240W	
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<3.0 A max. (115 VAC) / <1.5 A max. (230 VAC)			
Inrush Current (<2ms)				
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Leakage Current				
< 0.5 mA max.				
Power Factor				
PF>0.98 (115 VAC) / PF>0.95 (230 VAC) at Full Load				
Output	Voltage (V.DC.)	12V	24V	48V
	Voltage Accuracy	±2%		
	Current (Convection) (A) max	20	10	5
	Line Regulation	±1%		
	Load Regulation	±1%		
	Minimum Load	0%		
	Maximum Capacitive Load	470-23,000µF depending on model		
	Ripple & Noise	1% max.		
	Efficiency (typ.)	90%	93%	92%
	Hold-up Time	16 ms min.		
	Switching Frequency	100 kHz		
Protection	Over Power Protection	Auto recovery		
	Over Voltage Protection	Latch Off		
	Short Circuit Protection	Auto recovery		
Isolation	Input-Output (V.AC)	4000V		
	Input-FG (V.AC)	2000V		
	Output-FG (V.AC)	500V		
Environment	Operating Temperature	-10°C...+70°C (with derating)		
	Storage Temperature	-25°C...+85°C		
	Temperature Coefficient	±0.03%/°C (0~50°C)		
	Humidity	95% RH		
	MTBF	>50,000 h @ 25°C (MIL-HDBK-217F)		
Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.			
Physical	Dimension (L x W x H)	6.0 x 4.21 x 1.42 Inches (150.0 x 107 x 36.0 mm) Tolerance ±0.5 mm		
	Weight	590 g		
	Cooling Method	Free convection		
Safety & EMC	Safety Approvals	UL60601-1 / IEC60601-1		
	approval	CE, UL, cUL		

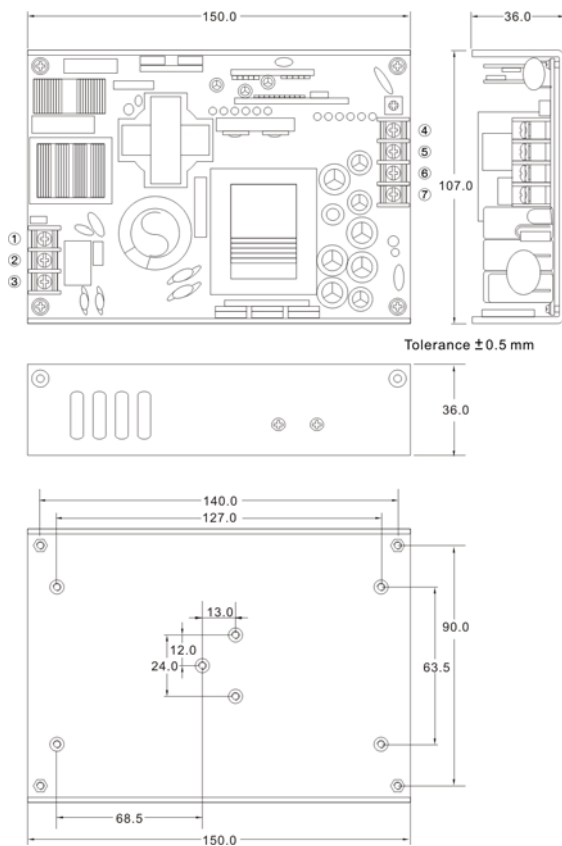
AQF240U SERIES

240 Watts

Safety & EMC	EMI / PFI conducted	EN 55011 class B, EN 55022 class B
	EMC Standards	EN60601-1-2
	ESD Susceptibility	EN60601-1-2
	Radiated Susceptibility	EN60601-1-2
	EFT / Burst	EN60601-1-2
	Surge	EN60601-1-2
	Conducted Susceptibility	EN60601-1-2

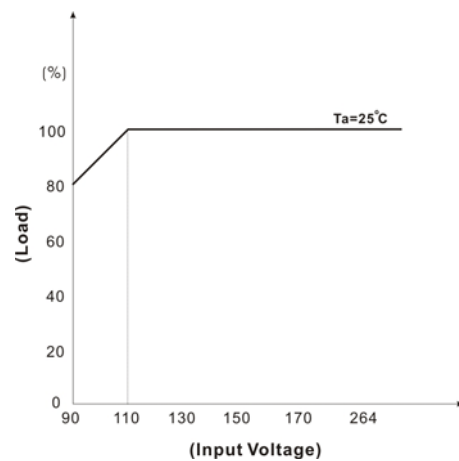
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1μF & 47μF parallel capacitor.

MECHANICAL DIMENSION (Top View)



PIN#	SINGLE
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

DERATING



BLOCK DIAGRAM

