

AC/DC 350W Enclosed Switching Power Supply

EFO-350PGF-xx_EN



FEATURES AND BENEFITS

- Universal AC input:/Full range: 90~264Vac
- Withstand 300Vac Surge input for 5seconds
- Slim Low profile, High 31mm
- Protection function: short circuit/over loading/over voltage
- 130% Peak load capacity capacity (500mS500mS)
- Built in active PFC function
- LED indicator for power on
- Fan less design, natural air cooling
- Wide operating range: 40~70°C
- Half filled glue able to adapt to more demanding environments (Environment with high dust and humidity)
- High Efficiency (Typical:94%), and High Reliability
- 100% full load burn in test
- 3 years warranty

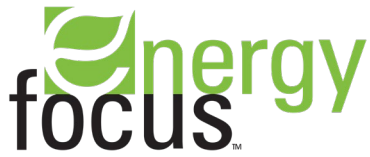
PRODUCT SPECIFICATIONS

Dimensions	220.00 x 62.00 x 42.00 mm
Weight	660g (Typ.)
Case Material	Metal (AL5052, SGCC)
Cooling Method	Free air flow

SELECTION GUIDE

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ
	EFO-350PGF-12	350	12V 29.2 A	11.4-12.6	94
	EFO-350PGF-24	350	24V/14.6A	22.8V-25.2V	94.5

Note: The product picture is for reference only. For details, please refer to the actual product.



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INPUT SPECIFICATIONS

ITEM	OPERATING CONDITIONS		MIN	TYPE	MAX	UNIT
INPUT VOLTAGE RANGE	AC input		90	---	264	VAC
	DC input		120	---	370	VDC
NOMINAL INPUT VOLTAGE	AC input		100	---	240	VAC
	DC input		140	---	340	VDC
SURGE VOLTAGE	5S		---	300	---	VAC
INPUT VOLTAGE FREQUENCY			47	---	63	Hz
INPUT CURRENT	115VAC	25°C, Full Load	---	---	4	A
	230VAC		---	---	2	
INRUSH CURRENT	115VAC	25°C, Cold start	---	30	---	A
	230VAC	25°C, Cold start	---	60	---	
POWER FACTOR	115VAC	Full load	0.98	---	---	---
	230VAC	Full load	0.95	---	---	---
EFFICIENCY	12V	25°C (230Vac)	---	94.0	---	%
	12V		---	94.5	---	



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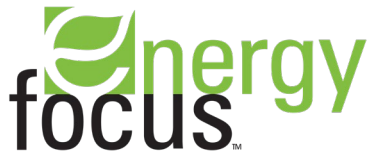
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OUTPUT SPECIFICATIONS

ITEM	OPERATING CONDITIONS		MIN	TYPE	MAX	UNIT
CURRENT RANGE NOTE 1	12V		0	---	29.2	A
	24V		0	---	14.6	
PEAK CURRENT	12V (500ms)		---	38	---	
	24V (500ms)		---	18.98	---	
OUTPUT VOLTAGE ACCURACY	-40~70°C		---	±1.0	---	%
LINE REGULATION	-40~70°C		---	±3	---	%
LOAD REGULATION	-40~70°C		---	±0.5	---	%
OVERSHOOT AND UNDERSHOOT	-40~70°C		---	---	5	%
RIPPLE & NOISE NOTE 2	12V/24V	0<Ta≤70°C	---	200	--	mV
	12V	-40<Ta≤0°C, or Load<10%	---	400	---	
	24V		---	480	---	
TEMPERATURE COEFFICIENT	-30~50°C		---	±0.03	---	%/°C
SET-UP TIME / RISE TIME	115/230VAC	25°C, Full Load	---	---	1500/ 50	ms
HOLD-UP TIME	115/230VAC	25°C, Full Load	10	---	---	ms
SHORT CIRCUIT	Long-term mode, auto recovery					
OVER-CURRENT	110%~170%, hiccup mode, Auto recovery					
OVER VOLTAGE	12V		13.2V - 15.2V		Output voltage shutdown , Enter restart recovery	
	24V		26.4V – 31.2V			
OVER-TEMPERATURE	Output voltage turn off, self-recovery after the temperature drops					
OVER POWER	110%~170% of rated output power, hiccup mode, Auto recovery					
OVER TEMPERATURE	Output voltage shutdown ,But auto recovery when temperature goes down					

Note: 1.All parameters NOT specially mentioned are measured at rated input, rated load and 25°C of ambient temperature;

2.Measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 10uF parallel capacitor.



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GENERAL SPECIFICATIONS

ITEM	OPERATING CONDITIONS		MIN	TYPE	MAX	UNIT
Withstand Voltage	Primary – Secondary	10mA	---	3.75K	---	VAC
	Primary – PG		---	2.0K	---	
	Secondary - PG		---	1.25K	---	VDC
LEAKAGE CURRENT	INPUT - PG	240VAC Input, 25°C	---	---	0.75	mA
	INPUT - OUTPUT		---	---	0.25	
ISOLATION RESISTANCE			100	---	---	MΩ
OPERATING TEMPERATURE		No condensing (refer to the derating curve)	-40	--	+70	°C
STORAGE TEMPERATURE			-40	---	+70	°C
OPERATING HUMIDITY		Non-condensing	20	---	90	%RH
STORAGE HUMIDITY		Non-condensing	10	---	95	%RH
SAFETY STANDARD		UL/CE EN 623681				
MTBF	MIL-217 Method 2 Components Stress Method	25°C			>200,000 Hrs	

ELECTROMAGNETIC COMPATIBILITY (EMC)

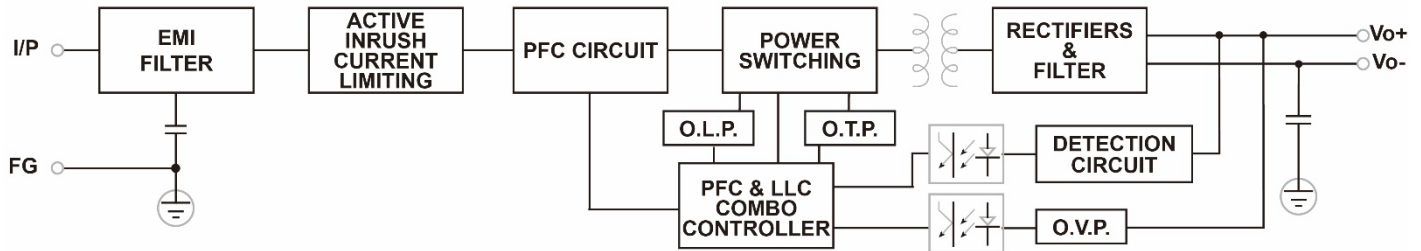
EMISSIONS	EMI Conduction & Radiation	EN55032 CLASS B (450mm*450mm*1mm Iron Plate)	
	Low frequency magnetic field	EN61000-3-2 GB/T 18487.2-2017 form 11 (450mm*450mm*1mm Iron Plate)	
	Harmonic current	EN61000-3-2 CLASS A	
	Voltage flicker	EN61000-3-3, Pst<1, Plt <0.65	
IMMUNITY	ESD	EN61000-4-2 Level 3	Criteria A
	RS	EN61000-4-3 Level 3	
	EFT	EN61000-4-4 Level 4	
	Surge	EN61000-4-5 Level 4	
	CS	EN61000-4-6 Level 3	
	PFMF	EN61000-4-8 Level 5	
	Voltage dip, short interruption and voltage variation	EN61000-4-11	Criteria B or Criteria C



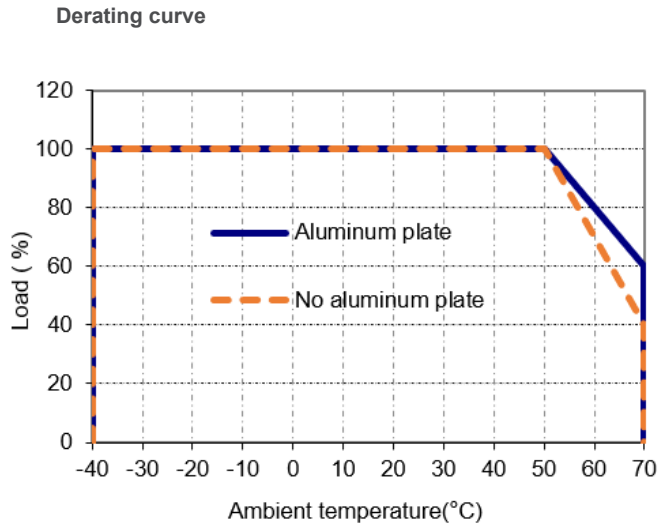
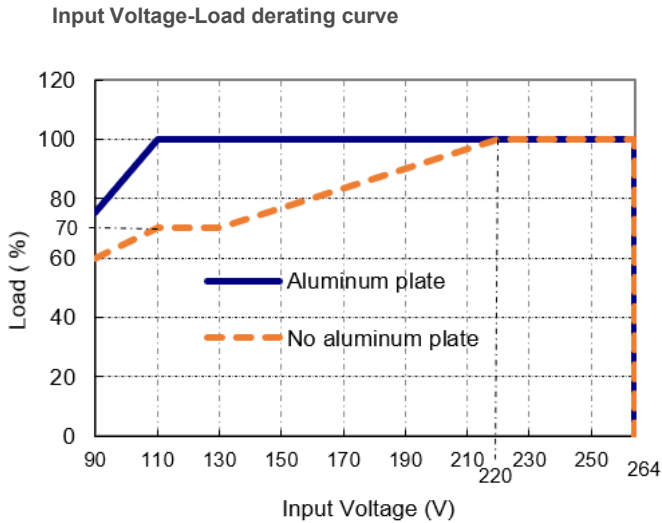
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BLOCK DIAGRAM



PRODUCT CHARACTERISTIC CURVE



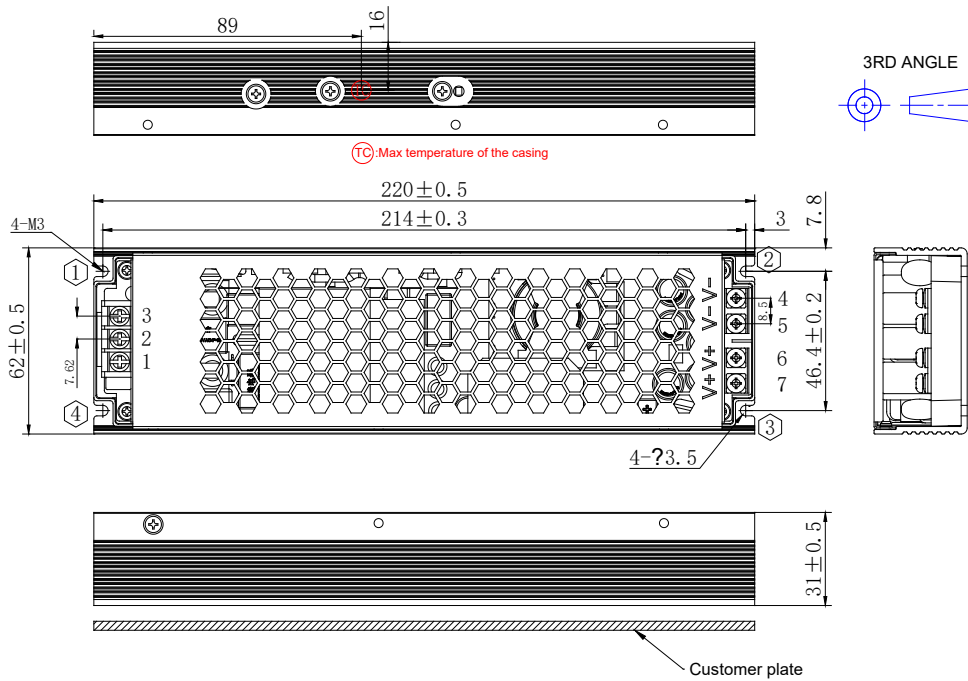
Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
 2. This product is suitable for applications using natural air cooling. Applications in a closed environment may impact the derating, efficiency, and life of the product.



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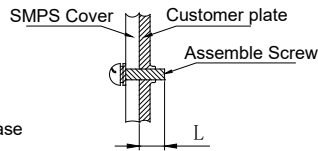
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MECHANICAL SPECIFICATION



Mounting Position	Mounting Method	Mounting Tag Number	Screw Type	L _{max}	Mounting Torque (max)
Bottom Mounting	Fixing by screws	①-④	M3	/	6.5Kgf.cm (max)

Remarks: 1.For safety purpose, the length of screw inside the power supply case shall comply with the above table (refer the right drawing)



1, Instruction of the AC Input Connectors

Part number	Function	Connector	Connector Specification	Max. Torque
1	L	ZBA208C-03P-K03(28G)	Terminal block 180~ / ZBA208C-03P-K03(28G) 20A/300VAC SNAP / -40℃~+105℃ / 3P/N/Fn spacing 7.62mm / With clear plastic cover / Screw locking / BLACK ZB 3.2	7Kgf.cm (max)
2	N			
3	⊕			

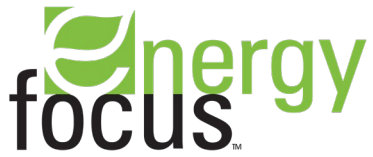
Notice: 1

1, Dimensional Unit: mm

2, Unmarked Tolerance is GB/T 1804-m
3, Choose the best installation method.

2, Instruction of the DC Output Connectors

Part number	Function	Connector	Connector Specification	Max. Torque
4/5	V-	MF2N-0550-04-BXTM3.5	80A/ 1016Pin / 40~120℃ / 8.5*5.5mm / M3.5 / Meet 48H salt spray test	8.5Kgf.cm (max)
6/7	V+			



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ALUMINUM PLATE MECHANICAL SPECIFICATION

In order to meet the requirements of the derating curve, the product must be installed on an aluminum plate. It is recommended that the size of the aluminum plate be as shown in the following figure. In order to optimize heat dissipation performance, the surface of the aluminum plate must be smooth (or coated with heat dissipation oil), and the product must be installed in the center position of the aluminum plate and locked.

