

**KEY FEATURES**

- Open Frame LED Power Supply
- With Constant Current & Constant Voltage (C.C+C.V mode)
- Universal Input: 100-240 VAC (Up to 277 VAC)
- With P.F.C. Function, PF>0.9
- Free Air Convection
- Protections: Over Load / Over Voltage / Short Circuit
- High Reliability & Double Layered PCB
- High Efficiency up to 90%
- Ultra Compact Size: 4.0 x 2.0 x 1.1 Inches
- 2-Years Product Warranty

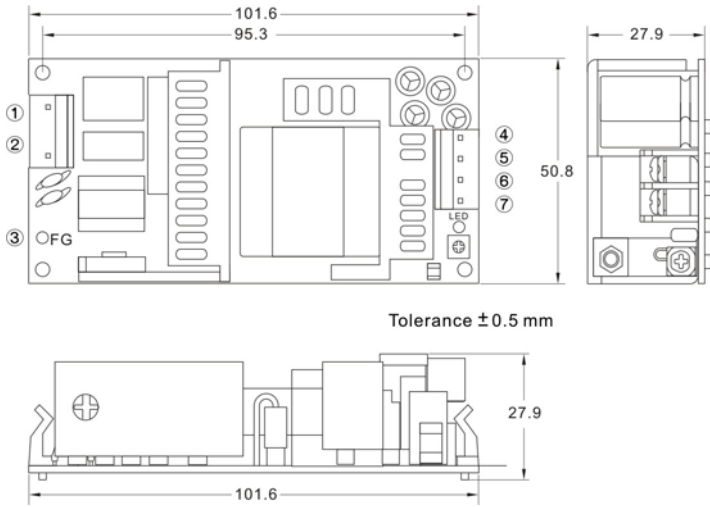

**ELECTRICAL SPECIFICATIONS**

Model No.	ZQF60-12S	ZQF60-24S	ZQF60-48S
Max output wattage ( W )	60W		
Input	Voltage		
	90-264 VAC (H Type up to 277 VAC)		
	Frequency (Hz)		
	47-63 Hz		
	Power factor		
	PF>0.9 at Full Load (115 VAC / 230 VAC)		
	Current (Full load)		
1.0A max. (115 VAC) / 0.5A max. (230 VAC)			
Inrush current (<2ms)			
50 A max. (Cold Start at 230 VAC)			
Leakage Current			
< 0.75 mA max at 240 VAC / 63 Hz			
External fuse (recommend)			
3.15 A slow blow type			
Output	Voltage (V.DC.)		
	12V	24V	48V
	Constant Current Operation Voltage (V.DC)		
	9 ~ 12V	18 ~ 24V	36 ~ 48V
	Voltage Tolerance		
	±10%		
	Current Range (mA)		
	0 ~ 5000	0 ~ 2500	0 ~ 1250
	Current Adjustment Range		
	75% ~ 100%	75% ~ 100%	75% ~ 100%
Line Regulation (LL-HL) (typ.)			
±3%			
Load Regulation (5-100%) (typ.)			
±5%			
Ripple & Noise (max)			
4Vp-p	4.5Vp-p	5Vp-p	
Efficiency (typ.)			
87%	89%	90%	
Switching frequency			
66 KHz			
Protection	Over current 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)			
Physical	Dimension (L x W x H)		
	4.0 x 2.0 x 1.1 Inches ( 101.6 x 50.8 x 27.9 mm ) Tolerance ±0.5 mm		
	Weight		
280 g			
Cooling method			
Free air convection			
Safety	Agency Approvals		
Design refer to UL60950-1 , CE (Pending)			
EMC	EMI (Conducted & Radiated Emission)		
	Design refer to EN 55015 (Pending)		
	EMS (Noise Immunity)		
Design refer to EN 55024 · EN 61547 (Pending)			
Harmonic Current			
Design refer to EN 61000-3-2 · EN 61000-3-3 (Pending)			

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

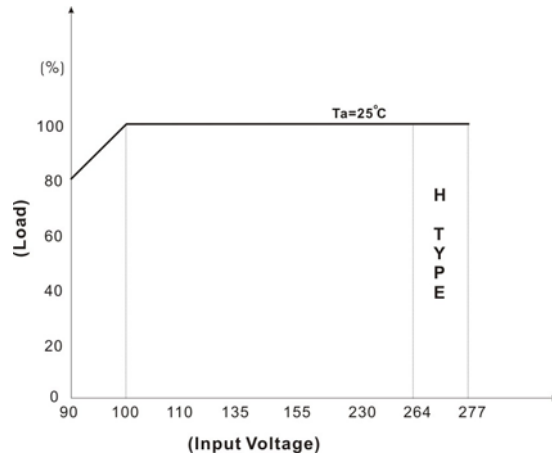
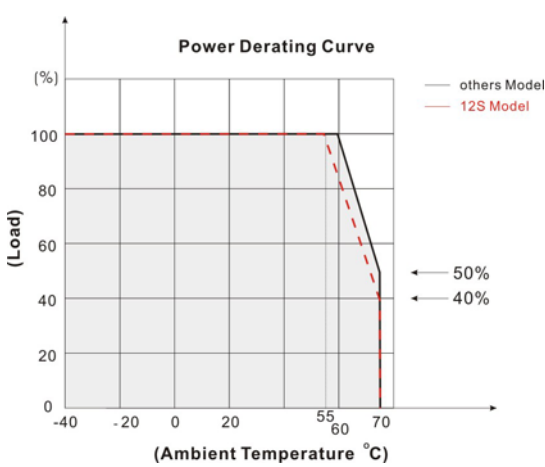
2. Measured with 0.1u 50V // 47u 50V Ceramic Cap. Cross to output

**MECHANICAL DIMENSION ( Top View )**

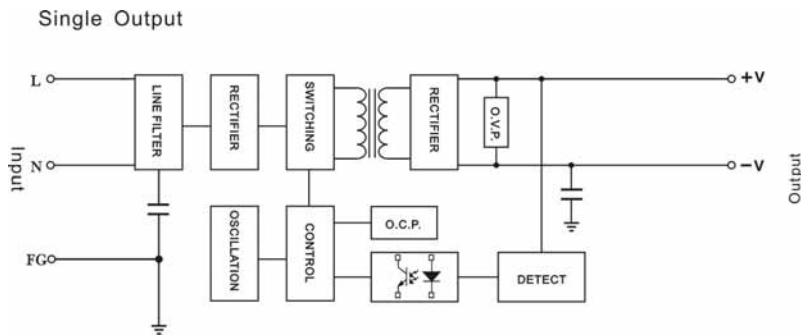


PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	FG
4	+DIM
5	+DC OUT
6	-DC OUT
7	-DIM.

**DERATING**



**BLOCK DIAGRAM**



**EFFICIENCY VERSUS LOAD**

**ZQF60-12S**

**VIN VS Efficiency**

Input Voltage (V)	90	115	180	230	264
Efficiency (%)					

Input Voltage (V)	277
Efficiency (%)	

**LOAD VS Efficiency**

Load (%)	10	20	30	40	50
230V (%)					

Load (%)	60	70	80	90	100
230V (%)					

**ZQF60-24S**

**VIN VS Efficiency**

Input Voltage (V)	90	115	180	230	264
Efficiency (%)					

Input Voltage (V)	277
Efficiency (%)	

**LOAD VS Efficiency**

Load (%)	10	20	30	40	50
230V (%)					

Load (%)	60	70	80	90	100
230V (%)					

**EFFICIENCY VERSUS LOAD**

**ZQF60-48S**

VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)					

Input Voltage (V)	277
Efficiency (%)	

LOAD VS Efficiency

Load (%)	10	20	30	40	50
230V (%)					

Load (%)	60	70	80	90	100
230V (%)					