

## KEY FEATURES

- Open Frame LED Power Supply
- With Constant Current & Constant Voltage (C.C+C.V mode)
- Dimming fuction:0~10VDC & PWM Duty Controlled
- Universal Input: 100-240 VAC
- With P.F.C. Function, PF>0.9
- Free Air Convection
- Protections: Over Load / Over Voltage / Short Circuit
- High Reliability & Double Layered PCB
- Ultra Compact Size: 4.0 x 2.0 x 1.12 Inches
- 3-Year Product Warranty



## ELECTRICAL SPECIFICATIONS

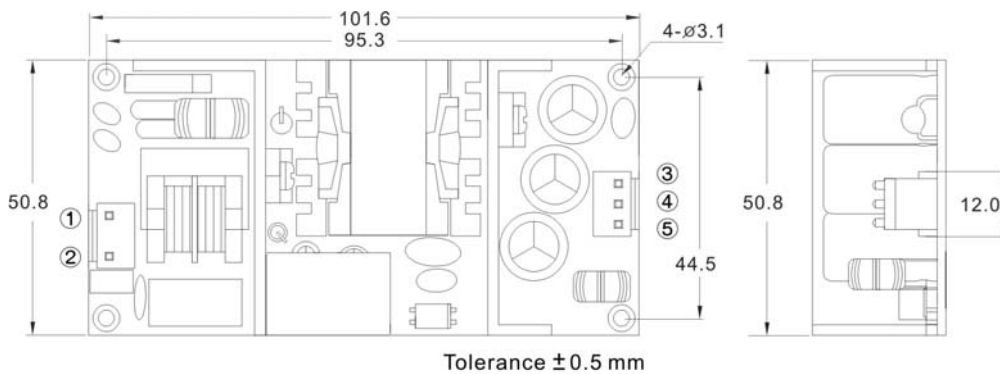
All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

| Model No.                |                                                            | ZQF60-13.5S 3570                                                     | ZQF60-24S 1700 | ZQF60-28S 1400 | ZQF60-48S 825 | ZQF60-54S 700 |
|--------------------------|------------------------------------------------------------|----------------------------------------------------------------------|----------------|----------------|---------------|---------------|
| Max output wattage ( W ) |                                                            | 60W                                                                  |                |                |               |               |
| Input                    | Voltage (Note2)                                            | 90-264 VAC                                                           |                |                |               |               |
|                          | Frequency (Hz)                                             | 50 / 60 Hz                                                           |                |                |               |               |
|                          | Power factor                                               | PF>0.9 at Full load (115 VAC / 230 VAC)                              |                |                |               |               |
|                          | Current (Full load)                                        | 0.8A max. (115 VAC) / 0.4A max. (230 VAC)                            |                |                |               |               |
|                          | Inrush current                                             | 50 A max. (Cold Start at 230 VAC)                                    |                |                |               |               |
|                          | Leakage Current                                            | < 0.7 mA max at 240 VAC / 63 Hz                                      |                |                |               |               |
| Output                   | Voltage (V.DC.)                                            | 13.5V                                                                | 24V            | 28V            | 48V           | 54V           |
|                          | Constant Current Operation Voltage (max) (CC Mode) (Note3) | 11~13.5VDC                                                           | 17~ 24VDC      | 21~28VDC       | 33.5~ 48VDC   | 38~54VDC      |
|                          | Voltage Tolerance                                          | ±10%                                                                 |                |                |               |               |
|                          | Current Adjustment Range (mA) (CC Mode)                    | 3570 ~ 4200                                                          | 1700 ~ 2500    | 1400 ~ 2100    | 825 ~ 1250    | 700 ~ 1100    |
|                          | Minimum Load (mA) (current curve as per page-3)            | 3570                                                                 | 1700           | 1400           | 825           | 700           |
|                          | Line Regulation (115-230) (typ.)                           | ±4%                                                                  |                |                |               |               |
|                          | Load Regulation (Min-Max) (typ.)                           | ±5%                                                                  |                |                |               |               |
|                          | Ripple & Noise (max)                                       | 4Vp-p                                                                | 4.5Vp-p        | 5Vp-p          | 5Vp-p         | 5Vp-p         |
|                          | Efficiency (at 230VAC.)(typ)                               | 85%                                                                  | 87%            | 89%            | 89%           | 89%           |
| Protection               | Over current protection                                    | Auto recovery                                                        |                |                |               |               |
|                          | Over voltage protection                                    | Zener diode clamp                                                    |                |                |               |               |
|                          | Short circuit protection                                   | Auto recovery                                                        |                |                |               |               |
| Isolation                | Input-Output (V.AC)                                        | 3750V                                                                |                |                |               |               |
|                          | Input-FG (V.AC)                                            | 1880V                                                                |                |                |               |               |
|                          | Output-FG (V.AC)                                           | 500V                                                                 |                |                |               |               |
| Environment              | Operating temperature                                      | -30°C...+70°C (with derating)                                        |                |                |               |               |
|                          | Storage temperature                                        | -40°C...+85°C                                                        |                |                |               |               |
|                          | Temperature coefficient                                    | 0.02%/°C                                                             |                |                |               |               |
|                          | Humidity                                                   | 95% RH                                                               |                |                |               |               |
|                          | MTBF                                                       | >583,000 h @ 25°C (MIL-HDBK-217F)                                    |                |                |               |               |
| Physical                 | Dimension (L x W x H)                                      | 4.0 x 2.0 x 1.12 Inches ( 101.6 x 50.8 x 28.5 mm ) Tolerance ±0.5 mm |                |                |               |               |
|                          | Weight                                                     | 165 g                                                                |                |                |               |               |
|                          | Cooling method                                             | Free air convection                                                  |                |                |               |               |
| Safety                   | Agency Approvals                                           | UL8750 、 IEC / EN 61347-2-13 、 IEC / EN 61347-1                      |                |                |               |               |
| EMC                      | EMI (Conducted & Radiated Emission)                        | EN 55015                                                             |                |                |               |               |
|                          | EMS (Noise Immunity)                                       | EN 61547                                                             |                |                |               |               |
|                          | Harmonic Current                                           | EN 61000-3-2(at Full Load) 、 EN 61000-3-3                            |                |                |               |               |

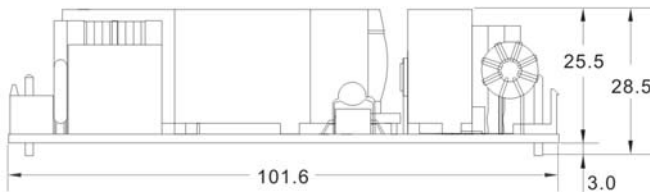
### Note:

1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Please check the derating curve for more details.
3. Input Voltage=115 or 230 VAC. This is the suitable operation region for LED related application.but please reconfirm special electrical requirements for some specific system design.
4. Please contact us for more information.
5. It's recommended to add Varistor 14S471K at L / N input side in parallel.
6. This driver is suggested for LED application only.
7. Direct connection to LEDs is suggested. Connecting additional drivers would not be appropriate.

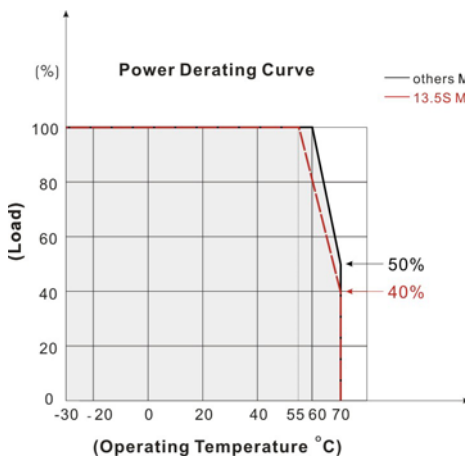
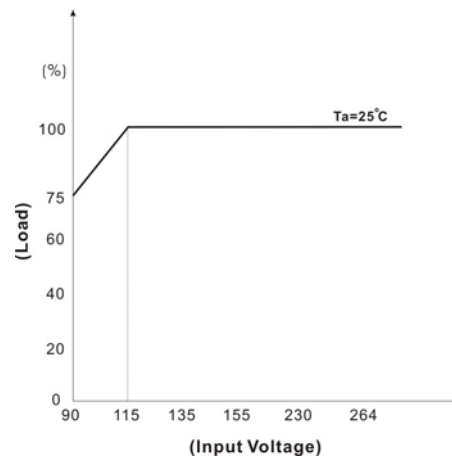
### MECHANICAL DIMENSION ( Top View )



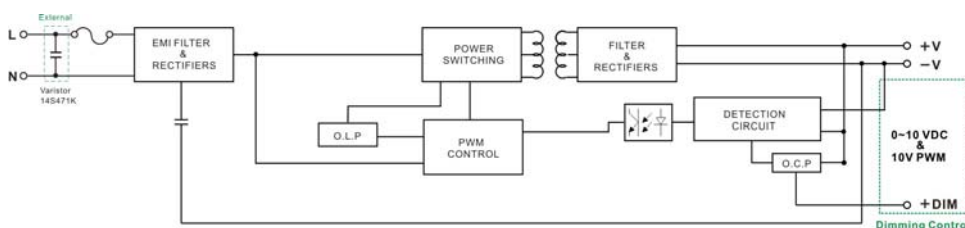
| PIN# | Single    |
|------|-----------|
| 1    | AC IN (N) |
| 2    | AC IN (L) |
| 3    | +Dim      |
| 4    | +DC OUT   |
| 5    | -DC OUT   |



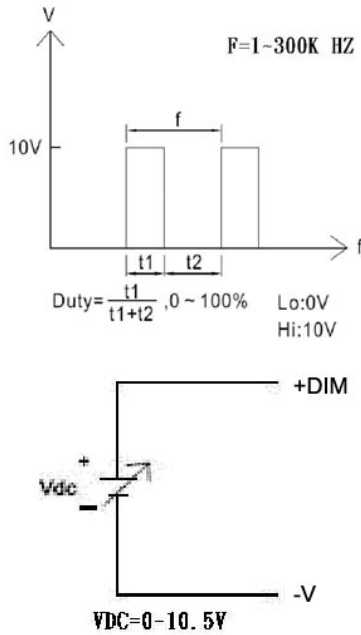
### DERATING



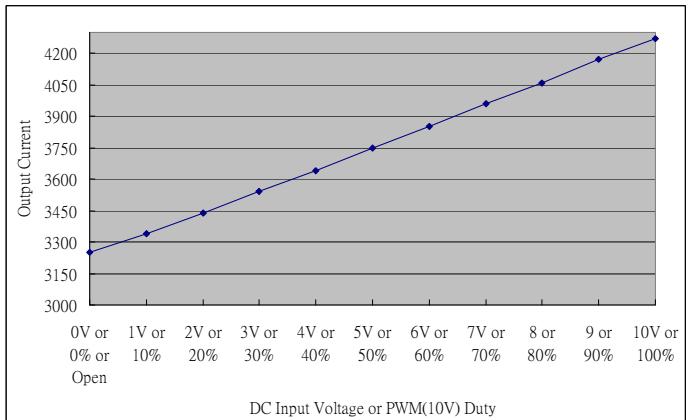
### BLOCK DIAGRAM



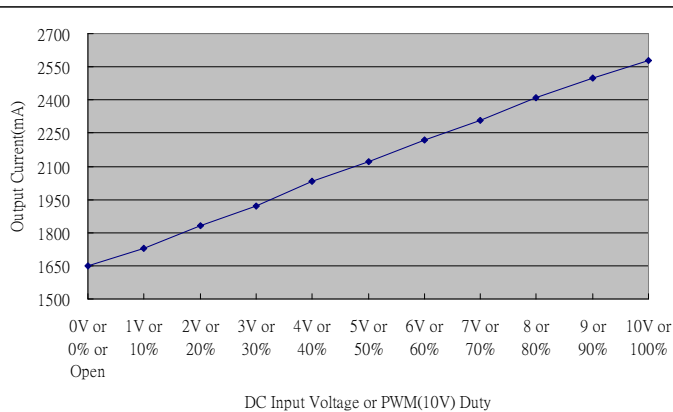
# DIMMING CONTROL ( CC Mode ) ( at 230VAC )



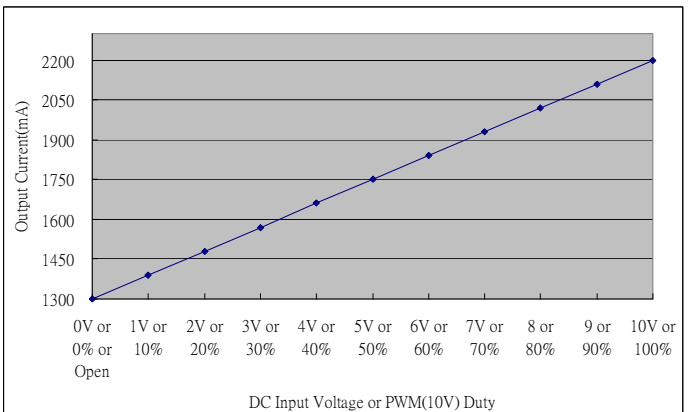
## ZQF60-13.5



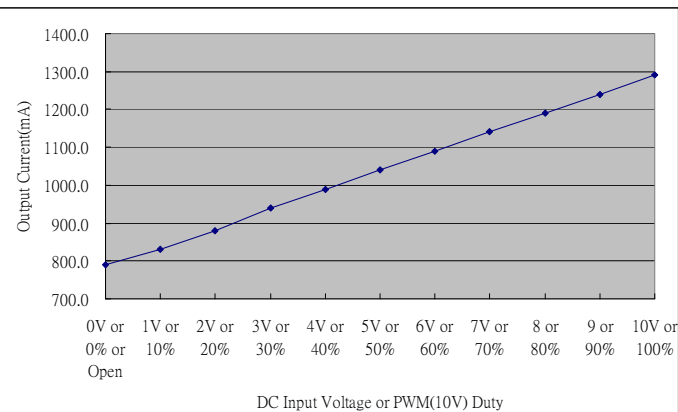
## ZQF60-24S



## ZQF60-28S



## ZQF60-48S



## ZQF60-54S

