

# ARCH ALF150 LED Power Datasheet

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ALF150-12S, 24S, 36S, 48S, 54S

## KEY FEATURES

IP65/67 Design for Indoor or LED Outdoor Installations

Universal Input: 90-305 VAC or 120-430 VDC

Three in one dimming function (Just For IP67 Design)

Built-in Active PFC Function

Free Air Convection

High Reliability

With Constant Current & Constant Voltage

Output Voltage and Constant Current Level can Be

Adjusted Through Internal Potential Meter

LED Power Application

3-Years Product Warranty

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ALF150 SERIES

150 Watts

ALF150-12S, 24S, 36S, 48S, 54S

KEY FEATURES

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- Built-in Active PFC Function
- Free Air Convection
- High Reliability
- With Constant Current & Constant Voltage
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- LED Power Application
- 3-Years Product Warranty



**IP65/67** 

ALF150-12S, 24S, 36S, 48S, 54S

ELECTRICAL SPECIFICATIONS

|                        |                                             |                                                                       |              |              |              |              |
|------------------------|---------------------------------------------|-----------------------------------------------------------------------|--------------|--------------|--------------|--------------|
| Model No.              |                                             | ALF150-12S                                                            | ALF150-24S   | ALF150-36S   | ALF150-48S   | ALF150-54S   |
| Max Output Wattage (W) |                                             | 150W                                                                  |              |              |              |              |
| Input                  | Voltage                                     | 90-305 VAC or 120-430 VDC                                             |              |              |              |              |
|                        | Frequency (Hz)                              | 47-63 Hz                                                              |              |              |              |              |
|                        | Current (Full load)                         | 2 A max. (115 VAC) / 1 A max. (230 VAC) / 0.9 A max. (277 VAC)        |              |              |              |              |
|                        | Inrush Current (<2ms)                       | 40 A max. (115 VAC) / 60 A max. (230 VAC)                             |              |              |              |              |
|                        | Leakage Current                             | <0.75 mA max.                                                         |              |              |              |              |
|                        | Power Factor                                | PF>0.97 (115 VAC) / PF>0.95 (230 VAC) / PF>0.9 (277 VAC) at Full Load |              |              |              |              |
| Output                 | Voltage (V.DC.)                             | 12V                                                                   | 24V          | 36V          | 48V          | 54V          |
|                        | Constant Current Range (V.DC.)              | 6 ~ 12V                                                               | 12 ~ 24V     | 18 ~ 36V     | 24 ~ 48V     | 27 ~ 54V     |
|                        | Voltage Accuracy                            | ±2%                                                                   |              |              |              |              |
|                        | Current (Convection) (mA) max               | 12500                                                                 | 6250         | 4166         | 3125         | 2777         |
|                        | Current ADJ Range (mA)                      | 1250~12500                                                            | 625 ~ 6250   | 416 ~ 4166   | 312 ~ 3125   | 277 ~ 2777   |
|                        | Voltage ADJ Range (V.DC.) (for IP65 Design) | 10.8 ~ 13.2V                                                          | 21.6 ~ 26.4V | 32.4 ~ 38.5V | 43.2 ~ 50.4V | 48.6 ~ 55.5V |
|                        | Line Regulation                             | ±1%                                                                   |              |              |              |              |
|                        | Load Regulation                             | ±1%                                                                   |              |              |              |              |
|                        | Minimum Load                                | 1%                                                                    |              |              |              |              |
|                        | Maximum Capacitive Load                     | 100,000 uF                                                            | 50,000 uF    | 33,000 uF    | 6,000 uF     | 6,000 uF     |
|                        | Ripple & Noise (max.)                       | 100mVp-p                                                              | 100mVp-p     | 100mVp-p     | 200mVp-p     | 200mVp-p     |
|                        | Efficiency (typ.)                           | 90.5%                                                                 | 92.5%        | 93.5%        | 92.5%        | 92.5%        |
|                        | Hold-up Time                                | 25 ms min.                                                            |              |              |              |              |
|                        | Switching Frequency                         | 100k~133k Hz                                                          |              |              |              |              |
| Safety                 | Agency Approvals                            | UL 8750 、EN61347-1:2008 、 EN61347-2-13:2006                           |              |              |              |              |
| EMC                    | EMI (Conducted & Radiated Emission)         | EN 55015 、 Class B                                                    |              |              |              |              |
|                        | EMS (Noise Immunity)                        | EN 61547                                                              |              |              |              |              |
|                        | Surge                                       | IP65 Design :1KV L-N, 2KV L N-FG / IP67 Design :2KV L-N, 4KV L N-FG   |              |              |              |              |

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

ALF150 SERIES

150    Watts

ALF150-700

KEY FEATURES

- IP65/67 Design for Indoor or LED Outdoor Installations
- Universal Input: 90-305 VAC or 120-430 VDC
- Three in one dimming function (Just For IP67 Design)  
(5~10VDC & PWM Signal or resistance)
- Built-in Active PFC Function
- Free Air Convection
- High Reliability
- With Constant Current
- Constant Current Level can Be Adjusted Through Internal Potential Meter
- LED Power Application
- 3-Years Product Warranty



ALF150-700

IP65/67 CE

ELECTRICAL SPECIFICATIONS

|                        |                                                |                                                                       |
|------------------------|------------------------------------------------|-----------------------------------------------------------------------|
| Model No.              |                                                | ALF150-700                                                            |
| Max Output Wattage (W) |                                                | 150W                                                                  |
| Input                  | Voltage                                        | 90-305 VAC or 120-430 VDC                                             |
|                        | Frequency (Hz)                                 | 47-63 Hz                                                              |
|                        | Current (Full load)                            | 2 A max. (115 VAC) / 1 A max. (230 VAC) / 0.9 A max. (277 VAC)        |
|                        | Inrush Current (<2ms)                          | 40 A max. (115 VAC) / 60 A max. (230 VAC)                             |
|                        | Leakage Current                                | <0.75 mA max.                                                         |
|                        | Power Factor                                   | PF>0.97 (115 VAC) / PF>0.95 (230 VAC) / PF>0.9 (277 VAC) at Full Load |
| Output                 | Voltage (V.DC.)                                | 215V                                                                  |
|                        | Constant Current Range (V.DC.)                 | 108 ~ 215V                                                            |
|                        | Current Accuracy                               | ±5%                                                                   |
|                        | Current (Convection) (mA) max                  | 700                                                                   |
|                        | Current ADJ Range (mA)                         | 350 ~ 700                                                             |
|                        | Voltage ADJ Range (V.DC.)<br>(for IP65 Design) | 215V                                                                  |
|                        | Line Regulation                                | ±3%                                                                   |
|                        | Load Regulation                                | ±3%                                                                   |
|                        | Ripple & Noise (max.)                          | 5Vp-p                                                                 |
|                        | Efficiency (typ.)                              | 91%                                                                   |
|                        |                                                |                                                                       |
| Safety                 | Agency Approvals                               | EN61347-1:2008 、 EN61347-2-13:2006                                    |
| EMC                    | EMI<br>(Conducted & Radiated Emission)         | EN 55015 、 Class B                                                    |
|                        | EMS (Noise Immunity)                           | EN 61547                                                              |
|                        | Surge                                          | 2KV L-N, 4KV L N-FG                                                   |

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

ALF150 SERIES

150 Watts

ELECTRICAL SPECIFICATIONS

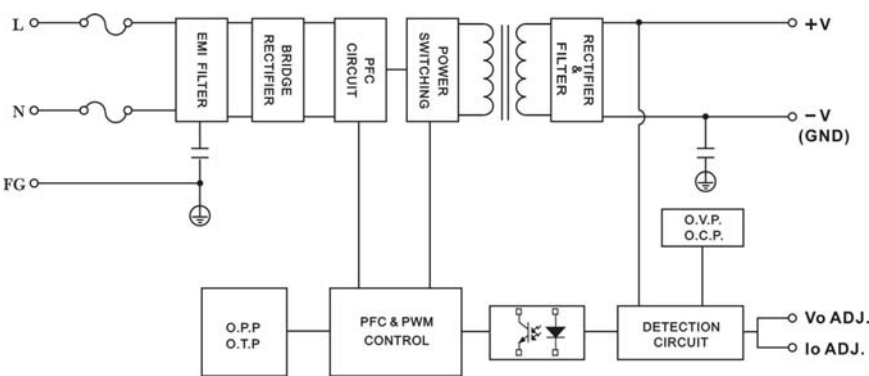
|             |                                     |                                                                      |            |            |            |            |            |
|-------------|-------------------------------------|----------------------------------------------------------------------|------------|------------|------------|------------|------------|
| Model No.   |                                     | ALF150-12S                                                           | ALF150-24S | ALF150-36S | ALF150-48S | ALF150-54S | ALF150-700 |
| Protection  | Over Power Protection               | Auto recovery                                                        |            |            |            |            |            |
|             | Over Voltage Protection             | Auto recovery                                                        |            |            |            |            |            |
|             | Overt Temperature Protection        | Auto recovery                                                        |            |            |            |            |            |
|             | 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 ( 0~50°C )                                                 |            |            |            |            |            |
|             | Humidity                            | 95% RH                                                               |            |            |            |            |            |
|             | MTBF                                | >75,000 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)               | 6.44 x 2.79 x 1.5 Inches (163.7 x 71.0 x 38.0 mm ) Tolerance ±0.5 mm |            |            |            |            |            |
|             | Weight                              | 750 g                                                                |            |            |            |            |            |
|             | Cooling Method                      | Free air convection                                                  |            |            |            |            |            |
| Safety      | Agency Approvals                    | EN61347-1:2008 、 EN61347-2-13:2006                                   |            |            |            |            |            |
| EMC         | EMI (Conducted & Radiated Emission) | EN 55015 、 Class B                                                   |            |            |            |            |            |
|             | EMS (Noise Immunity)                | EN 61547                                                             |            |            |            |            |            |
|             | Surge                               | IP65 Design :1KV L-N, 2KV L N-FG / IP67 Design :2KV L-N, 4KV L N-FG  |            |            |            |            |            |

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

This series has IP65 and IP67, when you place order, please be noted as ordering Part No.

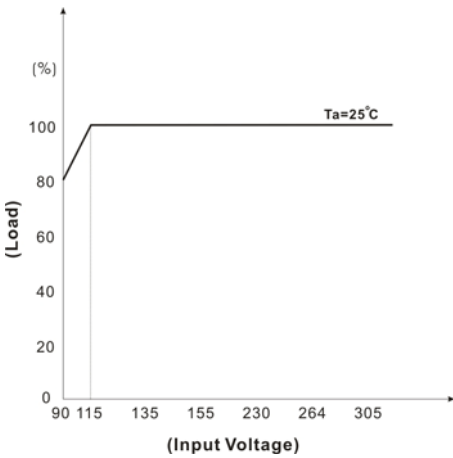
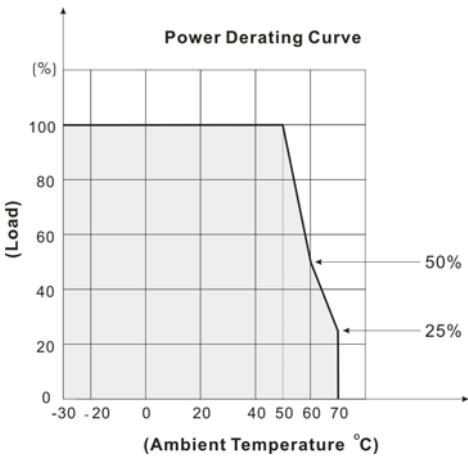
|                  |      |                 |                 |                 |                 |                 |                 |
|------------------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Model No.        |      | ALF150-12S      | ALF150-24S      | ALF150-36S      | ALF150-48S      | ALF150-54S      | ALF150-700      |
| Ordering Part No | IP65 | ALF150-12S-IP65 | ALF150-24S-IP65 | ALF150-36S-IP65 | ALF150-48S-IP65 | ALF150-54S-IP65 | ALF150-700-IP65 |
|                  | IP67 | ALF150-12S-IP67 | ALF150-24S-IP67 | ALF150-36S-IP67 | ALF150-48S-IP67 | ALF150-54S-IP67 | ALF150-700-IP67 |

BLOCK DIAGRAM

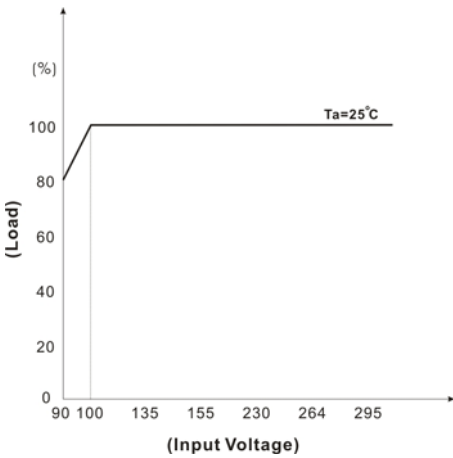
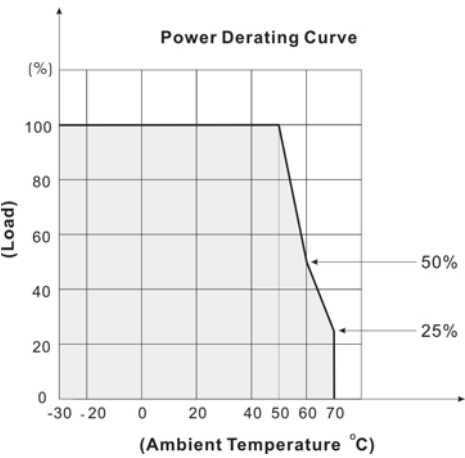


DERATING

ALF150-12S, 24S, 36S, 48S, 54S



ALF150-700

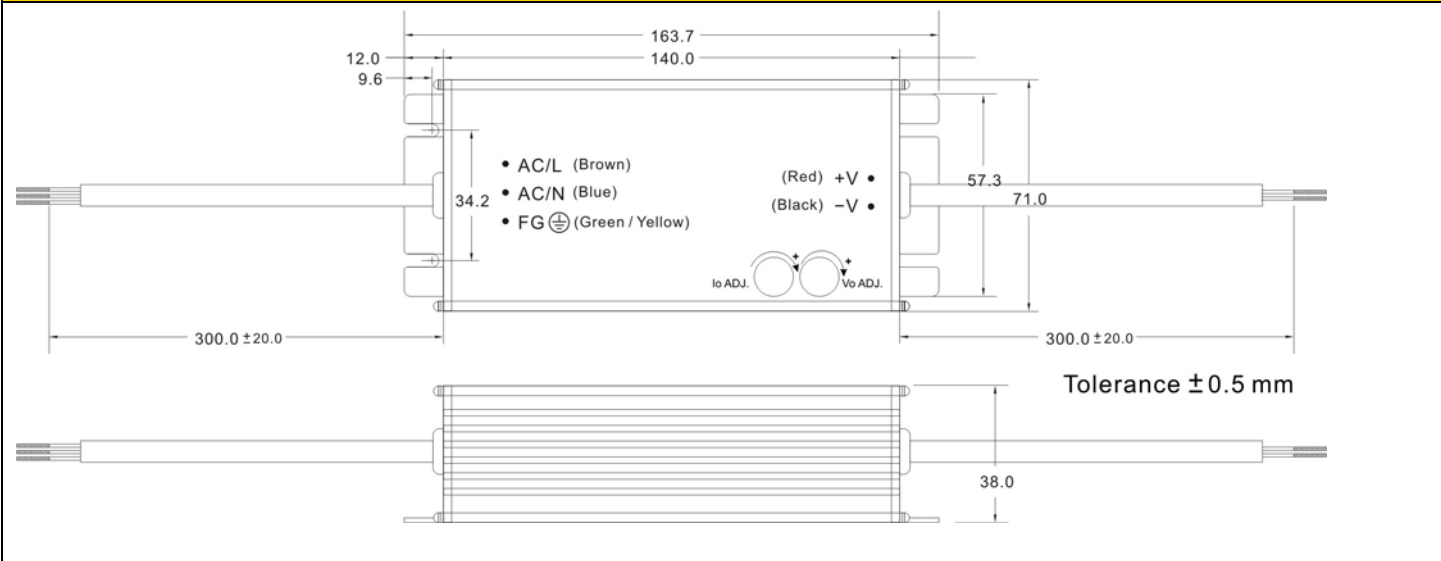


ALF150 SERIES

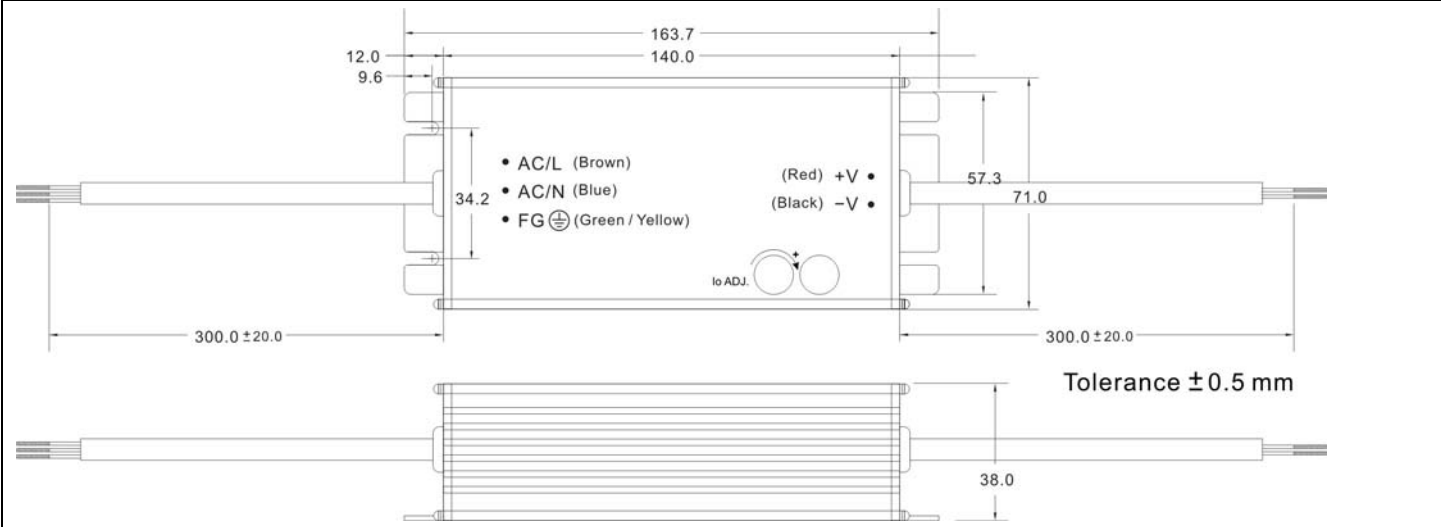
150 Watts

MECHANICAL DIMENSION ( Top View )

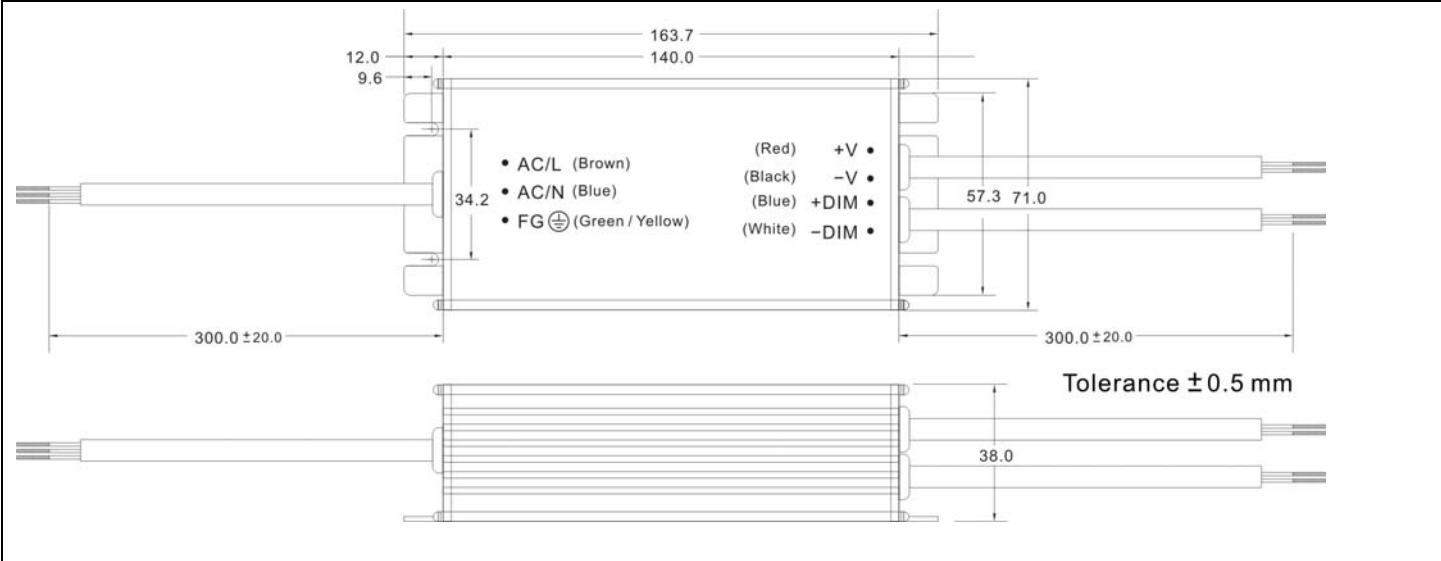
ALF150-12S, 24S, 36S, 48S, 54S IP65 Design



ALF150-700 IP65 Design



IP67 Design



ASSEMBLY INSTRUCTIONS

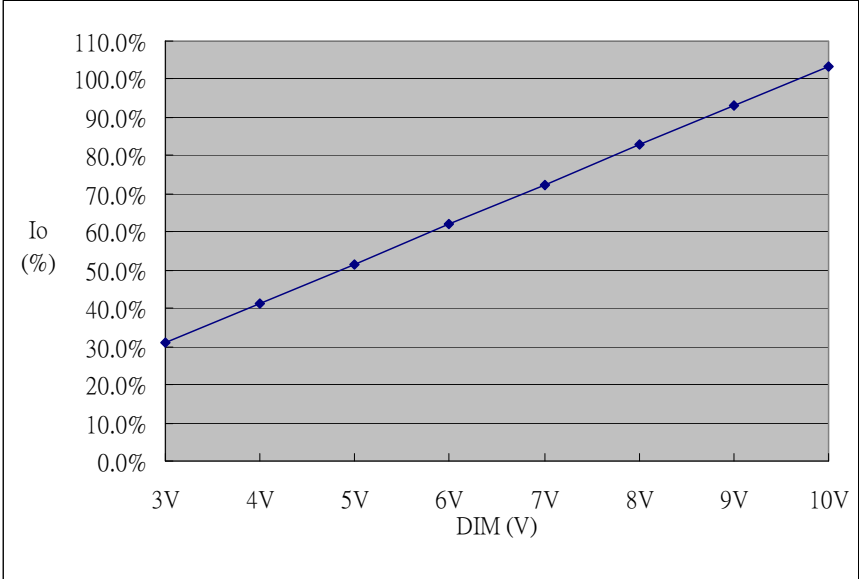
\*U Case T=2.5mm  
Customer screws into the length of the case no higher than 0.5mm  
(Namely screw length for load plate thickness plus 3.0mm)

**ALF150-12S, 24S, 36S, 48S, 54S**

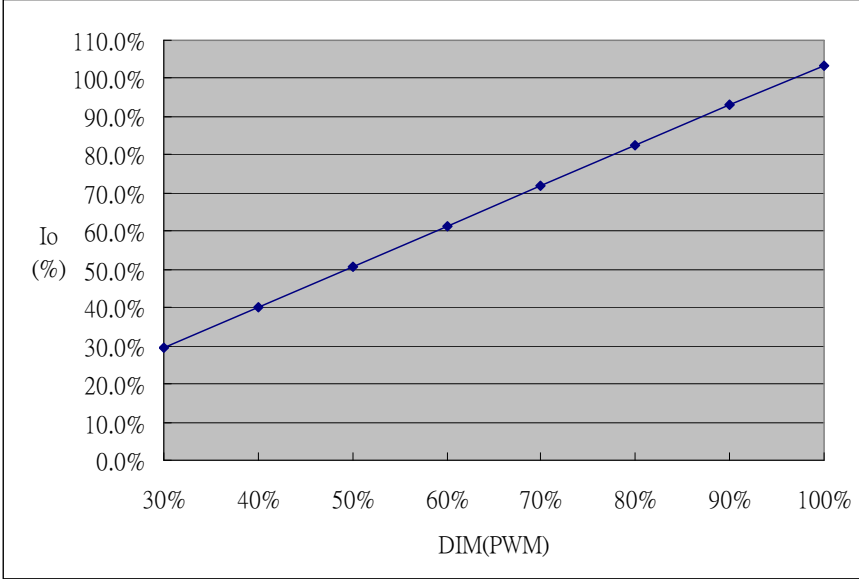
**DIMMING OPERATION**

Built-in 3 in 1 dimming function, IP67 rated.  
 Output constant current level can be adjusted through output cable by connecting a 100K Ohm VR or 3~10Vdc or 10V PWM signal between DIM+ and DIM-

I.        3~10V dimming function for output current adjustment (typ.)



II.        10V PWM signal for output current adjustment (typ.) : Frequency range:100Hz~3KHz



III.        It can control 10~100% output Current but it must add 100K Ohm VR in parallel

ALF150 SERIES

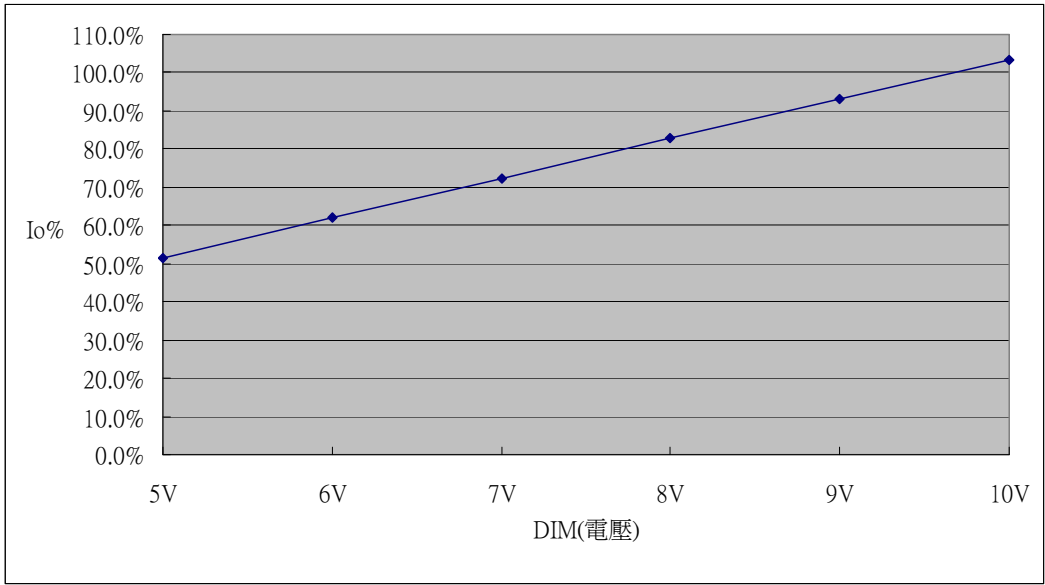
150    Watts

ALF150-700

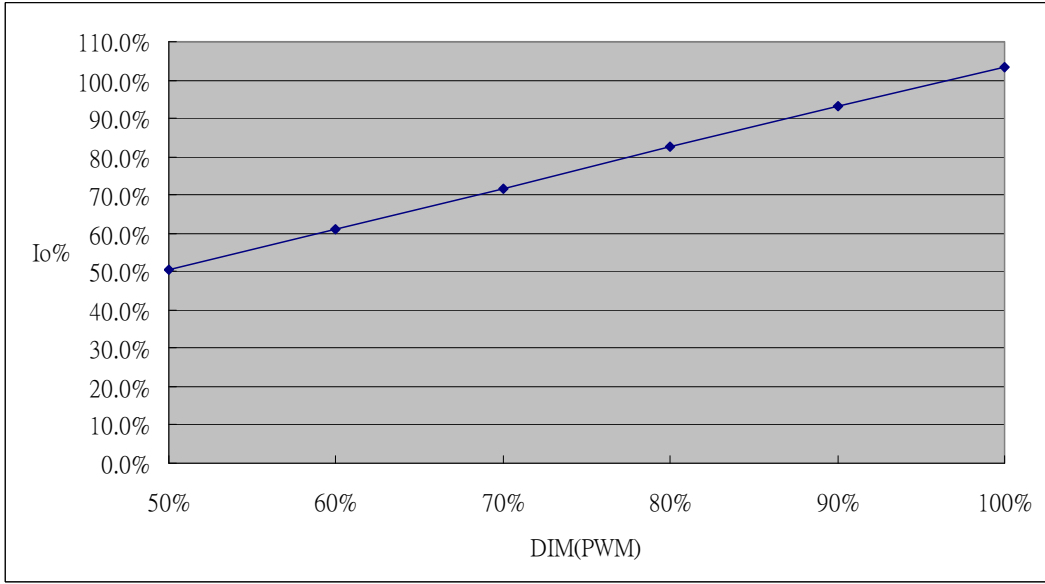
DIMMING OPERATION

Built-in 3 in 1 dimming function, IP67 rated.  
Output constant current level can be adjusted through output cable by connecting a 100K Ohm VR or 5~10Vdc or 10V PWM signal between DIM+ and DIM-

IV.      5~10V dimming function for output current adjustment (typ.)



V.      10V PWM signal for output current adjustment (typ.) : Frequency range:100Hz~3KHz



VI.      It can control 20~100% output Current but it must add 100K Ohm VR in parallel

EFFICIENCY VERSUS LOAD

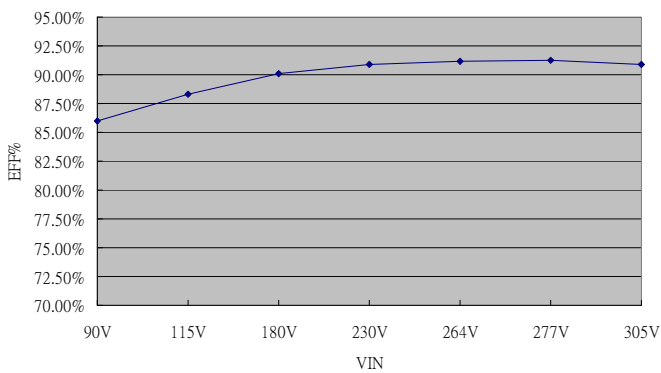
ALF150 SERIES

150    Watts

ALF150-12S

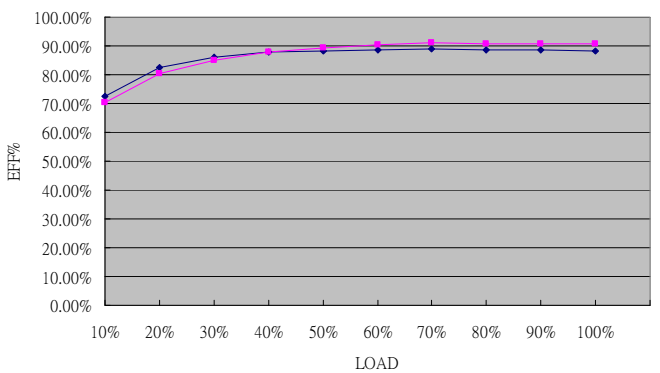
VIN    VS    Efficiency

|                   |       |       |       |       |
|-------------------|-------|-------|-------|-------|
| Input Voltage (V) | 90    | 115   | 180   | 230   |
| Efficiency (%)    | 85.94 | 88.27 | 90.12 | 90.89 |
| Input Voltage (V) | 264   | 277   | 305   |       |
| Efficiency (%)    | 91.16 | 91.23 | 90.91 |       |



LOAD    VS    Efficiency

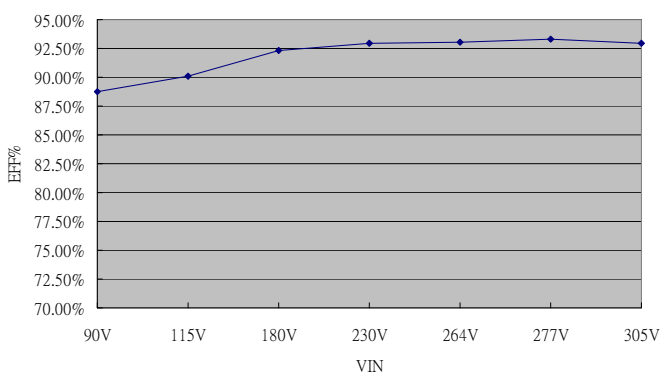
|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
| Load (%) | 10    | 20    | 30    | 40    | 50    |
| 115V (%) | 72.53 | 82.66 | 86.12 | 87.97 | 88.32 |
| 230V (%) | 70.26 | 80.45 | 85.15 | 87.96 | 89.37 |
| Load (%) | 60    | 70    | 80    | 90    | 100   |
| 115V (%) | 88.53 | 88.83 | 88.75 | 88.51 | 88.33 |
| 230V (%) | 90.30 | 90.96 | 90.82 | 90.83 | 90.89 |



ALF150-24S

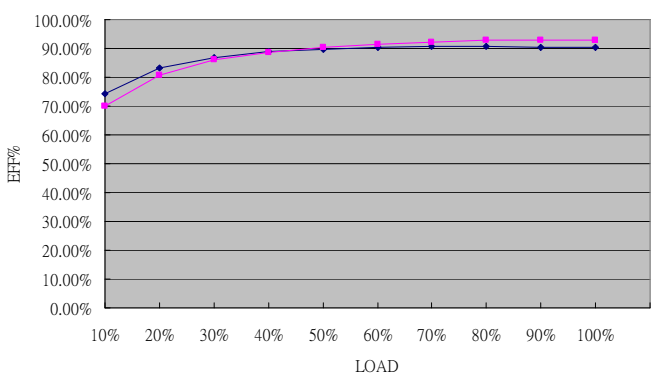
VIN    VS    Efficiency

|                   |       |       |       |       |
|-------------------|-------|-------|-------|-------|
| Input Voltage (V) | 90    | 115   | 180   | 230   |
| Efficiency (%)    | 88.71 | 90.09 | 92.28 | 92.93 |
| Input Voltage (V) | 264   | 277   | 305   |       |
| Efficiency (%)    | 93.06 | 93.26 | 92.92 |       |



LOAD    VS    Efficiency

|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
| Load (%) | 10    | 20    | 30    | 40    | 50    |
| 115V (%) | 74.25 | 83.07 | 86.82 | 88.81 | 89.81 |
| 230V (%) | 70.03 | 80.72 | 86.00 | 88.67 | 90.25 |
| Load (%) | 60    | 70    | 80    | 90    | 100   |
| 115V (%) | 90.29 | 90.62 | 90.58 | 90.53 | 90.38 |
| 230V (%) | 91.48 | 92.28 | 92.90 | 92.92 | 92.96 |



EFFICIENCY VERSUS LOAD

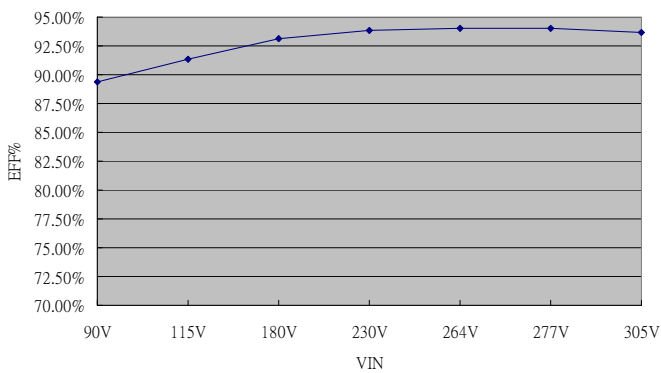
ALF150 SERIES

150    Watts

ALF150-36S

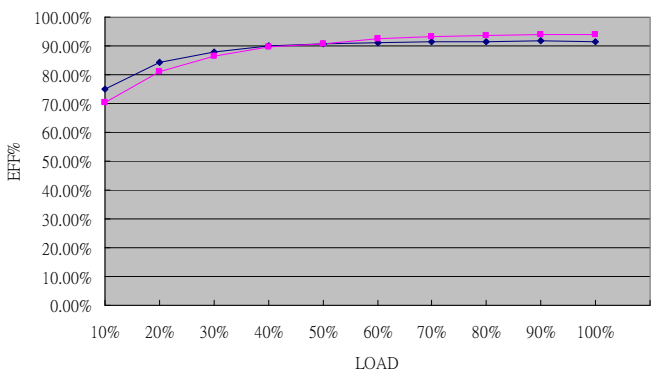
VIN    VS    Efficiency

|                   |       |       |       |       |
|-------------------|-------|-------|-------|-------|
| Input Voltage (V) | 90    | 115   | 180   | 230   |
| Efficiency (%)    | 89.36 | 91.37 | 93.09 | 93.81 |
| Input Voltage (V) | 264   | 277   | 305   |       |
| Efficiency (%)    | 94.05 | 94.03 | 93.70 |       |



LOAD    VS    Efficiency

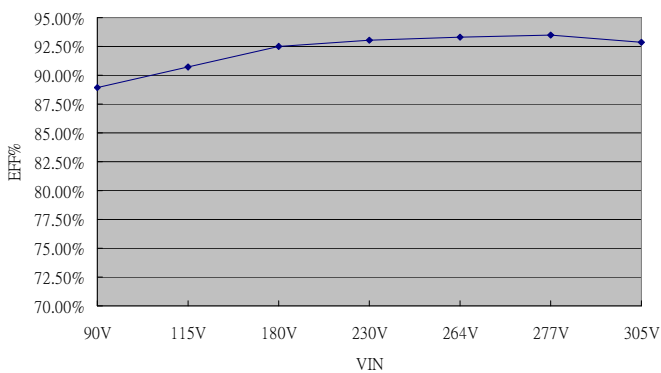
|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
| Load (%) | 10    | 20    | 30    | 40    | 50    |
| 115V (%) | 74.93 | 84.24 | 87.87 | 89.92 | 90.59 |
| 230V (%) | 70.39 | 81.09 | 86.34 | 89.78 | 90.89 |
| Load (%) | 60    | 70    | 80    | 90    | 100   |
| 115V (%) | 91.10 | 91.60 | 91.28 | 91.65 | 91.58 |
| 230V (%) | 92.38 | 93.15 | 93.64 | 93.89 | 93.99 |



ALF150-48S

VIN    VS    Efficiency

|                   |       |       |       |       |
|-------------------|-------|-------|-------|-------|
| Input Voltage (V) | 90    | 115   | 180   | 230   |
| Efficiency (%)    | 88.95 | 90.68 | 92.49 | 93.08 |
| Input Voltage (V) | 264   | 277   | 305   |       |
| Efficiency (%)    | 93.27 | 93.51 | 92.84 |       |



LOAD    VS    Efficiency

|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
| Load (%) | 10    | 20    | 30    | 40    | 50    |
| 115V (%) | 73.99 | 84.83 | 87.68 | 89.39 | 90.33 |
| 230V (%) | 71.55 | 82.11 | 86.34 | 89.34 | 90.57 |
| Load (%) | 60    | 70    | 80    | 90    | 100   |
| 115V (%) | 90.53 | 90.68 | 91.01 | 90.80 | 90.87 |
| 230V (%) | 91.92 | 92.31 | 92.91 | 93.05 | 93.37 |

