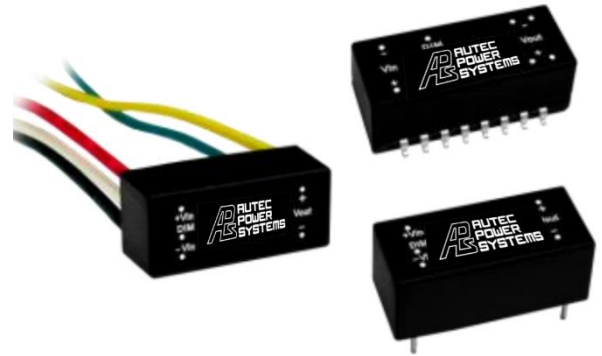


## ■ Features

- Power Rating: 8-23W
- Input Voltage: 9-36Vdc
- Nominal Voltage: 24Vdc
- Constant current design
- Output current(0-700mA)
- Efficiency up to 95%
- PWM dimming control
- SCP and OTP
- Internal SMD technology
- Fully isolated plastic case
- IP67
- 3-year warranty



\*Product images are for illustrative purposes only and may vary from actual design.

## ■ Application

- Indoor or outdoor lights

## ■ Model List\*(See part number scheme for model number details)

| Model Number   | Input Voltage Range | Output Power | Output Voltage | Output Current Min. | Output Current Max. | Efficiency | Certification |
|----------------|---------------------|--------------|----------------|---------------------|---------------------|------------|---------------|
| LDDCD010S030SM | 9-36Vdc             | 10W          | 2-32V          | 0mA                 | 300mA               | 95%        | CE            |
| LDDCD011S035SM | 9-36Vdc             | 11W          | 2-32V          | 0mA                 | 350mA               | 95%        | CE            |
| LDDCD016S050SM | 9-36Vdc             | 16W          | 2-32V          | 0mA                 | 500mA               | 95%        | CE            |
| LDDCD020S060SM | 9-36Vdc             | 20W          | 2-32V          | 0mA                 | 600mA               | 95%        | CE            |
| LDDCD023S070SM | 9-36Vdc             | 23W          | 2-32V          | 0mA                 | 700mA               | 95%        | CE            |
| LDDCD008S030SM | 9-32Vdc             | 8W           | 2-28V          | 0mA                 | 300mA               | 95%        | CE            |
| LDDCD014S035SM | 9-32Vdc             | 14W          | 2-28V          | 0mA                 | 350mA               | 95%        | CE            |
| LDDCD014S050SM | 9-32Vdc             | 14W          | 2-28V          | 0mA                 | 500mA               | 95%        | CE            |
| LDDCD017S060SM | 9-32Vdc             | 17W          | 2-28V          | 0mA                 | 600mA               | 95%        | CE            |
| LDDCD020S070SM | 9-32Vdc             | 20W          | 2-28V          | 0mA                 | 700mA               | 95%        | CE            |

## ■ Technical Data

|                          |                                               |
|--------------------------|-----------------------------------------------|
| Input Voltage            | 9-36Vdc, 9-32Vdc                              |
| Input Filter             | Capacitor                                     |
| Output Voltage range     | 2-32V(36Vdc)                                  |
| Output Voltage range     | 2-28V(32Vdc)                                  |
| Output Current Accuracy  | Vin=24V, 6 LEDS ±4%(typ.), ±6%(max.)          |
| Output Current Stability | Vin=24V, 1 LED to 6 LEDS ±4%(typ.), ±6%(max.) |

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August 30, 2019

**■ Technical Data(cont.)**

|                                                          |                                                              |
|----------------------------------------------------------|--------------------------------------------------------------|
| Humidity Pins/Wired                                      | 20-95%                                                       |
| Humidity Surface Mount                                   | 20-85%                                                       |
| Maximum Capacitive Load                                  | 2.2uF                                                        |
| Operating Frequency                                      | 40-1000KHz                                                   |
| Short Circuit Protection                                 | Continuous                                                   |
| Temperature Coefficient                                  | -40°C to +71°C ambient. $\pm 0.03^\circ\text{C}$             |
| Operating Temperature                                    | -40°C to +85°C (300mA-500mA); -40°C to +71°C (600mA-700mA)   |
| Storage Temperature                                      | -55°C to +125°C                                              |
| Overttemperature Shutdown (Auto-restart after cool down) | Internal IC Temperature 150°C<br>Temperature Hysteresis 20°C |
| Maximum Case Temperature                                 | 100°C                                                        |
| MTBF                                                     | 2,000,000h@25°C ambient Temperature                          |
| Case Material                                            | Non Conductive plastic                                       |
| Potting Material                                         | Epoxy(UL94V-0)                                               |
| Case Size Pins/Wired                                     | 22.6x9.9x8.9mm                                               |
| Case Size Surface Mounted                                | 25.4x10.5x9.3mm                                              |
| Weight Pins                                              | 4g                                                           |
| Weight Wired                                             | 7.3g                                                         |
| Weight Surface Mounted                                   | 3.4g                                                         |

Typical at 25°C, nominal input voltage, rated output current unless otherwise specified

**■ Safety/EMC**

|                             |         |
|-----------------------------|---------|
| EMI Radiated Emissions      | EN55015 |
| Dust Test & Waterproof Test | IP67    |

**Disclaimer:**

Autec Power Systems' (Autec) LED Drivers are Hi-Pot tested during the manufacturing process. Autec assumes no responsibility for secondary Hi-Pot testing at customer location or designated production line(s). Should customer require further Hi-Pot testing, at their own production line, following assembly of the LED Driver into the customer's assembled fixture, Autec requests advance notice. This request must be communicated to Autec in a timely manner and is recommended to be requested at time of issuing each purchase order.

**■ PWM Dimming and ON/OFF Control**

|                                          |                                                          |
|------------------------------------------|----------------------------------------------------------|
| ON/OFF Control ON(DIM-VIN)               | 3.5-10Vdc                                                |
| ON/OFF Control OFF(DIM-VIN)              | 0-0.5Vdc                                                 |
| Quiescent Input Current in Shutdown Mode | Vin=24, 1mA                                              |
| PWM Frequency                            | For linear Operation(measured 1%-100% Dimming), 100-1KHz |

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## ■ PWM Dimming and ON/OFF Control

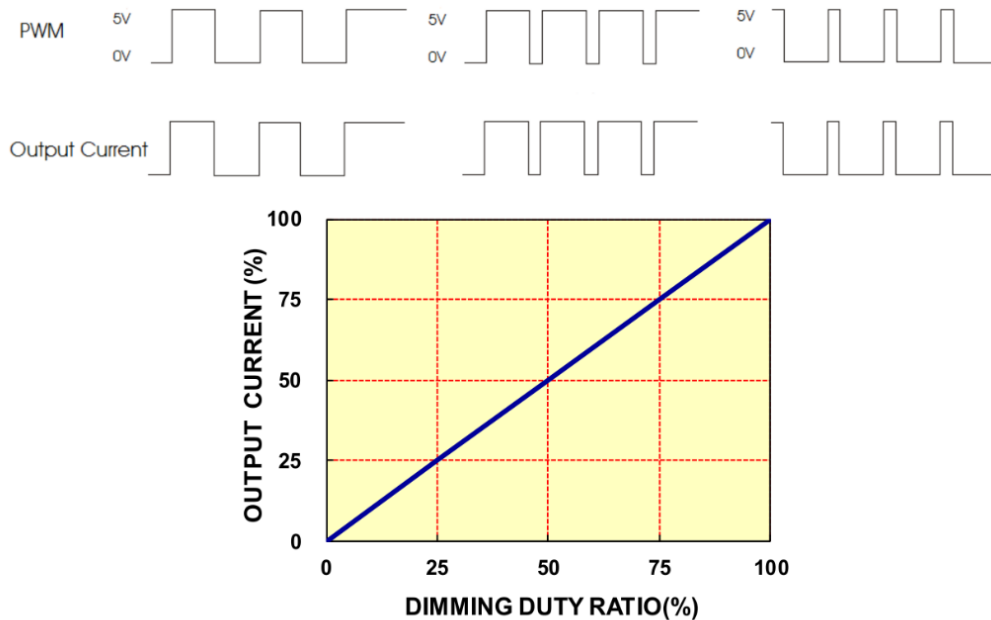
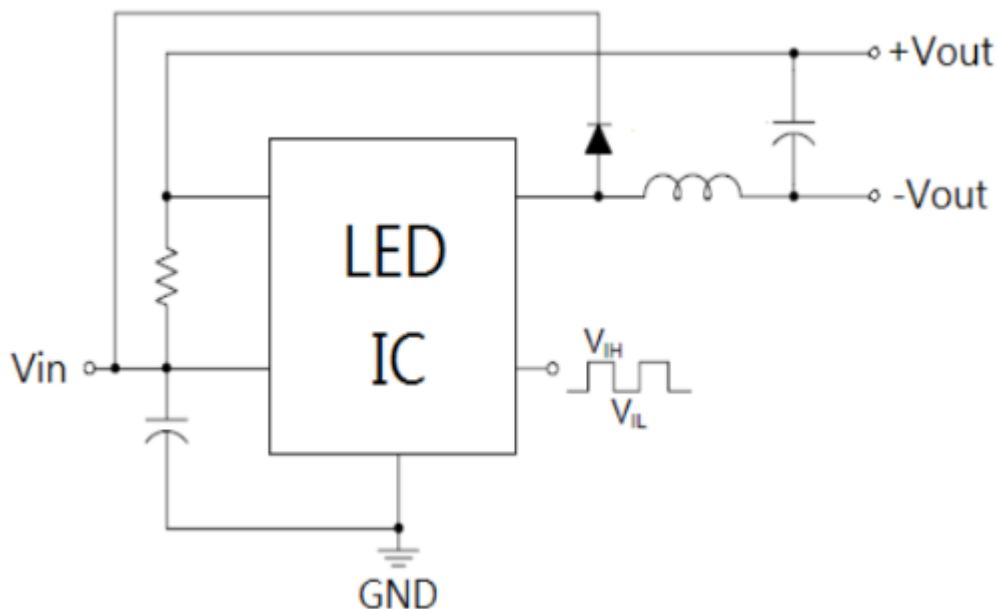


Fig.1 Dimming Duty Cycle: 1%-100%

The dimming of LEDs can be performed by applying PWM signals to DIM pin. A logic low (below 0.5V) at DIM PIN will disable the device and shut off the current flow to the LED Driver.

## ■ Wiring Diagram



## ■ Wiring Diagram(PWM Dimming Control Circuit)

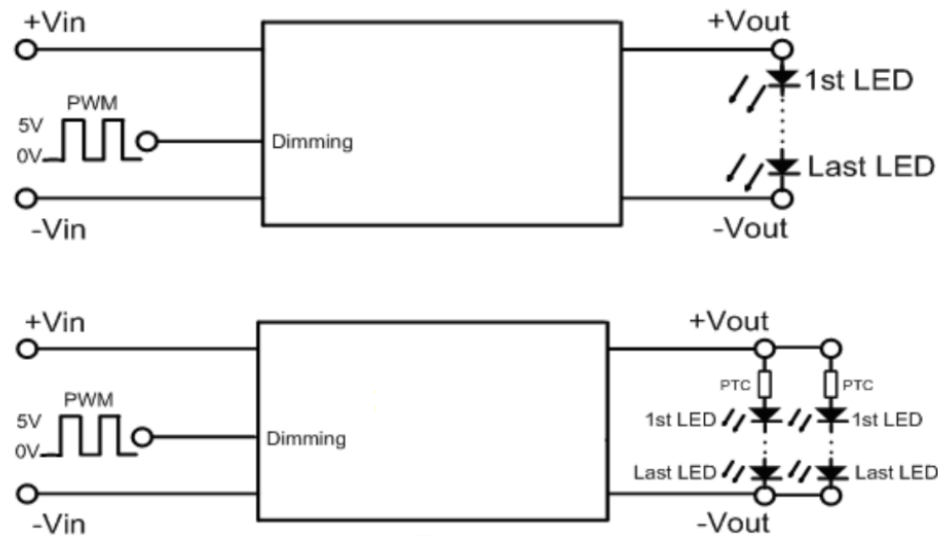
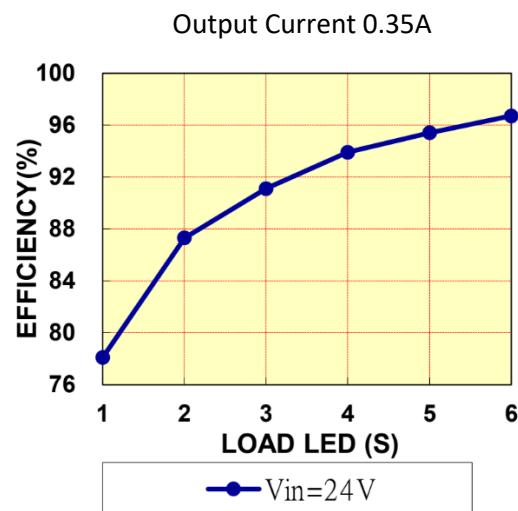
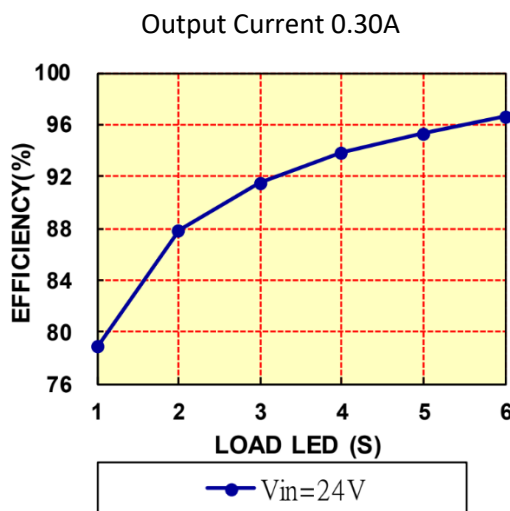


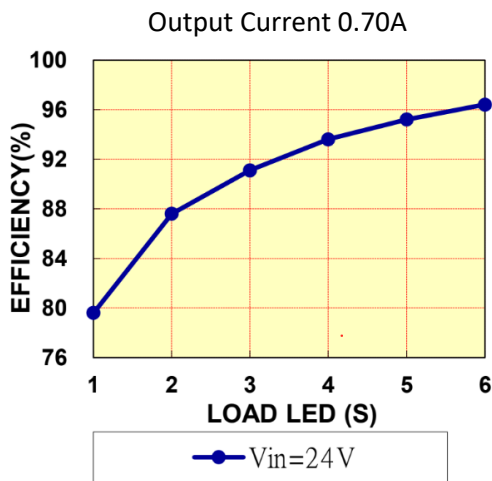
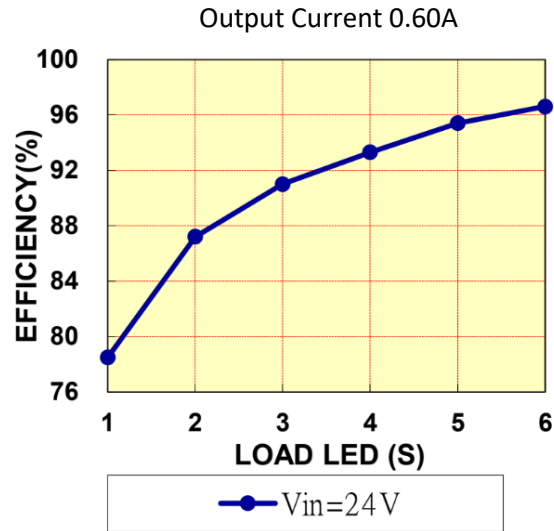
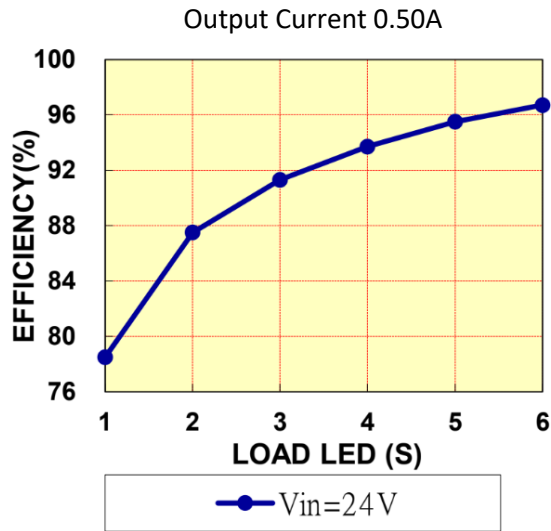
Fig.2

When using PWM Dimming Control Circuit, to protect the LED Driver, a PTC of positive coefficient may used to connect to the input end of every channel or all channels.

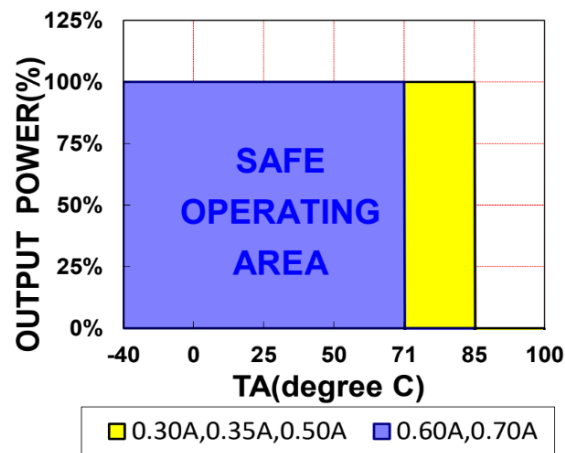
## ■ Efficiency vs. Load

1-LED VF=3.6V; 2-LED VF=7.2V; 3-LED VF=10.8V





## Derating Curve

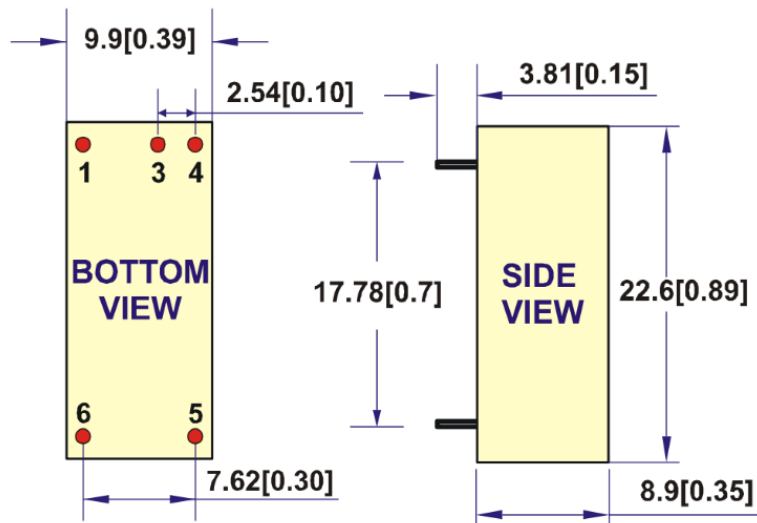


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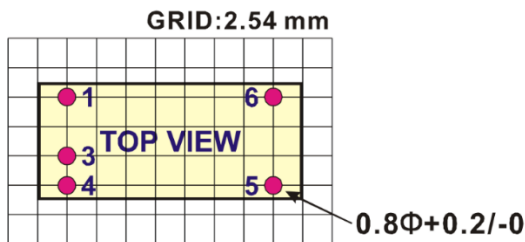
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■ Mechanical Dimensions (Pin Model)

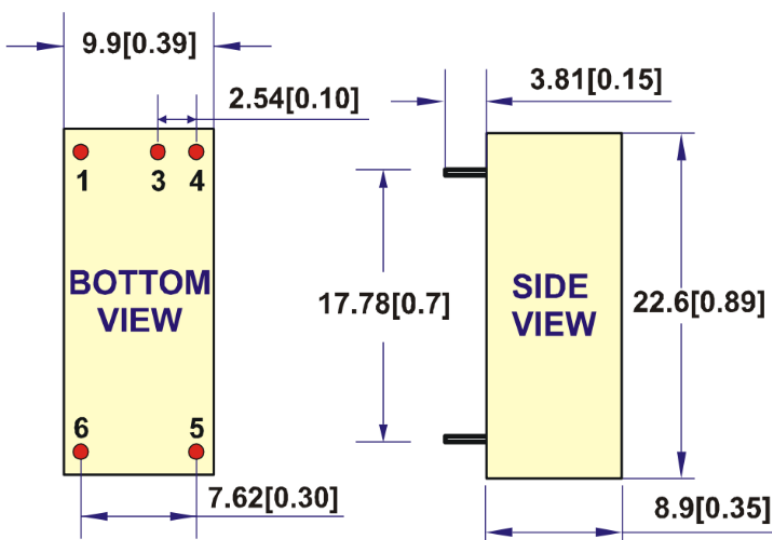


Unit: mm

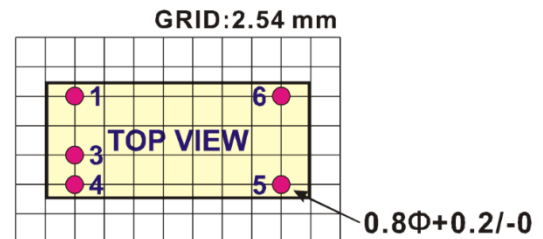


| Pin Out                                                                                                 |         | Comment                                      |
|---------------------------------------------------------------------------------------------------------|---------|----------------------------------------------|
| 1                                                                                                       | +Vin    | DC Supply                                    |
| 3                                                                                                       | PWM DIM | ON/OFF/PWM Dimming<br>Leave open if not used |
| 4                                                                                                       | -Vin    | Don't connect to -Vout                       |
| 5                                                                                                       | -Vout   | LED - Connection                             |
| 6                                                                                                       | +Vout   | LED + Connection                             |
| Note Pin Size is Tolerance 0.060φ ±0.05mm, All dimensions are in mm[Inches], Tolerance .X or .XX=±0.5mm |         |                                              |

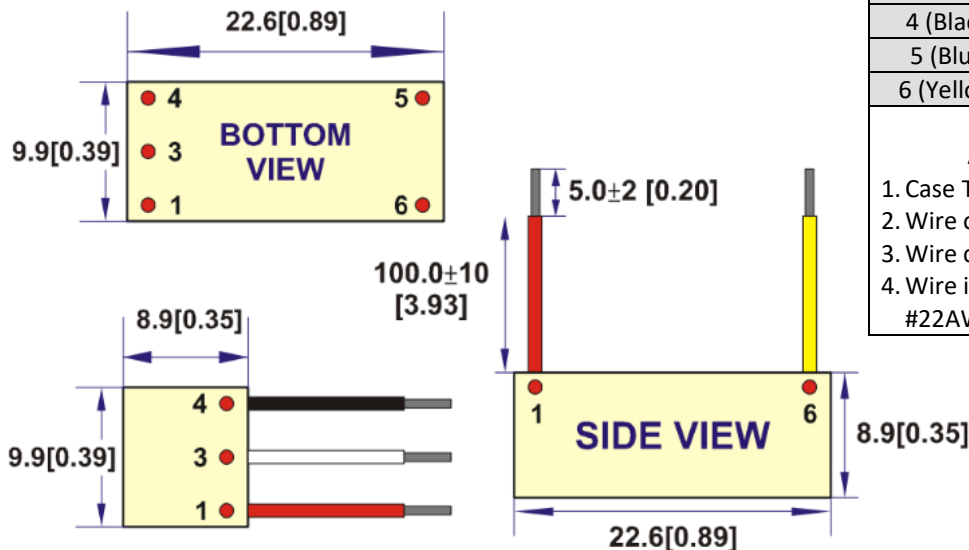
(Pin Model) No Dimming



| Pin Out                                                                                                 |       | Comment                |
|---------------------------------------------------------------------------------------------------------|-------|------------------------|
| 1                                                                                                       | +Vin  | DC Supply              |
| 3                                                                                                       | NP    | NP                     |
| 4                                                                                                       | -Vin  | Don't connect to -Vout |
| 5                                                                                                       | -Vout | LED - Connection       |
| 6                                                                                                       | +Vout | LED + Connection       |
| Note Pin Size is Tolerance 0.060φ ±0.05mm, All dimensions are in mm[Inches], Tolerance .X or .XX=±0.5mm |       |                        |



■ **Mechanical Dimensions (Wired Model)**

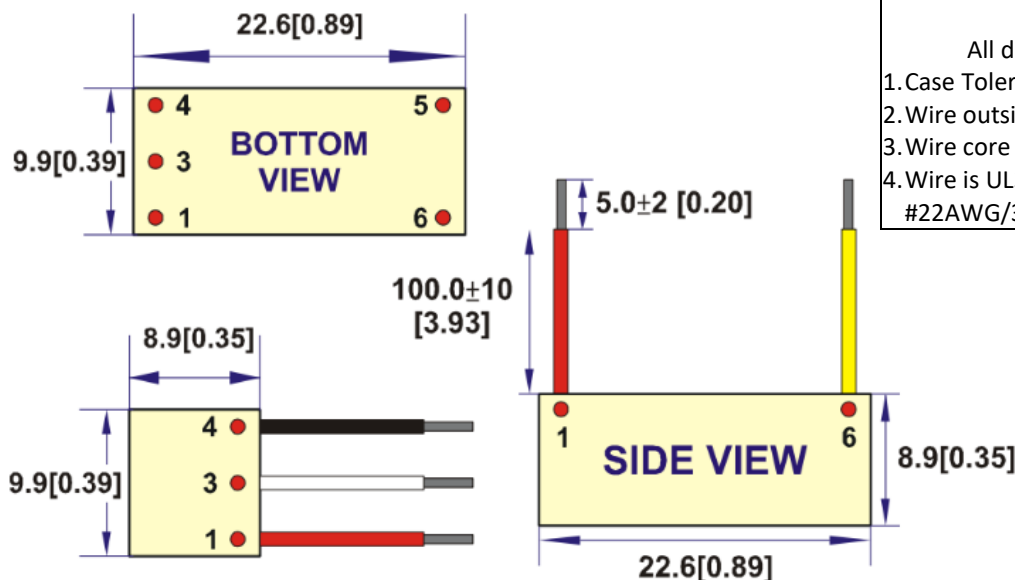


| Pin Out    |         | Comment                                      |
|------------|---------|----------------------------------------------|
| 1 (Red)    | +Vin    | DC Supply                                    |
| 3 (White)  | PWM DIM | ON/OFF/PWM Dimming<br>Leave open if not used |
| 4 (Black)  | -Vin    | Don't connect to -Vout                       |
| 5 (Blue)   | -Vout   | LED – Connection                             |
| 6 (Yellow) | +Vout   | LED + Connection                             |

Note:  
All dimensions are in mm [inches]  
1. Case Tolerance .X or .XX=0.5mm  
2. Wire outside diameter=1.6mm±0.1  
3. Wire core diameter=0.75mm±0.1  
4. Wire is UL3385/CAS TEM listed  
#22AWG/300V/105°C Rated

Unit: mm

**(Wired Model)No Dimming**



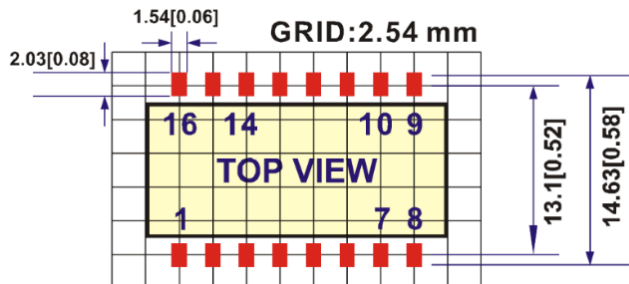
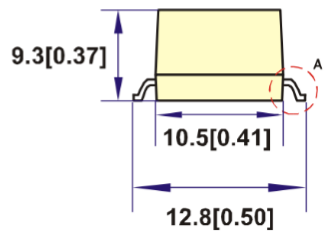
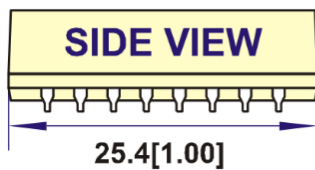
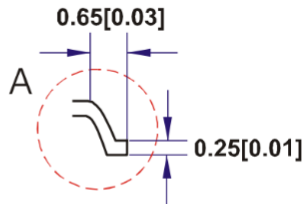
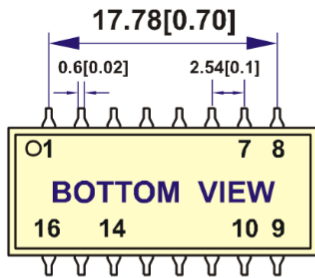
| Pin Out    |       | Comment                |
|------------|-------|------------------------|
| 1 (Red)    | +Vin  | DC Supply              |
| 4 (Black)  | -Vin  | Don't connect to -Vout |
| 5 (Blue)   | -Vout | LED – Connection       |
| 6 (Yellow) | +Vout | LED + Connection       |

Note:  
All dimensions are in mm [inches]  
1. Case Tolerance .X or .XX=0.5mm  
2. Wire outside diameter=1.6mm±0.1  
3. Wire core diameter=0.75mm±0.1  
4. Wire is UL3385/CAS TEM listed  
#22AWG/300V/105°C Rated

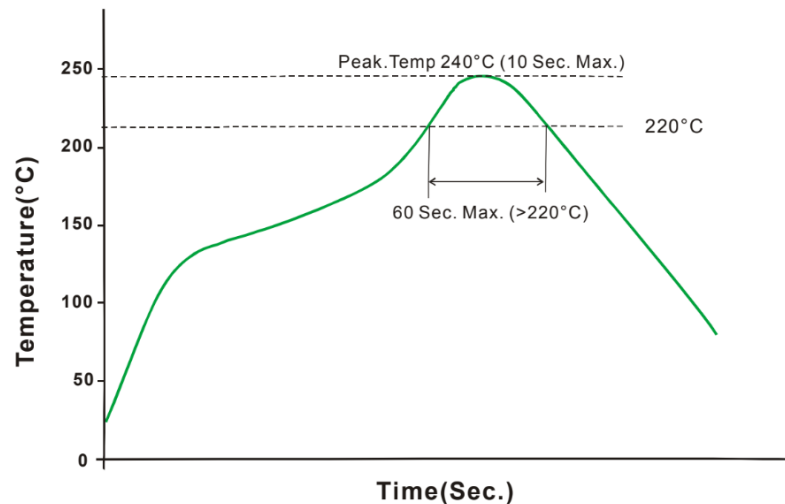
**(Surface Mount)**

| Pin Out |            | Comment                                   |
|---------|------------|-------------------------------------------|
| 1       | +Vin       | DC Supply                                 |
| 14      | PWM<br>DIM | ON/OFF/PWM Dimming Leave open if not used |
| 16      | -Vin       | Don't connect to -Vout                    |
| 9 & 10  | -Vout      | LED – Connection                          |
| 7 & 8   | +Vout      | LED + Connection                          |

Note Pin Size is Tolerance 0.060φ ±0.05mm, All dimensions are in mm[Inches], Tolerance .X or .XX=±0.5mm

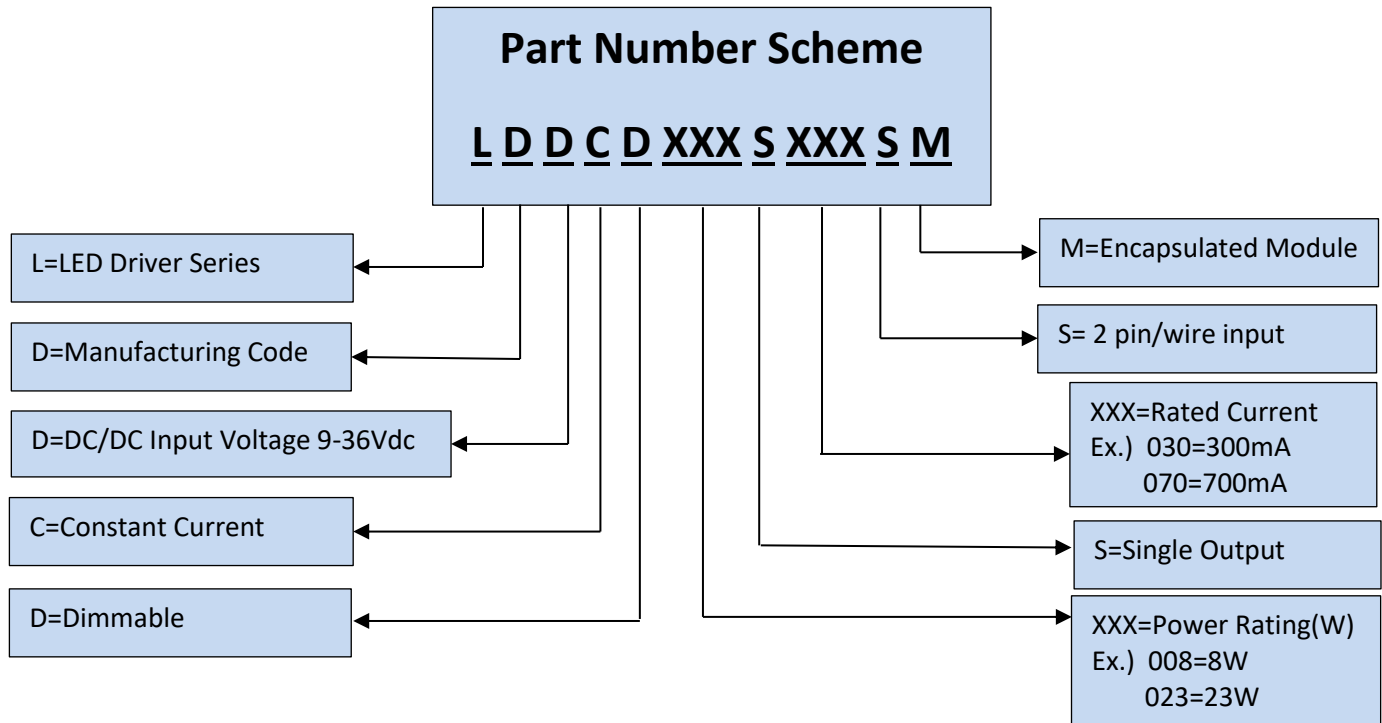


## ■ Reflow Soldering Curve



**Notes: The curve applies only to the hot air reflow soldering**





**\*Product images are for illustrative purposes only and may vary from actual design.**

**\*Specifications are subject to change without notice. Autec is not responsible for issues arising from errors or omissions.**