

SERIES: VLD24 | **DESCRIPTION:** LED DRIVER

FEATURES

- up to 700 mA constant current
- wide input (5.5~36 V)
- compact package
- PWM or analog dimming capable
- short circuit protection
- remote on/off control
- efficiency up to 96%



V-Infinity

| MODEL | input voltage | | output voltage range (Vdc) | output current | | dimming control | efficiency typ (%) |
|-----------|---------------|-------------|----------------------------|----------------|----------|--------------------|--------------------|
| | typ (Vdc) | range (Vdc) | | min (mA) | max (mA) | | |
| VLD24-300 | 24 | 6.5~36.0 | 2~30 | 0 | 300 | digital + rheostat | 96 |
| VLD24-350 | 24 | 6.5~36.0 | 2~30 | 0 | 350 | digital + rheostat | 96 |
| VLD24-500 | 24 | 6.5~36.0 | 2~30 | 0 | 500 | digital + rheostat | 96 |
| VLD24-600 | 24 | 6.5~36.0 | 2~30 | 0 | 600 | digital + rheostat | 96 |
| VLD24-700 | 48 | 6.5~36.0 | 2~30 | 0 | 700 | digital + rheostat | 96 |

PART NUMBER KEY
VLD24 - XXX

Base Number

Input Voltage

INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------------------|--|---|-----|-----|---------------|
| maximum input voltage | for ≤ 10 seconds | 5.5 | | 40 | Vdc |
| operating input voltage | | 6.5 | 24 | 36 | Vdc |
| quiescent input current in off mode | $V_{in} = 24\text{ V}, V_r < 0.6\text{ V}$ | | | 400 | μA |
| input filter | capacitor | | | | |
| remote on/off | ON (V_r on pin 3) OFF | open or $2.8\text{ V} < V_r < 6\text{ V}$ $V_r < 0.6\text{ V}$ | | | |
| remote pin current | $V_r = 5\text{ V}$ | | | 1 | mA |
| PWM frequency | | | 0.2 | 10 | kHz |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|---|-----|------------|----------|-----------------------|
| output voltage range | $V_{in} = 36\text{ V}$ | 2 | | 30 | Vdc |
| current accuracy | $V_{in} = 24\text{ V}, 5\text{ LEDs}$ | | ± 7 | ± 12 | % |
| current stability | $V_{in} = 24\text{ V}, 1\sim 5\text{ LEDs}$ | | ± 8 | ± 15 | % |
| temperature coefficient | | | ± 0.03 | | %/ $^{\circ}\text{C}$ |
| capacitive load | | | | 470 | μF |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| short circuit protection | continuous | | | | |

SAFETY AND COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|----------------------|---------------------------|-----------|-----|-----|------------------|
| isolation voltage | for 1 minute at 1 mA max. | 1,500 | | | Vdc |
| isolation resistance | at 500 Vdc | 1,000 | | | $\text{M}\Omega$ |
| MTBF | | 1,000,000 | | | hours |
| RoHS compliant | yes | | | | |

ENVIRONMENTAL

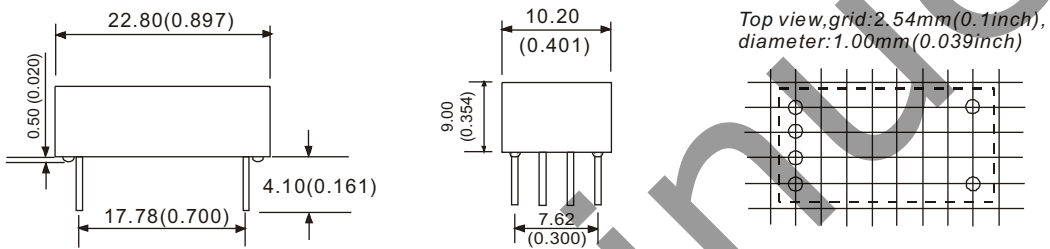
| parameter | conditions/description | min | typ | max | units |
|-----------------------|---------------------------------|-----|-----|-----|--------------------|
| operating temperature | 300 and 350 mA | -40 | | 85 | $^{\circ}\text{C}$ |
| | 500, 600, and 700 mA | -40 | | 71 | $^{\circ}\text{C}$ |
| storage temperature | | -55 | | 125 | $^{\circ}\text{C}$ |
| case temperature | | | | 100 | $^{\circ}\text{C}$ |
| storage humidity | non-condensing | | | 95 | % |
| temperature rise | at full load | | 15 | | $^{\circ}\text{C}$ |
| lead temperature | 1.5 mm from case for 10 seconds | | | 300 | $^{\circ}\text{C}$ |

MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|---|-----|-----|-----|-------|
| dimensions | 0.897 x 0.401 x 0.374 (22.80 x 10.2 x 9.5 mm) | | | | inch |
| case material | plastic (UL94-V0) | | | | |
| weight | | | 3.5 | | g |

MECHANICAL DRAWING

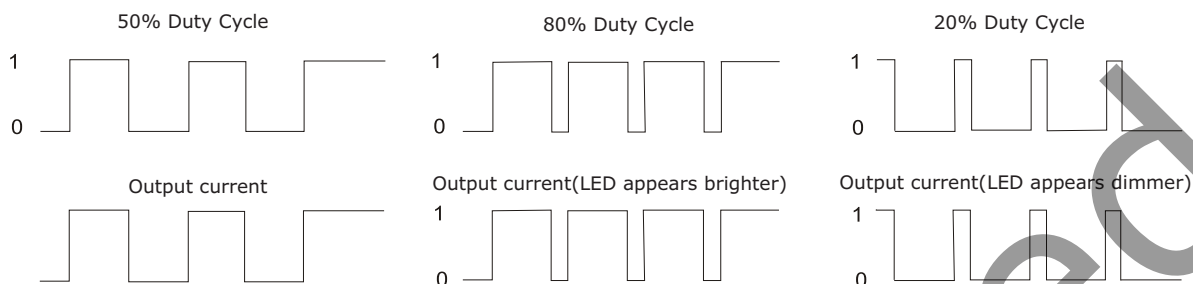
units: mm [inches]
 tolerance: ± 0.25 [± 0.010]
 pin section tolerance: ± 0.05 mm [± 0.002]



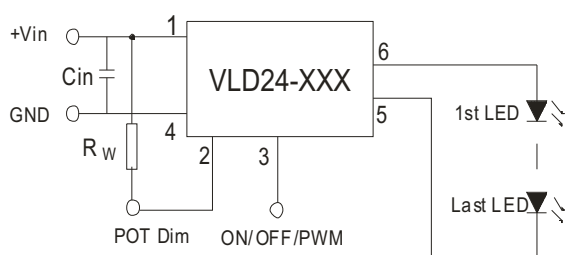
| PIN CONNECTIONS | | |
|-----------------|--------------|-----------------------------------|
| PIN | FUNCTION | COMMENTS |
| 1 | Vin | DC supply |
| 2 | Rheostat Dim | must connect to Vin if not in use |
| 3 | On/Off/PWM | leave open if not in use |
| 4 | GND | do not connect to -Vo |
| 5 | -Vo | LED cathode connection |
| 6 | +Vo | LED anode connection |

APPLICATION NOTES

1. Digital Dimming Control

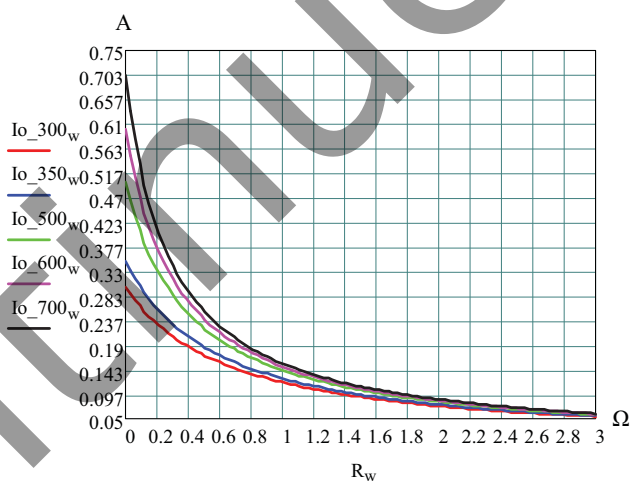


2. Analog Dimming Control

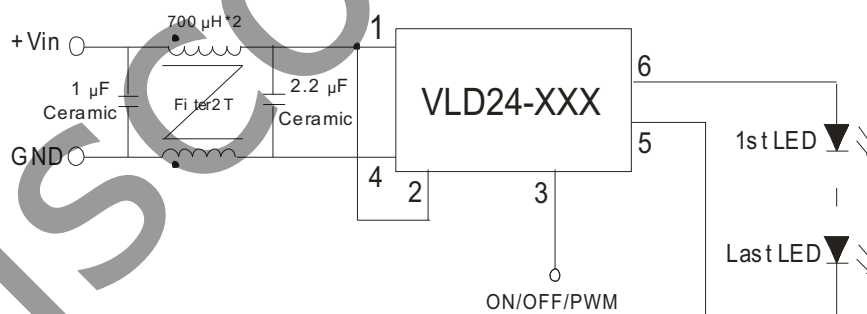


General:
Cin: 47 μ F for best performance

I_o can be set between 0A and $I_o(\text{max})$ with trim pot R_w .
For example, to set the output current (I_o) to 200mA using the VLD24-350, choose $R_w=0.4\Omega$. The trim pot should be placed close to pins 1 and 2 with shortest possible leads.



3. EMS Filter Circuits



REVISION HISTORY

| rev. | description | date |
|------|----------------------|------------|
| 1.0 | initial release | 07/18/2008 |
| 1.01 | new template applied | 09/02/2011 |

The revision history provided is for informational purposes only and is believed to be accurate.



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