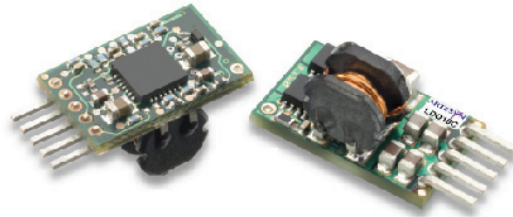


LDO10C Series

50 Watts C-Class Non-Isolated

Total Power: 50 Watts
Input Voltage: 3 - 13.8 Vdc
No. of Outputs: Single



Special Features

- 10 A current rating
- Adjustable output voltage: 0.59 - 5.1 V
- Excellent transient response
- Power enable (5 pin model)
- Minimum airflow
- Small package
- Termination voltage capability
- RoHS compliant

Electrical Specifications

| Output | | |
|------------------------------------|----------------------------|--|
| Output voltage | See Note 5 | 0.59 - 5.1 V |
| Output setpoint accuracy | 0.1% trim resistors | ± 1.0% |
| Line regulation | Low line to high line | ± 0.2% |
| Load regulation | Full load to min. load | ± 0.5% |
| Min./max. load | | 0 A/10 A |
| Overshoot | At turn-on | 0.5% max. |
| Undershoot | At turn-off | 100 mV max. |
| Ripple and noise 5 Hz to 20 MHz | See Note 1 | 20 mV Vin = 5 V, Vout = 2.5 V |
| Transient response | See Notes 1, 2 | 130 mV max. deviation 15 μs recovery to within regulation band |
| Input | | |
| Input voltage range | | 3 - 13.8 Vdc |
| Input current | Minimum load Remote OFF | 50 mA 5 mA |
| Input current (max.) | See Note 3 | 10 A @ Io max. |
| Start-up time | Power up Remote ON/OFF | 3 ms 2 ms |

Safety

UL, cUL CAN/CSA 22.2
No. E139421
TÜV Product Service (EN60950)
Certificate No. TBD
CB Report and
Certificate to IEC60950

General

| | | |
|-----------------------------------|---|-----------------------|
| Efficiency (high input) | V _{in} =5 V, V _o =2.5 V, I _o =10 A | 91% typical |
| Switching frequency | Fixed | 620 kHz |
| Approvals and standards (pending) | | EN60950 UL/cUL6950 |
| Material flammability | | UL94V-0 |
| Weight | | 1.899 g (0.067 oz.) |
| MTBF | 12 V @ 40 °C, 100% load Bellcore 332 | > 8,220,210 hours |
| Coplanarity | Surface mount models | 150 μm |

Environmental Specifications

| | | |
|---------------------|--------------------------------|-------------------|
| Thermal performance | Operating ambient, temperature | -40 °C to +85 °C |
| See Note 5 | Non-operating | -40 °C to +125 °C |

Protection

| | |
|---------------|----------------------|
| Short-circuit | Hiccup, non-latching |
|---------------|----------------------|

Recommended System Capacitance

| | | |
|--------|------------|------|
| Input | See Note 6 | 0 μF |
| Output | See Note 7 | 0 μF |

Ordering Information

| Output Power (Max.) | Input Voltage | OVP | Output Voltage | Output Current (Min.) | Output Current (Max.) | Efficiency (Typical) | Regulation Line | Regulation Load | Model Number ^(3,5) |
|---------------------|---------------|-----|----------------|-----------------------|-----------------------|----------------------|-----------------|-----------------|-------------------------------|
| 50 W | 3 - 13.8 Vdc | N/A | 0.59 - 5.1 V | 0 A | 10 A | 94% | ± 0.2% | ± 0.5% | LDO10C-005W05-VJ |
| 50 W | 3 - 13.8 Vdc | N/A | 0.59 - 5.1 V | 0 A | 10 A | 94% | ± 0.2% | ± 0.5% | LDO10C-005W05-HJ |
| 50 W | 3 - 13.8 Vdc | N/A | 0.59 - 5.1 V | 0 A | 10 A | 94% | ± 0.2% | ± 0.5% | LDO10C-005W05-SJ |

Part Number System with Options

| Product Family | Rated Output Current | Performance | Input Voltage | Number of Pins and Type of Output | Output Voltage | Mounting Option | RoHS Compliance ⁽⁸⁾ |
|---|-------------------------------------|-----------------------------------|----------------------------------|--|-----------------------------------|--|--|
| LDO | 10 | C | 00 | 5W | 05 | V | J |
| Product Family LDO = C-Class LDO Series | Rated Output Current 10 = 10 Amp | Performance C = Cost Optimized | Input Voltage 00 = 3 - 13.8 V | Number of Pins and Type of Output 5W = 5 Pins and Wide Output | Output Voltage 05 = 0.59-5.1 V | Mounting Option V = Vertical H = Horizontal S = Surface | RoHS Compliance J = Pb free (RoHS 6/6 compliant) Y = non PB-free (TSE 5/6 compliant) |

Output Voltage Adjustment of the LDO03C Series

The ultra-wide output voltage trim range offers major advantages to users who select the LDO010C series. It is no longer necessary to purchase a variety of modules in order to cover different output voltages. The output voltage can be trimmed in a range of 0.59 - 5.1 Vdc. When the LDO03C converter leaves the factory, the output has been adjusted to the default voltage of 0.59 V.

Notes:

- 1 Measured as per recommended system capacitance. See Application Note 186.
- 2 $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25 \text{ }^\circ\text{C}$, load change = 0.50 lo to full lo and full lo to 0.50.
- 3 External input fusing is recommended.
- 4 Additional part numbers may be available with different output voltages.
- 5 Airflow dependent, 100 LFM minimum required.
- 6 No capacitors needed for ripple current capability.
- 7 No capacitors needed for stability.
- 8 NOTICE: the input voltage must be greater than the programmed output voltage. the max duty cycle is 95%. These non-isolated dc-dc modules are buck converters.

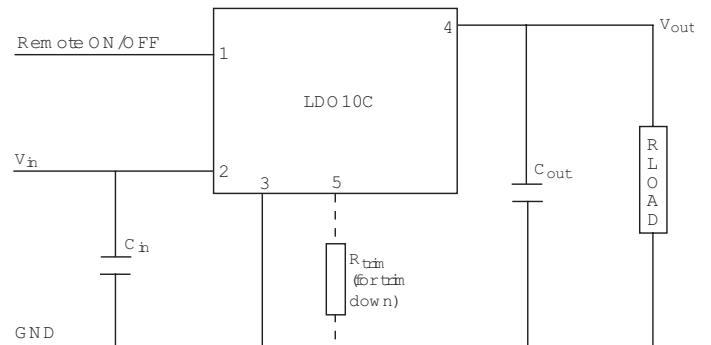


Figure 1: Standard Application Drawing

Mechanical Drawings

Vertical Mount

Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ± 0.030 (± 0.76) 3 Places ± 0.010 (± 0.25)

Pin Assignments

| Pin No. | Function |
|---------|------------|
| 1. | Enable |
| 2. | Vin |
| 3. | Common/RTN |
| 4. | Vout |
| 5. | Trim |

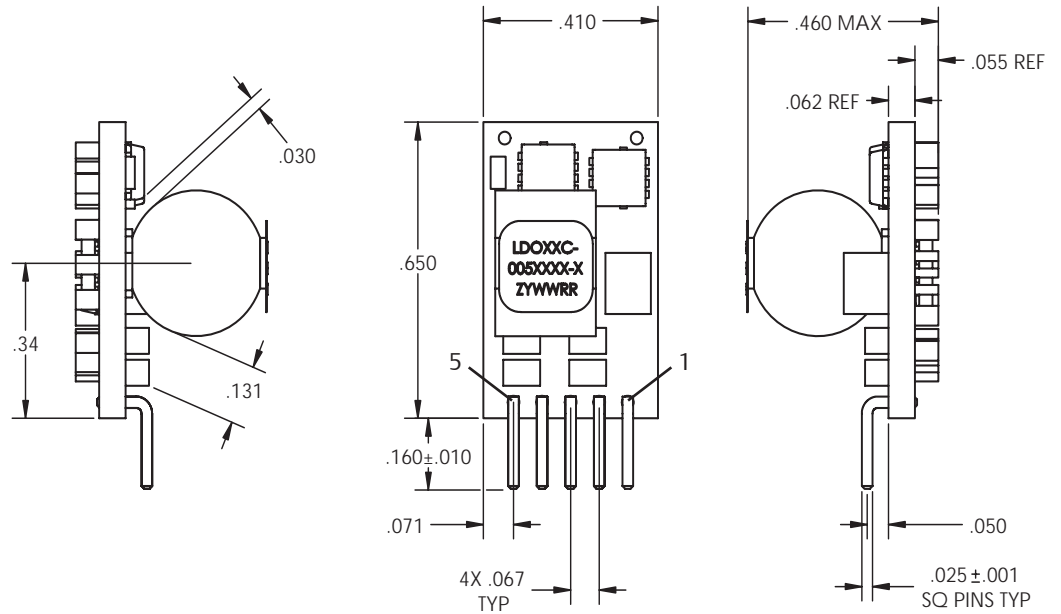


Figure 2: Vertical Mount Mechanical Drawing

Horizontal Mount

Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ± 0.030 (± 0.76) 3 Places ± 0.010 (± 0.25)

Pin Assignments

| Pin No. | Function |
|---------|------------|
| 1. | Enable |
| 2. | Vin |
| 3. | Common/RTN |
| 4. | Vout |
| 5. | Trim |
| 6. | Mech Pin |

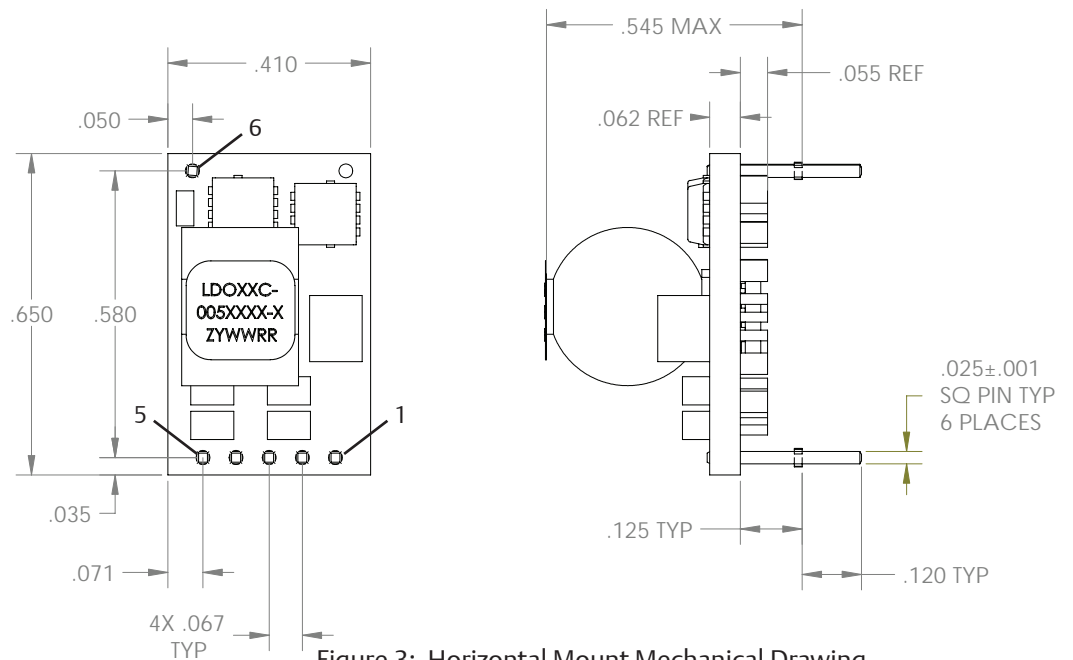


Figure 3: Horizontal Mount Mechanical Drawing

Surface Mount

Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ± 0.030 (± 0.76)
3 Places ± 0.010 (± 0.25)

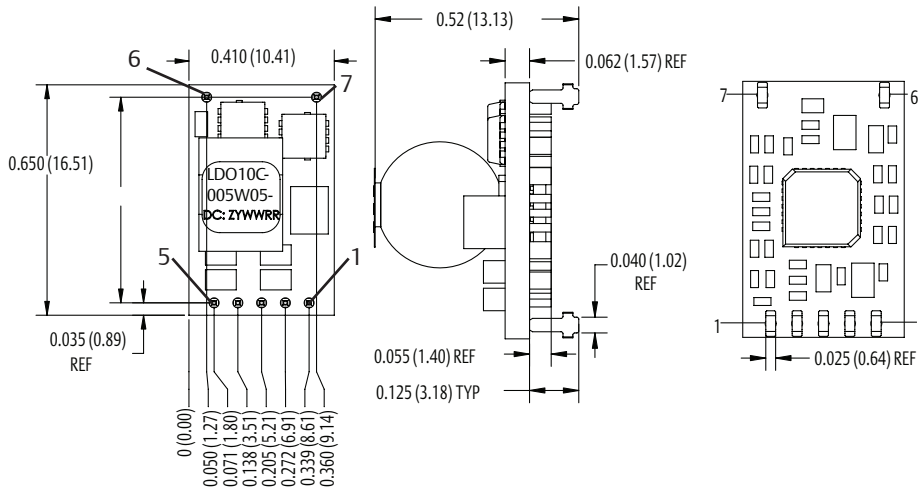


Figure 4: Surface Mount Mechanical Drawing

Pin Assignments

| Pin No. | Function |
|---------|------------|
| 1. | Enable |
| 2. | Vin |
| 3. | Common/RTN |
| 4. | Vout |
| 5. | Trim |
| 6. | Mech Pin |
| 7. | Mech Pin |

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