

LDO10C Series

50 Watts

Data Sheet

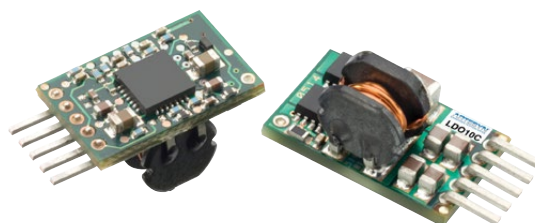
Total Power: 50 Watts
Input Voltage: 3 - 13.8 Vdc
of Outputs: Single

SPECIAL FEATURES

- 10 A output current rating
- Input voltage range: 3 - 13.8 Vdc
- 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

SAFETY

- UL, cUL 60950-1
- TÜV Product Service (EN60950)
- CE



Electrical Specifications

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 @ I _o max.
Start-up time	Power up Remote ON/OFF	3 ms 2 ms
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 V _{in} = 5 V, V _{out} = 2.5 V
Transient response	See Note 1, 2	130 mV max. deviation 15 µs recovery to within regulation band
General		
Efficiency (high input)	V _{in} = 5 V, V _o = 2.5 V, I _o = 6 A	91%
Switching frequency	Fixed	620 kHz
Material flammability		UL94V-0
Weight		1.899 g (0.067 oz.)
MTBF	12 V @ 40 °C, 100% load Bellcore 332	>8,222,210 hours
Coplanarity	Surface mount models	150 µm

Environmental Specifications

Thermal performance	Operating ambient temperature	-40 °C to +85 °C
See Note 5	Non-operating ambient temperature	-40 °C to +125 °C
Protection		
Short-circuit	Hiccup, non-latching	
Recommended System Capacitance		
Input	See Note 6	0 μ F
Output	See Note 7	0 μ F

Ordering Information

Model Number ^(3,5)	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
LDO10C-005W05-VJ	50 W	3 - 13.8 Vdc	0.59 - 5.1 V	0 A	10 A	94%	$\pm 0.2\%$	$\pm 0.5\%$
LDO10C-005W05-V1J	50 W	3 - 13.8 Vdc	0.59 - 5.1 V	0 A	10 A	94%	$\pm 0.2\%$	$\pm 0.5\%$
LDO10C-005W05-HJ	50 W	3 - 13.8 Vdc	0.59 - 5.1 V	0 A	10 A	94%	$\pm 0.2\%$	$\pm 0.5\%$
LDO10C-005W05-SJ	50 W	3 - 13.8 Vdc	0.59 - 5.1 V	0 A	10 A	94%	$\pm 0.2\%$	$\pm 0.5\%$

Part Number System with Options

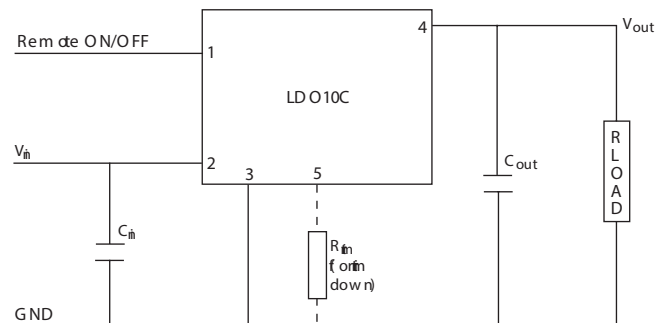
Product Family	Rated Output Current	Performance	Input Voltage	Number of Pins Type of Output	Output Voltage	Mounting Option	Custom Option	RoHS Compliance
LDO	10	C	00	5W	05	V	1	J
Product Family LDO = LDO Series	Rated Output Current 10 = 10 Amp	Performance C = Cost Optimized	Input Voltage 00 = 3 - 13.8 V	Type of Output 5W = 5 Pins and Wide Output	Output Voltage 05 = 0.59 - 5.1 V	Mounting Option V = Vertical H = Horizontal S = SMT	Custom Option 1 = Vertical, 0.199" pin length	RoHS Compliance J = Pb free (RoHS 6/6 compliant)

Output Voltage Adjustment of the LDO10C Series

The ultra-wide output voltage trim range offers major advantages to users who select the LDO10C 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 LDO10C converter leaves the factory, the output has been adjusted to the default voltage of 0.59 V.

Notes:

- Measured as per recommended system capacitance. See Application Note 186.
- $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25^\circ\text{C}$, load change = 0.50 I_o to full I_o and full I_o to 0.50.
- External input fusing is recommended.
- Additional part numbers may be available with different output voltages.
- Airflow dependent, 100 LFM minimum required.
- No capacitors needed for ripple current stability.
- No capacitors needed for stability.
- 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.



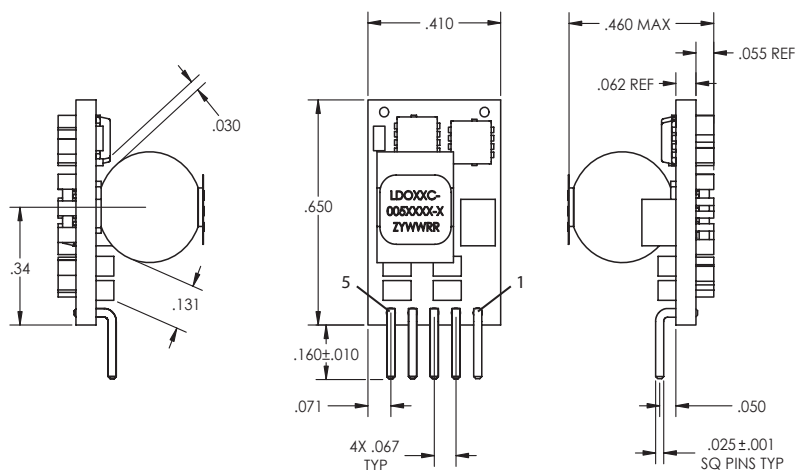
Standard Application Drawing

Mechanical Drawings

Vertical Mount (Model LDO10C-005W05-VJ)

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

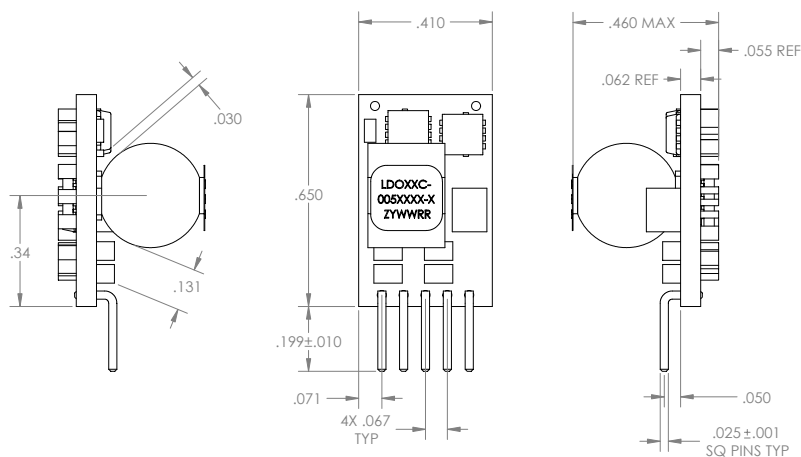
Pin Assignments	
Pin No.	Function
1	Enable
2	Vin
3	Common/RTN
4	Vout
5	Trim



Vertical Mount (Model LDO10C-005W05-V1J)

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

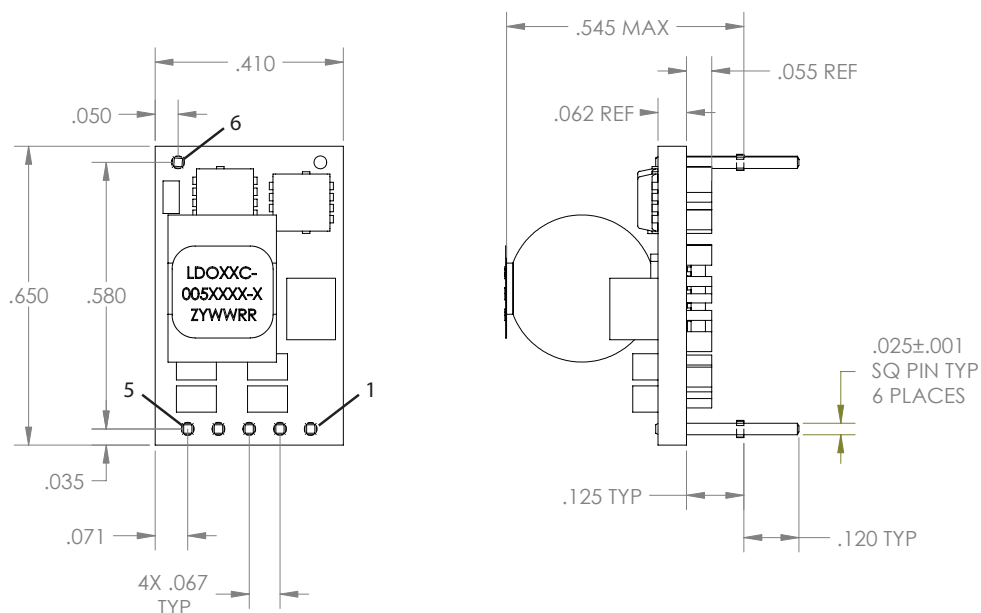


Mechanical Drawings (continued)

Horizontal Mount (Model LDO10C-005W05-HJ)

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

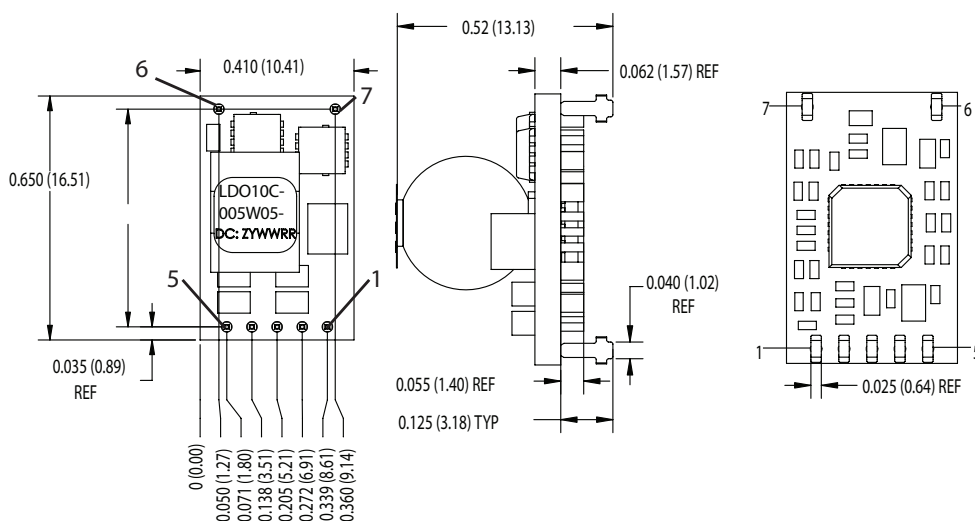
Pin Assignments	
Pin No.	Function
1	Enable
2	Vin
3	Common/RTN
4	Vout
5	Trim
6	Mech Pin



Surface Mount (Model LDO10C-005W05-SJ)

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
7	Mech Pin



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