

7638 DC/DC Converter

Features

- 15 Watts of Output Power
- Wide Input Range
- Rated to 110°C Case Operating Temperature
- 24 Volt Nominal Input, 5 Volt Output
- Other Input/Output Options Available
- Five Year Warranty
- Water Washable Design

Description

The 7638 offers the unique combination of 1) a maximum power rating of 15 Watts in a 1" x 2" package, 2) a 3.5:1 input range, and 3) a maximum case operating temperature range of 110 degrees C. The 7638 is ideal for applications with high ambient operating requirements and limited PCB space. With a 10 Watt power requirement, the unit is rated to 85 degrees C ambient in still air with no heatsinking.

The 7638 has an input range of 9 to 32 Volts DC. The output is 5.1 Volts. Other input and output voltage combinations may be factory ordered, contact Calex applications engineering at 800-542-3355 for more information. The 7638, like all Calex converters, carries the full 5 year Calex no hassle warranty. We can offer a five year warranty where others can't because with Calex it's rarely needed.

Selection Chart				
Model	Input Range VDC		Output VDC	Output A
	Min	Max		
7638	9	32	5.1	2.4

Input Parameters*			
Model	7638		Units
Voltage Range	MIN	9	VDC
	TYP	24	
	MAX	32	
Input Current 0% Load	TYP	8	mADC
	TYP	616	
Efficiency Vin = 24 VDC, 2.4 A Load	TYP	84	%
	TYP	775	mADC
Input Current 3A Load	TYP	775	mADC
Efficiency, 3A Load	TYP	83	%
Switching Frequency	TYP	300	kHz
Maximum Input Overvoltage, 100ms, No Damage	MAX	36	VDC
Recommended Fuse	(2)		AMPS

Output Parameters*			
Model	7638		Units
Output Voltage	5.1		VDC
Rated Load Range	MIN	50	mA A
	MAX	2.4	
Voltage Accuracy Initial Setpoint	MIN	5.02	VDC
	TYP	5.10	
	MAX	5.18	
Load Regulation 50 mA - 3.0 A	TYP	0.2	%
	MAX	0.4	
Line Regulation Vin = 9 to 32 VDC	TYP	0.1	%
	MAX	0.2	
Overall Accuracy (8)	MAX	3.0	%
Power On Overshoot	TYP	0.3	V
Transient Response (3)	TYP	200	µs
Dynamic Response (4)	TYP	70	mV peak
Noise Peak-Peak, 0-20 MHz bw (5)	TYP	50	mV P-P
	MAX	100	
RMS, 0.01-1 MHz bw	TYP	10	mV RMS
Temperature Coefficient	TYP MAX	40 150	ppm/°C
Short Circuit Protection	Continuous to CMN		

NOTES

- * All parameters measured at Tc = 25°C, Vin = 24 VDC, and 2.4A load unless otherwise noted. The 7638 requires a low source impedance at the input terminal by using an external capacitor. This model does not have an input filter. Refer to CALEX Application Notes for definition of terms, measurements circuits, and other information.
- (2) See CALEX Application Notes to determine the correct fuse size. A fuse is required only for system protection, but must be used for reverse voltage protection of the input.
- (3) The transient response is defined as the time required for the output voltage to settle from 1.2A to 1.8A load current step change to a 1% error band. Transient response will degrade for a load current of less than 0.5 A.
- (4) Dynamic response is defined as the peak voltage overshoot during a transient as defined in note 3 above.

- (5) Noise is measured per CALEX Application Notes. Peak to Peak measurement bandwidth is 0 - 20 MHz. RMS measurement bandwidth is 0.01 - 1 MHz. Output noise is measured with a 10 µF tantalum capacitor and a 1 µF ceramic capacitor connected across the output pins. Using smaller capacitors will make the output noise slightly higher. It will be about 60mV P-P with a 10µF tantalum capacitor and a 0.1µF ceramic capacitor connected across the output pins.
- (6) The case thermal impedance is specified as the case temperature rise over ambient per package watt dissipated.
- (7) The Case is tied to the -input pin.
- (8) The overall accuracy includes Initial Setpoint accuracy, Line and Load regulation, 1/2 of the peak to peak of the Output Ripple and Noise, and Temperature Coefficient.

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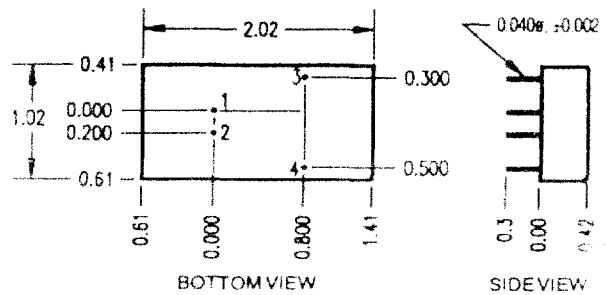
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7649 DC/DC Converter

General Specifications*			
7638			Units
Isolation (7)			
Isolation Voltage Input to Output	MIN	850	VDC
Input to Output Capacitance	TYP	430	pF
Environmental			
Ambient Operating Range 10 Watt Output, No Derating	MIN MAX	-40 85	°C
Case Operating Range 10 Watt Output, No Derating	MIN MAX	-40 110	°C
Storage Range	MIN MAX	-55 115	°C
Case Thermal Impedance (6)	TYP	14	°C/Watt
General			
Unit Weight	TYP	1.1	oz



Mechanical tolerances unless otherwise noted.

X.XX dimensions: ±0.020 inches

X.XXX dimensions: ±0.005 inches.

Pin	Function
1	+INPUT
2	-INPUT
3	+OUTPUT
4	CMN