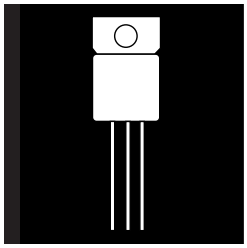
ISOLATED HERMETIC TO-257AA ADJUSTABLE VOLTAGE REGULATORS



Three Terminal, Adjustable Voltage, 3.0 Amp Precision Negative Regulators In Hermetic JEDEC TO-257AA Package

FEATURES

- Isolated Hermetic Package, JEDEC TO-257AA Outline
- Reference Voltage Set Internally to ±2%
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Pin Out Identical To Plastic TO-220
- Product Is Available Screened To MIL-STD-883

DESCRIPTION

These three terminal negative regulators are supplied in a hermetically sealed metal package whose outline is similar to the industry standard TO-220 plastic package. All protective features are designed into the circuit, including thermal shutdown, current limiting and safe-area control. With heat sinking, they can deliver over 3.0 amps of output current. These units feature 2% initial voltage tolerance, with 1.0% load regulation and .015% line regulation.

ABSOLUTE MAXIMUM RATINGS @ 25°C

Input Voltage ..... -35V
Operating Junction Temperature Range ..... -55°C to +150°C
Storage Temperature Range ..... -65° to +150°C
Typical Power/Thermal Characteristics:
Rated Power @ 25°C
T_C 28W
T_A 3W
Thermal Resistance
q_{JC} ..... 4.2°C/W
q_{JA} ..... 42°C/W

ELECTRICAL CHARACTERISTICS -55°C T_A +125°C (unless otherwise specified)

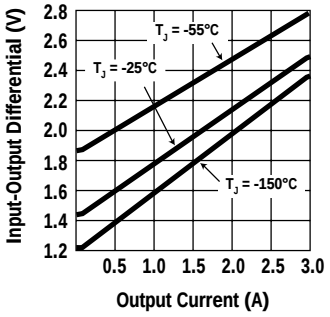
Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	$V_{IN} - V_{OUT}$ = 5 V, I_{OUT} = 5 mA, T_A = 25° C		-1.238	-1.262	V
		3 V $V_{IN} - V_{OUT}$ 35 V	•	-1.215	-1.285	
Line Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	3 V $V_{IN} - V_{OUT}$ 35 V			0.015	%/V
			•		0.04	
Load Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	V_{OUT} 5 V, T_A = 25° C			50	mV
		10 mA I_{OUT} $I_{MAX.}$	•		75	
		V_{OUT} 5.0 V			1.0	%
		10 mA I_{OUT} $I_{MAX.}$	•		1.5	
Thermal Regulation	-	30 ms pulse, T_A = 25° C			0.02	%/W
Ripple Rejection (Note 2)	$\frac{\Delta V_{IN}}{\Delta V_{REF}}$	V_{OUT} = -10 V, f = 120 Hz, C_{Adj} = 0		56		dB
			•	53		
		V_{OUT} = -10 V, f = 120 Hz, C_{Adj} = 10 µF		70		dB
			•	60		
Adjust Pin Current	I_{Adj}	V_{DIFF} = 35 V, I_L = 10 mA	•		100	µA
Adjust Pin Current Change	ΔI_{Adj}	10 mA I_{OUT} $I_{MAX.}$	•		2.0	µA
		3 V $V_{IN} - V_{OUT}$ 35 V	•		5.0	
Minimum Load Current	I_{Min}	$V_{IN} - V_{OUT}$ 35 V	•		5.0	mA
		$V_{IN} - V_{OUT}$ 10 V	•		3.0	
Current Limit	I_{Lim}	$V_{IN} - V_{OUT}$ 10 V		3.0	6.0	A
			•	3.0		
		$V_{IN} - V_{OUT}$ = 35 V		0.5	2.5	A
			•	0.5		
Temperature Stability (Note 2)	$\frac{\Delta V_{OUT}}{\Delta T}$	-55° C T_J +125° C	•		1.5	%
Long Term Stability (Note 2)	$\frac{\Delta V_{OUT}}{\Delta T}$	T_A = +125° C, t = 1000 hrs			1.0	%

Notes:

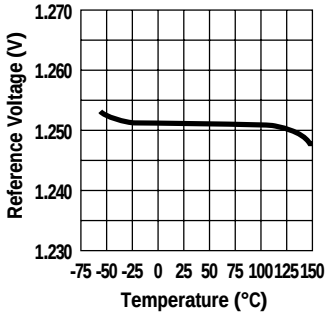
1. Line and Load Regulation are measured at a constant junction temperature using a low duty cycle pulse technique. Although power dissipation is internally limited, regulation is guaranteed up to the maximum power dissipation of 30 W. Power dissipation is determined by the input/output differential voltage and the output current. Guaranteed maximum power dissipation will not be available over the full input/output voltage range.
2. Guaranteed by design, characterization or correlation to other tested parameters.
3. The • denotes the specifications which apply over the full operating temperature range.

TYPICAL PERFORMANCE CHARACTERISTICS

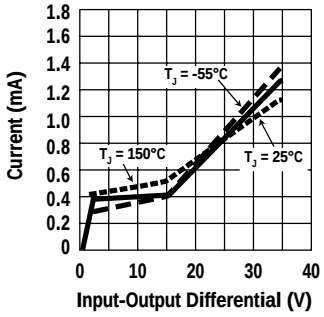
Dropout Voltage



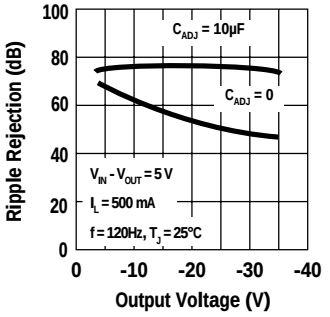
Temperature Stability



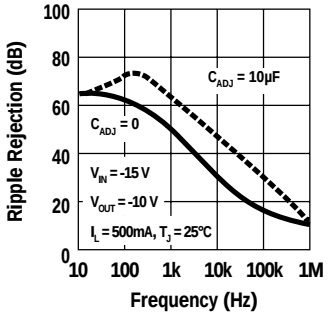
Minimum Load Current



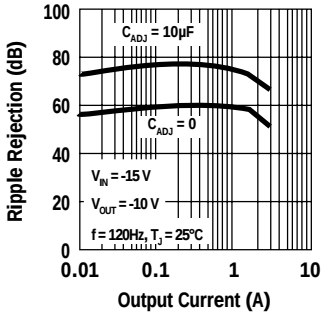
Ripple Rejection



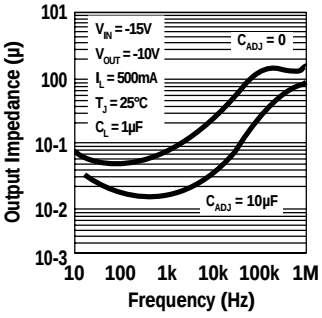
Ripple Rejection



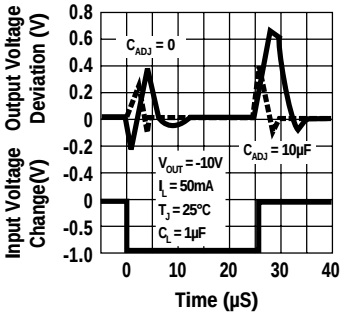
Ripple Rejection



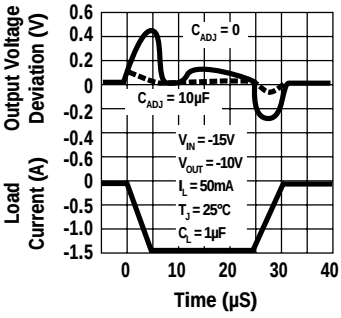
Output Impedance



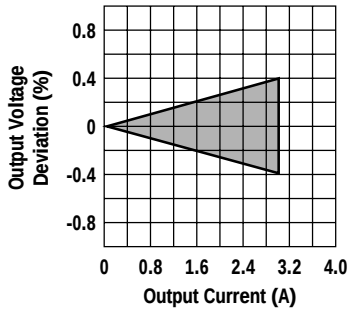
Line Transient Response



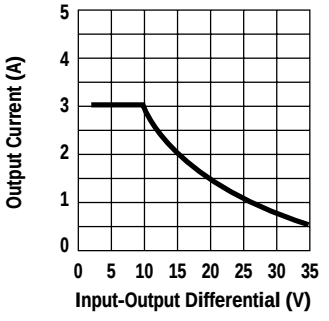
Load Transient Response



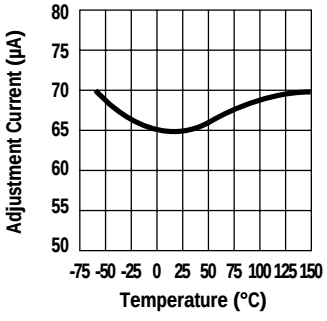
Load Regulation*



Guaranteed Minimum Output Current



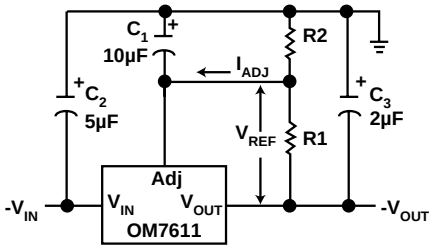
Adjustment Current



3.3

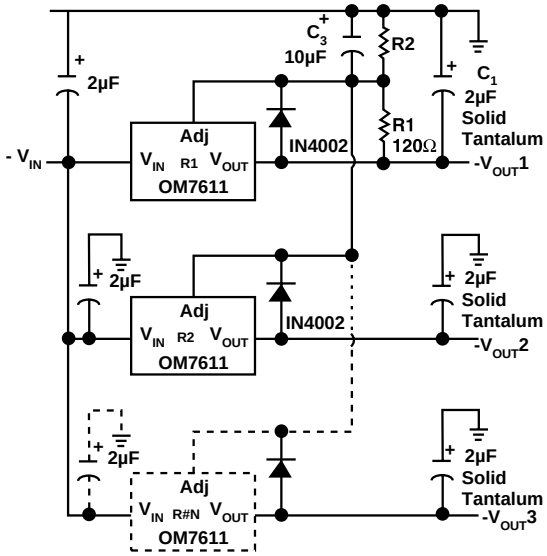
Omnirel

TYPICAL APPLICATIONS

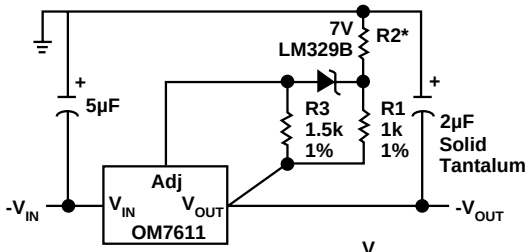


$$V_{OUT} = V_{REF}\left(1 + \frac{R2}{R1}\right) + I_{ADJ}(R2)$$

Multiple Tracking Regulators

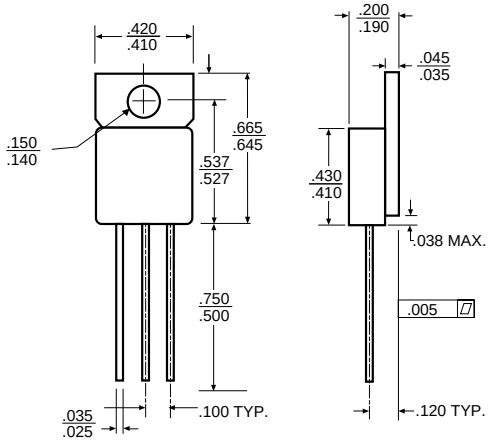


High Stability Regulator



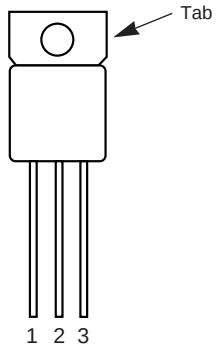
$$*R2 = \frac{V_{OUT}}{9.08 \times 10^{-3}} - 908\Omega$$

MECHANICAL OUTLINE



NOTES
- Case is metal/hermetically sealed
- Isolated Tab

PIN CONNECTION



Front View
Pin 1: Adjust
Pin 2: V_{IN}
Pin 3: V_{OUT}
Tab: Isolated

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