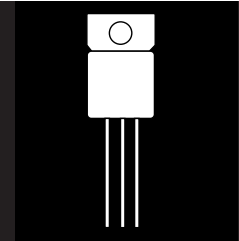


1.5 AMP HIGH VOLTAGE NEGATIVE ADJUSTABLE REGULATOR



Three Terminal, High Voltage, Precision Adjustable Negative Voltage Regulator In Hermetic JEDEC TO-257AA Package

FEATURES

- Similar To Industry Standard LT137AHV
- Adjustable Output Voltage
- Built In Thermal Overload Protection
- Short Circuit Current Limiting
- Available In Isolated and Non-Isolated Package
- Maximum Output Voltage Tolerance Is Guaranteed To $\pm 1\%$
- Available Hi-Rel Screened

DESCRIPTION

This three terminal negative regulator is 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, these devices can deliver up to 1.5 amps of output current. The unit also features output voltages that can be fixed from -1.2 volts to -47 volts.

ABSOLUTE MAXIMUM RATINGS @ 25°C

3.3

Power Dissipation (P_D) (Internally Limited).....	20 W
Input - Output Voltage Differential.....	50 V
Operating Junction Temperature Range.....	- 55°C to + 150°C
Storage Temperature Range.....	- 65°C to + 150°C
Lead Temperature (Soldering 10 seconds).....	300°C
Thermal Resistance:	
θ_{JC} (Isolated).....	4.2°C/W
θ_{JC} (Non-Isolated).....	3.5°C/W
θ_{JA}	42°C/W
Maximum Output Current.....	1.5 A

ELECTRICAL CHARACTERISTICS -55°C T_A 125°C, $I_L = 8\text{mA}$ (unless otherwise specified)

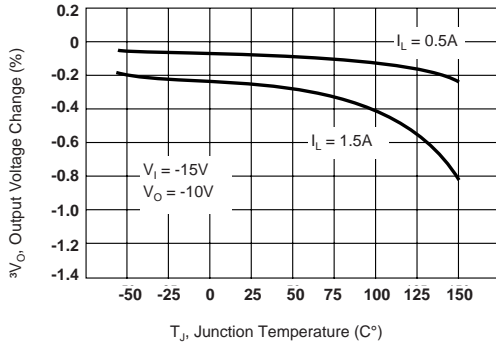
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Reference Voltage	V_{REF}	$V_{DIFF} = 3.0\text{V}$, $T_A = 25^\circ\text{C}$	-1.262	-1.238	V
		$V_{DIFF} = 3.0\text{V}$ •	-1.28	-1.22	
		$V_{DIFF} = 50\text{V}$, $T_A = 25^\circ\text{C}$	-1.28	-1.22	
		$V_{DIFF} = 50\text{V}$ •	-1.28	-1.22	
Line Regulation (Note 1)	R_{LINE}	3.0 V V_{DIFF} 50V, $T_A = 25^\circ\text{C}$	-6 • -20	6 20	mV
Load Regulation (Note 1)	R_{LOAD}	V_{DIFF} 50V, 8mA I_L 110mA, $T_A = 25^\circ\text{C}$ $V_{DIFF} = 5\text{V}$, 8mA I_L 1.5A, $T_A = 25^\circ\text{C}$	-25 • -25 -50	25 25 50	mV
Thermal Regulation	V_{RTH}	$V_{in} = -14.6\text{V}$, $I_L = 1.5\text{A}$ $P_d = 20$ Watts, $t = 10$ ms, $T_A = 25^\circ\text{C}$	-5	5	mV
Ripple Rejection (Note 2)	R_N	$f = 120$ Hz, $V_{OUT} = V_{ref}$ $C_{Adj} = 10$ μF , $I_{OUT} = 100$ mA	• 66		dB
Adjustment Pin Current	I_{Adj}	$V_{DIFF} = 3.0\text{V}$ $V_{DIFF} = 40\text{V}$ $V_{DIFF} = 50\text{V}$	• • •	100 100 100	μA
Adjustment Pin Current Change	$^3I_{Adj}$	$V_{DIFF} = 5\text{V}$, 8mA I_{OUT} 1.5A 3V V_{DIFF} 50V, I_L 8mA	• • -5 -6	5 6	μA
Minimum Load Current	I_{Lmin}	$V_{DIFF} = 3.0\text{V}$, $V_{OUT} = -1.4\text{V}$ (forced) $V_{DIFF} = 10\text{V}$, $V_{OUT} = -1.4\text{V}$ (forced) $V_{DIFF} = 40\text{V}$, $V_{OUT} = -1.4\text{V}$ (forced) $V_{DIFF} = 50\text{V}$, $V_{OUT} = -1.4\text{V}$ (forced)	• • • •	3 3 5 5	mA
Current Limit (Note 2)	I_{CL}	$V_{DIFF} = 5\text{V}$ $V_{DIFF} = 50\text{V}$, $T_A = 25^\circ\text{C}$	• 1.5 0.2	3.5 1.0	A

Notes:

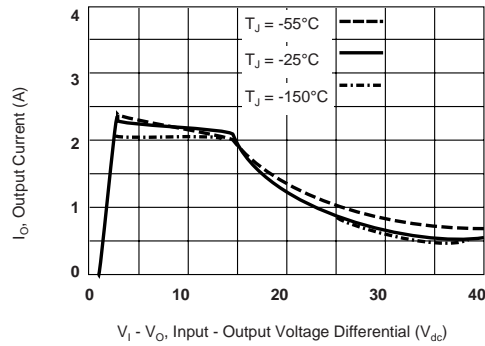
1. Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
2. If not tested, shall be guaranteed to the specified limits.
3. The • denotes the specifications which apply over the full operating temperature range.

TYPICAL PERFORMANCE CHARACTERISTICS

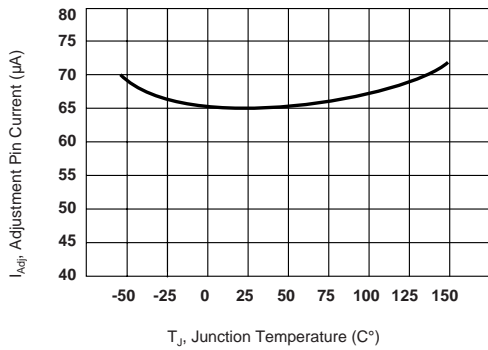
LOAD REGULATION



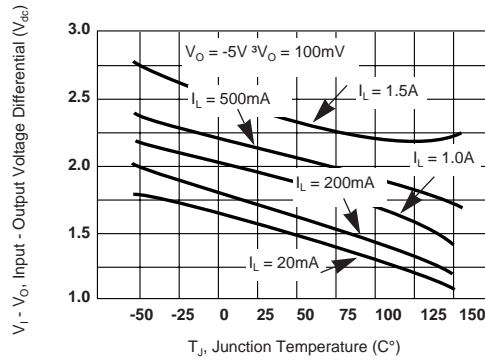
CURRENT LIMIT



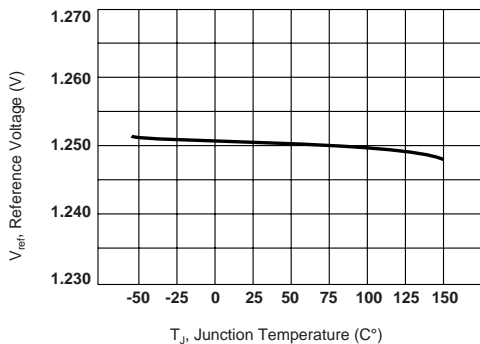
ADJUSTMENT PIN CURRENT



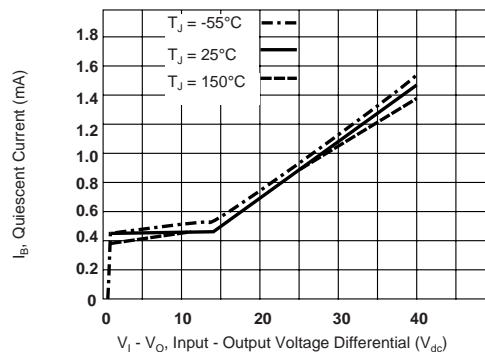
DROPOUT VOLTAGE



TEMPERATURE STABILITY



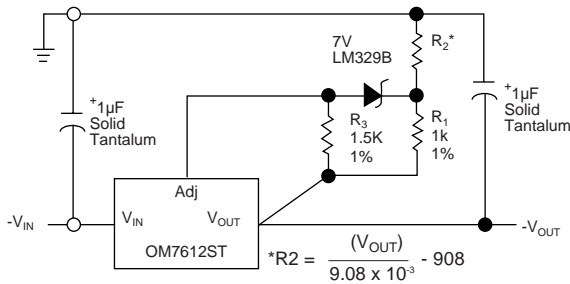
MINIMUM OPERATING CURRENT



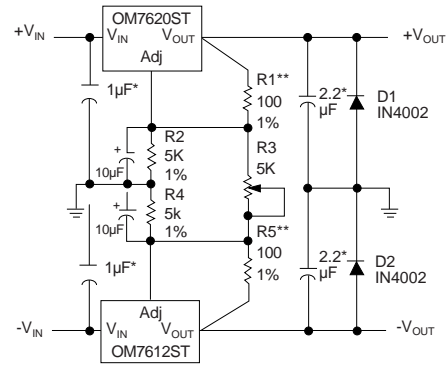
3.3

TYPICAL APPLICATIONS

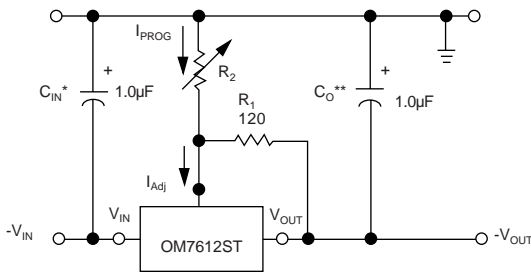
HIGH STABILITY REGULATOR



DUAL TRACKING SUPPLY ±1.25V TO ±20V



* Solid Tantalum
** R1 or R2 may be trimmed slightly to improve tracking.

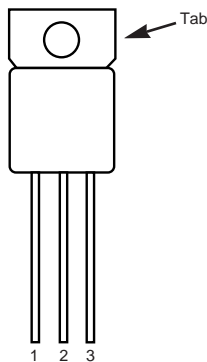


* C_{IN} is required if regulator is located more than 4 inches from power supply filter. A 1 µF solid tantalum or 10 µF aluminum electrolytic is recommended.

** C_O is necessary for stability. A 1 µF solid tantalum or 10 µF aluminum electrolytic is recommended.

$$V_{OUT} = -1.25 V \left(1 + \frac{R_2}{R_1} \right)$$

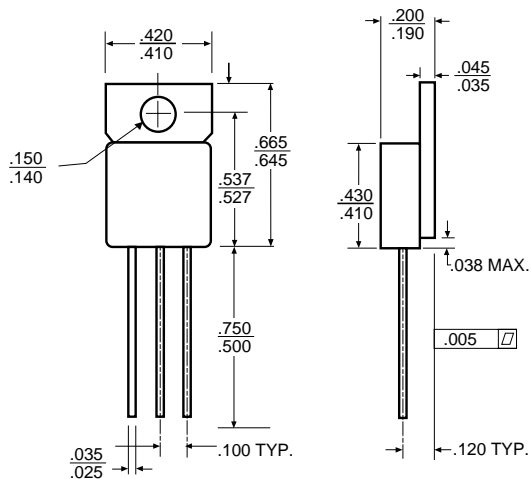
CONNECTION DIAGRAM



Isolated
Front View
Pin 1 - Adjust
Pin 2 - Input
Pin 3 - Output
Tab - Isolated

Non-Isolated
Front View
Pin 1 - Adjust
Pin 2 - Input
Pin 3 - Output
Tab - Input

MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab