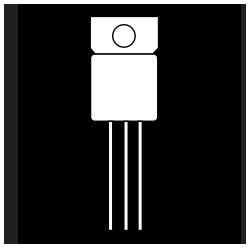
ISOLATED HERMETIC TO-257AA ADJUSTABLE VOLTAGE REGULATOR



Three Terminal, Adjustable Voltage, 1.5 Amp Precision Negative Regulator In Hermetic JEDEC TO-257AA Package

FEATURES

- Isolated Hermetic Package, JEDEC TO-257AA Outline
- Adjustable Output Voltage
- Eliminates Stocking Fixed Voltages
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Available Screened To MIL-STD -883
- Similar To Industry Standard P/N LM137

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, they can deliver over 1.0 amp of output current. This unit features output voltages that can be trimmed using external resistors, from -1.2 volts to -37 volts.

ABSOLUTE MAXIMUM RATINGS @ 25°C

Input-Output Voltage Differential 40V
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 17.5W
T_A 3W
Thermal Resistance
q_{JC} . . . . . 3.5°C/W
q_{JA} . . . . . 42°C/W

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Note: This device is also available in a non-isolated JEDEC TO-257AA package. Use part number OM7603NT for non-isolated unit.

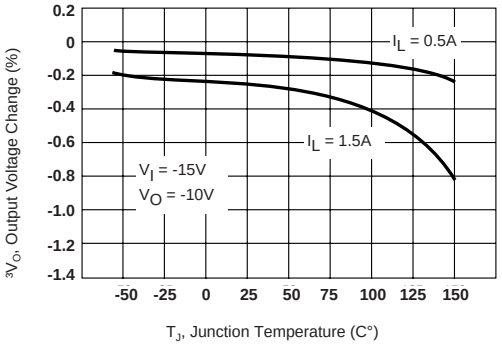
ELECTRICAL CHARACTERISTICS -55°C T_A 125°C, I_L = 8mA (unless otherwise specified)

Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	V_{DIFF} = 3.0V, T_A = 25°C		-1.262	-1.238	
		V_{DIFF} = 3.0V	•	-1.280	-1.220	V
		V_{DIFF} = 40V	•	-1.280	-1.220	
Line Regulation	R_{LINE}	3.0 V V_{DIFF} 40V, T_A = 25°C		-4.5	4.5	
(Note 1)		3.0V V_{DIFF} 40V	•	-13.8	13.8	mV
Load Regulation	R_{LOAD}	V_{DIFF} = 5V, 8mA I_L 1.5A	•	-25	25	
(Note 1)		V_{DIFF} = 12V, 8mA I_L 1.5A, T_A = 25°C		-25	25	mV
		V_{DIFF} 40V, 8mA I_L 1.5A, T_A = 25°C		-25	25	
		V_{DIFF} = 40V, 8mA I_L 1.5A	•	-50	50	
Thermal Regulation	V_{RTH}	V_{in} = -14.6V, I_L = 1.5A		-5	5	mV
		P_d = 20 Watts, t = 10 ms, T_A = 25°C				
Ripple Rejection	R_N	f = 120 Hz, V_{out} = V_{ref}	•	66		dB
(Note 2)		C_{Adj} = 10 µF, I_{out} = 100 mA				
Adjustment Pin Current	I_{Adj}	V_{DIFF} = 3.0V	•		100	
		V_{DIFF} = 40V	•		100	µA
Adjustment Pin	$^3I_{Adj}$					
Current Change	(line)	3V V_{DIFF} 40V	•	-5	5	µA
	$^3I_{Adj}$					
	(load)	V_{DIFF} = 5V, 8mA I_L 1.5A	•	-5	5	µA
Miminum Load Current	I_{Lmin}	V_{DIFF} = 3.0V, V_{out} = -1.4V (forced)	•		3.0	
		V_{DIFF} = 10V, V_{out} = -1.4V (forced)	•		3.0	mA
		V_{DIFF} = 40V, V_{out} = -1.4V (forced)	•		5.0	
Current Limit	I_{CL}	V_{DIFF} 5V	•	1.5	3.5	
(Note 2)		V_{DIFF} = 40V, T_A = 25°C		0.24	1.2	A

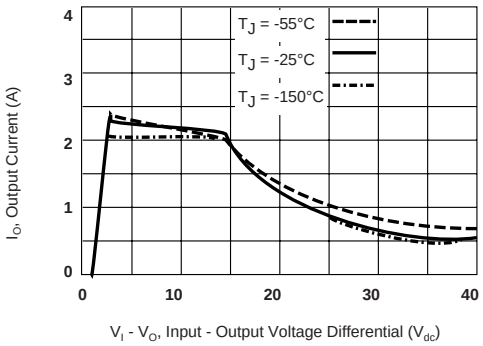
Notes:
1. Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
2. If not tested, shall be guaranteed to the specified limits.
3. The • denotes the specifications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

TYPICAL PERFORMANCE APPLICATIONS

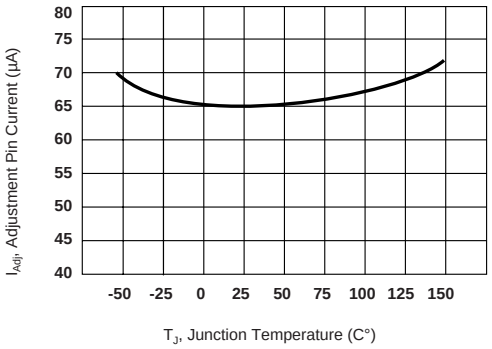
LOAD REGULATION



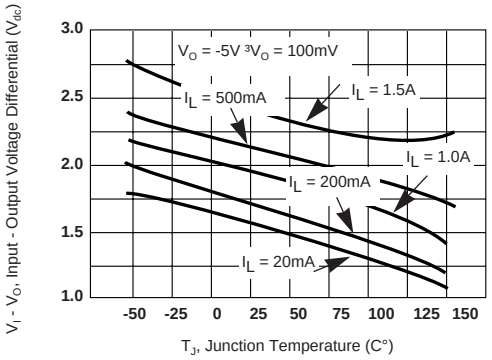
CURRENT LIMIT



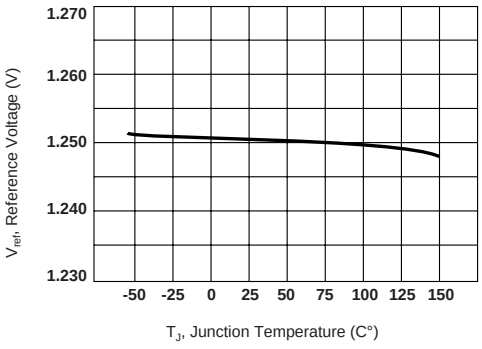
ADJUSTMENT PIN CURRENT



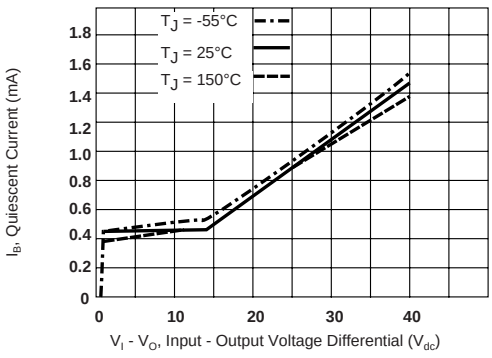
DROPOUT VOLTAGE



TEMPERATURE STABILITY



MINIMUM OPERATING CURRENT



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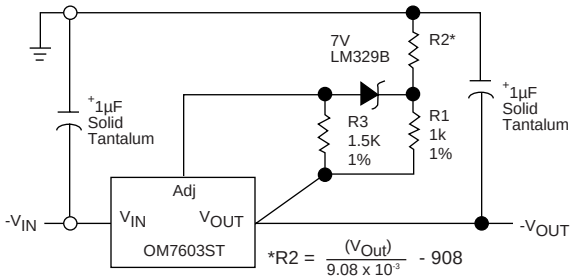
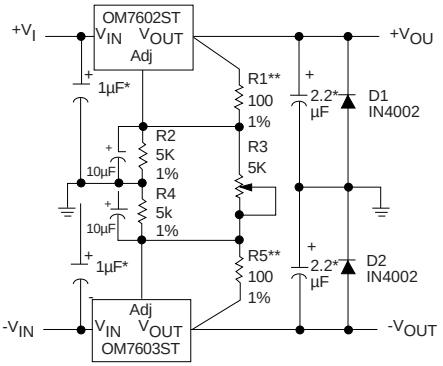
TYPICAL APPLICATIONS

HIGH STABILITY REGULATOR



DUAL TRACKING SUPPLY ±1.25V TO ±20V



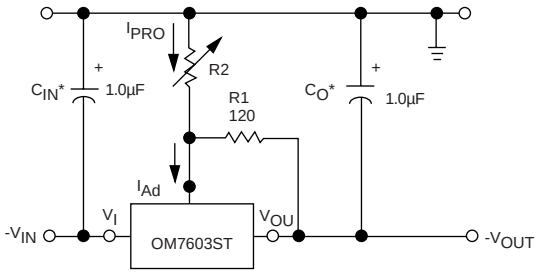
* Solid Tantalum
** R1 or R5 may be trimmed slightly to improve tracking.

STANDARD APPLICATION

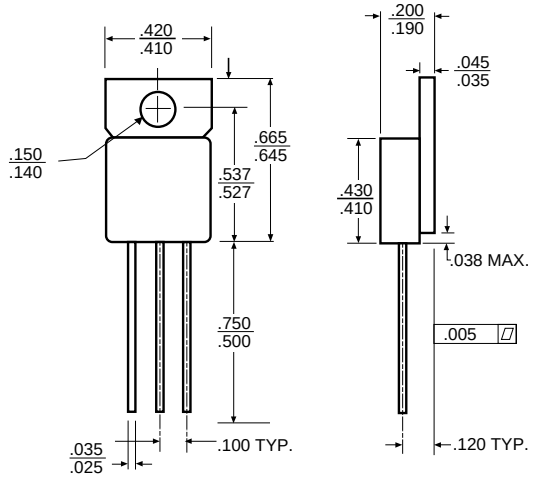
* C_{IN} is required if regulator is located more than 4 inches from power supply filter. A 1µF solid tantalum or 10µF aluminum electrolytic is recommended.

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

$$V_{OUT} = -1.25V \left(1 + \frac{R2}{R1}\right)$$

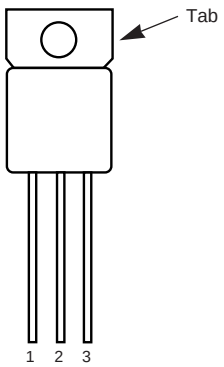


MECHANICAL OUTLINE



NOTES
- Case is metal/hermetically sealed
- Isolated Tab

PIN CONNECTION



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

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