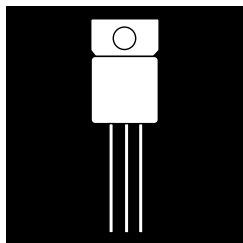


3 AMP NEGATIVE ADJUSTABLE REGULATOR APPROVED TO DESC DRAWING 5962-87741



Three Terminal, Negative Adjustable Voltage Regulator In Hermetic Packages

FEATURES

- Similar To Industry Standard LT1033
- Approved To DESC Standardized Military Drawing Number 5962-8774101
- Adjustable Output Voltage
- Built In Thermal Overload Protection
- Short Circuit Current Limiting
- Maximum Output Voltage Tolerance is Guaranteed To $\pm 1\%$
- Guaranteed Dropout Voltage At Multiple Current Levels
- TO-257 Available in Isolated and Non-Isolated Packages

DESCRIPTION

This three terminal negative adjustable voltage regulator is designed to provide 3A with higher efficiency than conventional voltage regulators. This device is designed to operate down to 1 Volt input to output differential and the dropout voltage is fully specified as a function of load current. Supplied in easy-to-use hermetic TO-257 and TO-3, this device is ideally suited for Military applications where small size and high reliability is required.

ABSOLUTE MAXIMUM RATINGS @ 25°C

Power Dissipation (P_d)	Internally Limited
Input - Output Voltage Differential	35 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 Junction to Case:	
(TO-257, Isolated)	3.5°C/W
(TO-257, Non-Isolated)	2.3°C/W
(TO-3)	3.0°C/W
Recommended Operating Conditions:	
Output Voltage Range	-3V to -15 V
Ambient Operating Temperature Range (T_A)	- 55°C to + 125°C
Input Voltage Range	- 5V to -35 V

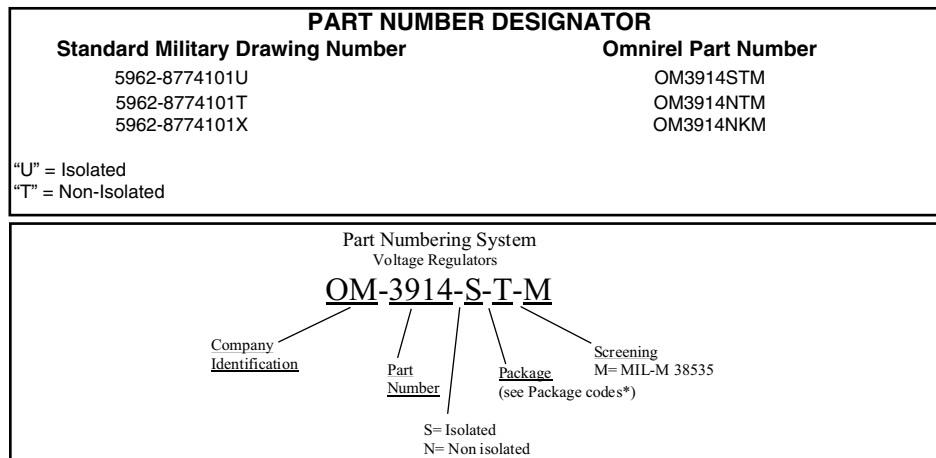
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ELECTRICAL CHARACTERISTICS $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$ (unless otherwise specified)

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

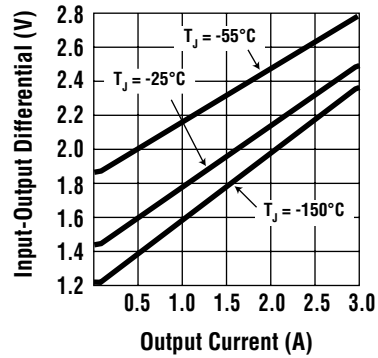
Notes:

- 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.
- Guaranteed by design, characterization or correlation to other tested parameters.
- The • denotes the specifications which apply over the full operating temperature range.

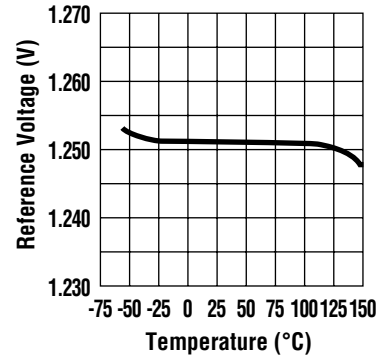
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TYPICAL PERFORMANCE CHARACTERISTICS

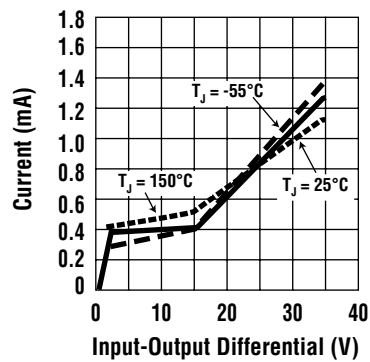
DROPOUT VOLTAGE



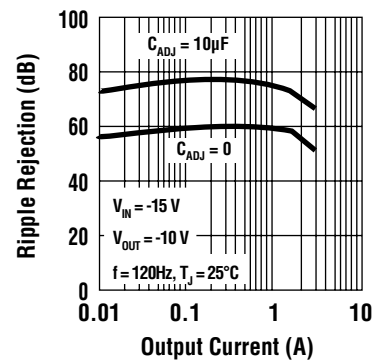
TEMPERATURE STABILITY



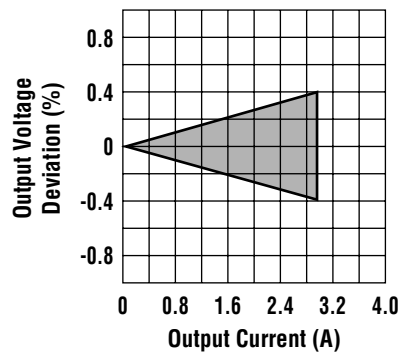
MINIMUM LOAD CURRENT



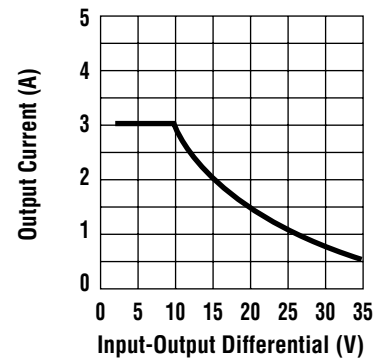
RIPPLE REJECTION



LOAD REGULATION

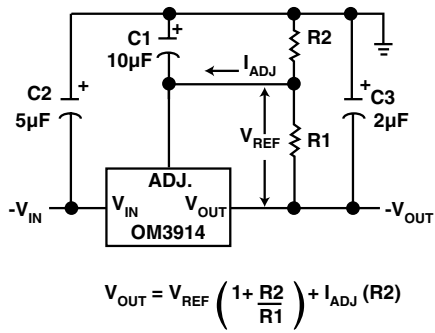


GUARANTEED MINIMUM OUTPUT CURRENT

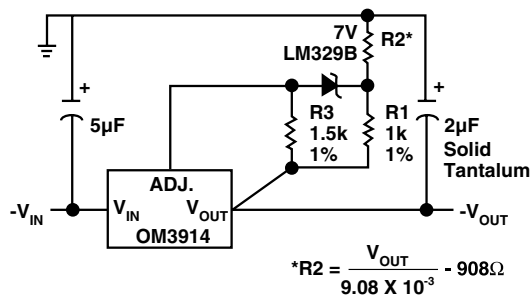


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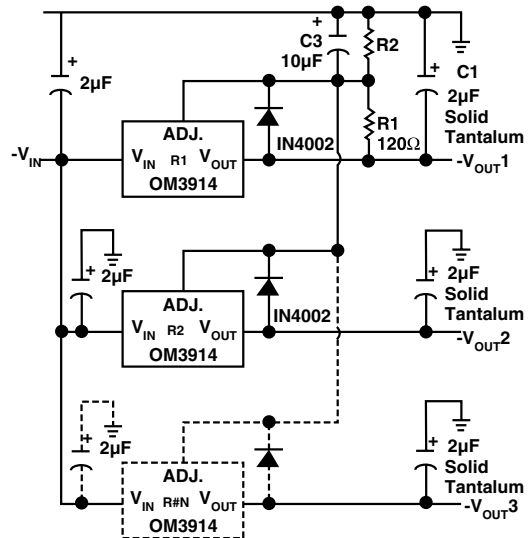
TYPICAL APPLICATIONS



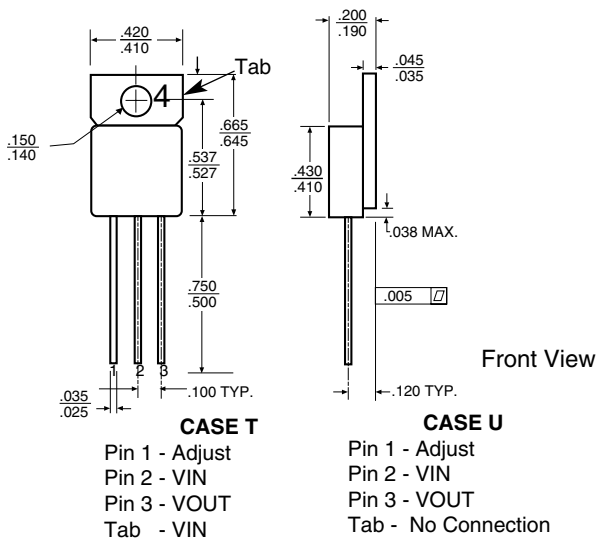
HIGH STABILITY REGULATOR



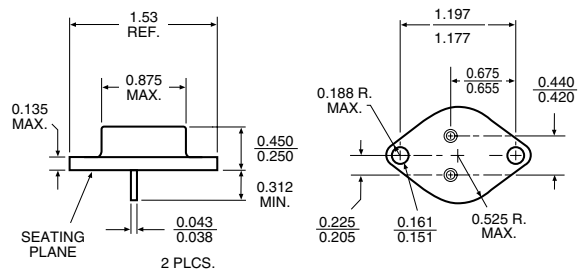
MULTIPLE TRACKING REGULATORS



MECHANICAL OUTLINES



TO-3



NOTES:

- Case is metal/hermetically sealed
- Isolated Tab