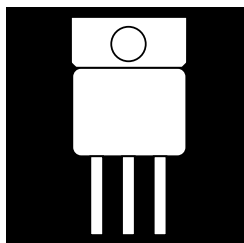


7.5 AMP LOW DROPOUT POSITIVE ADJUSTABLE REGULATOR APPROVED TO DESC DRAWING 5962-89520



Three Terminal, Positive Adjustable Low Dropout Voltage Regulator In Hermetic JEDEC TO-258AA Package

FEATURES

- Similar To Industry Standard LT1083
- Approved To DESC Standardized Military Drawing Number 5962-8952001Y
- Adjustable Output Voltage
- Built In Thermal Overload Protection
- Short Circuit Current Limiting
- Available In Isolated Package
- Maximum Output Voltage Tolerance is Guaranteed To $\pm 1\%$
- Guaranteed Dropout Voltage At Multiple Current Levels
- Product Also Available in Non-Isolated Package

DESCRIPTION

This three terminal positive adjustable voltage regulator is designed to provide 7.5A 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-258 package, 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:	
θ_{JC} (Isolated)	2.75°C/W
θ_{JC} (Non-Isolated)	2.3°C/W
Maximum Output Current	7.5 A

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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} Ⓢ= 3.0 V, I _{OUT} = 10 mA, T _A = 25° C	1.238	1.262	V
		1.5 V V _{IN} - V _{OUT} Ⓢ= 25 V, 10 mA I _{OUT} 5.0 A	• 1.225	1.270	V
Line Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	1.5 V V _{IN} - V _{OUT} Ⓢ= 15 V, I _{OUT} = 10 mA, T _A = 25° C		0.2	%
		15 V V _{IN} - V _{OUT} Ⓢ= 35 V, I _{OUT} = 10 mA	•	0.5	%
Load Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	V _{IN} - V _{OUT} Ⓢ= 3.0 V, T _A = 25° C 10 mA I _{OUT} 5.0 A		0.3	%
			•	0.4	%
Dropout Voltage	V _{DO}	I _{OUT} = I _{FL} , I _{FL} = 5.0 A, ΔV_{REF} = 1%	•	1.5	V
Thermal Regulation	-	30 ms pulse, T _A = +25° C		0.01	%/W
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	f = 120 Hz, C _{Adj} = 25 μF, C _{OUT} = 25 μF (tantalum), I _{FL} = 5.0 A, V _{IN} - V _{OUT} Ⓢ= 3.0 V, I _{OUT} = I _{FL}	• 60		dB
Adjust Pin Current	I _{Adj}	1.5 V V _{IN} - V _{OUT} Ⓢ= 25 V 10 mA I _{OUT} 5.0 A	•	120	μA
Adjust Pin Current Change	ΔI_{Adj}	1.5 V V _{IN} - V _{OUT} Ⓢ= 25 V 10 mA I _{OUT} 5.0 A	•	5.0	μA
Minimum Load Current	I _{Min}	V _{IN} - V _{OUT} Ⓢ= 25 V	•	10	mA
Current Limit	I _{Lim}	V _{IN} - V _{OUT} Ⓢ= 5.0 V	• 8.0		A
		V _{IN} - V _{OUT} Ⓢ= 25 V	• 0.4		A
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:

- 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 60 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.

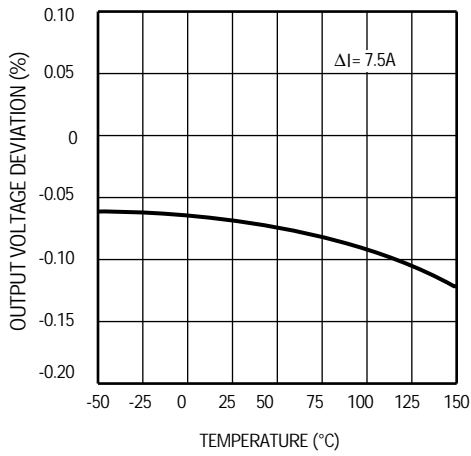
3.3

PART NUMBER DESIGNATOR
 Standard Military Drawing Number Omnirel Part Number
 8952001Y OM1830SCM
 8952001Z OM1830NCM

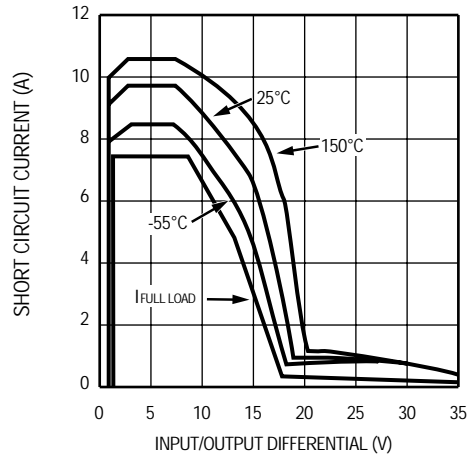
“Y” = Isolated

TYPICAL PERFORMANCE CHARACTERISTICS

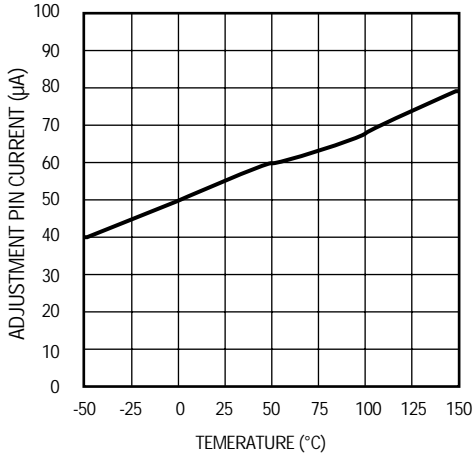
LOAD REGULATION



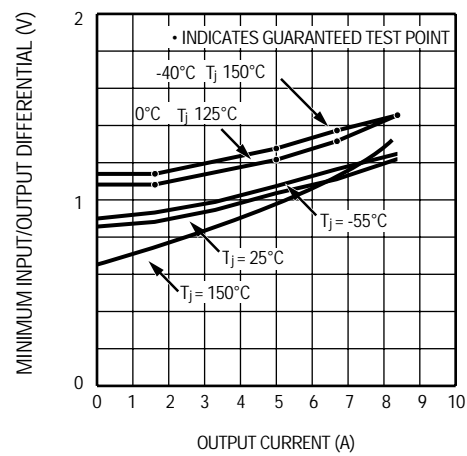
SHORT CIRCUIT CURRENT



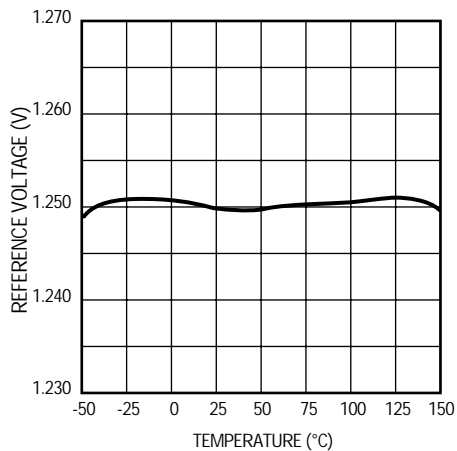
ADJUSTMENT PIN CURRENT



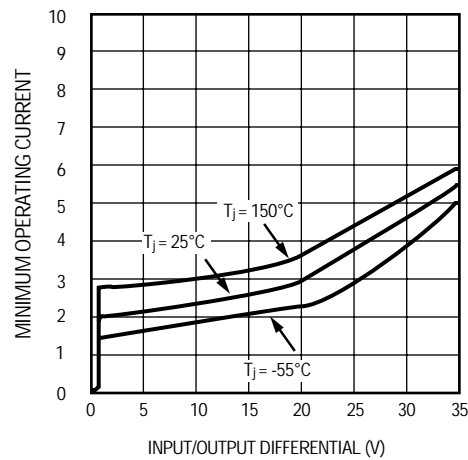
DROPOUT VOLTAGE



TEMPERATURE STABILITY



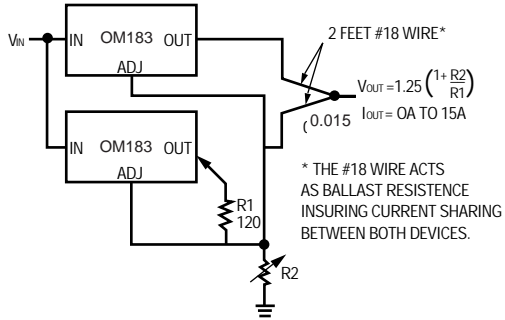
MINIMUM OPERATING CURRENT



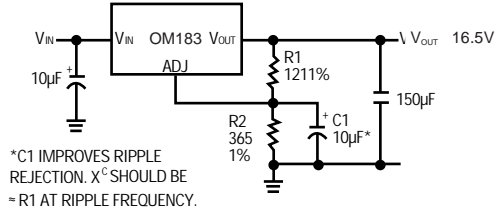
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TYPICAL APPLICATIONS

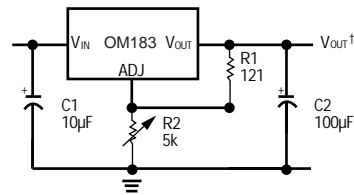
Paralleling Regulators



Improving Ripple Rejection



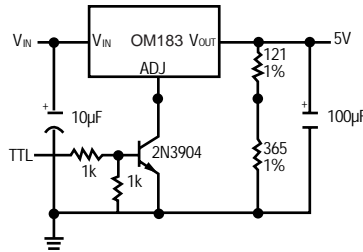
1.2V - 15V Adjustable Regulator



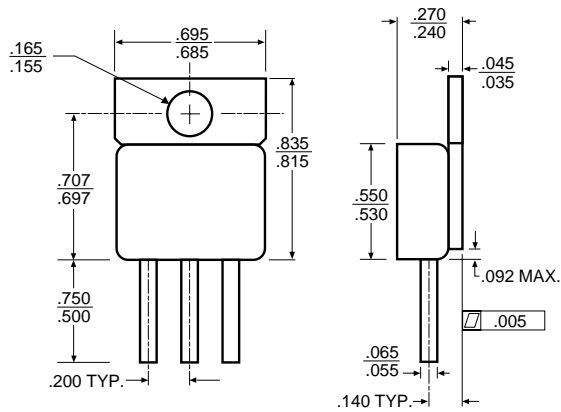
*NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS

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

5V Regulator with Shutdown



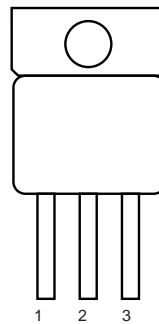
MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

CONNECTION DIAGRAM



PIN OUT

- 1 Adjust
- 2 V_{out}
- 3 V_{in}