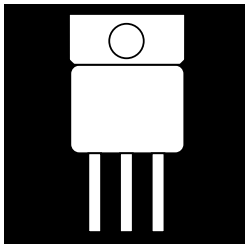
7.5 AMP LOW DROPOUT POSITIVE ADJUSTABLE REGULATOR APPROVED TO DESC DRAWING 5962-89520



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 ±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:
q_{JC} (Isolated) . . . . . 2.75°C/W
q_{JC} (Non-Isolated) . . . . . .2.3°C/W
Maximum Output Current . . . . . 7.5 A

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

Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	$V_{IN} - V_{OUT}$ Œ= 3.0 V, I_{OUT} = 10 mA, T_A = 25° C		1.238	1.262	V
		1.5 V $V_{IN} - V_{OUT}$ Œ 25 V, 10 mA I_{OUT} 5.0 A	•	1.225	1.270	V
Line Regulation (Note 1)	$\frac{^3V_{OUT}}{^3V_{IN}}$	1.5 V $V_{IN} - V_{OUT}$ Œ 15 V, I_{OUT} = 10 mA, T_A = 25° C			0.2	%
		15 V $V_{IN} - V_{OUT}$ Œ 35 V, I_{OUT} = 10 mA	•		0.5	%
Load Regulation (Note 1)	$\frac{^3V_{OUT}}{^3I_{OUT}}$	$V_{IN} - V_{OUT}$ Œ= 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, $^3V_{REF}$ = 1%	•		1.5	V
Thermal Regulation	-	30 ms pulse, T_A = +25° C			0.01	%/W
Ripple Rejection	$\frac{^3V_{IN}}{^3V_{OUT}}$	f = 120 Hz, C_{Adj} = 25 µF, C_{OUT} = 25 µF (tantalum), I_{FL} = 5.0 A, $V_{IN} - V_{OUT}$ Œ= 3.0 V, $I_{OUT} = I_{FL}$	•	60		dB
Adjust Pin Current	I_{Adj}	1.5 V $V_{IN} - V_{OUT}$ Œ 25 V 10 mA I_{OUT} 5.0 A	•		120	µA
Adjust Pin Current Change	$^3I_{Adj}$	1.5 V $V_{IN} - V_{OUT}$ Œ 25 V 10 mA I_{OUT} 5.0 A	•		5.0	µA
Miminum Load Current	I_{Min}	$V_{IN} - V_{OUT}$ Œ= 25 V	•		10	mA
Current Limit	I_{Lim}	$V_{IN} - V_{OUT}$ Œ= 5.0 V	•	8.0		A
		$V_{IN} - V_{OUT}$ Œ= 25 V	•	0.4		A
Temperature Stability (Note 2)	$\frac{^3V_{OUT}}{^3T}$	-55° C T_J +125° C	•		1.5	%
Long Term Stability (Note 2)	$\frac{^3V_{OUT}}{^3T}$	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 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.
2. Guaranteed by design, characterization or correlation to other tested parameters.
3. The • denotes the specifications which apply over the full operating temperature range.

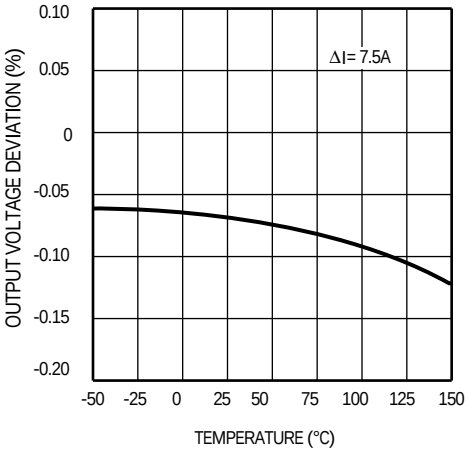
PART NUMBER DESIGNATOR

Standard Military Drawing Number	Omnirel Part Number
8952001Y	OM1830SCM
8952001Z	OM1830NCM

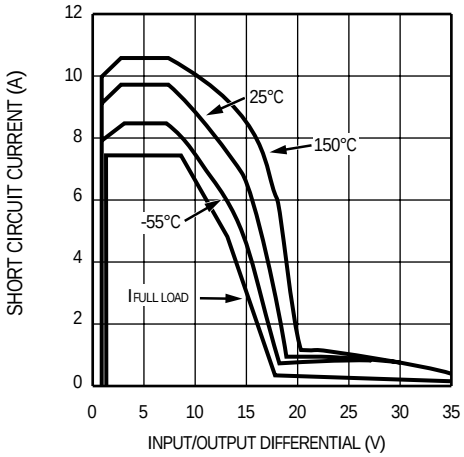
"Y" = Isolated

TYPICAL PERFORMANCE CHARACTERISTICS

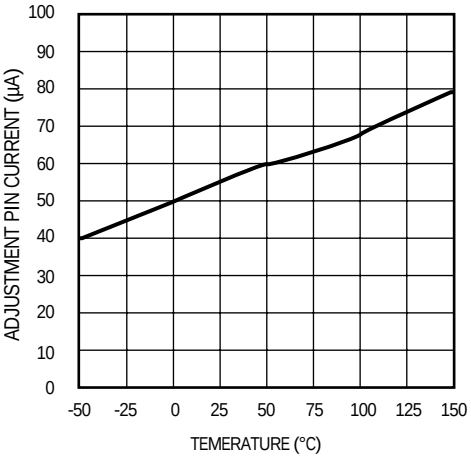
LOAD REGULATION



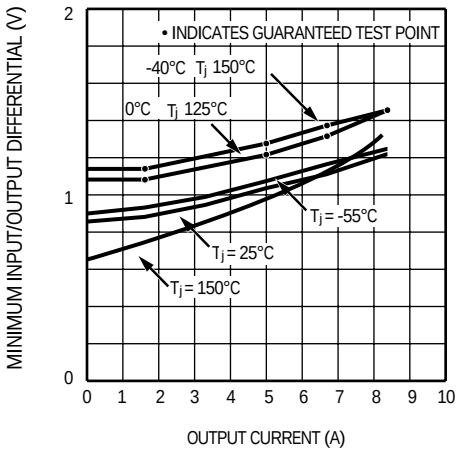
SHORT CIRCUIT CURRENT



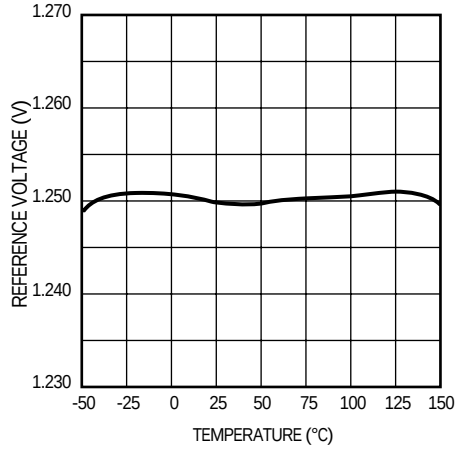
ADJUSTMENT PIN CURRENT



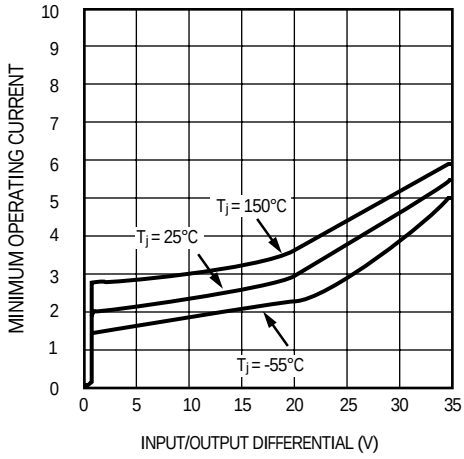
DROPOUT VOLTAGE



TEMPERATURE STABILITY



MINIMUM OPERATING CURRENT



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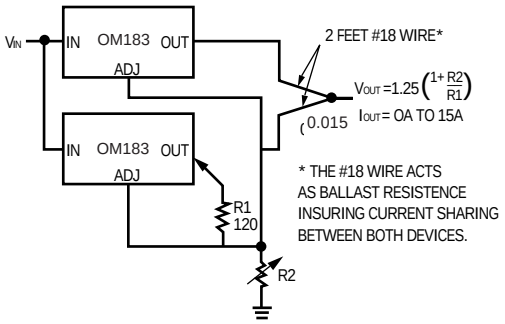
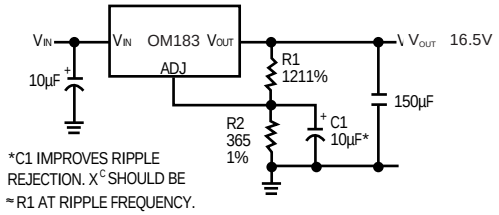
TYPICAL APPLICATIONS

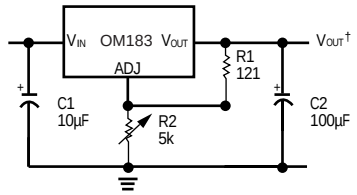
Parelleling Regulators



Improving Ripple Rejection



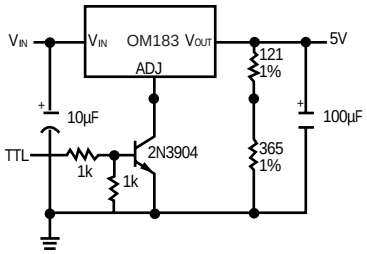
1.2V - 15V Adjustable Regulator



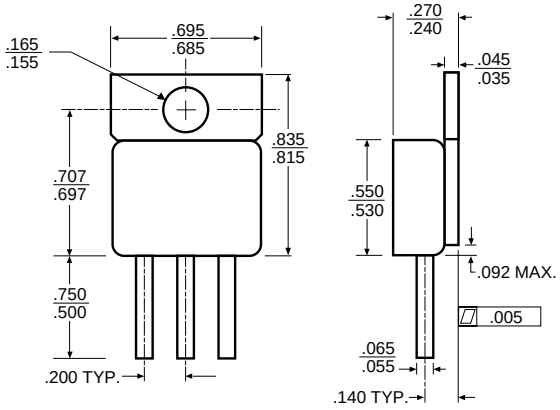
*NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS

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

5V Regulator with Shutdown



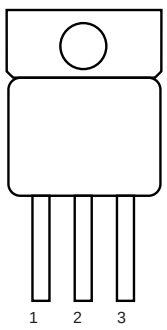
MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

CONNECTION DIAGRAM



PIN OUT

1 Adjust
2 V_{OUT}
3 V_{IN}

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