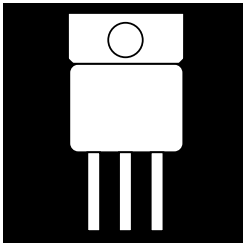


7.5 AMP LOW DROPOUT POSITIVE ADJUSTABLE
REGULATOR APPROVED TO DESC DRAWING 5962-89520



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}	$V_{IN} - V_{OUT} \leq 3.0 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $T_A = 25^\circ \text{ C}$	1.238	1.262	V
		1.5 V $V_{IN} - V_{OUT} \leq 25 \text{ V}$, 10 mA $I_{OUT} = 5.0 \text{ A}$	• 1.225	1.270	V
Line Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	1.5 V $V_{IN} - V_{OUT} \leq 15 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $T_A = 25^\circ \text{ C}$		0.2	%
		15 V $V_{IN} - V_{OUT} \leq 35 \text{ V}$, $I_{OUT} = 10 \text{ mA}$	•	0.5	%
Load Regulation (Note 1)	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	$V_{IN} - V_{OUT} \leq 3.0 \text{ V}$, $T_A = 25^\circ \text{ C}$ 10 mA $I_{OUT} = 5.0 \text{ A}$		0.3	%
			•	0.4	%
Dropout Voltage	V_{DO}	$I_{OUT} = I_{FL}$, $I_{FL} = 5.0 \text{ A}$, $\Delta V_{REF} = 1\%$	•	1.5	V
Thermal Regulation	-	30 ms pulse, $T_A = +25^\circ \text{ C}$		0.01	%/W
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120 \text{ Hz}$, $C_{Adj} = 25 \mu\text{F}$, $C_{OUT} = 25 \mu\text{F}$ (tantalum), $I_{FL} = 5.0 \text{ A}$, $V_{IN} - V_{OUT} \leq 3.0 \text{ V}$, $I_{OUT} = I_{FL}$	• 60		dB
Adjust Pin Current	I_{Adj}	1.5 V $V_{IN} - V_{OUT} \leq 25 \text{ V}$ 10 mA $I_{OUT} = 5.0 \text{ A}$	•	120	μA
Adjust Pin Current Change	ΔI_{Adj}	1.5 V $V_{IN} - V_{OUT} \leq 25 \text{ V}$ 10 mA $I_{OUT} = 5.0 \text{ A}$	•	5.0	μA
Minimum Load Current	I_{Min}	$V_{IN} - V_{OUT} \leq 25 \text{ V}$	•	10	mA
Current Limit	I_{Lim}	$V_{IN} - V_{OUT} \leq 5.0 \text{ V}$	• 8.0		A
		$V_{IN} - V_{OUT} \leq 25 \text{ V}$	• 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)	$\frac{\Delta V_{OUT}}{\Delta T}$	$T_A = +125^\circ \text{ C}$, $t = 1000 \text{ hrs}$		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 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.

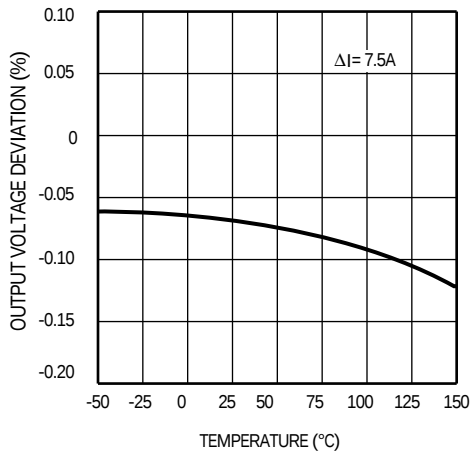
PART NUMBER DESIGNATOR

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

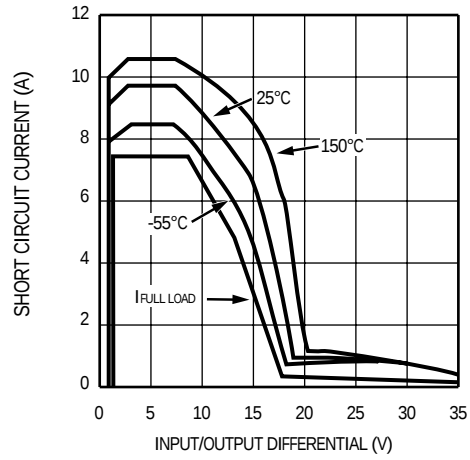
“Y” = Isolated

TYPICAL PERFORMANCE CHARACTERISTICS

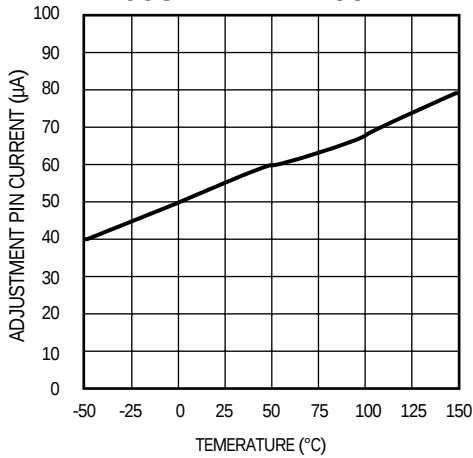
LOAD REGULATION



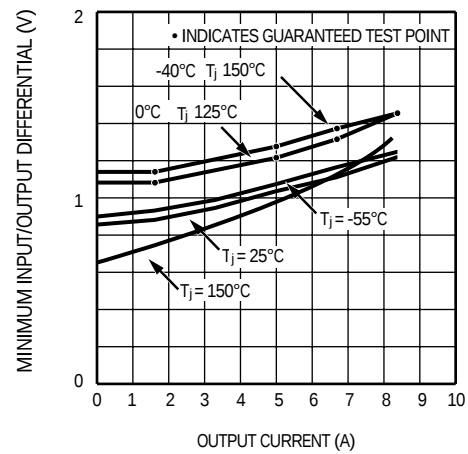
SHORT CIRCUIT CURRENT



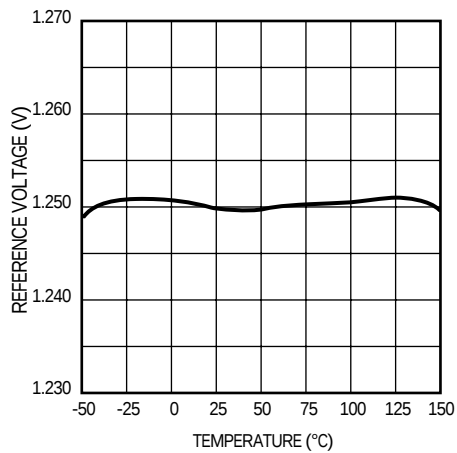
ADJUSTMENT PIN CURRENT



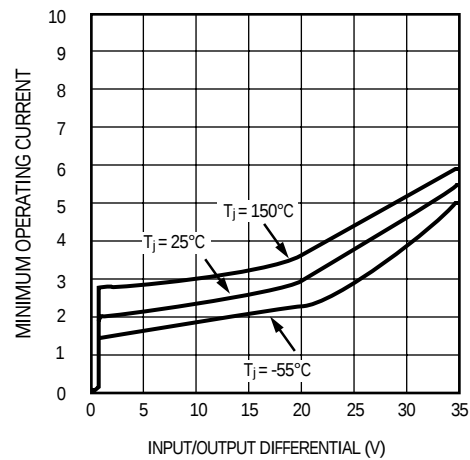
DROPOUT VOLTAGE



TEMPERATURE STABILITY



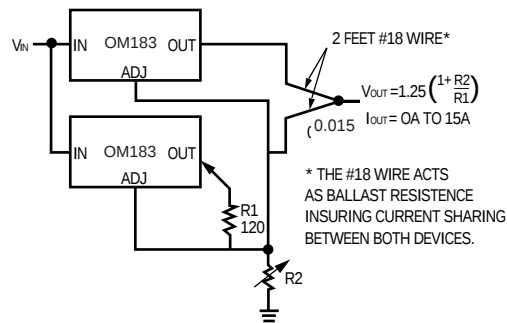
MINIMUM OPERATING CURRENT



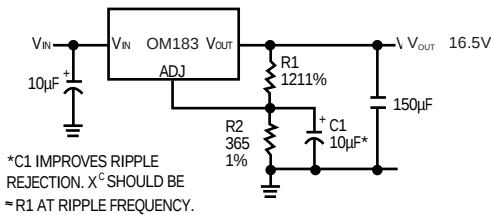
3.3

TYPICAL APPLICATIONS

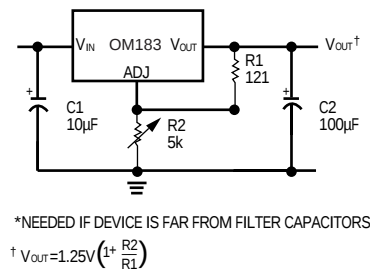
Parelleling Regulators



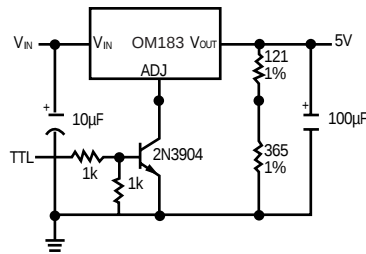
Improving Ripple Rejection



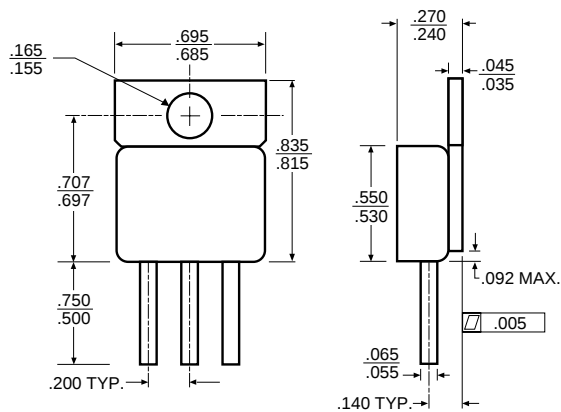
1.2V - 15V Adjustable Regulator



5V Regulator with Shutdown



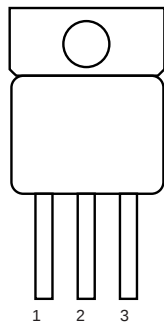
MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

CONNECTION DIAGRAM



PIN OUT

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