

# SURFACE MOUNT NEGATIVE ADJUSTABLE 3.0 AMP VOLTAGE REGULATOR



## Isolated Hermetic Surface Mount Package 3.0 Amp, Negative Adjustable Voltage Regulator

### FEATURES

- Isolated Hermetic Surface Mount Package
- Reference Voltage Set Internally To  $\pm 2\%$  ( $\pm 1\%$  Available)
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Small Metal Package
- Product Is Available Hi-Rel Screened

### DESCRIPTION

These three terminal negative regulators are supplied in a hermetic metal surface mount 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 3.0 amps of output current. These units feature 2% initial voltage tolerance, with 1.0% load regulation and .015% line regulation.

### ABSOLUTE MAXIMUM RATINGS

Input to Output Voltage Differential	.....	-35V
Operating Junction Temperature Range	.....	- 55°C to + 150°C
Storage Temperature Range	.....	- 55°C to + 150°C
Typical Power/Thermal Characteristics:		
Rated Power @ 25°C		
$T_C$	.....	28W
$T_A$	.....	3W
Thermal Resistance:		
$\theta_{JC}$	.....	4.2°C/W
$\theta_{JA}$	.....	42°C/W
Lead Temperature at Case (5 sec)	.....	225°C

3.5

Note: For  $\pm 1\%$  device, add letter "A" in front of part number (e.g. OMA7638SM).

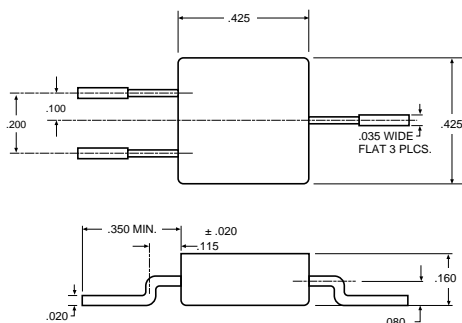
**ELECTRICAL CHARACTERISTICS** -55°C T<sub>A</sub> +125°C (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Reference Voltage	V <sub>REF</sub>	V <sub>IN</sub> - V <sub>OUT</sub>   = 5 V, I <sub>OUT</sub> = 5 mA, T <sub>A</sub> = 25° C	-1.238	-1.262	V
		3 V  V <sub>IN</sub> - V <sub>OUT</sub>   35 V	• -1.215	-1.285	
Line Regulation (Note 1)	$\frac{V_{OUT}}{V_{IN}}$	3 V  V <sub>IN</sub> - V <sub>OUT</sub>   35 V		0.015	%V
			•	0.04	
Load Regulation (Note 1)	$\frac{V_{OUT}}{I_{OUT}}$	V <sub>OUT</sub>   5 V, T <sub>A</sub> = 25° C 10 mA I <sub>OUT</sub> I <sub>MAX.</sub>		50	mV
			•	75	
		V <sub>OUT</sub>   5.0 V 10 mA I <sub>OUT</sub> I <sub>MAX.</sub>	•	1.0	%
Thermal Regulation	-	30 ms pulse, T <sub>A</sub> = 25° C		0.02	%/W
Ripple Rejection (Note 2)	$\frac{V_{IN}}{V_{REF}}$	V <sub>OUT</sub>   = -10 V, f = 120 Hz, C <sub>Adj</sub> = 0		56	dB
			•	53	
		V <sub>OUT</sub>   = -10 V, f = 120 Hz, C <sub>Adj</sub> = 10 μF	•	70	dB
Adjust Pin Current	I <sub>Adj</sub>	V <sub>DIFF</sub> = 35 V, I <sub>L</sub> = 10 mA	•	100	μA
Adjust Pin Current Change	I <sub>Adj</sub>	10 mA I <sub>OUT</sub> I <sub>MAX.</sub>	•	2.0	μA
		3 V  V <sub>IN</sub> - V <sub>OUT</sub>   35 V	•	5.0	
Minimum Load Current	I <sub>Min</sub>	V <sub>IN</sub> - V <sub>OUT</sub>   35 V	•	5.0	mA
		V <sub>IN</sub> - V <sub>OUT</sub>   10 V	•	3.0	
Current Limit	I <sub>Lim</sub>	V <sub>IN</sub> - V <sub>OUT</sub>   10 V		3.0	A
			•	3.0	
		V <sub>IN</sub> - V <sub>OUT</sub>   = 35 V	•	0.5	2.5
Temperature Stability (Note 2)	$\frac{V_{OUT}}{T}$	-55° C T <sub>J</sub> +125° C	•	1.5	%
Long Term Stability (Note 2)	$\frac{V_{OUT}}{T}$	T <sub>A</sub> = +125° C, t = 1000 hrs		1.0	%

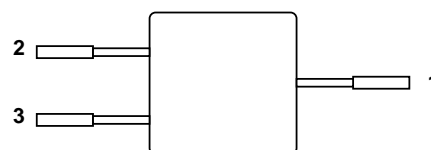
**Notes:**

- 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 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.

**MECHANICAL OUTLINE**



**PIN CONNECTION**



Pin 1: V<sub>IN</sub>  
 Pin 2: Adjust  
 Pin 3: V<sub>OUT</sub>  
 Case: Isolated

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