

# SURFACE MOUNT POSITIVE ADJUSTABLE 3.0 AMP VOLTAGE REGULATOR



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

### FEATURES

- Isolated Hermetic Surface Mount Package
- Reference Voltage Set To  $\pm 2\%$  ( $\pm 1\%$  Available)
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Available Hi-Rel Screened
- Electrically Similar To Industry Standard Type LM150A

### DESCRIPTION

These three terminal positive 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 0.3% load regulation and .01% line regulation.

### ABSOLUTE MAXIMUM RATINGS @ 25°C

|  |                   |
|--|-------------------|
| 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                         |                   |
| $T_C$ .....                                | 25W               |
| $T_A$ .....                                | 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. OMA7637SM).

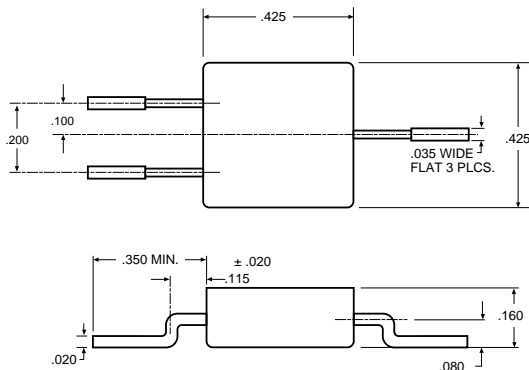
**ELECTRICAL CHARACTERISTICS** -55°C T<sub>A</sub> 125°C (Note 1) unless otherwise specified

| Test                         | Symbol                    | Conditions  | Limits |      | Unit |
|------------------------------|---------------------------|---|--------|------|------|
|                              |                           |   | Min.   | Max. |      |
| Reference Voltage            | V <sub>REF</sub>          | I <sub>OUT</sub> = 10mA<br>T <sub>A</sub> = 25°C  | 1.20   | 1.30 | V    |
|                              |                           | 3.0V (V <sub>IN</sub> - V <sub>OUT</sub> ) 35V, P 30W<br>10mA I <sub>OUT</sub> 3.0A (Note 2)          | 1.20   | 1.30 | V    |
| Line Regulation<br>(Note 2)  | $\frac{V_{OUT}}{V_{IN}}$  | 3.0V (V <sub>IN</sub> - V <sub>OUT</sub> ) 35V,<br>I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C     |        | 0.01 | %/V  |
|                              |                           | 3.0V (V <sub>IN</sub> - V <sub>OUT</sub> ) 35V,<br>I <sub>OUT</sub> = 10mA                            |        | 0.05 | %/V  |
| Load Regulation<br>(Note 2)  | $\frac{V_{OUT}}{I_{OUT}}$ | 10mA I <sub>OUT</sub> 3.0A,<br>V <sub>OUT</sub> 5.0A, T <sub>J</sub> = 25°C                           |        | 17.5 | mV   |
|                              |                           | 10mA I <sub>OUT</sub> 3.0A,<br>V <sub>OUT</sub> 5.0A  |        | 50   | mV   |
|                              |                           | 10mA I <sub>OUT</sub> 3.0A,<br>V <sub>OUT</sub> 5.0A, T <sub>J</sub> = 25°C                           |        | 0.35 | %    |
|                              |                           | 10mA I <sub>OUT</sub> 3.0A,<br>V <sub>OUT</sub> 5.0A  |        | 1.0  | %    |
| Thermal Regulation           |                           | 20ms pulse, T <sub>A</sub> = 25°C   |        | 0.01 | %/W  |
| Ripple Rejection<br>(Note 3) | $\frac{V_{IN}}{V_{REF}}$  | V <sub>OUT</sub> = 10V, f = 120Hz<br>C <sub>ADJ</sub> = 10µF  | 66     |      | dB   |
| Adjust Pin Current           | I <sub>Adj</sub>          |   |        | 100  | µA   |
| Adjust Pin<br>Current Change | I <sub>Adj</sub>          | 10mA I <sub>OUT</sub> 3.0A, I <sub>OUT</sub> = 10mA<br>3.0V (V <sub>IN</sub> - V <sub>OUT</sub> ) 35V |        | 5.0  | µA   |
| Minimum Load Current         | I <sub>MIN</sub>          | (V <sub>IN</sub> - V <sub>OUT</sub> ) = 35V   |        | 5.0  | mA   |
| Current Limit                | I <sub>CL</sub>           | (V <sub>IN</sub> - V <sub>OUT</sub> ) 10V   | 3.0    |      | A    |
|                              |                           | (V <sub>IN</sub> - V <sub>OUT</sub> ) = 30V   | 0.3    |      | A    |

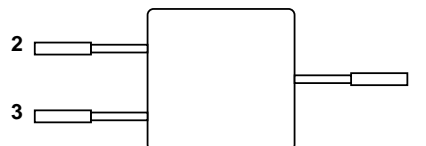
**Notes:**

1. Unless otherwise specified, these specifications apply for (V<sub>IN</sub> - V<sub>OUT</sub>) = 5.0V and I<sub>OUT</sub> = 1.5A. Although power dissipation is internally limited, these characteristics are applicable for power dissipation up to 30W.
2. Regulation is measured at a constant junction temperature using a pulse technique. Changes in output voltage due to heating effects are covered under the specification for thermal regulation.
3. Guaranteed if not tested to the limits specified.

**MECHANICAL OUTLINE**



**PIN CONNECTION**



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