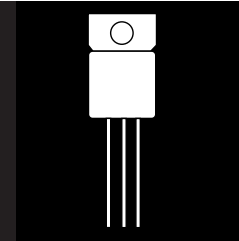


ISOLATED HERMETIC TO-257AA ADJUSTABLE VOLTAGE REGULATORS



Three Terminal, Adjustable Voltage, 3.0 Amp Precision Negative Regulators In Hermetic JEDEC TO-257AA Package

FEATURES

- Isolated Hermetic Package, JEDEC TO-257AA Outline
- Reference Voltage Set Internally to $\pm 2\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Pin Out Identical To Plastic TO-220
- Product Is Available Screened To MIL-STD-883

DESCRIPTION

These three terminal negative regulators are supplied in a hermetically sealed metal package whose outline is similar to the industry standard TO-220 plastic 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 @ 25°C

| | |
|--|-----------------|
| Input Voltage | -35V |
| Operating Junction Temperature Range | -55°C to +150°C |
| Storage Temperature Range | -65° to +150°C |
| Typical Power/Thermal Characteristics: | |
| Rated Power @ 25°C | |
| T_C | 28W |
| T_A | 3W |
| Thermal Resistance | |
| θ_{JC} | 4.2°C/W |
| θ_{JA} | 42°C/W |

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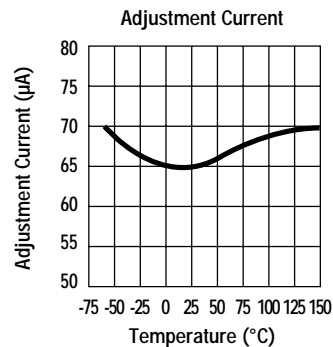
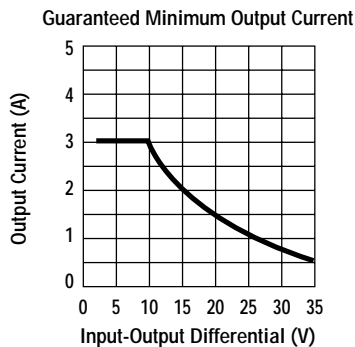
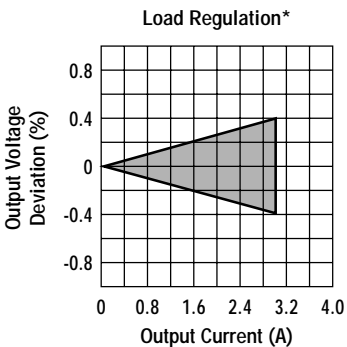
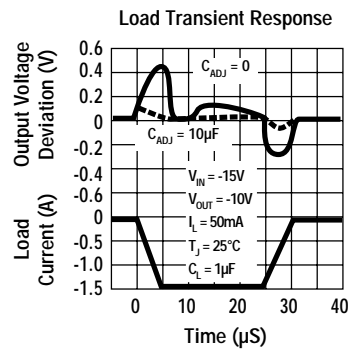
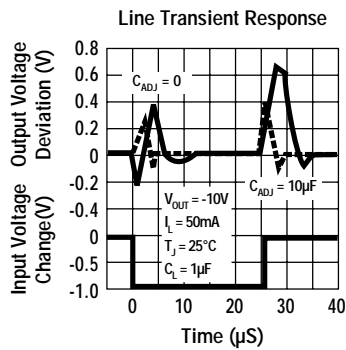
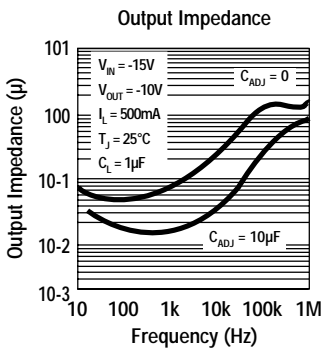
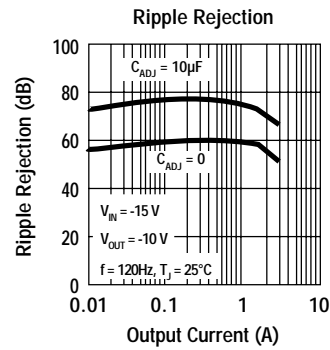
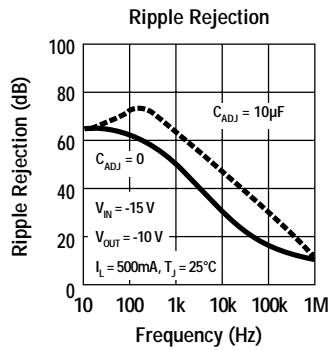
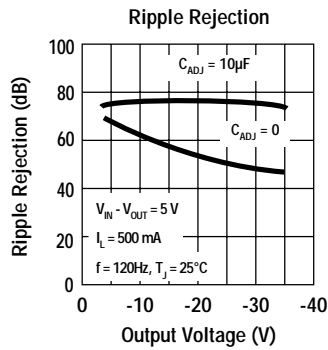
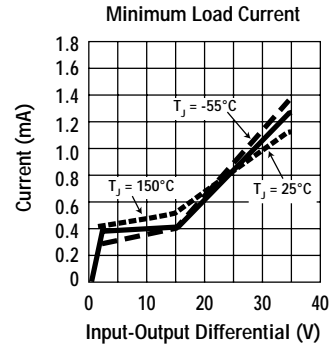
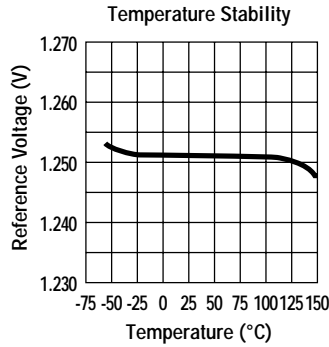
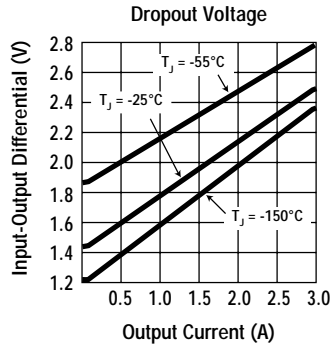
ELECTRICAL CHARACTERISTICS -55°C T_A +125°C (unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min. | Max. | Unit | |
|-----------------------------------|---|--|----------|--------|---------------|---|
| Reference Voltage | V_{REF} | $V_{IN} - V_{OUT} \approx 5\text{ V}$, $I_{OUT} = 5\text{ mA}$, $T_A = 25^\circ\text{C}$ | -1.238 | -1.262 | V | |
| | | 3 V $V_{IN} - V_{OUT} \approx 35\text{ V}$ | • -1.215 | -1.285 | | |
| Line Regulation (Note 1) | $\frac{\Delta V_{OUT}}{\Delta V_{IN}}$ | 3 V $V_{IN} - V_{OUT} \approx 35\text{ V}$ | | 0.015 | %V | |
| | | | • | 0.04 | | |
| Load Regulation (Note 1) | $\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$ | $V_{OUT} \approx 5\text{ V}$, $T_A = 25^\circ\text{C}$ 10 mA I_{OUT} I_{MAX} | | 50 | mV | |
| | | | • | 75 | | |
| | | $V_{OUT} \approx 5.0\text{ V}$ 10 mA I_{OUT} I_{MAX} | | 1.0 | % | |
| | | | • | 1.5 | | |
| Thermal Regulation | - | 30 ms pulse, $T_A = 25^\circ\text{C}$ | | 0.02 | %/W | |
| Ripple Rejection (Note 2) | $\frac{\Delta V_{IN}}{\Delta V_{REF}}$ | $V_{OUT} \approx -10\text{ V}$, $f = 120\text{ Hz}$, $C_{Adj} = 0$ | | 56 | dB | |
| | | | • | 53 | | |
| | | $V_{OUT} \approx -10\text{ V}$, $f = 120\text{ Hz}$, $C_{Adj} = 10\text{ }\mu\text{F}$ | | 70 | dB | |
| • | 60 | | | | | |
| Adjust Pin Current | I_{Adj} | $V_{DIFF} = 35\text{ V}$, $I_L = 10\text{ mA}$ | • | 100 | μA | |
| Adjust Pin Current Change | ΔI_{Adj} | 10 mA I_{OUT} I_{MAX} | • | 2.0 | μA | |
| | | 3 V $V_{IN} - V_{OUT} \approx 35\text{ V}$ | • | 5.0 | | |
| Minimum Load Current | I_{Min} | $V_{IN} - V_{OUT} \approx 35\text{ V}$ | • | 5.0 | mA | |
| | | $V_{IN} - V_{OUT} \approx 10\text{ V}$ | • | 3.0 | | |
| Current Limit | I_{Lim} | $V_{IN} - V_{OUT} \approx 10\text{ V}$ | | 3.0 | A | |
| | | | • | 3.0 | | |
| | | $V_{IN} - V_{OUT} \approx 35\text{ V}$ | | 0.5 | 2.5 | A |
| | | | • | 0.5 | | |
| 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:

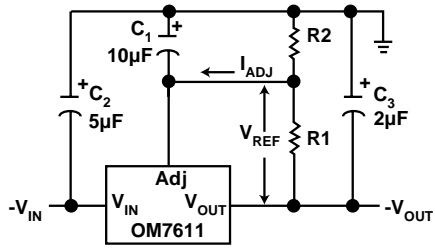
- Line and Load Regulation are measured at a constant junction temperature using a low duty cycle pulse technique. Although power dissipation is internally limited, regulation is guaranteed up to the maximum power dissipation of 30 W. Power dissipation is determined by the input/output differential voltage 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.

TYPICAL PERFORMANCE CHARACTERISTICS



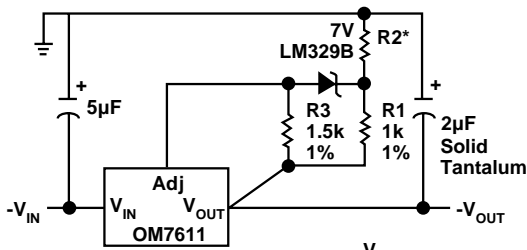
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TYPICAL APPLICATIONS



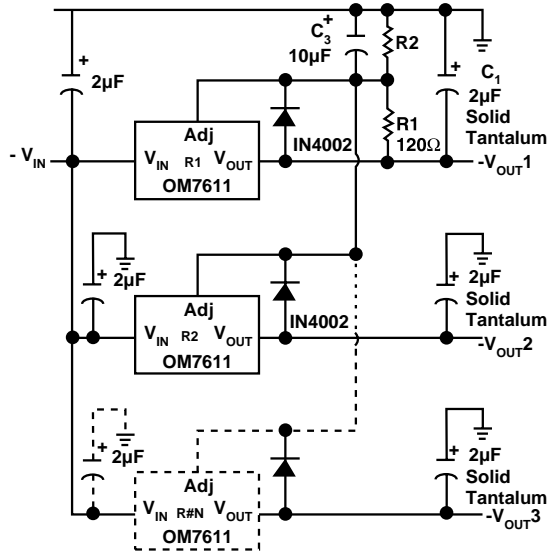
$$V_{OUT} = V_{REF} \left(1 + \frac{R2}{R1} \right) + I_{ADJ} (R2)$$

High Stability Regulator

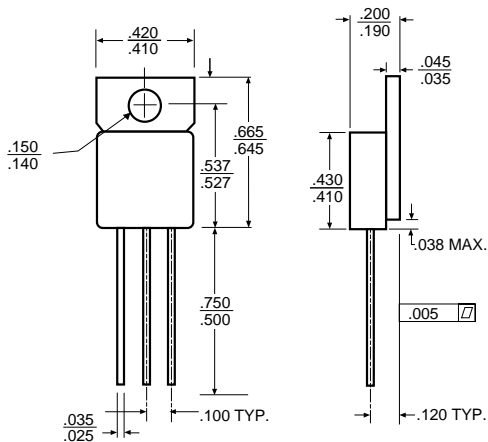


$$*R2 = \frac{V_{OUT}}{9.08 \times 10^{-3}} - 908\Omega$$

Multiple Tracking Regulators



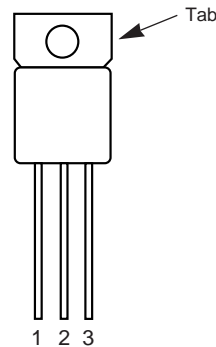
MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

PIN CONNECTION



- Front View
 Pin 1: Adjust
 Pin 2: V_{IN}
 Pin 3: V_{OUT}
 Tab: Isolated