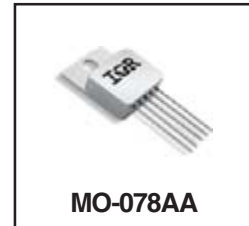


**Ultra Low Dropout, 3.0A  
 Adjustable Positive Linear Regulator  
 Thru-Hole (MO-078AA)**

**OM7764ASC  
 5962 - 0323801MYA**

**Product Summary**

| Part Number | Output Voltage | Current | Dropout |
|-------------|----------------|---------|---------|
| OM7764ASC   | 1.21V to 20V   | 3.0A    | 0.4V    |



**Description**

The OM7764ASC is a 3.0A, ultra low dropout, adjustable linear regulator specifically designed for low voltage, high current applications. Housed in a hermetic package, the dropout of these devices is 400mV at full load. All protective features are designed into the circuit including thermal shutdown, current limiting and safe area control. These units are ideally suited for military/defense, commercial aircraft, industrial control and other harsh environments where a hermetically sealed package is required.

**Features:**

- Dropout Voltage of 400mV at Full Load
- Wide Input Range: 2.7V to 20V
- Low Noise: 40mVRMS ( 10Hz to 10KHz )
- Fast Transient Response
- No Protection Diodes needed
- Hermetic MO-078AA Package ensures High Reliability

**Absolute Maximum Ratings**

| Parameter                                     | Symbol          | Value       | Units              |
|---|-----------------|-------------|--------------------|
| Output Current                                | $I_O$           | 3.0         | A                  |
| Input Voltage                                 | $V_{IN}$        | +20         | V                  |
| Power Dissipation @ $T_c = 25^\circ\text{C}$  | $P_D$           | 20          | W                  |
| Thermal Resistance, Junction to Case          | $R_{\theta JC}$ | 5.0         | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range          | $T_J$           | -55 to +125 | $^\circ\text{C}$   |
| Storage Temperature Range                     | $T_{STG}$       | -65 to +150 |                    |
| Lead Temperature Soldering (10second maximum) | $T_L$           | 300         |                    |

**Electrical Characteristics @T<sub>A</sub> = 25°C (Unless Otherwise Specified)**

| Parameter  | Test Conditions   | Min.  | Typ.  | Max.  | Units |
|--|---|-------|-------|-------|-------|
| Minimum Input voltage  | I <sub>LOAD</sub> = 3.0A ①  | -     | 2.3   | 2.7   | V     |
| Line Regulation  | ΔV <sub>IN</sub> = 2.21V to 20V, I <sub>LOAD</sub> = 1.0mA ①②   | -     | 2.0   | 10    | mV    |
| Load Regulation  | V <sub>IN</sub> = 2.7V, I <sub>LOAD</sub> = 1.0mA to 3.0A   | -     | 5.0   | 15    |       |
|  | V <sub>IN</sub> = 2.7V, I <sub>LOAD</sub> = 1.0mA to 3.0A ①②  | -     | -     | 50    |       |
| Adjust Pin Voltage   | V <sub>IN</sub> = 2.21V, I <sub>LOAD</sub> = 1.0mA  | 1.192 | 1.210 | 1.228 | V     |
|  | 2.7V < V <sub>IN</sub> < 20V, 1.0mA < I <sub>LOAD</sub> < 3.0A ①  | 1.168 | 1.210 | 1.246 |       |
| Dropout Voltage  | I <sub>LOAD</sub> = 1.0mA   | -     | 0.02  | 0.05  |       |
|  | I <sub>LOAD</sub> = 1.0mA ①   | -     | -     | 0.10  |       |
|  | I <sub>LOAD</sub> = 100mA   | -     | 0.07  | 0.13  |       |
|  | I <sub>LOAD</sub> = 100mA ①   | -     | -     | 0.18  |       |
|  | I <sub>LOAD</sub> = 500mA   | -     | 0.14  | 0.20  |       |
|  | I <sub>LOAD</sub> = 500mA ①   | -     | -     | 0.27  |       |
|  | I <sub>LOAD</sub> = 1.5mA   | -     | 0.25  | 0.33  |       |
|  | I <sub>LOAD</sub> = 1.5mA ①   | -     | -     | 0.40  |       |
|  | I <sub>LOAD</sub> = 3.0A  | -     | 0.4   | 0.54  |       |
|  | I <sub>LOAD</sub> = 3.0A ①  | -     | -     | 0.66  |       |
| Ground Pin Current<br>V <sub>IN</sub> = V <sub>OUT</sub> (Nominal)+1 | I <sub>LOAD</sub> = 0mA ①   | -     | 1.0   | 1.5   | mA    |
|  | I <sub>LOAD</sub> = 1.0mA ①   | -     | 1.1   | 1.6   |       |
|  | I <sub>LOAD</sub> = 100mA ①   | -     | 3.5   | 5.0   |       |
|  | I <sub>LOAD</sub> = 500mA ①   | -     | 11    | 18    |       |
|  | I <sub>LOAD</sub> = 1.5A ①  | -     | 40    | 75    |       |
|  | I <sub>LOAD</sub> = 3.0A ①  | -     | 120   | 200   |       |
| Ripple Rejection   | V <sub>IN</sub> - V <sub>OUT</sub> = 1.5V(Average), V <sub>RIPPLE</sub> = 0.5 V <sub>P-P</sub><br>f <sub>RIPPLE</sub> = 120Hz, I <sub>LOAD</sub> = 1.5A, T <sub>J</sub> = +25°C | 55    | 65    | -     | dB    |
| Current Limit  | V <sub>IN</sub> = 2.7V, ΔV <sub>OUT</sub> = -0.1V ①   | 3.1   | -     | -     | A     |
| Input Reverse Leakage Current  | V <sub>IN</sub> = -20V, V <sub>OUT</sub> = 0V ①   | -     | -     | 1.0   | mA    |
| Reverse Output Current   | V <sub>OUT</sub> = 1.21V, V <sub>IN</sub> < 1.21V ①   | -     | 300   | 600   | μA    |

**Footnotes**

①- Denotes specifications which apply over the full operating temperature range.

②- The OM7764ASC is tested and specified for these conditions with the ADJ pin connected to the OUT pin.

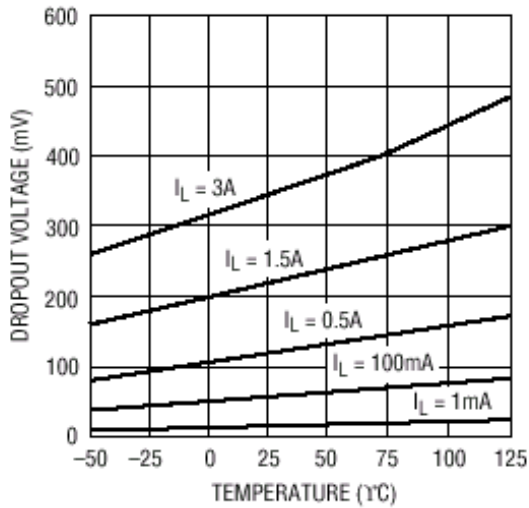


Fig 1: Dropout Voltage Vs Temperature

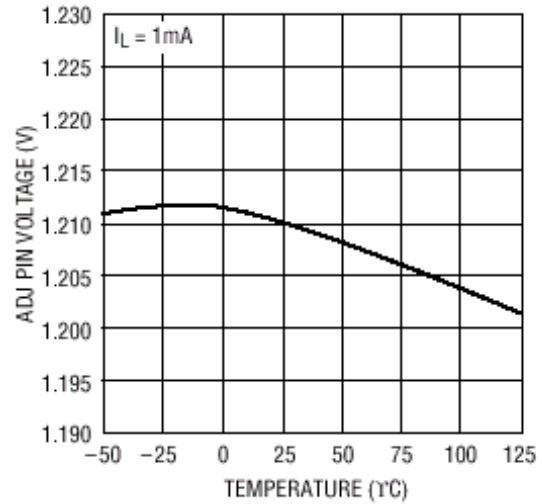


Fig 2: Adjust Pin Voltage Vs Temperature

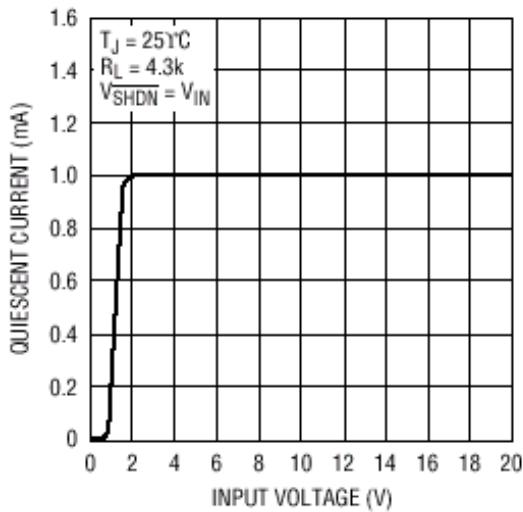


Fig 3: Quiescent Current Vs Input Voltage

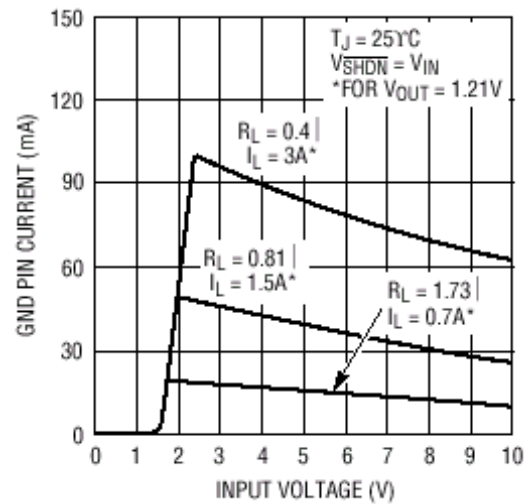


Fig 4: Ground Pin Current Vs Input Voltage

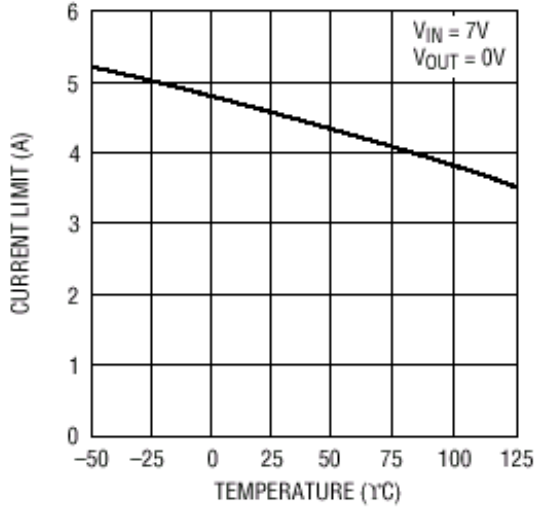
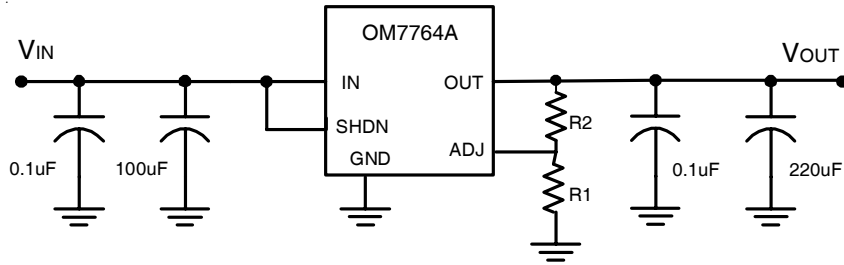


Fig 5: Current Limit Vs Temperature



$$V_{OUT} = 1.21V(1 + (R2/R1)) + I_{ADJ}(R2)$$

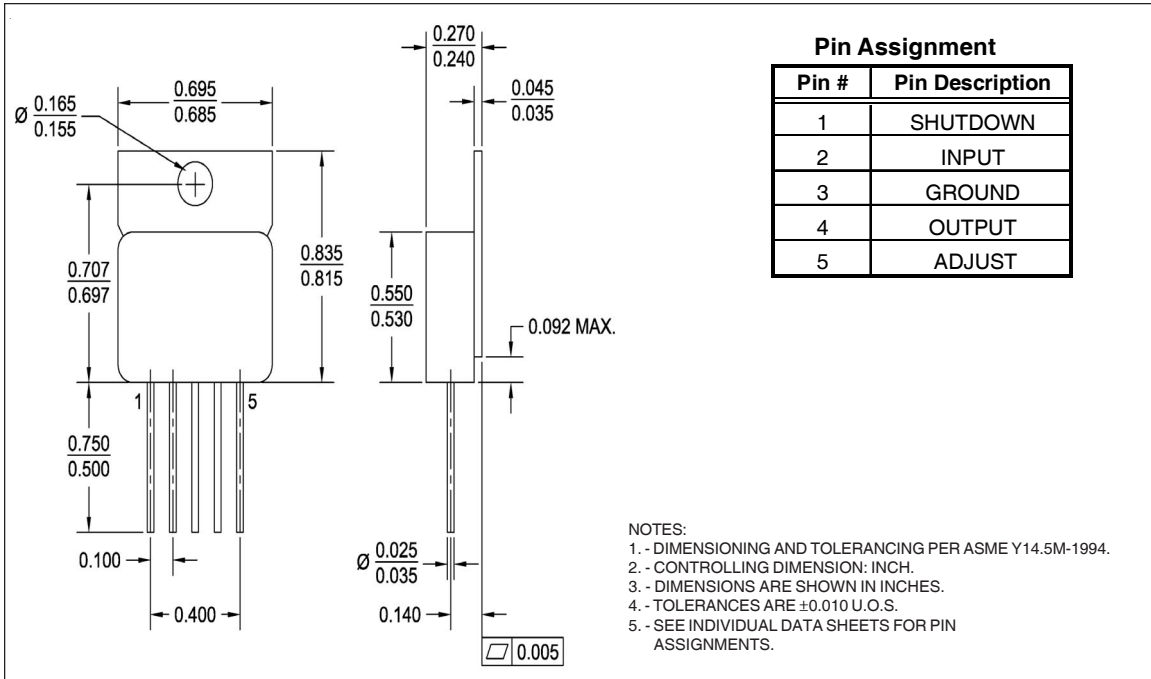
$$I_{ADJ} = 3.0\mu A @ 25^{\circ}C$$

Fig 6: Typical Application

**Layout Consideration**

It is recommended that output capacitors be located as close as possible to the V<sub>OUT</sub> terminal of the device to prevent any high frequency oscillation that may result due to excessive stray inductance. Specifications for capacitors: 220µF (+25V) Tantalum, 100µF (+25V) Tantalum, 0.1µF (+50V) Ceramic

**Case Outline and Dimensions — MO-078AA**



**Part Numbering Nomenclature**

**OM 7764A S C M**

Device Number

**Screening**

M = MIL-PRF-38535

**Package Code**

S = MO-078AA

**Isolated / Non-Isolated**

S = Isolated