

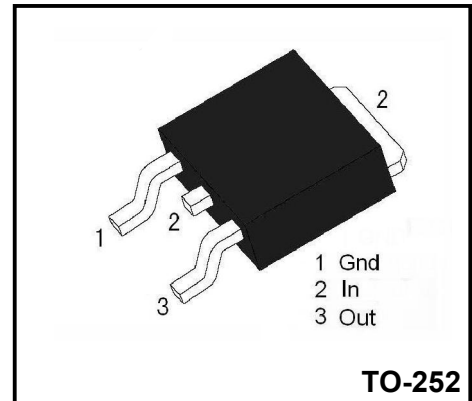
3-Terminal 1A Negative Voltage Regulator

Description

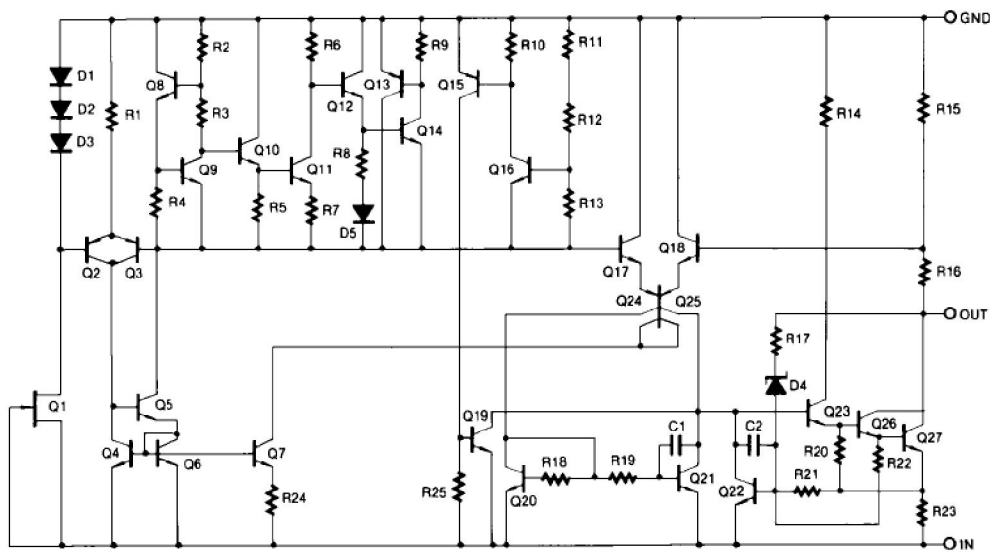
The 79M15 series of 3-Terminal medium current negative voltage regulators are monolithic integrated circuits designed as fixed voltage regulators. These regulators employ internal current limiting, thermal shutdown and safe area compensation making them essentially indestructible.

Features

- ◆ No external components required
- ◆ Output current in excess of 1A
- ◆ Internal thermal overload
- ◆ Internal short circuit current limiting
- ◆ Output transistor safe area compensation
- ◆ Output voltages of -15V



Internal Block Diagram



Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|--------------------------------------|-----------|-----------|------|
| Input voltage | V_{IN} | -35 | V |
| Power Dissipation | P_D | 1.2 | W |
| Operating Junction Temperature Range | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -65 ~ 150 | °C |
| Soldering Temperature (10 seconds) | T_{sol} | 260 | °C |

Electrical Characteristics (Ta = 25 °C)

 (Refer to the test circuits, $I_o=350mA$, $V_i=-10V$, $C_i=2.2\mu F$, $C_o=1\mu F$ unless otherwise specified)

| Parameter | Symbol | Conditions | Value | | | Unit |
|--------------------------|---------------------|---|--------------------------|------|--------|---------|
| | | | Min | Typ | Max | |
| Output Voltage | V_o | $T_j = 25^\circ C$ | -14.40 | -15 | -15.60 | V |
| | | $I_o = 5mA \sim 1A$ $V_i = -18V \sim -30V$ | -14.25 | -15 | -15.75 | |
| Line Regulation (Note) | ΔV_o | $T_j = 25^\circ C$ | $V_i = -17.5V \sim -30V$ | | 100 | mV |
| | | | $V_i = -18V \sim -28V$ | | 50 | |
| Load Regulation (Note) | ΔV_o | $T_j = 25^\circ C$ | $I_o = 5mA \sim 0.75A$ | | 240 | mV |
| | | | $I_o = 0.25A \sim 1A$ | | 12 | |
| Quiescent Current | I_q | $T_j = 25^\circ C$ | | | 6 | mA |
| Quiescent Current Change | ΔI_q | $I_o = 5mA \sim 1A$ | | | 0.4 | mA |
| | | $V_i = -17.5V \sim -30V$ | | | 0.6 | |
| Output Voltage Drift | $\Delta V/\Delta T$ | $I_o = 5mA$ | | -0.4 | | mV/°C |
| Output Noise Voltage | V_N | $f = 10HZ \sim 100KHZ$ | | 40 | | μV |
| Ripple Rejection | RR | $f = 120Hz, V_i = -18V \sim -30V$ | | 60 | | dB |
| Dropout Voltage | V_D | $T_j = 25^\circ C, I_o = 1A$ | | 2.0 | | V |
| Short Circuit Current | I_{SC} | $T_j = 25^\circ C$ | | 230 | | mA |
| Peak Current | I_{PK} | $T_j = 25^\circ C$ | | 1.8 | | A |

Notes:

Load and line regulation are specified at constant junction temperature. Change in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

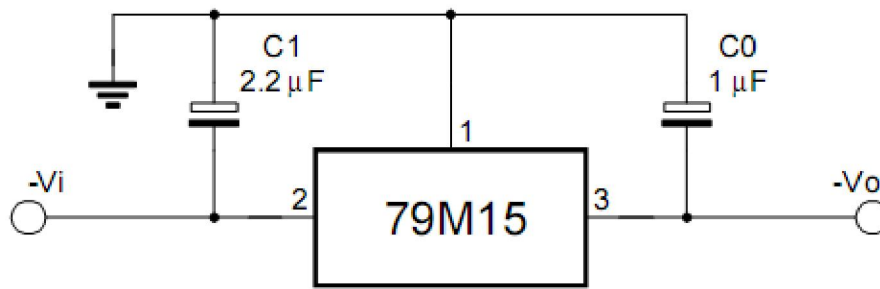


Figure.1 -15V output regulator

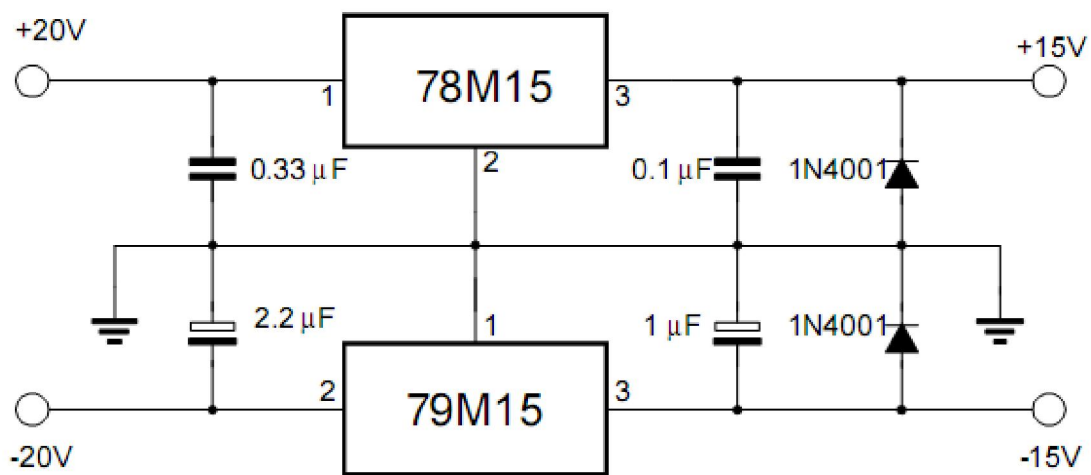


Figure.2 Split power supply(±15V,0.5A)

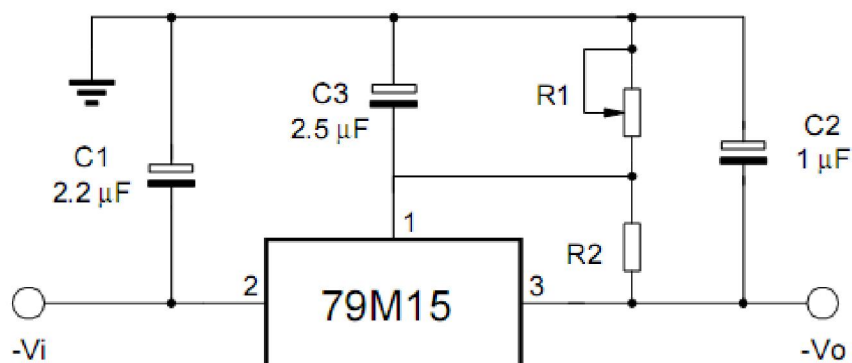


Figure.3 Circuit for increasing output voltage

Typical Characteristics

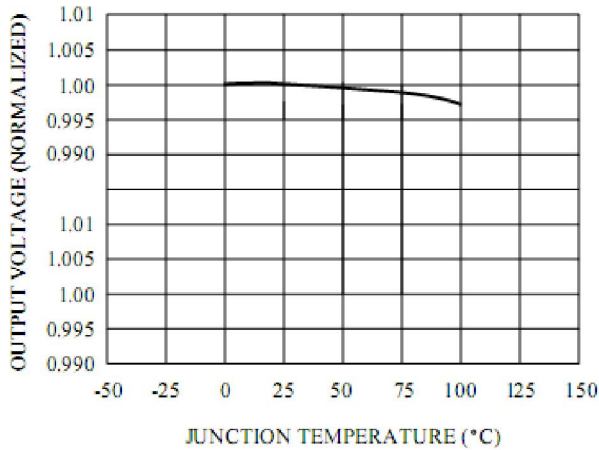


Figure 1. Output voltage vs temperature

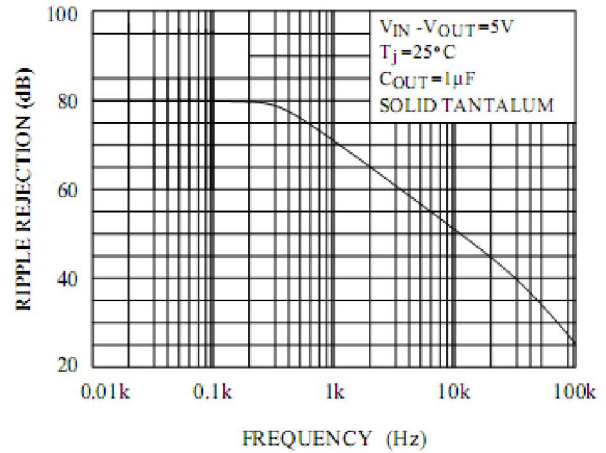


Figure 2. Ripple Rejection

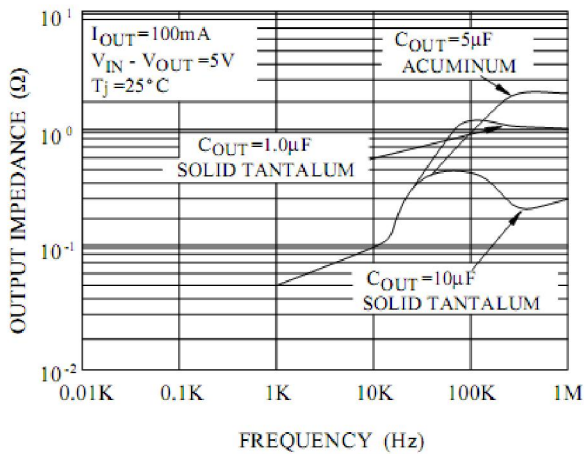


Figure 3. Output impedance

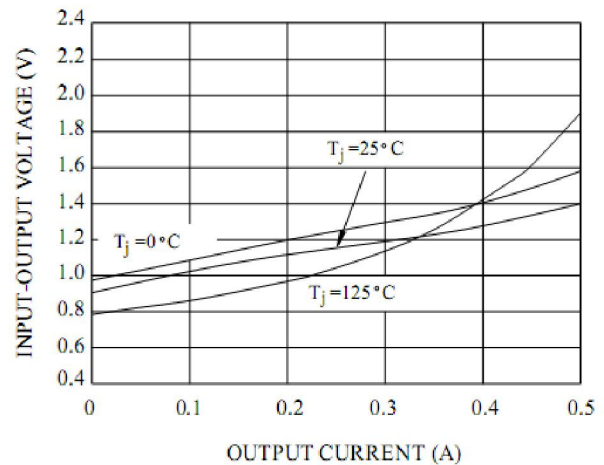


Figure 4. Minimum input-output differential

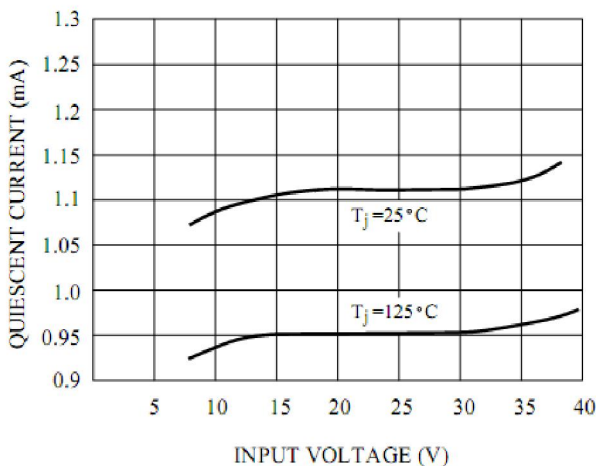


Figure 5. Input Voltage

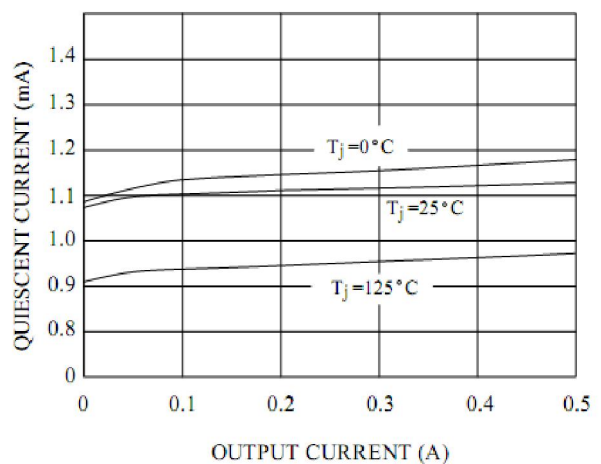


Figure 6. Quiescent current vs load current

Typical Characteristics

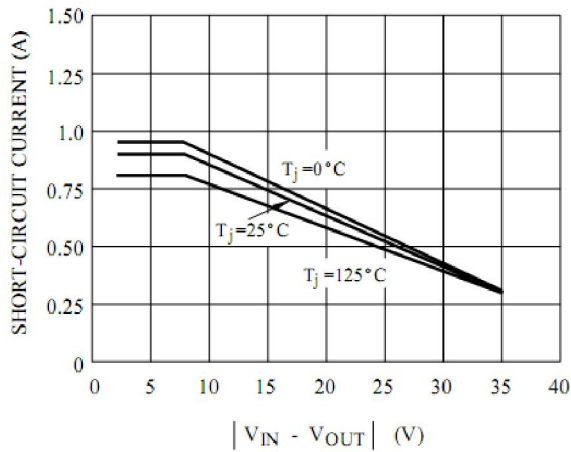


Figure 1. Short-circuit current

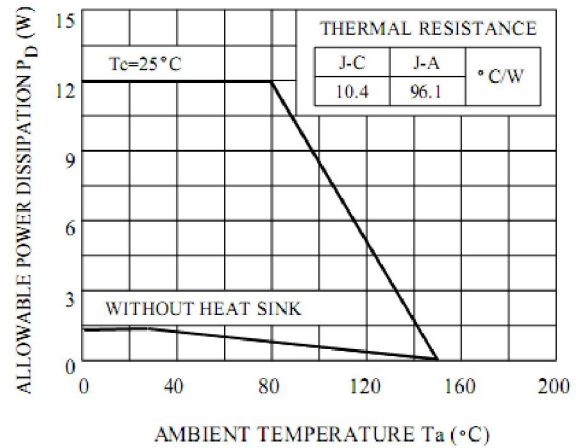


Figure 2. Power Derating Curve

**Package Dimensions
TO-252**

| | Symbol | Millimeter | | Inches | |
|----|--------|------------|-------|--------|-------|
| | | Min. | Max. | Min. | Max. |
| | A | 2.20 | 2.50 | 0.087 | 0.098 |
| | A1 | 0.00 | 0.12 | 0.000 | 0.005 |
| | A2 | 2.20 | 2.40 | 0.087 | 0.094 |
| | B | 1.20 | 1.60 | 0.047 | 0.063 |
| | b | 0.50 | 0.70 | 0.020 | 0.028 |
| | b1 | 0.70 | 0.90 | 0.028 | 0.035 |
| | c | 0.40 | 0.60 | 0.016 | 0.024 |
| | c1 | 0.40 | 0.60 | 0.016 | 0.024 |
| | D | 6.35 | 6.65 | 0.250 | 0.262 |
| | D1 | 5.20 | 5.40 | 0.205 | 0.213 |
| | E | 5.40 | 5.70 | 0.213 | 0.224 |
| | e | 2.20 | 2.40 | 0.087 | 0.094 |
| | e1 | 4.40 | 4.80 | 0.173 | 0.189 |
| | L | 9.60 | 10.20 | 0.378 | 0.402 |
| L1 | 2.70 | 3.10 | 0.106 | 0.122 | |
| L2 | 1.40 | 1.80 | 0.055 | 0.071 | |
| L3 | 0.90 | 1.50 | 0.035 | 0.059 | |

Product Specification Classification

| Part Number | Package | Marking | Pack |
|-------------|---------|-------------|--------------|
| 79M15 | TO-252 | 79M15 XXXXX | 2500PCS/Tape |