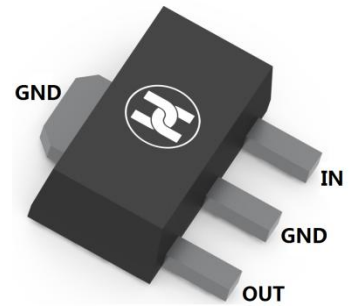


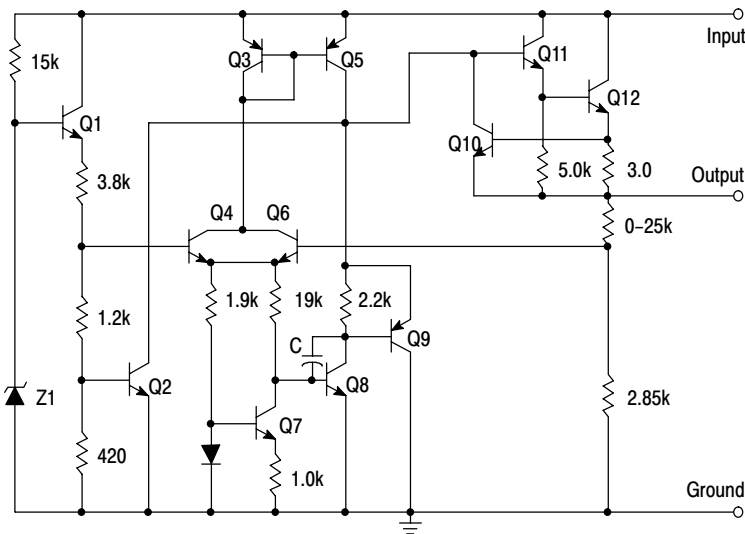
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

FEATURES

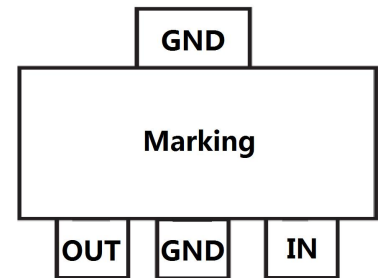
- Maximum Output Current  $I_o$ : 0.1 A
- Output Voltage  $V_o$ : 15 V
- Surface Mount device



SCHEMATIC DIAGRAM



SOT-89



MECHANICAL DATA

- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)

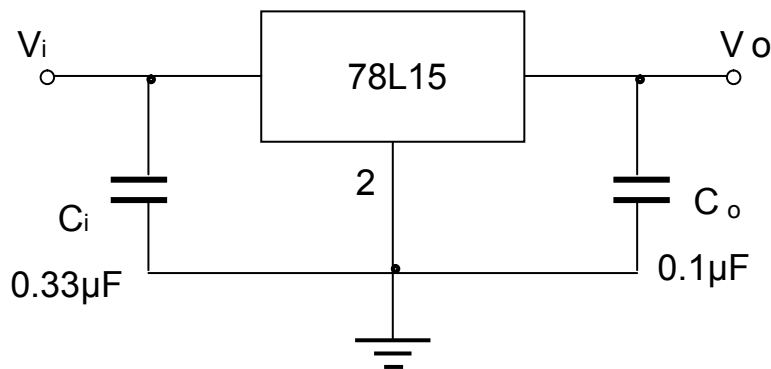
MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter                                   | Symbol          | Value              | Unit          |
|---|-----------------|--------------------|---------------|
| Input Voltage                               | $V_i$           | 35                 | V             |
| Power Dissipation                           | $P_D$           | Internally Limited |               |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 166.7              | $^{\circ}C/W$ |
| Operating Temperature                       | $T_{opr}$       | -25~+125           | $^{\circ}C$   |
| Storage Temperature Range                   | $T_{STG}$       | -65 ~+150          | $^{\circ}C$   |

**PLASTIC-ENCAPSULATE VOLTAGE REGULATORS**
**ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE  
( $V_i=23V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$ , unless otherwise specified )**

| Parameter                | Symbol       | Min   | Typ | Max   | Unit        | Conditions   |
|--------------------------|--------------|-------|-----|-------|-------------|--|
| Output voltage           | $V_o$        | 14.4  | 15  | 15.6  | V           | $T_J=+25^\circ C$  |
|                          |              | 14.25 | 15  | 15.75 | V           | $17.5V \leq V_i \leq 30V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$ |
|                          |              | 14.25 | 15  | 15.75 | V           | $V_i=23V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$                 |
| Load Regulation          | $\Delta V_o$ |       | 25  | 150   | mV          | $V_i=23V, I_o=1mA \sim 100mA, T_J=25^\circ C$                                      |
|                          |              |       | 15  | 75    | mV          | $V_i=23V, I_o=1mA \sim 40mA, T_J=25^\circ C$                                       |
| Line regulation          | $\Delta V_o$ |       | 65  | 300   | mV          | $17.5V \leq V_i \leq 30V, I_o=40mA, T_J=25^\circ C$                                |
|                          |              |       | 58  | 250   | mV          | $19V \leq V_i \leq 30V, I_o=40mA, T_J=25^\circ C$                                  |
| Quiescent Current        | $I_q$        |       | 4.6 | 6.5   | mA          | $T_J=+25^\circ C$  |
| Quiescent Current Change | $\Delta I_q$ |       |     | 1.5   | mA          | $19V \leq V_i \leq 30V, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$            |
|                          |              |       |     | 0.1   | mA          | $1mA \leq I_o \leq 40mA, V_i=23V, 0^\circ C \leq T_J \leq +125^\circ C$            |
| Output Noise Voltage     | $V_N$        |       | 82  |       | $\mu V/V_o$ | $10Hz \leq f \leq 100kHz, T_J=+25^\circ C$   |
| Ripple Rejection         | RR           | 34    | 39  |       | dB          | $18.5V \leq V_i \leq 28.5V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$         |
| Dropout Voltage          | $V_d$        |       | 1.7 |       | V           | $T_J=+25^\circ C$  |

\*Pulse Test

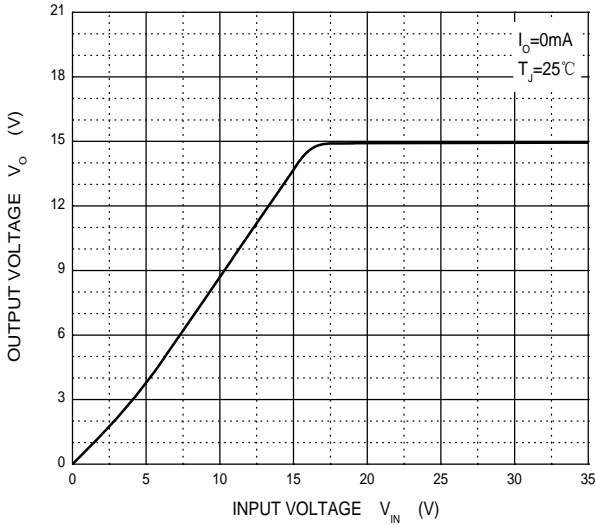
**TYPICAL APPLICATION**


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

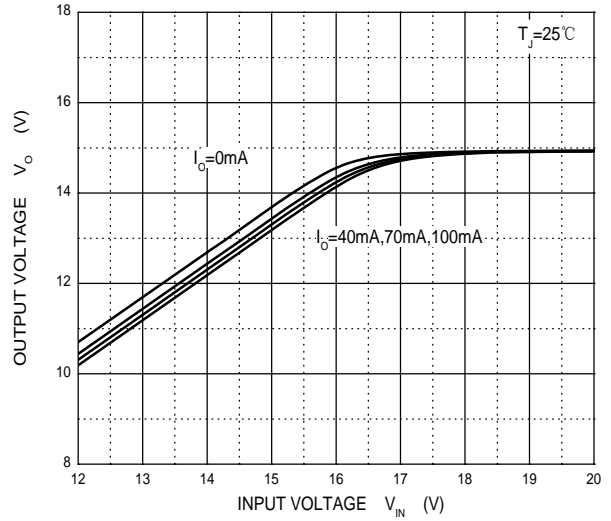
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

Typical Characteristics

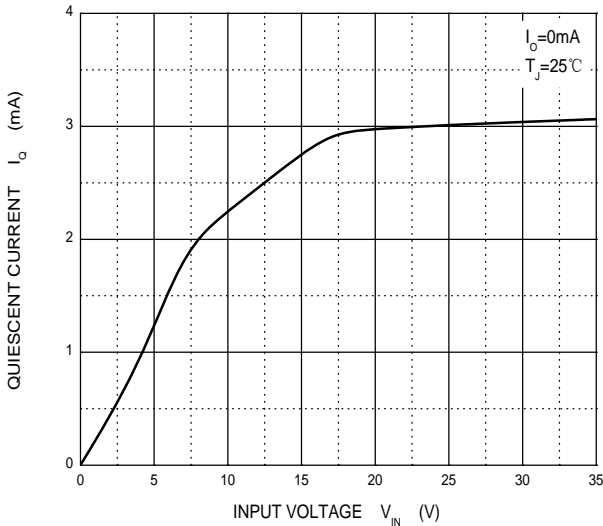
Output Characteristics



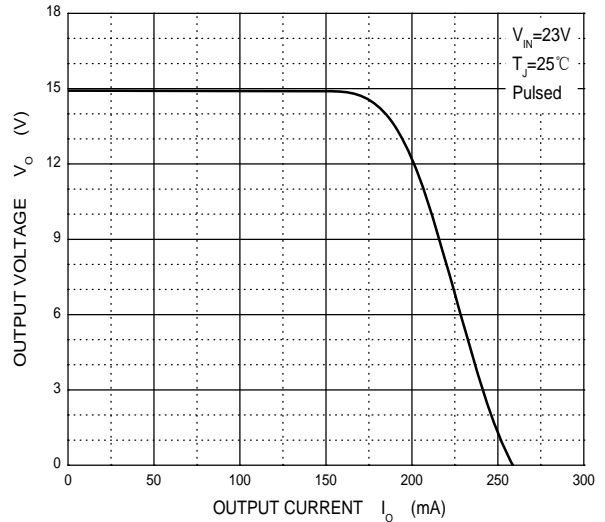
Dropout Characteristics



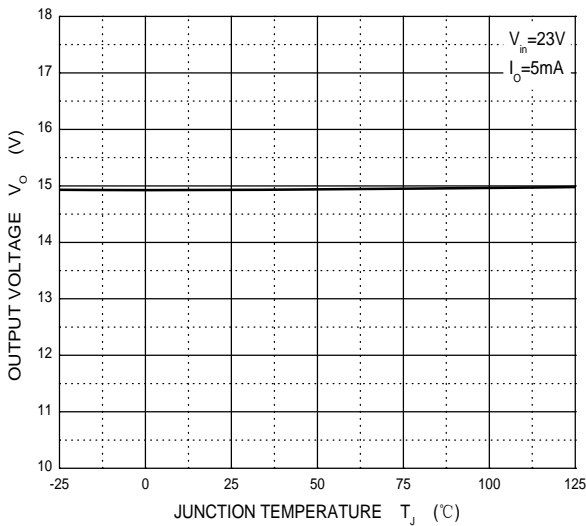
Quiescent Current vs Input Voltage



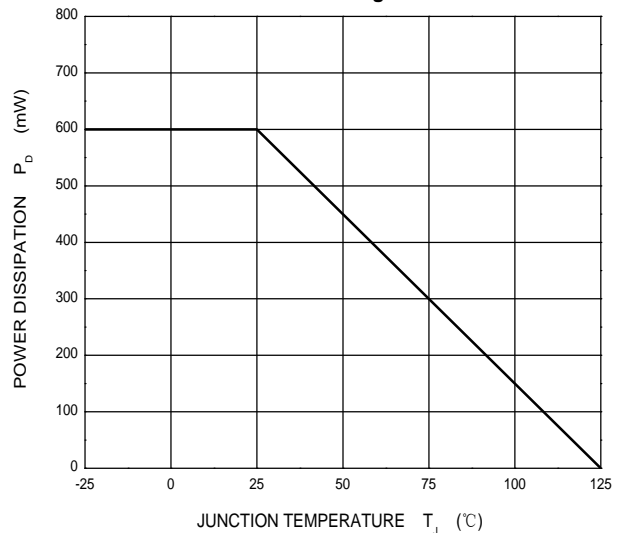
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

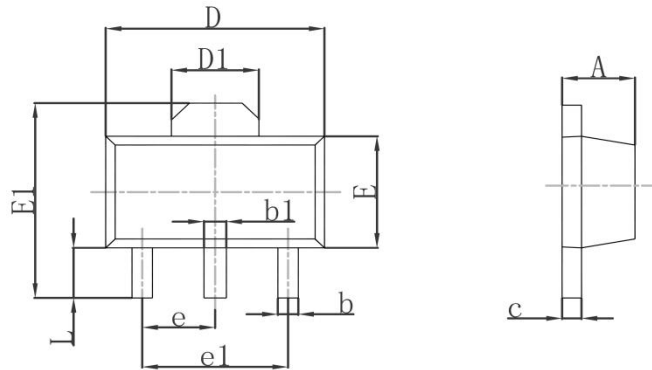


Power Derating Curve



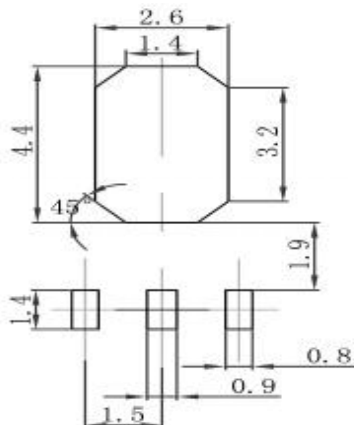
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

SOT-89 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.320                     | 0.520 | 0.013                | 0.020 |
| b1     | 0.400                     | 0.580 | 0.016                | 0.023 |
| c      | 0.350                     | 0.440 | 0.014                | 0.017 |
| D      | 4.400                     | 4.600 | 0.173                | 0.181 |
| D1     | 1.550REF                  |       | 0.061REF             |       |
| E      | 2.300                     | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500TYP                  |       | 0.060TYP             |       |
| e1     | 3.000TYP                  |       | 0.118TYP             |       |
| L      | 0.900                     | 1.200 | 0.035                | 0.047 |

SOT-89 Suggested Pad Layout



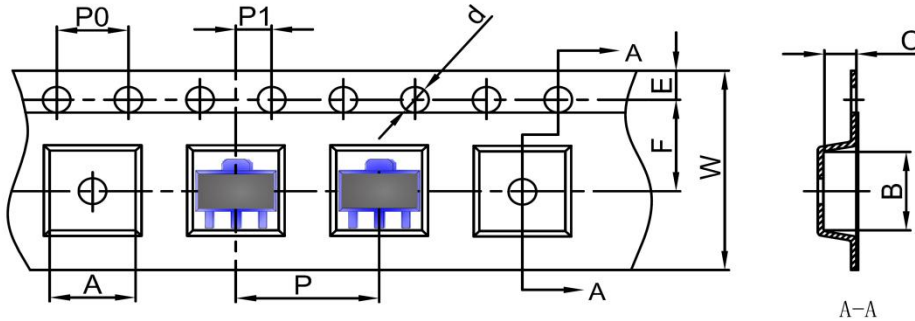
Note:

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

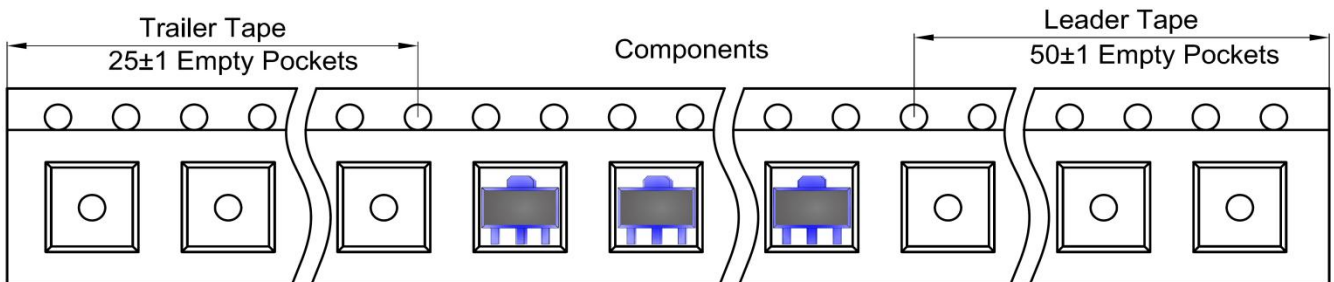
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

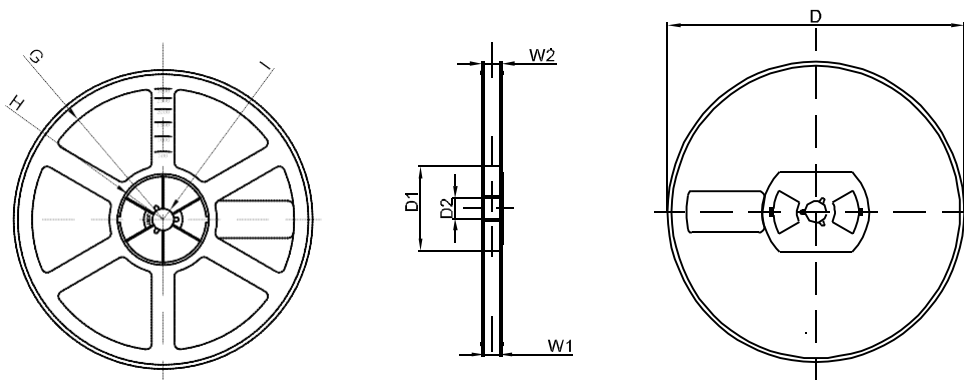


| DIMENSIONS ARE IN MILLIMETER |      |      |      |       |      |      |      |      |      |       |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| TYPE                         | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W     |
| SOT-89                       | 4.85 | 4.45 | 1.85 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |
| TOLERANCE                    | ±0.1 | ±0.1 | ±0.1 | ±0.1  | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1  |

SOT-89 Tape Leader and Trailer



SOT-89 Reel



| DIMENSIONS ARE IN MILLIMETER |      |       |       |     |        |       |       |       |
|------------------------------|------|-------|-------|-----|--------|-------|-------|-------|
| REEL OPTION                  | D    | D1    | D2    | G   | H      | I     | W1    | W2    |
| 7" DIA                       | Ø178 | 54.40 | 13.00 | R78 | R25.60 | R6.50 | 13.20 | 16.50 |
| TOLERANCE                    | ±2   | ±1    | ±1    | ±1  | ±1     | ±1    | ±1    | ±1    |