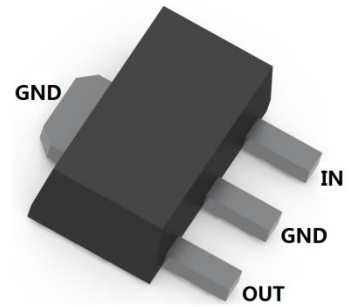


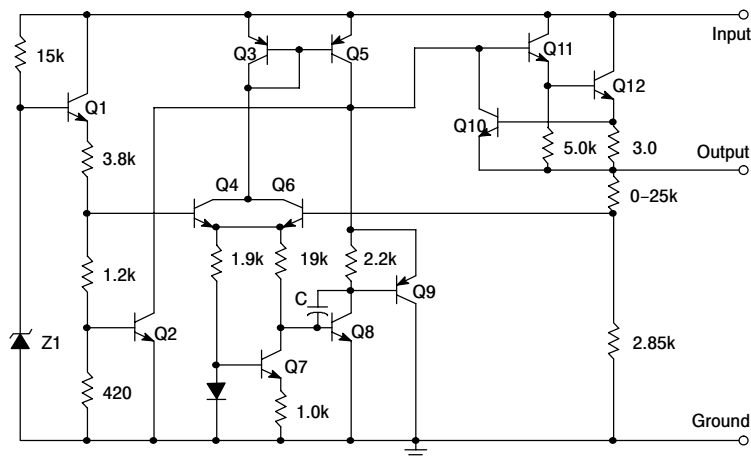
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

FEATURES

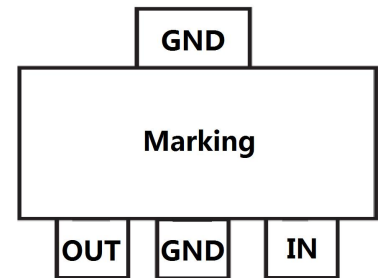
- Maximum Output Current I_o : 0.1 A
- Output Voltage V_o : 8 V
- Surface Mount device



SCHEMATIC DIAGRAM



SOT-89



MECHANICAL DATA

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

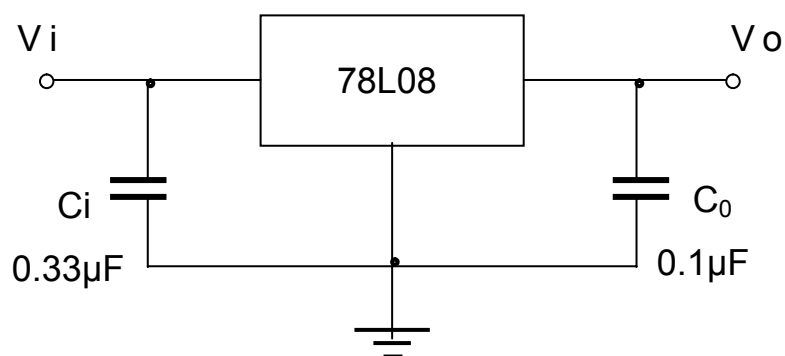
MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|-----------------|--------------------|---------------|
| Input Voltage | V_i | 30 | 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
($V_i=14V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

| Parameter | Symbol | Min | Typ | Max | Unit | Conditions |
|--------------------------|--------------|-----|-----|-----|-------------|--|
| Output voltage | V_o | 7.7 | 8.0 | 8.3 | V | $T_J=+25^\circ C$ |
| | | 7.6 | 8.0 | 8.4 | V | $10.5V \leq V_i \leq 23V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$ |
| | | 7.6 | 8.0 | 8.4 | V | $10.5V \leq V_i \leq 23V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$ |
| Load Regulation | ΔV_o | | 18 | 80 | mV | $I_o=1mA \sim 100mA, T_J=+25^\circ C$ |
| | | | 10 | 40 | mV | $I_o=1mA \sim 40mA, T_J=+25^\circ C$ |
| Line regulation | ΔV_o | | 42 | 175 | mV | $10.5V \leq V_i \leq 23V$ |
| | | | 36 | 125 | mV | $11V \leq V_i \leq 23V, T_J=+25^\circ C$ |
| Quiescent Current | I_q | | 4 | 6 | mA | $T_J=+25^\circ C$ |
| Quiescent Current Change | ΔI_q | | | 1.5 | mA | $11V \leq V_i \leq 23V, 0^\circ C \leq T_J \leq +125^\circ C$ |
| | | | | 0.1 | mA | $1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$ |
| Output Noise Voltage | V_N | | 54 | | $\mu V/V_o$ | $10Hz \leq f \leq 100kHz, T_J=+25^\circ C$ |
| Ripple Rejection | RR | 37 | 46 | | dB | $13V \leq V_i \leq 23V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$ |
| Dropout Voltage | V_d | | 1.7 | | V | $T_J=+25^\circ C$ |

*Pulse Test

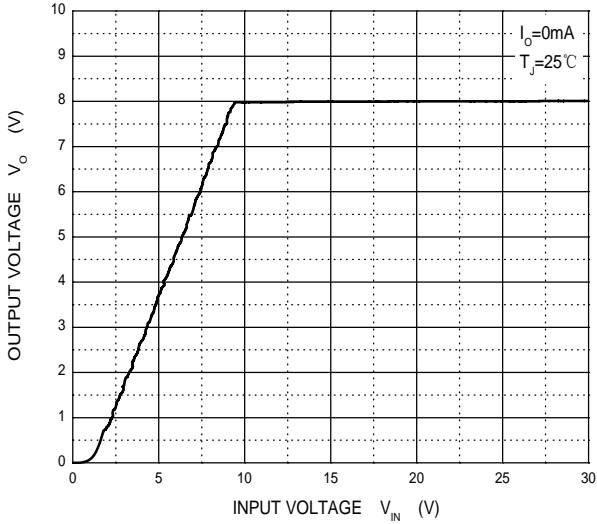
TYPICAL APPLICATION


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

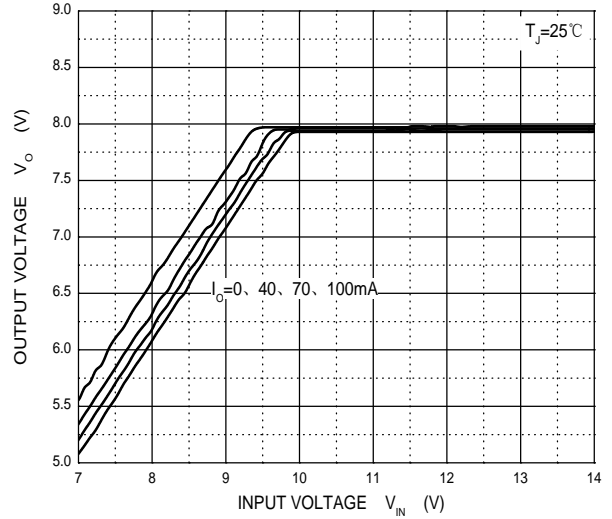
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

Typical Characteristics

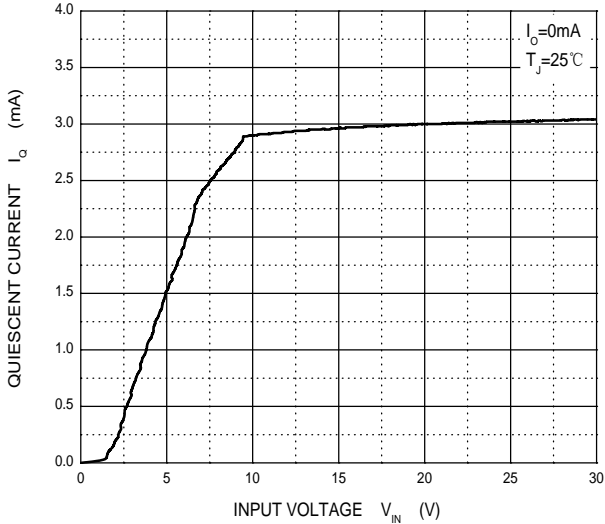
Output Characteristics



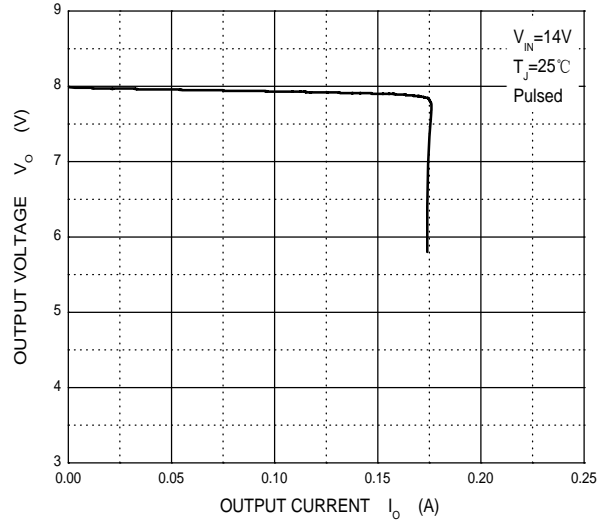
Dropout Characteristics



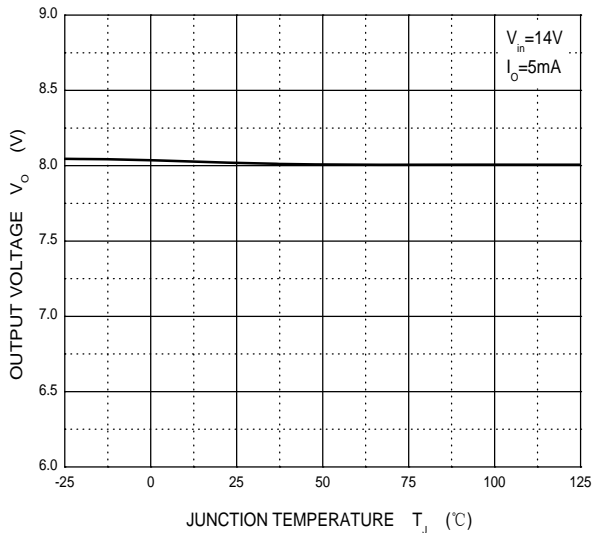
Quiescent Current vs Input Voltage



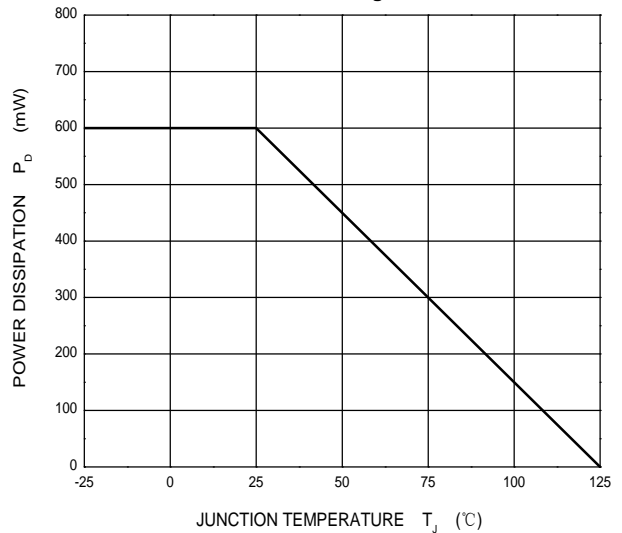
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

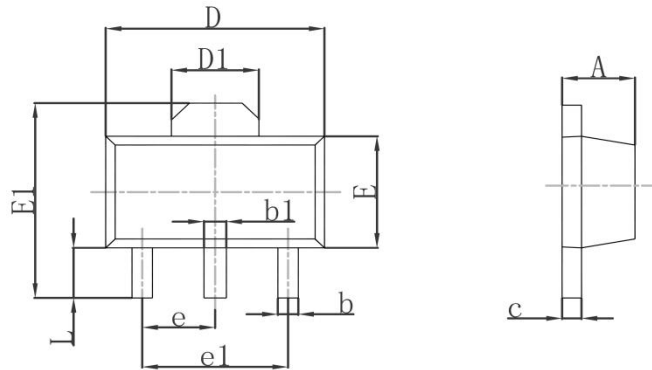


Power Derating Curve



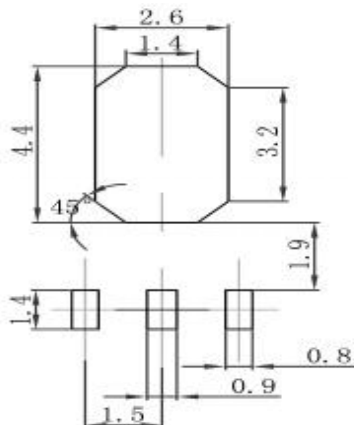
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

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



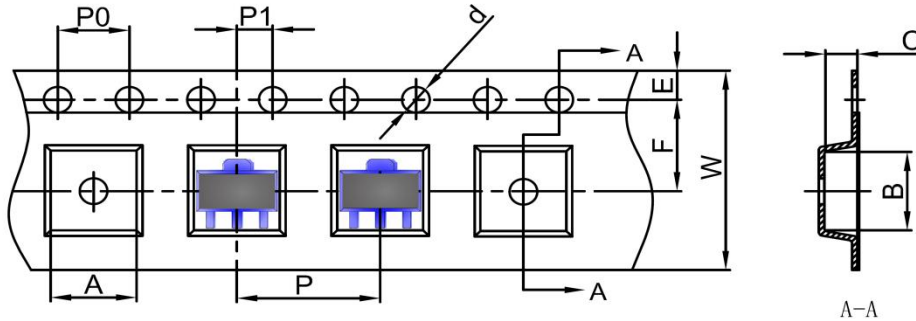
Note:

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

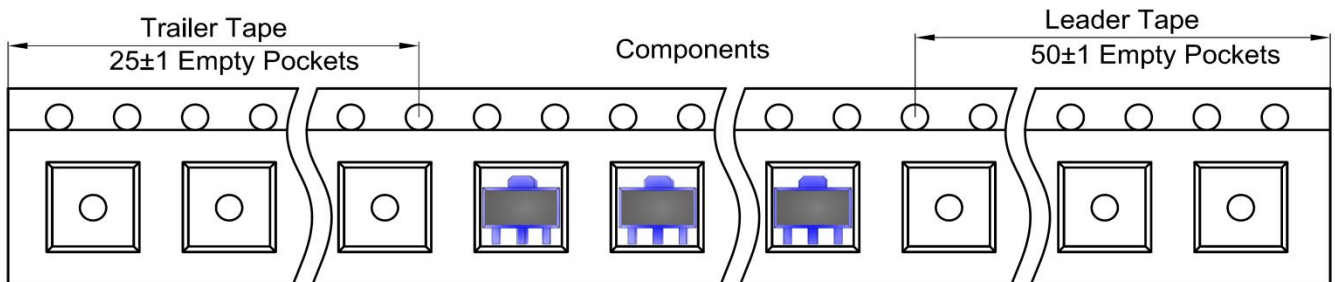
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

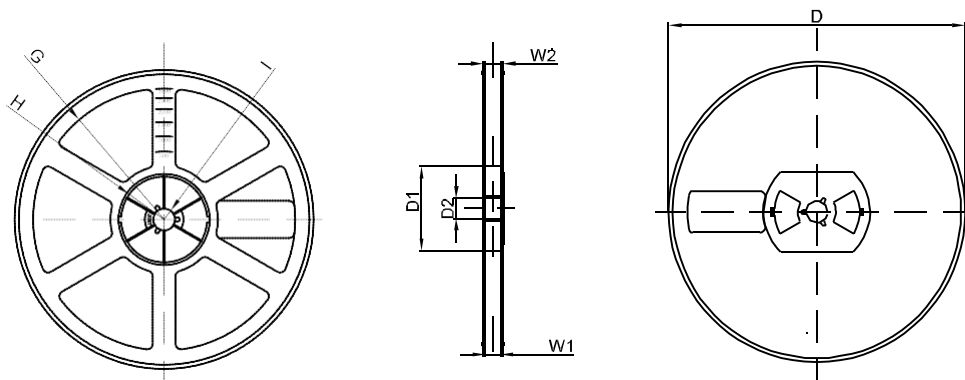


| DIMENSIONS ARE IN MILLIMETER | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| TYPE | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-89 | 4.85 | 4.45 | 1.85 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |
| TOLERANCE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

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