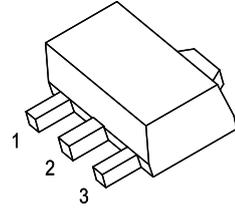


FEATURE

- Maximum output current
 $I_{OM}: 0.1A$
- Output voltage
 $V_O: 5V$
- Continuous total dissipation
 $P_D: 0.6 W (T_a = 25^\circ C)$

SOT-89-3L

- 1. OUT
- 2. GND
- 3. IN



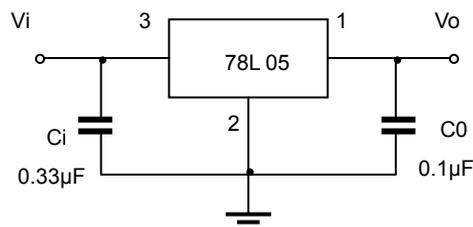
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---------------------------------------------|-----------------|----------|--------------|
| Input Voltage | V_i | 30 | V |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 160 | $^\circ C/W$ |
| Operating Junction Temperature Range | T_{OPR} | -40~+125 | $^\circ C$ |
| Storage Temperature Range | T_{STG} | -65~+150 | $^\circ C$ |

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit | |
|--------------------------|--------------|---------------------------------------------|------------------|------|-----|------|-------------|
| Output voltage | V_o | $7V \leq V_i \leq 20V, I_o = 1mA \sim 40mA$ | 25 $^\circ C$ | 4.80 | 5.0 | 5.20 | V |
| | | | | 4.85 | 5.0 | 5.15 | V |
| | | | | 4.90 | 5.0 | 5.10 | V |
| | | | | 4.95 | 5.0 | 5.05 | V |
| | | $I_o = 1mA \sim 70mA$ | 0-125 $^\circ C$ | 4.75 | 5.0 | 5.25 | V |
| Load Regulation | ΔV_o | $I_o = 1mA \sim 100mA$ | 25 $^\circ C$ | | 15 | 60 | mV |
| | | $I_o = 1mA \sim 40mA$ | 25 $^\circ C$ | | 8 | 30 | mV |
| Line regulation | ΔV_o | $7V \leq V_i \leq 20V$ | 0-125 $^\circ C$ | | 32 | 150 | mV |
| | | $8V \leq V_i \leq 20V$ | 25 $^\circ C$ | | 26 | 100 | mV |
| Quiescent Current | I_q | | 25 $^\circ C$ | | 3.8 | 6 | mA |
| Quiescent Current Change | ΔI_q | $8V \leq V_i \leq 20V$ | 0-125 $^\circ C$ | | | 1.5 | mA |
| | ΔI_q | $1mA \leq I_o \leq 40mA$ | 0-125 $^\circ C$ | | | 0.1 | |
| Output Noise Voltage | V_N | $10Hz \leq f \leq 100KHz$ | 25 $^\circ C$ | | 42 | | $\mu V/V_o$ |
| Ripple Rejection | RR | $8V \leq V_i \leq 20V, f = 120Hz$ | 0-125 | 41 | 49 | | dB |
| Dropout Voltage | V_d | | 25 $^\circ C$ | | 1.7 | | V |

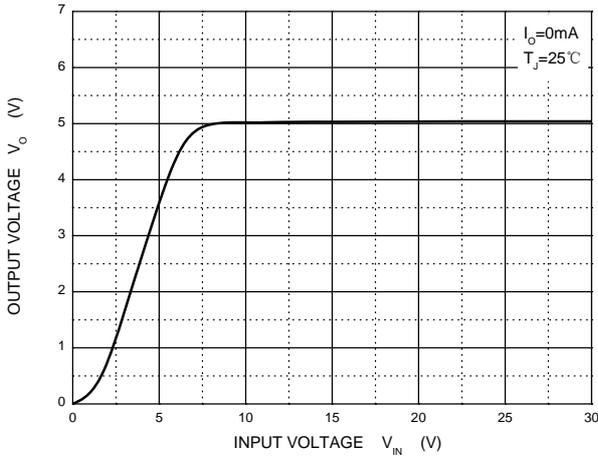
TYPICAL APPLICATION



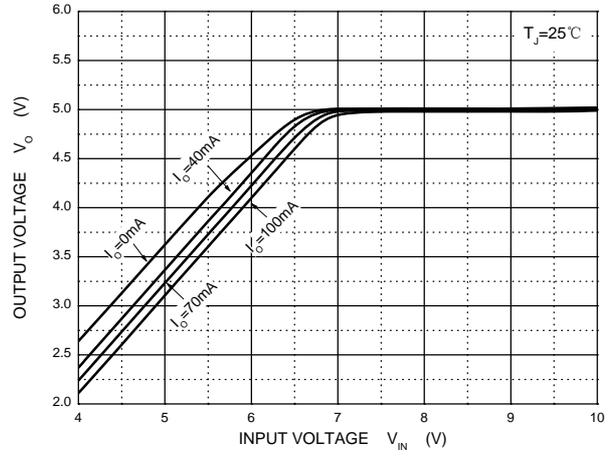
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

RATING AND CHARACTERISTIC CURVES

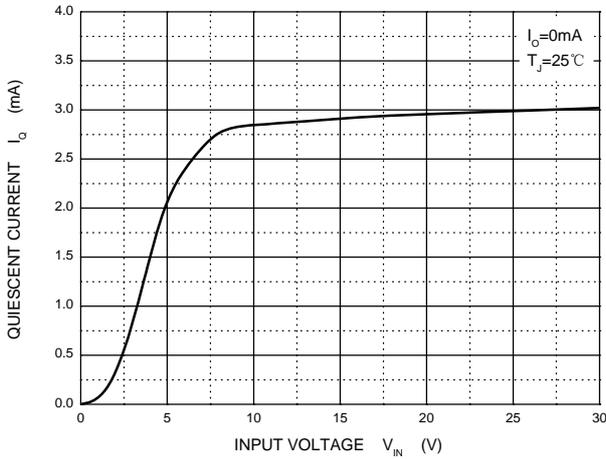
Output Characteristics



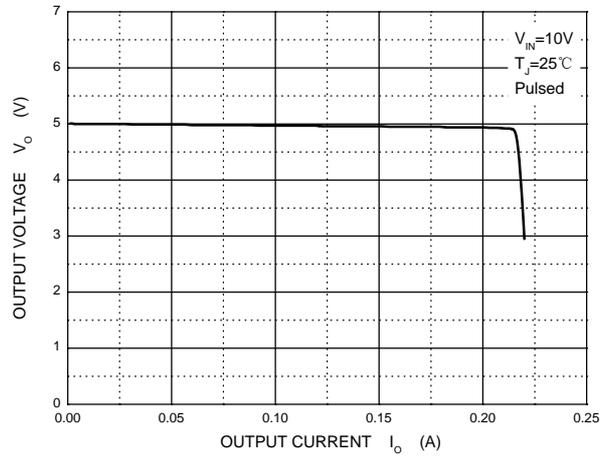
Dropout Characteristics



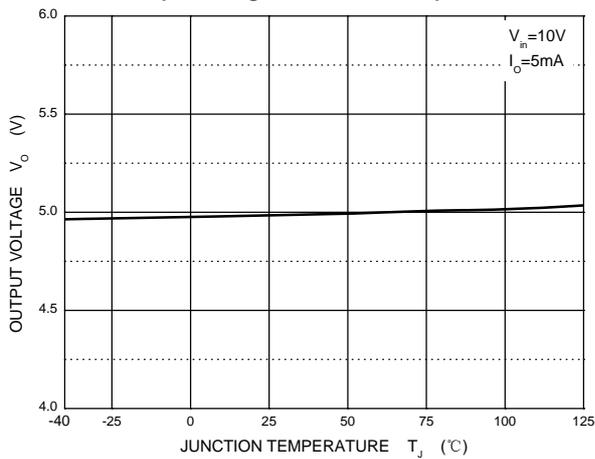
Quiescent Current vs Input Voltage



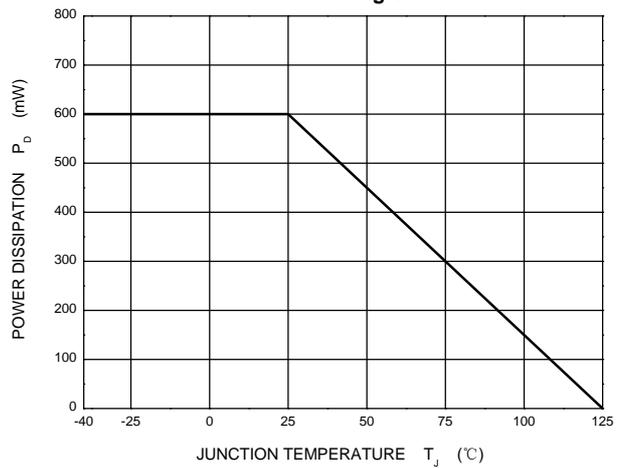
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

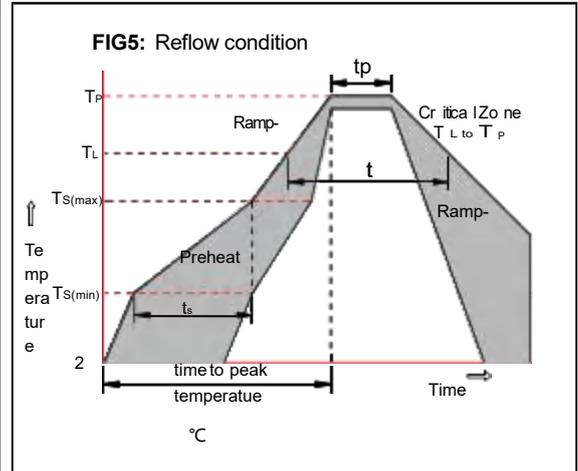


Power Derating Curve



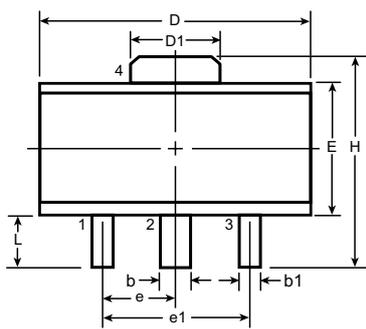
Soldering parameters

| Reflow Condition | | Pb-Free assembly (see as below) |
|---------------------------------------------------------|------------------------------------|------------------------------------|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150 °C |
| | -Temperature Max ($T_{s(max)}$) | +200 °C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp (T_L) to peak) | | 3 °C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3 °C/sec. Max |
| Reflow | -Temperature (T_L) (Liquid us) | +217 °C |
| | -Temperature (t_L) | 60-150 secs. |
| Peak Temp (T_P) | | +260(+0/-5) °C |
| Time within 5 °C of actual Peak Temp (t_p) | | 30 secs. Max |
| Ramp-down Rate | | 6 °C/sec. Max |
| Time 25 °C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260 °C |

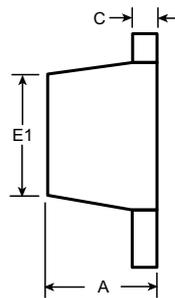


Package Dimensions & Suggested Pad Layout

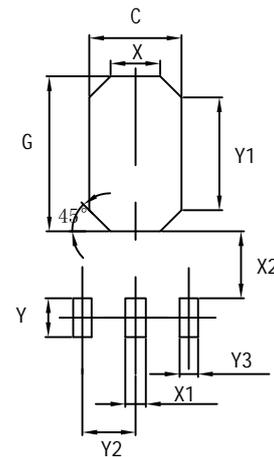
SOT89



Top View



Side View



| Symbol | A | b | b1 | C | D | D1 | E | E1 | e | e1 | H | L | |
|-----------------|-----|------|------|------|-----|------|------|------|-------------------|------|------|------|------|
| Dimensions (mm) | MIN | 1.40 | 0.44 | 0.36 | 0.3 | 4.40 | 1.50 | 2.29 | 2.00 ^f | 1.50 | 3.00 | 3.94 | 0.89 |
| | NOM | - | - | - | - | - | - | - | - | BSC | BSC | - | - |
| | MAX | 1.60 | 0.56 | 0.48 | 0.5 | 4.60 | 1.75 | 2.60 | 2.29 | - | - | 4.25 | 1.20 |

| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.50 |
| G | 3.60 |
| X | 1.40 |
| X1 | 0.90 |
| X2 | 0.90 |
| Y | 1.40 |
| Y1 | 2.60 |
| Y2 | 1.50 |
| Y3 | 0.90 |

Tape & reel specification

| Tape | | Symbol | Dimension (mm) | | |
|-------------------------------------------|-----------|-------------------|----------------|----|-----------|
| <p>SECTION : A-A</p> <p>SECTION : B-B</p> | | P0 | 4.00±0.20 | | |
| | | P1 | 8.00±0.20 | | |
| | | P2 | 2.00±0.20 | | |
| | | D0 | 1.60±0.20 | | |
| | | D1 | 1.60±0.20 | | |
| | | E | 1.75±0.20 | | |
| | | F | 7.50±0.15 | | |
| | | W | 16.00±0.20 | | |
| | | A0 | 6.30±0.20 | | |
| | | B0 | 8.25±0.20 | | |
| | | K0 | 2.60±0.20 | | |
| | | T | 0.23±0.10 | | |
| | | 13" Reel | | D2 | 180.0±5.0 |
| | | | | D3 | 60Min. |
| | | | | D4 | R32.0±2.0 |
| | | | | G | R86.5±2.0 |
| | | | | H | R30.0±2.0 |
| I | 13.0±2.0 | | | | |
| W1 | 13.20±2.0 | | | | |
| W2 | 16.50±2.0 | | | | |
| | | Quantity: 1000PCS | | | |