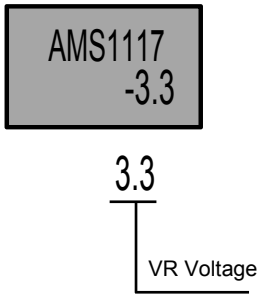
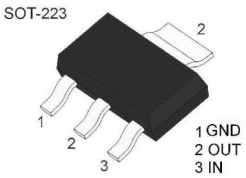
## Features

- Surface Mount Package SOT-223
- Output Current up to 1 A
- Low Dropout Voltage ( 1.2V at 1A Output Current )
- Three Terminal Fixed 5.0V
- Line Regulaion typically at 0.1% max
- Load Regulaion typically at 0.2% max
- Internal Current and Terminal Protection
- Maximum Input Voltage - 15V




## Applications

- Active SCSI Terminators
- Portable/Plan Top/Notebook Computers
- High Efficiency Linear Regulators
- SMPS Post Regulators
- Mother B/D Clock Supplies
- Disk Drives
- Battery Chargers




## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings

| Parameter | Symbol | Maximum | Unit |
|---|---|---|---|
| Power Dissipation | $P_D$ | Internally Limited | W |
| Maximum Input Voltage | $V_{IN}$ | 15 | V |
| Output current | $I_{OUT}$ | 1.0 | A |
| Operating Junction Temperature Range | $T_J$ | -40～+125 | ℃ |
| Storage Temperature | $T_{STG}$ | -65～+150 | ℃ |
| Lead Temperature (Soldering, 10 sec) | $T_{LEAD}$ | 260 | ℃ |
| Minimum ESD Rating (HBM) | $V_{ESD}$ | 2000 | V |

### Thermal Resistance

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Junction-to-ambient | $R_{\theta JA}$ | 165 | ℃/W |
| Junction-to-case | $R_{\theta JC}$ | 15 | ℃/W |

## Electrical Characteristics

(Refer to the test circuits, $T_J$=25℃ $C_O$=10μF unless otherwise specified).

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Output Voltage | $V_{OUT}$ | $I_O$=10mA , $V_{IN}$ =4.8V<br>$I_O$=10mA ~1A, $V_{IN}$ = 4.8V~10V | 3.234<br>3.201 | 3.3<br>3.3 | 3.366<br>3.399 | V<br>V |
| Line Regulation | $\Delta V_{OUT}$ | $I_O$ = 0mA, $V_{IN}$ =4.8V~10V | | | 10 | mV |
| Load Regulation | $\Delta V_{OUT}$ | $V_{IN}$ =5.3V, $I_O$=10mA ~1A | | | 1 | % |
| Operating Input Voltage | $V_{IN}$ | $I_O$ = 100mA | | | 15 | V |
| Quiescent Current | $I_Q$ | $V_{IN}$ ≤ 15V | | | 10 | mA |
| Current Limit | $I_O$ | $V_{IN}$ = 5.3V | 1000 | | | mA |
| Ripple Regulation | RR | $I_O$ = 40mA , f = 120Hz, $T_J$ = 25℃<br>$V_{IN}$ =6.3V, $V_{RIPPLE}$ = $1V_{PP}$ | | 80 | | dB |
| Dropout Voltage | $V_D$ | $I_O$ = 100mA | | | 1.20 | V |
| | | $I_O$ = 500mA | | | 1.25 | V |
| | | $I_O$ = 1000mA | | | 1.30 | V |

## RATING AND CHARACTERISTIC CURVES

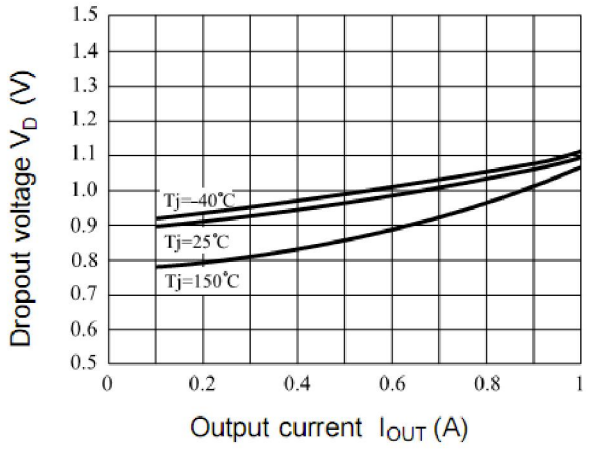



**Figure 2. Dropout voltage vs Output current**

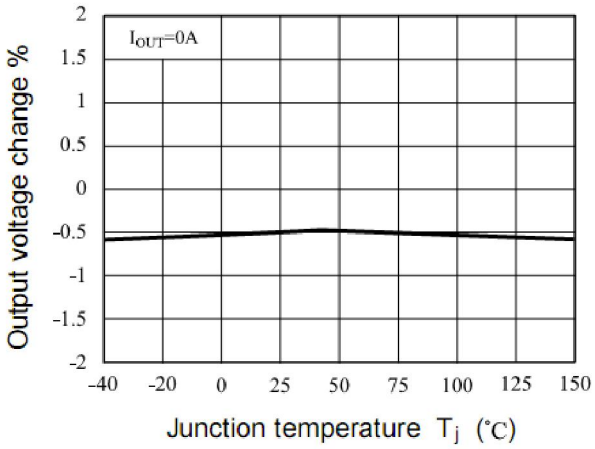



**Figure 3. Output voltage change vs Junction temperature**

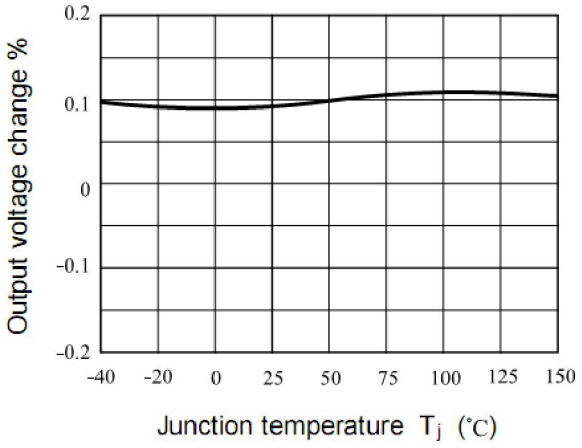



**Figure 4. Line regulation**

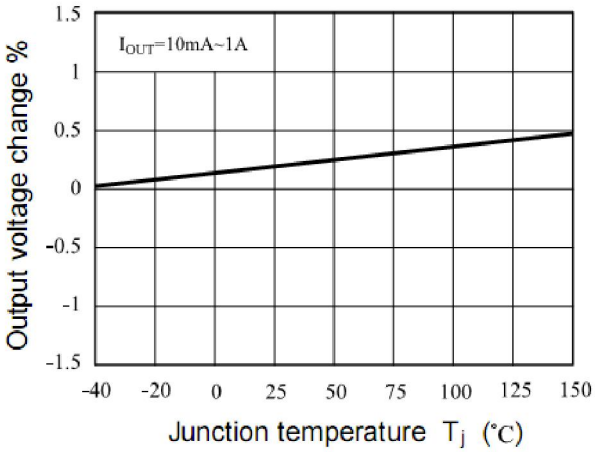



**Figure 5. Load regulation**

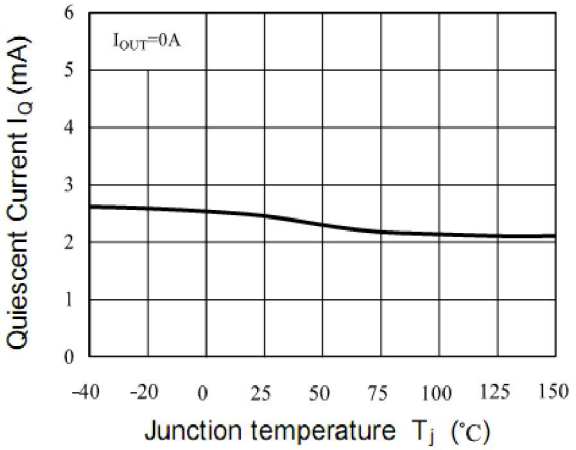



**Figure 6. Quiescent current vs Junction temperature**

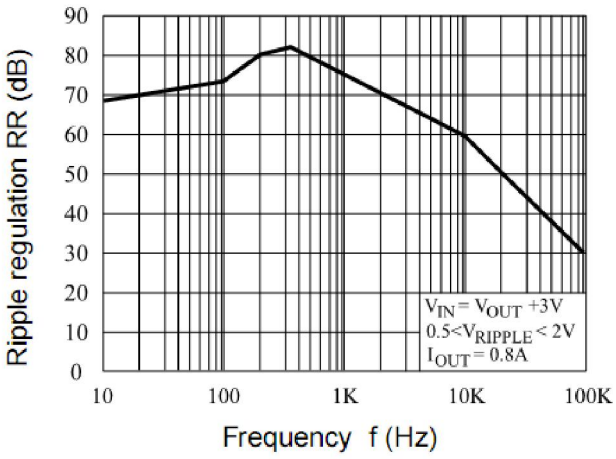
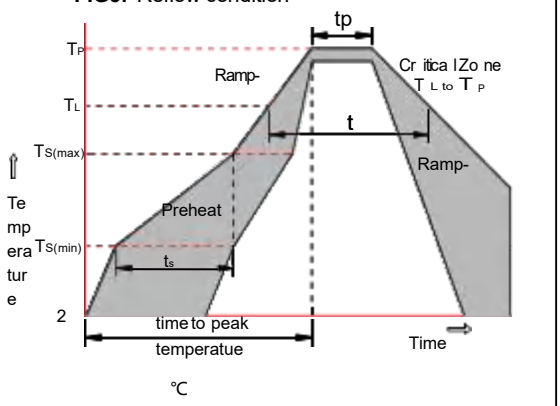



**Figure 7. Ripple regulation vs frequency**

## Soldering parameters

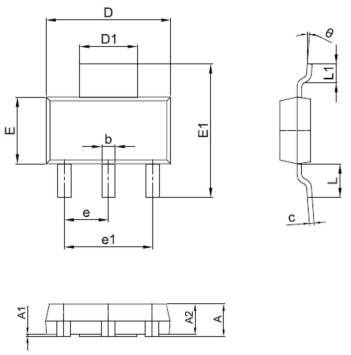
| Reflow Condition | | Pb-Free assembly (see as bellow) |
|---|---|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150℃ |
| | -Temperature Max($T_{s(max)}$) | +200℃ |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp ($T_L$) to peak) | | 3℃/sec. Max |
| $T_{s(max)}$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

**FIG5:** Reflow condition

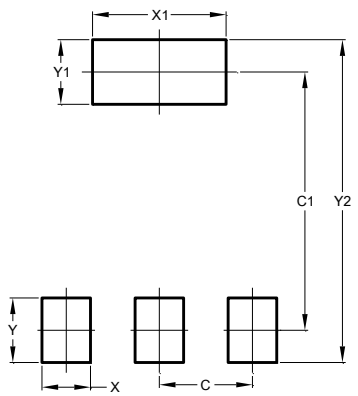



## Package Dimensions & Suggested Pad Layout

**SOT-223**



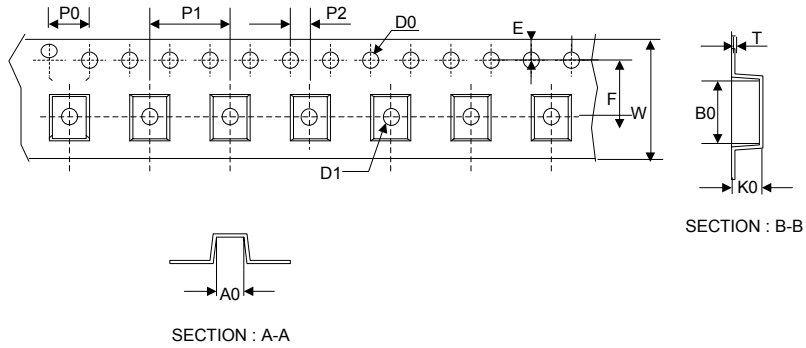

| Symbol | Millimeter | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.50 | 1.80 | 0.059 | 0.071 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A2 | 1.50 | 1.70 | 0.059 | 0.067 |
| b | 0.65 | 0.75 | 0.026 | 0.030 |
| c | 0.20 | 0.30 | 0.008 | 0.012 |
| D | 6.40 | 6.60 | 0.252 | 0.260 |
| D1 | 2.90 | 3.10 | 0.114 | 0.122 |
| E | 3.30 | 3.70 | 0.130 | 0.146 |
| E1 | 6.85 | 7.15 | 0.270 | 0.281 |
| e | 2.20 | 2.40 | 0.087 | 0.094 |
| e1 | 4.40 | 4.80 | 0.173 | 0.189 |
| L | 1.65 | 1.85 | 0.065 | 0.073 |
| L1 | 0.90 | 1.15 | 0.035 | 0.045 |



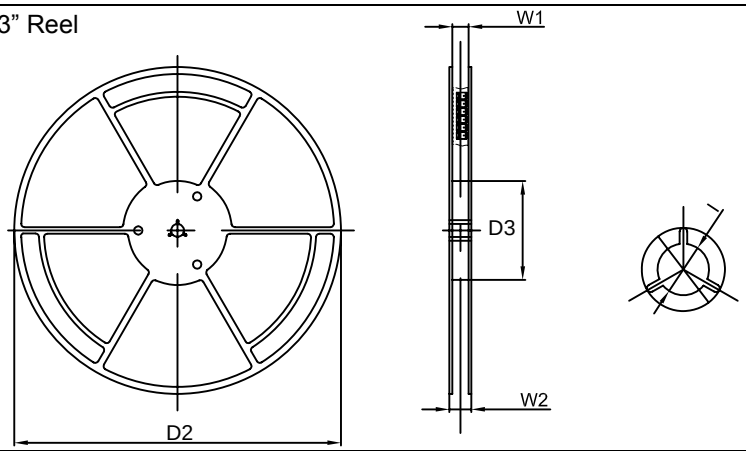

| Dimensions | Value (in mm) |
|---|---|
| C | 2.30 |
| C1 | 6.00 |
| X | 1.20 |
| X1 | 3.60 |
| Y | 1.70 |
| Y1 | 1.70 |
| Y2 | 7.70 |

## Tape & rell specification

Tape




13” Reel




| Symbol | Dimension (mm) |
|---|---|
| P0 | 4.00±0.20 |
| P1 | 8.00±0.20 |
| P2 | 2.00±0.20 |
| D0 | 1.55±0.20 |
| D1 | 1.55±0.20 |
| E | 1.75±0.20 |
| F | 5.50±0.20 |
| W | 12.00±0.20 |
| A0 | 7.40±0.20 |
| B0 | 7.50±0.20 |
| K0 | 2.10±0.20 |
| T | 0.20±0.20 |
| D2 | 330.0±5.0 |
| D3 | 100.0±4.0 |
| W1 | 18.0±5.0 |
| W2 | 22.0±5.0 |
| I | 13.0±2.0 |

Quantity: 2500PCS

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