

Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Excellent clamping capability.
- IEC61000-4-2 ESD 30kV Air, 30kV contact compliance
- Protects one I/O line
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

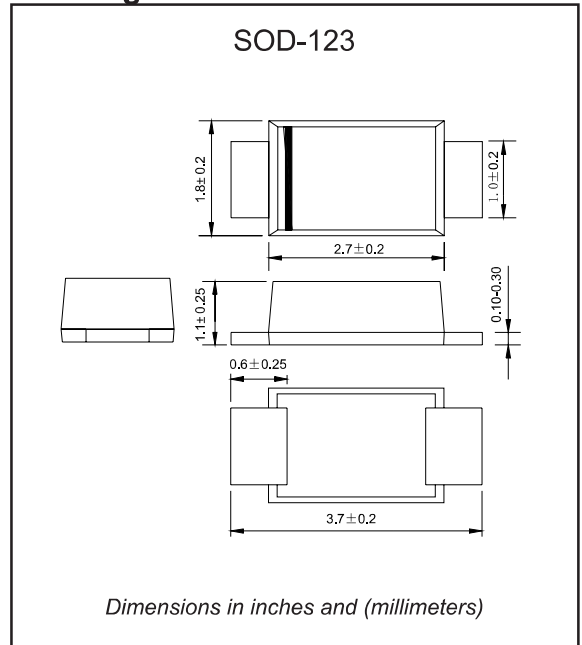
Applications

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Portable devices
- Portable instrumentation
- Handhelds and notebooks
- Digital cameras

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | CONDITIONS | Symbol | Value | UNIT |
|--------------------------------------|--|-----------|-------------|------------------|
| Peak Power Dissipation | Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$ by $10 \times 1000\mu\text{s}$ (Note 1) | P_{PPM} | 200 | W |
| Operating junction temperature range | | T_J | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range | | T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note: 1. Non-repetitive current pulse, per Fig. 2 and derated above $T_A=25^\circ\text{C}$ per Fig. 1

Electrical characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

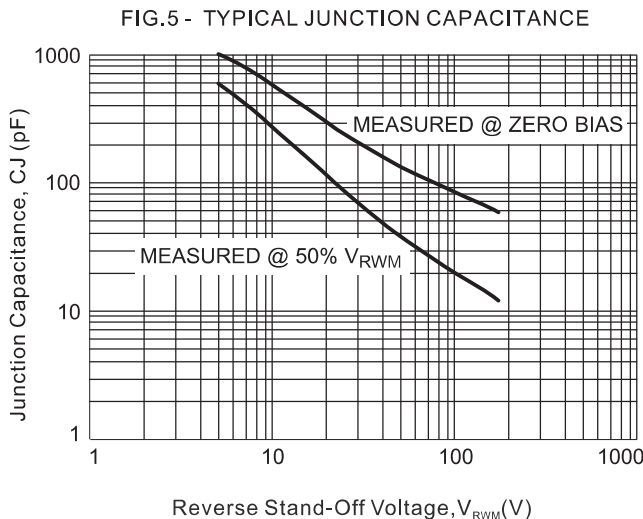
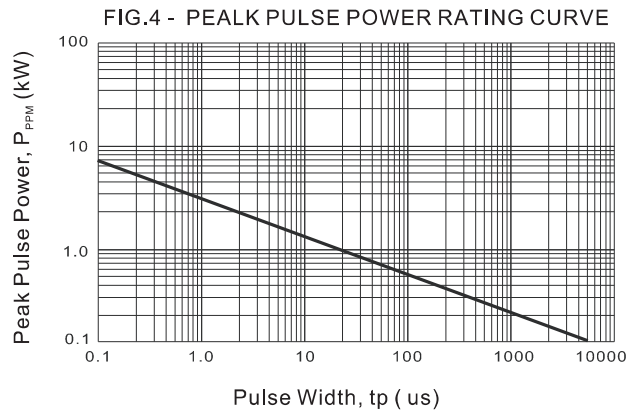
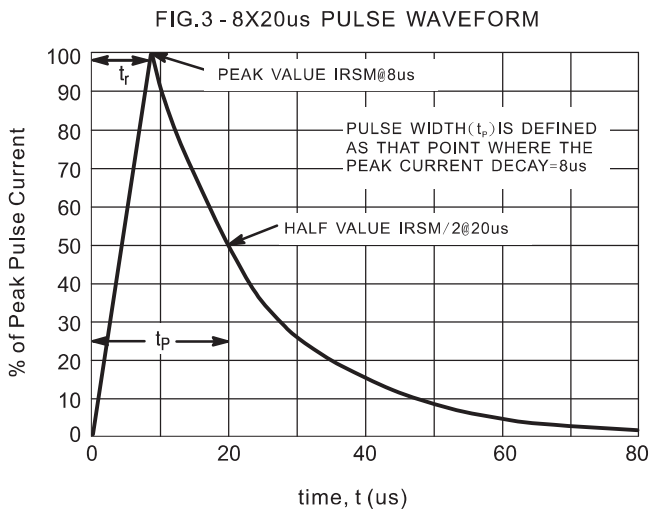
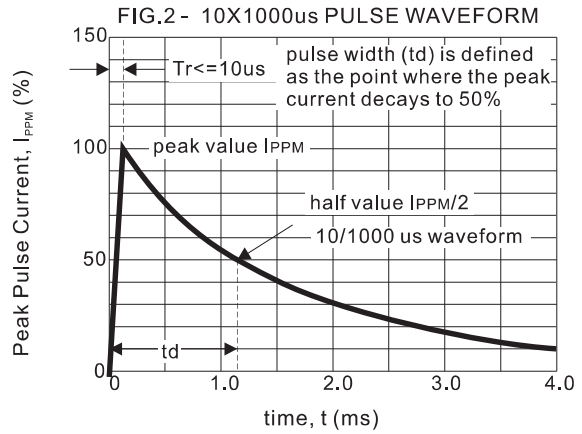
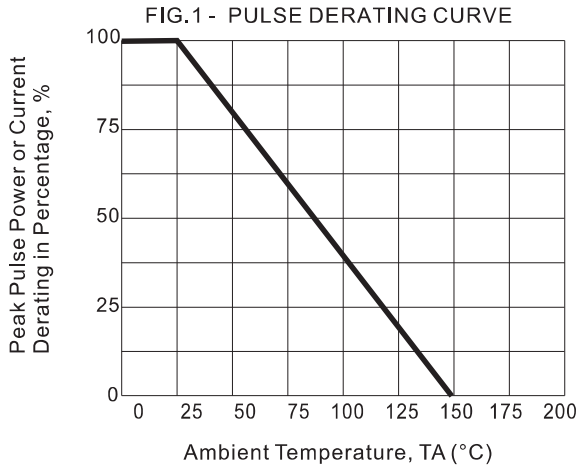
| Part Number | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @ I_T | | Test Current | Maximum Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage @ V_{RWM} |
|-----------------|---------------------|-----|---------------------------|---------------------------|-------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| | UNI | BI | $V_{RWM}(V)$ | $V_{BR\ MIN.}(V)$ | $V_{BR\ MAX.}(V)$ | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ |
| SJD12A(C)05L01 | AE | CAE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 21.8 | 800 |
| SJD12A(C)06L01 | AG | CAG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 19.4 | 800 |
| SJD12A(C)6.5L01 | AK | CAK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 17.9 | 500 |
| SJD12A(C)07L01 | AM | CAM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 16.7 | 200 |
| SJD12A(C)7.5L01 | AP | CAP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 15.5 | 100 |
| SJD12A(C)08L01 | AR | CAR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 14.7 | 50 |
| SJD12A(C)8.5L01 | AT | CAT | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 13.9 | 20 |
| SJD12A(C)09L01 | AV | CAV | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 13.0 | 10 |
| SJD12A(C)10L01 | AX | CAX | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 11.8 | 5 |
| SJD12A(C)11L01 | AZ | CAZ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 11.0 | 3 |
| SJD12A(C)12L01 | BE | CBE | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 10.1 | 1 |
| SJD12A(C)13L01 | BG | CBG | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 9.3 | 1 |
| SJD12A(C)14L01 | BK | CBK | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 8.6 | 1 |
| SJD12A(C)15L01 | BM | CBM | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 8.2 | 1 |
| SJD12A(C)16L01 | BP | CBP | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 7.7 | 1 |
| SJD12A(C)17L01 | BR | CBR | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 7.3 | 1 |
| SJD12A(C)18L01 | BT | CBT | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 6.9 | 1 |
| SJD12A(C)20L01 | BV | CBV | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 6.2 | 1 |
| SJD12A(C)22L01 | BX | CBX | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 5.7 | 1 |
| SJD12A(C)24L01 | BZ | CBZ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 5.2 | 1 |
| SJD12A(C)26L01 | CE | CCE | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 4.8 | 1 |
| SJD12A(C)28L01 | CG | CCG | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 4.4 | 1 |
| SJD12A(C)30L01 | CK | CCK | 30.0 | 33.30 | 36.80 | 1 | 48.4 | 4.2 | 1 |
| SJD12A(C)33L01 | CM | CCM | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 3.8 | 1 |
| SJD12A(C)36L01 | CP | CCP | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 3.5 | 1 |
| SJD12A(C)40L01 | CR | CCR | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 3.1 | 1 |
| SJD12A(C)43L01 | CT | CCT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 2.9 | 1 |

Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

| Part Number | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @ I_T | | Test Current | Maximum Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage @ V_{RWM} |
|-----------------|---------------------|-----|---------------------------|---------------------------|----------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| | UNI | BI | $V_{RWM}(V)$ | $V_{BR\ MIN.}^{(V)}$ | $V_{BR\ MAX.}^{(V)}$ | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ |
| SJD12A(C)45L01 | CV | CCV | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 2.8 | 1 |
| SJD12A(C)48L01 | CX | CCX | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 2.6 | 1 |
| SJD12A(C)51L01 | CZ | CCZ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 2.5 | 1 |
| SJD12A(C)54L01 | DE | CDE | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 2.3 | 1 |
| SJD12A(C)58L01 | DG | CDG | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 2.3 | 1 |
| SJD12A(C)60L01 | DK | CDK | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 2.1 | 1 |
| SJD12A(C)64L01 | DM | CDM | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 2.0 | 1 |
| SJD12A(C)70L01 | DP | CDP | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 1.8 | 1 |
| SJD12A(C)75L01 | DR | CDR | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 1.7 | 1 |
| SJD12A(C)78L01 | DT | CDT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 1.6 | 1 |
| SJD12A(C)85L01 | DV | CDV | 85.0 | 94.40 | 104.00 | 1 | 137.0 | 1.5 | 1 |
| SJD12A(C)90L01 | DX | CDX | 90.0 | 100.00 | 111.00 | 1 | 146.0 | 1.4 | 1 |
| SJD12A(C)100L01 | DZ | CDZ | 100.0 | 111.00 | 123.00 | 1 | 162.0 | 1.3 | 1 |
| SJD12A(C)110L01 | EE | CEE | 110.0 | 122.00 | 135.00 | 1 | 177.0 | 1.2 | 1 |
| SJD12A(C)120L01 | EG | CEG | 120.0 | 133.00 | 147.00 | 1 | 193.0 | 1.1 | 1 |
| SJD12A(C)130L01 | EK | CEK | 130.0 | 144.00 | 159.00 | 1 | 209.0 | 1.0 | 1 |
| SJD12A(C)150L01 | EM | CEM | 150.0 | 167.00 | 185.00 | 1 | 243.0 | 0.8 | 1 |
| SJD12A(C)160L01 | EP | CEP | 160.0 | 178.00 | 197.00 | 1 | 259.0 | 0.8 | 1 |
| SJD12A(C)170L01 | ER | CER | 170.0 | 189.00 | 209.00 | 1 | 275.0 | 0.8 | 1 |

- Notes:
3. Suffix C denotes Bi-directional device.
 4. V_{BR} measured with I_T current pulse = 300 μ s
 5. For Bi-Directional devices having V_{RWM} of 10V and under, the I_R is doubled.

Rating and characteristic curves



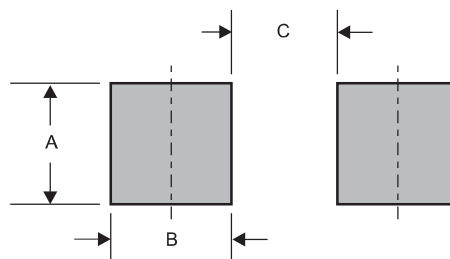
Pinning information

| Pin | Simplified outline | Symbol |
|---|--------------------|--------|
| Uni-Directional Pin1 cathode Pin2 anode | | |
| Bi-Directional | | |

Marking

| Type number | Example |
|-----------------|---------|
| Uni-Directional | |
| Bi-Directional | |

Suggested solder pad layout

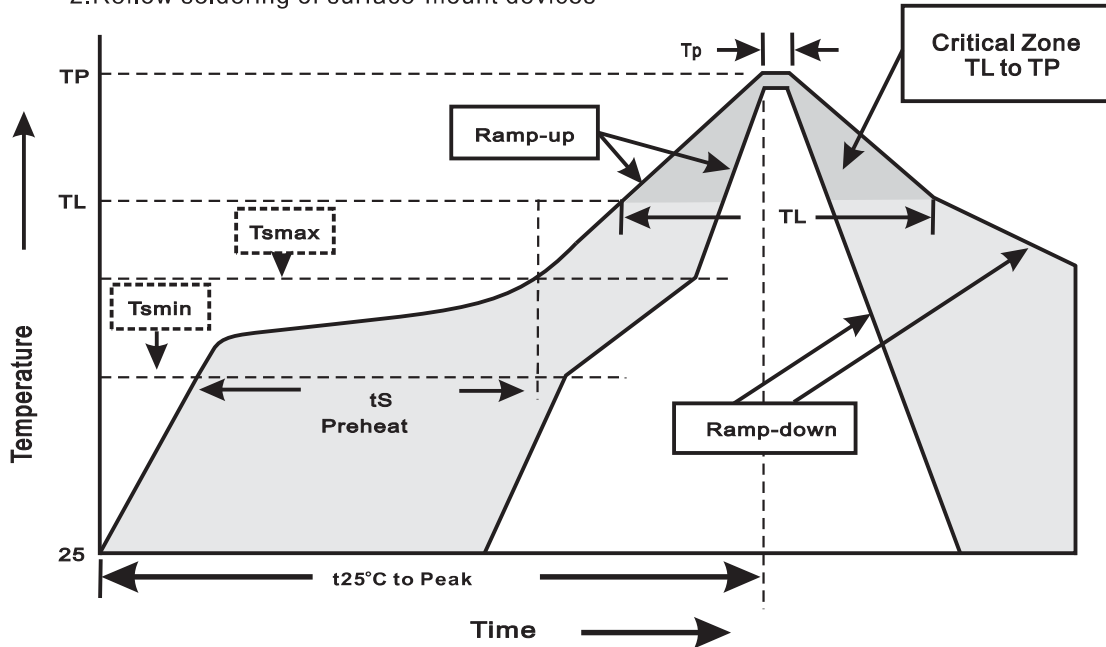


Dimensions in inches and (millimeters)

| PACKAGE | A | B | C |
|---------|--------------|--------------|--------------|
| SOD-123 | 0.044 (1.10) | 0.040 (1.00) | 0.079 (2.00) |

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

| Profile Feature | Soldering Condition |
|---|-----------------------------|
| Average ramp-up rate(T _L to T _P) | <3°C/sec |
| Preheat -Temperature Min(T _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s) | 150°C 200°C 60~120sec |
| T _{smmax} to T _L -Ramp-upRate | <3°C/sec |
| Time maintained above: -Temperature(T _L) -Time(t _L) | 217°C 60~260sec |
| Peak Temperature(T _P) | 255°C-0/+5°C |
| Time within 5°C of actual Peak Temperature(t _p) | 10~30sec |
| Ramp-down Rate | <6°C/sec |
| Time 25°C to Peak Temperature | <6minutes |

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