

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

The SJD32AXXL01-J series are designed to protect voltage sensitive components from high voltage, high energy transients. Excellent clamping capability, high surge capability, low zener impedance and fast response time. Because of its small size, it is ideal for use in cellular phones, portable device, business machines, power supplies and many other industrial/consumer applications.

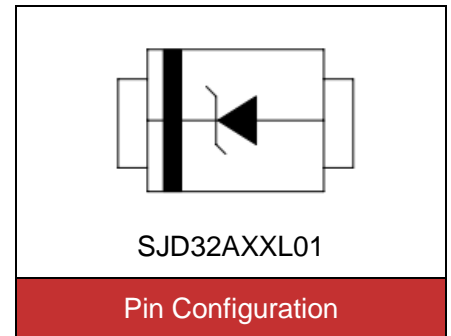


Contact : $\pm 30\text{kV}$
Air : $\pm 30\text{kV}$



Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD-323 surface mount package
- Protects one I/O line
- Peak power dissipation of 1000W under 8/20 μs waveform
- Working voltage: 5V~58V
- Low leakage current
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270 $^{\circ}\text{C}$
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020



Applications

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

Maximum Ratings

| Rating | Symbol | Value | Unit |
|---|----------------|----------|--------------------|
| Peak pulse power ($t_p=10/1000\mu\text{s}$ waveform) | P_{PP} | 130 | W |
| Peak pulse power ($t_p=8/20\mu\text{s}$ waveform) | P_{PP} | 1500 | W |
| ESD voltage (Contact discharge) | V_{ESD} | ± 30 | kV |
| ESD voltage (Air discharge) | | ± 30 | |
| Storage & operating temperature range | T_{STG}, T_J | -55~+150 | $^{\circ}\text{C}$ |

Electrical Characteristics ($T_J=25^{\circ}\text{C}$)

| Part Number | Type ① | Device Marking Code | Reverse Stand-Off Voltage | Breakdown Voltage @ I_T | | Test Current | Maximum Clamping Voltage @ I_{PP} ① | Peak Pulse Current ① | Maximum Clamping Voltage @ I_{PP} ② | Peak Pulse Current ② | Reverse Leakage @ V_{RWM} |
|---------------|--------|---------------------|---------------------------|---------------------------|---------------------|------------------|---------------------------------------|----------------------|---------------------------------------|----------------------|-----------------------------|
| | | | $V_{RWM}(V)$ | V_{BR} MIN.(V) | V_{BR} MAX.(V) | $I_T(\text{mA})$ | $V_C(V)$ | $I_{PP}(A)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ |
| SJD32A05L01-J | J | B05 | 5.0 | 6.4 | 7.0 | 10 | 15.0 | 100 | 9.2 | 14.17 | 800 |
| SJD32A07L01-J | J | B07 | 7.0 | 7.78 | 8.60 | 10 | 18.0 | 90 | 12.0 | 10.86 | 200 |
| SJD32A10L01-J | J | B10 | 10.0 | 11.10 | 12.30 | 1 | 24.0 | 65 | 17.0 | 7.67 | 5 |
| SJD32A12L01-J | J | B12 | 12.0 | 13.30 | 14.70 | 1 | 25.0 | 60 | 19.9 | 6.57 | 1 |
| SJD32A15L01-J | J | B15 | 15.0 | 16.70 | 18.50 | 1 | 30.0 | 50 | 24.4 | 5.33 | 1 |
| SJD32A18L01-J | J | B18 | 18.0 | 20.00 | 22.10 | 1 | 35.0 | 45 | 29.2 | 4.49 | 1 |
| SJD32A24L01-J | J | B24 | 24.0 | 26.70 | 29.50 | 1 | 40.0 | 40 | 38.9 | 3.38 | 1 |
| SJD32A36L01-J | J | B36 | 36.0 | 40.00 | 44.20 | 1 | 70.0 | 22 | 58.1 | 2.28 | 1 |
| SJD32A43L01-J | J | B43 | 43.0 | 47.80 | 52.80 | 1 | 75.0 | 20 | 69.4 | 1.89 | 1 |
| SJD32A58L01-J | J | B58 | 58.0 | 64.40 | 71.20 | 1 | 110 | 15 | 93.6 | 1.43 | 1 |

Notes:1. Specific code by request

2. Maximum Clamping Voltage and Peak Pulse Current at 8/20us waveform.

3..Maximum Clamping Voltage and Peak Pulse Current at 10/1000us waveform.

Typical Characteristics Curves

Figure 1. Peak Pulse Power Rating Curve

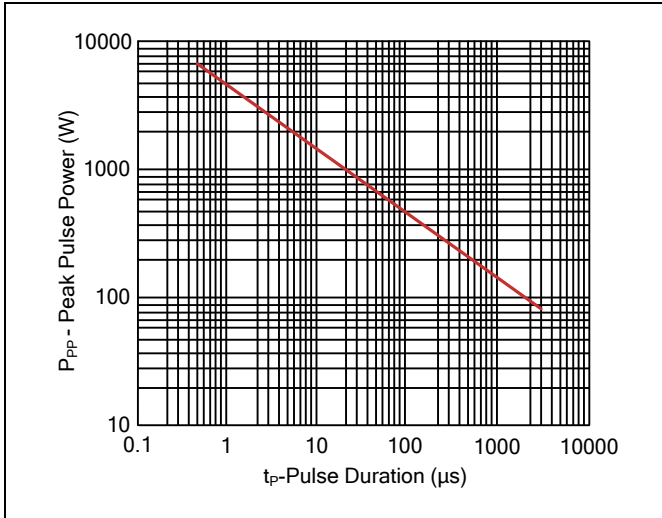


Figure 2. 10/1000 μs Pulse Waveforms

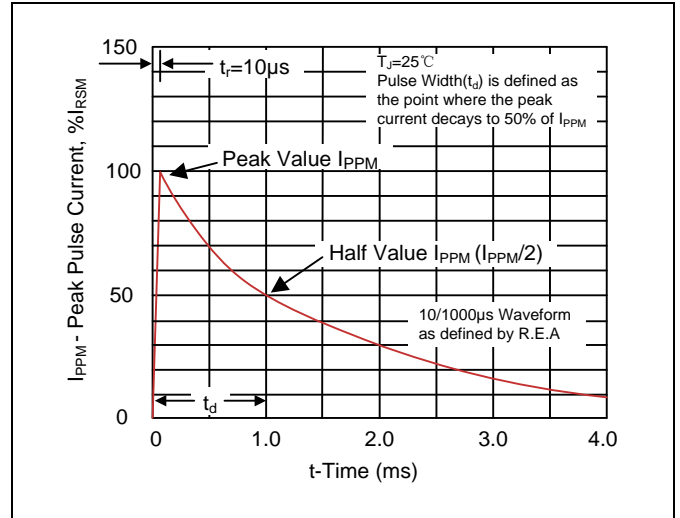


Figure 3. 8/20 μs Pulse Waveforms

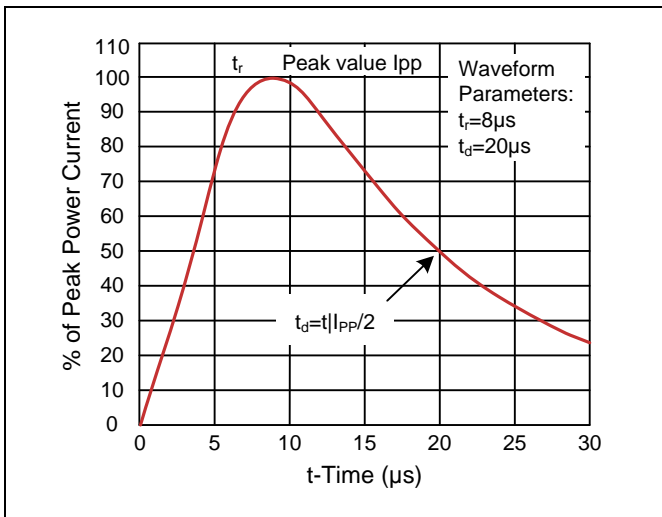
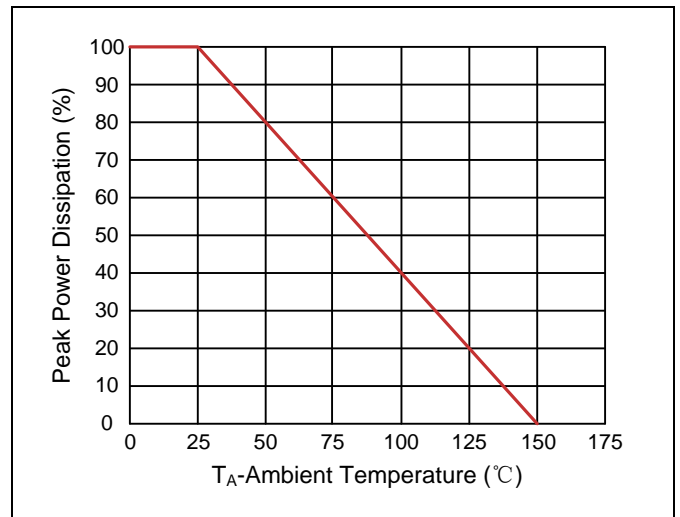
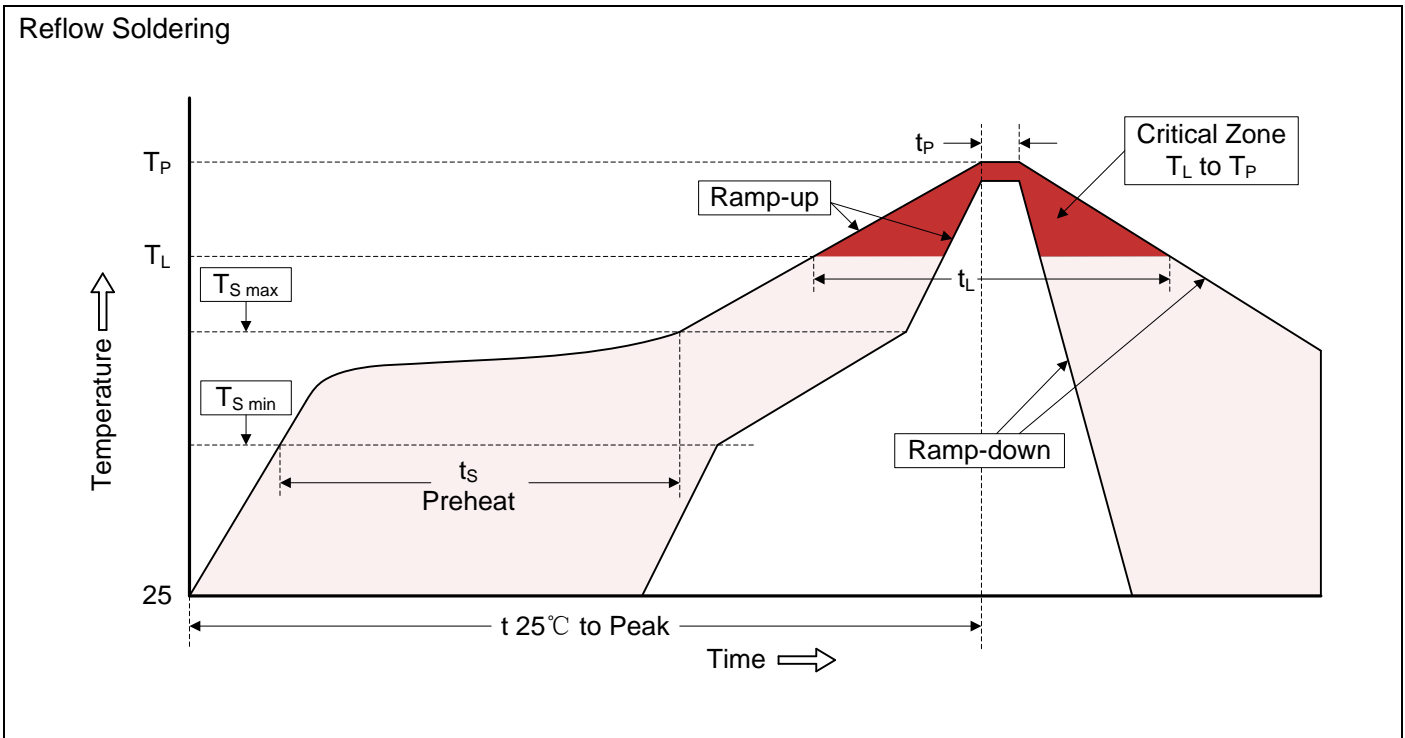


Figure 4. Power Derating Curve



Recommended Soldering Conditions



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s) | 150°C 200°C 60-180 seconds |
| $T_{S\ max}$ to T_L -Ramp-up Rate | 3°C/second max. |
| Time maintained above: -Temperature (T_L) -Time (t_L) | 217°C 60-150 seconds |
| Peak Temperature (T_P) | 260°C |
| Time within 5°C of actual Peak Temperature (t_P) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

Dimensions (SOD-323J)

| | Dimension | | | | |
|---|-----------|-------------|-------|--------|-------|
| | Symbol | Millimeters | | Inches | |
| | | Min. | Max. | Min. | Max. |
| | A | 0.80 | 1.10 | 0.031 | 0.043 |
| B | - | 0.20 | - | 0.008 | |
| C | 0.20 | - | 0.008 | - | |
| D | 0.08 | 0.20 | 0.003 | 0.008 | |
| E | 1.15 | 1.50 | 0.045 | 0.060 | |
| F | - | 0.45 | - | 0.018 | |
| G | 1.40 | 1.80 | 0.055 | 0.071 | |
| H | 2.40 | 2.85 | 0.094 | 0.112 | |

Packaging

| <p>Tape</p> | Symbol | Dimension (mm) |
|--------------------|-------------------|----------------|
| | W | 8.00±0.30 |
| | P0 | 4.00±0.10 |
| | P1 | 4.00±0.10 |
| | P2 | 2.00±0.10 |
| | D0 | Φ1.55±0.10 |
| | D1 | Φ1.00±0.05 |
| | E | 1.75±0.10 |
| | F | 3.50±0.10 |
| | A | 1.48±0.10 |
| | A0 | 0.80±0.10 |
| | B | 3.00±0.10 |
| | B0 | 1.80±0.10 |
| | K | 1.05±0.10 |
| t | 0.25±0.05 | |
| <p>Reel</p> | D | Φ178.0±2.0 |
| | D2 | Φ13.0 |
| | W1 | 9.5 |
| | Quantity: 3000PCS | |