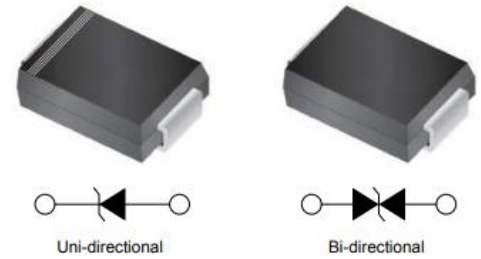


SMD Type 3000 W

■ Features

1. Glass passivated chip
2. 3000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
3. Excellent clamping capability
4. Very fast response time
5. Low clamping voltage
6. Low leakage current
7. Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C
8. JESD22-A114-B ESD Voltage: HBM 15KV
9. JEDEC EIA/JESD22-C101F ESD Voltage: CDM 500V
10. JEDEC EIA/JESD22-A115 ESD Voltage: MM 400V
11. ESD-immunity acc. IEC 61000-4-2 \pm 30kV(contact), \pm 30kV(air)
12. Halogen free and RoHS compliant



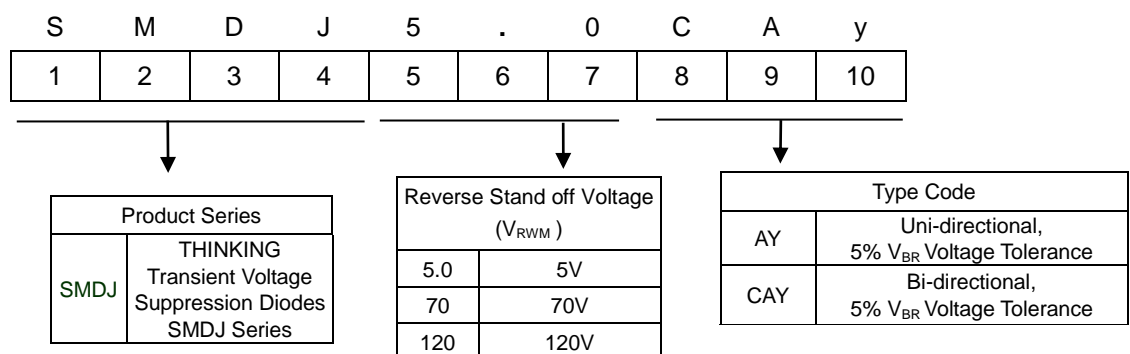
■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

■ Mechanical Data

1. Case: Molded plastic, SMC / DO-214AB
2. Epoxy: UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

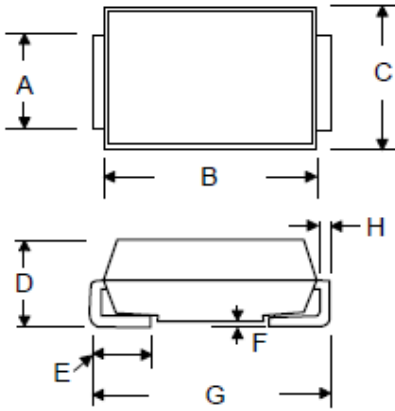


TVS Diode: SMDJ Series

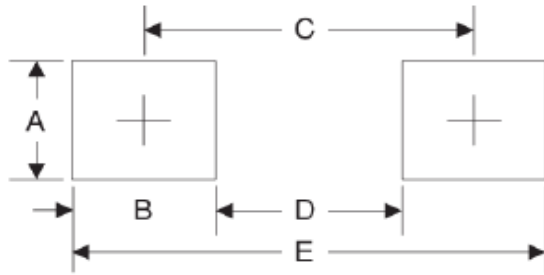
SMD Type 3000 W



Structures and Dimensions



| Symbol | Dimensions in millimeters | |
|--------|---------------------------|------|
| | Min | Max |
| A | 2.90 | 3.20 |
| B | 6.60 | 7.11 |
| C | 5.59 | 6.22 |
| D | 2.06 | 2.62 |
| E | 0.76 | 1.52 |
| F | - | 0.20 |
| G | 7.75 | 8.13 |
| H | 0.15 | 0.31 |



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 3.30 | 0.130 |
| B | 2.50 | 0.098 |
| C | 6.80 | 0.268 |
| D | 4.40 | 0.173 |
| E | 9.40 | 0.370 |

Maximum Rating ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|----------------|--------------------|
| Peak power dissipation with a 10/1000 μs waveform (Note 1,2) | P_{PPM} | 3000 | W |
| Peak pulse current with 10/1000 μs waveform (Note 1) | I_{PPM} | See next table | A |
| Peak forward surge current, 8.3 ms single half sine-wave (Note 3) | I_{FSM} | 300 | A |
| Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$ | P_D | 6.5 | W |
| Typical thermal resistance junction to ambient | $R_{\theta JA}$ | 75 | $^\circ\text{C/W}$ |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 15 | $^\circ\text{C/W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on 8.0 x 8.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

TVS Diode: SMDJ Series

SMD Type 3000 W



■ Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part No. (Uni) | Part No. (Bi) | Reverse Stand off Voltage V _{RWM} (V) | Breakage Voltage V _{BR} @ I _T | | Test Current I _T (mA) | Maximum Clamping Voltage V _C @ I _{pp} V _C (V) | Maximum Peak Pulse Current I _{pp} (A) | Maximum Reverse Leakage I _R @ V _{RWM} I _R (μA) | Marking Code | |
|-------------------|------------------|---|---|----------|--|--|--|---|-----------------|-----|
| | | | Min(V) | Max(V) | | | | | Uni | Bi |
| SMDJ5.0AY | SMDJ5.0CAY | 5 | 6.4 | 7.00 | 10 | 9.2 | 326.09 | 800 | RDE | DDE |
| SMDJ6.0AY | SMDJ6.0CAY | 6 | 6.7 | 7.37 | 10 | 10.3 | 291.26 | 800 | RDG | DDG |
| SMDJ6.5AY | SMDJ6.5CAY | 6.5 | 7.2 | 7.98 | 10 | 11.2 | 267.86 | 500 | RDK | DDK |
| SMDJ7.0AY | SMDJ7.0CAY | 7 | 7.8 | 8.60 | 10 | 12 | 250.00 | 200 | PDM | DDM |
| SMDJ7.5AY | SMDJ7.5CAY | 7.5 | 8.3 | 9.21 | 1 | 12.9 | 232.56 | 100 | PDP | DDP |
| SMDJ8.0AY | SMDJ8.0CAY | 8 | 8.9 | 9.83 | 1 | 13.6 | 220.59 | 50 | PDR | DDR |
| SMDJ8.5AY | SMDJ8.5CAY | 8.5 | 9.4 | 10.40 | 1 | 14.4 | 208.33 | 20 | PDT | DDT |
| SMDJ9.0AY | SMDJ9.0CAY | 9 | 10 | 11.10 | 1 | 15.4 | 194.81 | 10 | PDV | DDV |
| SMDJ10AY | SMDJ10CAY | 10 | 11.1 | 12.30 | 1 | 17 | 176.47 | 5 | PDX | DDX |
| SMDJ11AY | SMDJ11CAY | 11 | 12.2 | 13.50 | 1 | 18.2 | 164.84 | 2 | PDZ | DDZ |
| SMDJ12AY | SMDJ12CAY | 12 | 13.3 | 14.70 | 1 | 19.9 | 150.75 | 2 | PEE | DEE |
| SMDJ13AY | SMDJ13CAY | 13 | 14.4 | 15.90 | 1 | 21.5 | 139.53 | 2 | PEG | DEG |
| SMDJ14AY | SMDJ14CAY | 14 | 15.6 | 17.20 | 1 | 23.2 | 129.31 | 2 | PEK | DEK |
| SMDJ15AY | SMDJ15CAY | 15 | 16.7 | 18.50 | 1 | 24.4 | 122.95 | 2 | PEM | DEM |
| SMDJ16AY | SMDJ16CAY | 16 | 17.8 | 19.70 | 1 | 26 | 115.38 | 2 | PEP | DEP |
| SMDJ17AY | SMDJ17CAY | 17 | 18.9 | 20.90 | 1 | 27.6 | 108.70 | 2 | PER | DER |
| SMDJ18AY | SMDJ18CAY | 18 | 20 | 22.10 | 1 | 29.2 | 102.74 | 2 | PET | DET |
| SMDJ19AY | SMDJ19CAY | 19 | 21.1 | 23.30 | 1 | 30.8 | 97.47 | 2 | PEW | DEW |
| SMDJ20AY | SMDJ20CAY | 20 | 22.2 | 24.50 | 1 | 32.4 | 92.59 | 2 | PEV | DEV |
| SMDJ22AY | SMDJ22CAY | 22 | 24.4 | 26.90 | 1 | 35.5 | 84.51 | 2 | PEX | DEX |
| SMDJ24AY | SMDJ24CAY | 24 | 26.7 | 29.50 | 1 | 38.9 | 77.12 | 2 | PEZ | DEZ |
| SMDJ26AY | SMDJ26CAY | 26 | 28.9 | 31.90 | 1 | 42.1 | 71.26 | 2 | PFE | DFE |
| SMDJ28AY | SMDJ28CAY | 28 | 31.1 | 34.40 | 1 | 45.4 | 66.08 | 2 | PFG | DFG |
| SMDJ30AY | SMDJ30CAY | 30 | 33.3 | 36.80 | 1 | 48.4 | 61.98 | 2 | PFK | DFK |
| SMDJ33AY | SMDJ33CAY | 33 | 36.7 | 40.60 | 1 | 53.3 | 56.29 | 2 | PFM | DFM |
| SMDJ36AY | SMDJ36CAY | 36 | 40 | 44.20 | 1 | 58.1 | 51.64 | 2 | PFP | DFP |
| SMDJ40AY | SMDJ40CAY | 40 | 44.4 | 49.10 | 1 | 64.5 | 46.51 | 2 | PFR | DFR |
| SMDJ43AY | SMDJ43CAY | 43 | 47.8 | 52.80 | 1 | 69.4 | 43.23 | 2 | PFT | DFT |
| SMDJ45AY | SMDJ45CAY | 45 | 50 | 55.30 | 1 | 72.7 | 41.27 | 2 | PFV | DFV |
| SMDJ48AY | SMDJ48CAY | 48 | 53.3 | 58.90 | 1 | 77.4 | 38.76 | 2 | PFX | DFX |

TVS Diode: SMDJ Series

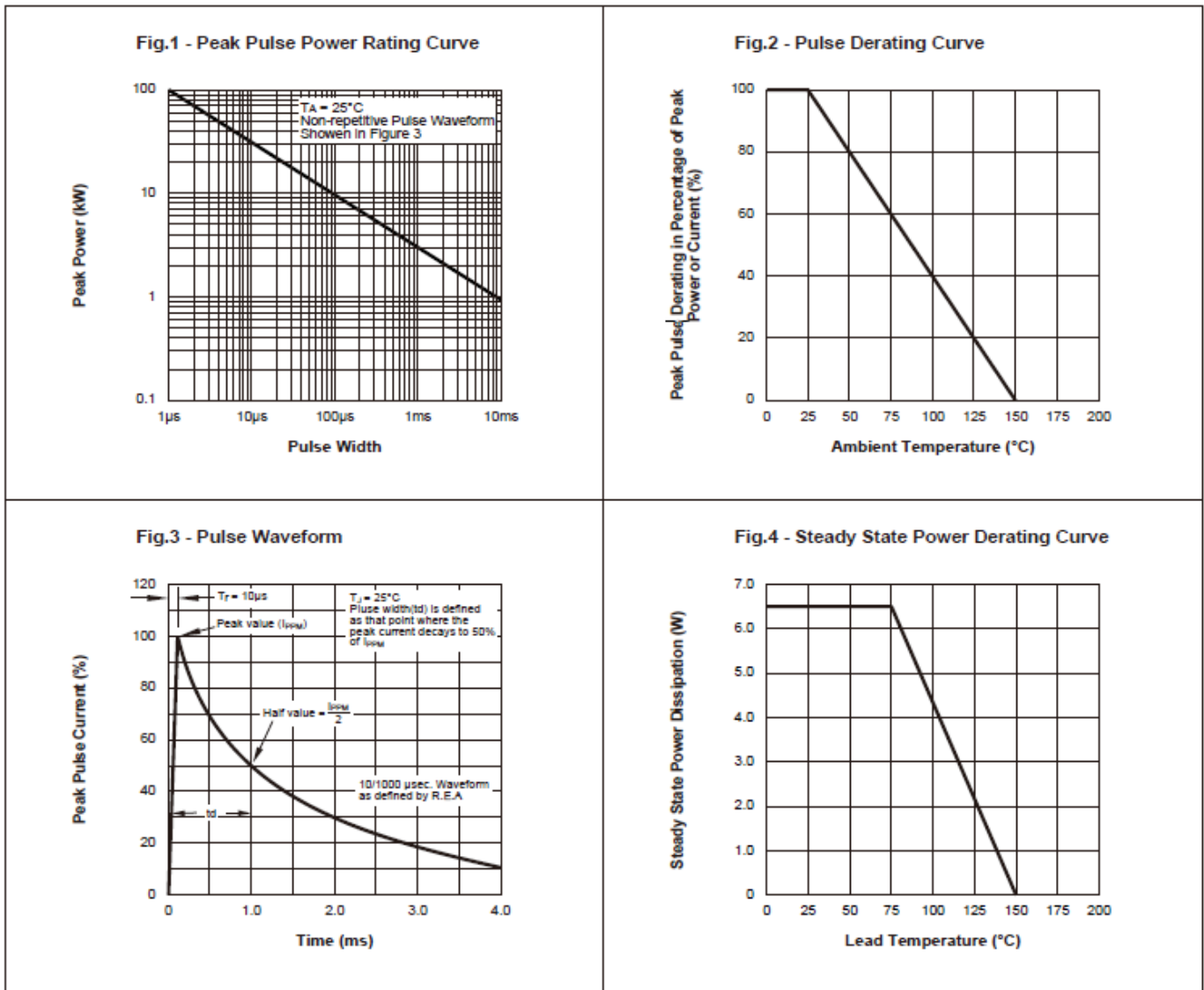


SMD Type 3000 W

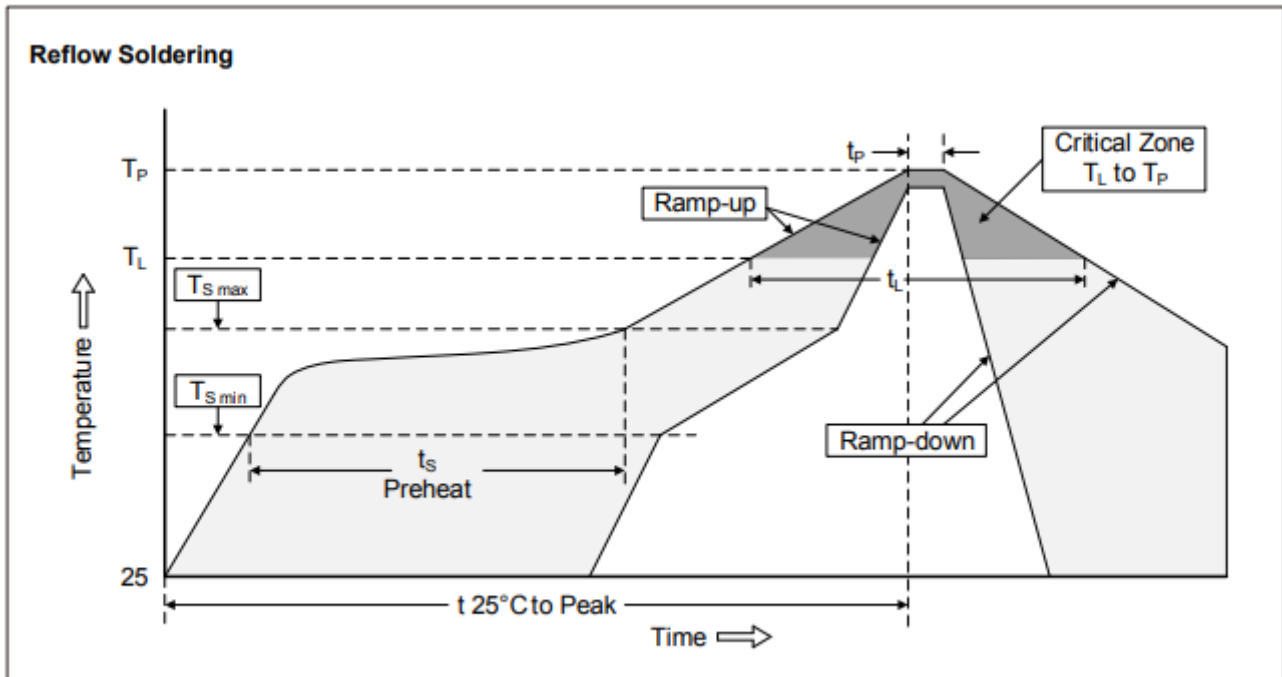
■ Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part No. (Uni) | Part No. (Bi) | Reverse Stand off Voltage V _{RWM} (V) | Breakage Voltage V _{BR} @ I _T | | Test Current I _T (mA) | Maximum Clamping Voltage V _C @ I _{pp} V _C (V) | Maximum Peak Pulse Current I _{pp} (A) | Maximum Reverse Leakage I _R @ V _{RWM} I _R (μA) | Marking Code | |
|-------------------|------------------|---|---|----------|--|--|--|---|-----------------|-----|
| | | | Min(V) | Max(V) | | | | | Uni | Bi |
| SMDJ51AY | SMDJ51CAY | 51 | 56.7 | 62.70 | 1 | 82.4 | 36.41 | 2 | PFZ | DFZ |
| SMDJ54AY | SMDJ54CAY | 54 | 60 | 66.30 | 1 | 87.1 | 34.44 | 2 | RGE | DGE |
| SMDJ58AY | SMDJ58CAY | 58 | 64.4 | 71.20 | 1 | 93.6 | 32.05 | 2 | PGG | DGG |
| SMDJ60AY | SMDJ60CAY | 60 | 66.7 | 73.70 | 1 | 96.8 | 30.99 | 2 | PGK | DGK |
| SMDJ64AY | SMDJ64CAY | 64 | 71.1 | 78.60 | 1 | 103 | 29.13 | 2 | PGM | DGM |
| SMDJ70AY | SMDJ70CAY | 70 | 77.8 | 86.00 | 1 | 113 | 26.55 | 2 | PGP | DGP |
| SMDJ75AY | SMDJ75CAY | 75 | 83.3 | 92.10 | 1 | 121 | 24.79 | 2 | PGR | DGR |
| SMDJ78AY | SMDJ78CAY | 78 | 86.7 | 95.80 | 1 | 126 | 23.81 | 2 | PGT | DGT |
| SMDJ80AY | SMDJ80CAY | 80 | 88.8 | 97.60 | 1 | 129.6 | 23.15 | 2 | PGW | DGW |
| SMDJ85AY | SMDJ85CAY | 85 | 94.4 | 104.00 | 1 | 137 | 21.9 | 2 | PGV | DGV |
| SMDJ90AY | SMDJ90CAY | 90 | 100.0 | 111.00 | 1 | 146 | 20.55 | 2 | PGX | DGX |
| SMDJ100AY | SMDJ100CAY | 100 | 111.0 | 123.00 | 1 | 162 | 18.52 | 2 | PGZ | DGZ |
| SMDJ110AY | SMDJ110CAY | 110 | 122.0 | 135.00 | 1 | 177 | 16.95 | 2 | PHE | DHE |
| SMDJ120AY | SMDJ120CAY | 120 | 133.0 | 147.00 | 1 | 193 | 15.54 | 2 | PHG | DHG |
| SMDJ130AY | SMDJ130CAY | 130 | 144.0 | 159.00 | 1 | 209 | 14.35 | 2 | PHK | DHK |
| SMDJ140AY | SMDJ140CAY | 140 | 155.0 | 171.00 | 1 | 226.8 | 13.2 | 2 | PHW | DHW |
| SMDJ150AY | SMDJ150CAY | 150 | 167.0 | 185.00 | 1 | 243 | 12.35 | 2 | PHM | DHM |
| SMDJ160AY | SMDJ160CAY | 160 | 178.0 | 197.00 | 1 | 259 | 11.58 | 2 | PHP | DHP |
| SMDJ170AY | SMDJ170CAY | 170 | 189.0 | 209.00 | 1 | 275 | 10.91 | 2 | PHR | DHR |
| SMDJ180AY | SMDJ180CAY | 180 | 200.0 | 220.00 | 1 | 291.6 | 10.29 | 2 | PHT | DHT |
| SMDJ190AY | SMDJ190CAY | 190 | 211.0 | 232.00 | 1 | 307.8 | 9.75 | 2 | PHX | DHX |
| SMDJ200AY | SMDJ200CAY | 200 | 224.0 | 247.00 | 1 | 324 | 9.26 | 2 | PHZ | DHZ |
| SMDJ220AY | SMDJ220CAY | 220 | 246.0 | 272.00 | 1 | 356 | 8.43 | 2 | PKE | DKE |
| SMDJ250AY | SMDJ250CAY | 250 | 279.0 | 309.00 | 1 | 405 | 7.41 | 2 | PKG | DKG |
| SMDJ300AY | SMDJ300CAY | 300 | 335.0 | 371.00 | 1 | 486 | 6.17 | 2 | PKM | DKM |
| SMDJ350AY | SMDJ350CAY | 350 | 391.0 | 432.00 | 1 | 567 | 5.29 | 2 | PKP | DKP |
| SMDJ400AY | SMDJ400CAY | 400 | 447.0 | 494.00 | 1 | 648 | 4.63 | 2 | PKZ | DKZ |
| SMDJ440AY | SMDJ440CAY | 440 | 492.0 | 543.00 | 1 | 713 | 4.21 | 2 | PPE | DPE |

■ Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



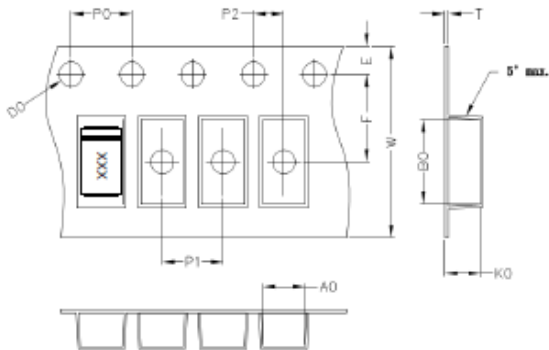
■ Soldering Recommendation



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat | |
| -Temperature Min ($T_{S\ min}$) | 150°C |
| -Temperature Max ($T_{S\ max}$) | 200°C |
| -Time (min to max) (t_S) | 60-180 seconds |
| $T_{S\ max}$ to T_L | |
| -Ramp-up Rate | 3°C/second max. |
| Time maintained above: | |
| -Temperature (T_L) | 217°C |
| -Time (t_L) | 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. |

■ Packaging



| | | | | | |
|------|------|------|------|------|-----------|
| A0 | B0 | K0 | D0 | E | F |
| 6.05 | 8.31 | 2.54 | 1.55 | 1.75 | 7.50 |
| P0 | P1 | P2 | T | W | Tolerance |
| 4.0 | 8.0 | 2.0 | 0.25 | 16 | 0.1 |

■ Quantity

| Series Type | Packaging option | Base quantity | Packaging specification |
|-------------|------------------|----------------|-------------------------|
| SMDJ | Tape and reel | 3000pcs / reel | EIA STD RS-481 |

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: -10°C~+40°C
 2. Relative Humidity: $\leq 75\%RH$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.