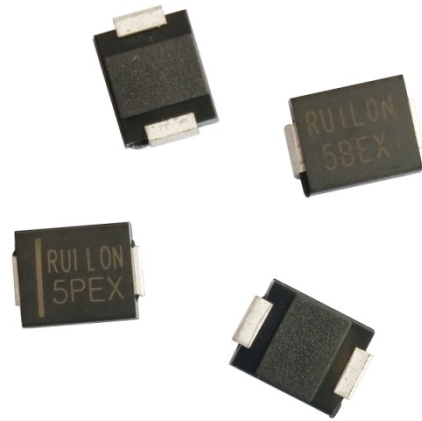


**Description**

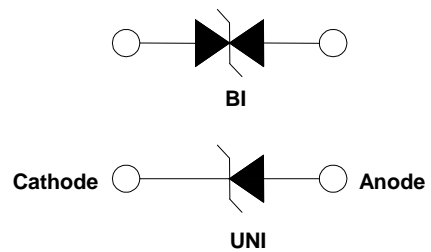
The 5.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

**Features**

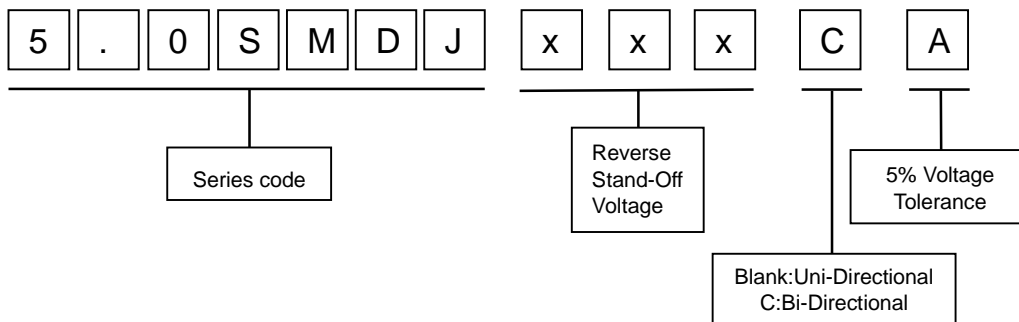
- I Very fast response time
- I Matte tin lead-free Plated
- I Halogen free and RoHS compliant
- I Low incremental surge resistance
- I Typical  $I_R$  less than  $5\mu A$  above 19V
- I Compatible with industrial standard package DO-214AB
- I For surface mounted applications to optimize board space
- I 5000W peak pulse power capability with at 10/1000 $\mu s$  waveform, repetition rate (duty cycle): 0.01%
- I High temperature soldering: 260°C/ 10 seconds at terminals



**Electrical symbol**



**Part Number Code**



**Mechanical Characteristics**

| Rating   | Symbol    | Value      | Units      |
|--|-----------|------------|------------|
| Peak Pulse Power Dissipation at $T_A=25^\circ C$ by 10/1000 $\mu s$ Waveform (Fig.2)(Note 1), (Note 2) | $P_{PP}$  | 5000       | W          |
| Power Dissipation on Infinite Heat Sink at $T_L=75^\circ C$ (Fig.6)                                    | $P_D$     | 6.5        | W          |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)                                       | $I_{FSM}$ | 300        | A          |
| Operating Temperature Range  | $T_J$     | -55 to 150 | $^\circ C$ |
| Storage Temperature Range  | $T_{STG}$ | -55 to 150 | $^\circ C$ |

1. Non-repetitive current pulse , per Fig. 4 and derated above  $T_A = 25^\circ C$  per Fig. 3.  
 2. Mounted on copper pad area of 0.31x0.31" (8.0 × 8.0mm) 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.



**Electrical Characteristics**

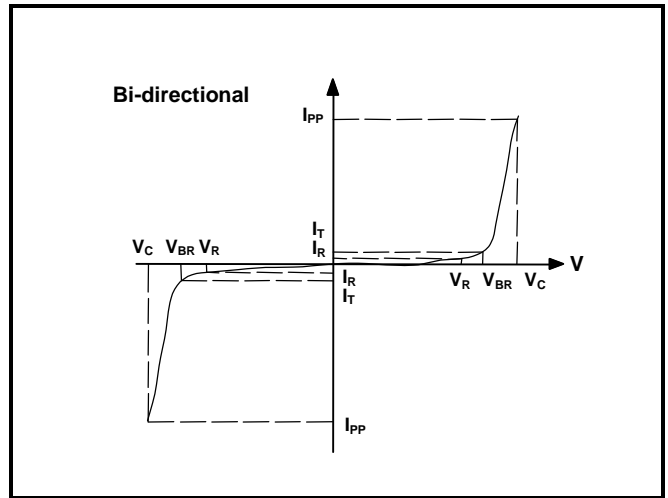
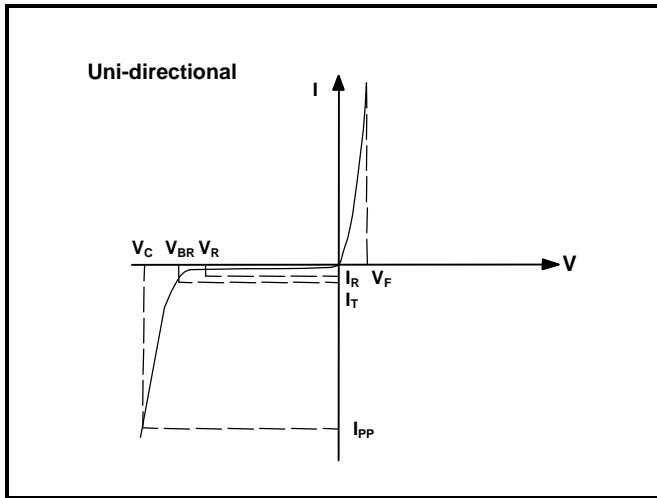
| Type Number |              | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage |                                 | Test Current | Max. Clamping Voltage | Max. Peak Pulse Current | Reverse Leakage |
|-------------|--------------|---------|------|---------------------------|-------------------|---------------------------------|--------------|-----------------------|-------------------------|-----------------|
|             |              |         |      |                           | V <sub>R</sub>    | V <sub>BR</sub> @I <sub>T</sub> |              |                       |                         |                 |
|             |              |         |      | UNI                       |                   | BI                              | UNI          | BI                    | V                       | Min             |
|             |              |         |      | V                         | V                 | V                               | mA           | V                     | A                       | μA              |
| 5.0SMDJ11A  | 5.0SMDJ11CA  | 5PDX    | 5BDX | 11.0                      | 12.20             | 13.50                           | 10           | 18.2                  | 274.73                  | 800             |
| 5.0SMDJ12A  | 5.0SMDJ12CA  | 5PDZ    | 5BDZ | 12.0                      | 13.30             | 14.70                           | 10           | 19.9                  | 251.26                  | 800             |
| 5.0SMDJ13A  | 5.0SMDJ13CA  | 5PEE    | 5BEE | 13.0                      | 14.40             | 15.90                           | 10           | 21.5                  | 232.56                  | 500             |
| 5.0SMDJ14A  | 5.0SMDJ14CA  | 5PEG    | 5BEG | 14.0                      | 15.60             | 17.20                           | 10           | 23.2                  | 215.52                  | 200             |
| 5.0SMDJ15A  | 5.0SMDJ15CA  | 5PEK    | 5BEK | 15.0                      | 16.70             | 18.50                           | 1            | 24.4                  | 204.92                  | 100             |
| 5.0SMDJ16A  | 5.0SMDJ16CA  | 5PEM    | 5BEM | 16.0                      | 17.80             | 19.70                           | 1            | 26.0                  | 192.31                  | 50              |
| 5.0SMDJ17A  | 5.0SMDJ17CA  | 5PEP    | 5BEP | 17.0                      | 18.90             | 20.90                           | 1            | 27.6                  | 181.16                  | 20              |
| 5.0SMDJ18A  | 5.0SMDJ18CA  | 5PER    | 5BER | 18.0                      | 20.00             | 22.10                           | 1            | 29.2                  | 171.23                  | 10              |
| 5.0SMDJ19A  | 5.0SMDJ19CA  | 5PET    | 5BET | 19.0                      | 21.10             | 23.30                           | 1            | 30.8                  | 162.44                  | 10              |
| 5.0SMDJ20A  | 5.0SMDJ20CA  | 5PEV    | 5BEV | 20.0                      | 22.20             | 24.50                           | 1            | 32.4                  | 154.32                  | 5               |
| 5.0SMDJ22A  | 5.0SMDJ22CA  | 5PEX    | 5BEX | 22.0                      | 24.40             | 26.90                           | 1            | 35.5                  | 140.85                  | 5               |
| 5.0SMDJ24A  | 5.0SMDJ24CA  | 5PEZ    | 5BEZ | 24.0                      | 26.70             | 29.50                           | 1            | 38.9                  | 128.53                  | 5               |
| 5.0SMDJ26A  | 5.0SMDJ26CA  | 5PFE    | 5BFE | 26.0                      | 28.90             | 31.90                           | 1            | 42.1                  | 118.76                  | 5               |
| 5.0SMDJ28A  | 5.0SMDJ28CA  | 5PFG    | 5BFG | 28.0                      | 31.10             | 34.40                           | 1            | 45.4                  | 110.13                  | 5               |
| 5.0SMDJ30A  | 5.0SMDJ30CA  | 5PFK    | 5BFK | 30.0                      | 33.30             | 36.80                           | 1            | 48.4                  | 103.31                  | 5               |
| 5.0SMDJ33A  | 5.0SMDJ33CA  | 5PFM    | 5BFM | 33.0                      | 36.70             | 40.60                           | 1            | 53.3                  | 93.81                   | 5               |
| 5.0SMDJ36A  | 5.0SMDJ36CA  | 5PFP    | 5BFP | 36.0                      | 40.00             | 44.20                           | 1            | 58.1                  | 86.06                   | 5               |
| 5.0SMDJ40A  | 5.0SMDJ40CA  | 5PFR    | 5BFR | 40.0                      | 44.40             | 49.10                           | 1            | 64.5                  | 77.52                   | 5               |
| 5.0SMDJ43A  | 5.0SMDJ43CA  | 5PFT    | 5BFT | 43.0                      | 47.80             | 52.80                           | 1            | 69.4                  | 72.05                   | 5               |
| 5.0SMDJ45A  | 5.0SMDJ45CA  | 5PFV    | 5BFV | 45.0                      | 50.00             | 55.30                           | 1            | 72.7                  | 68.78                   | 5               |
| 5.0SMDJ48A  | 5.0SMDJ48CA  | 5PFX    | 5BFX | 48.0                      | 53.30             | 58.90                           | 1            | 77.4                  | 64.60                   | 5               |
| 5.0SMDJ51A  | 5.0SMDJ51CA  | 5PFZ    | 5BFZ | 51.0                      | 56.70             | 62.70                           | 1            | 82.4                  | 60.68                   | 5               |
| 5.0SMDJ54A  | 5.0SMDJ54CA  | 5PGE    | 5BGE | 54.0                      | 60.00             | 66.30                           | 1            | 87.1                  | 57.41                   | 5               |
| 5.0SMDJ58A  | 5.0SMDJ58CA  | 5PGG    | 5BGG | 58.0                      | 64.40             | 71.20                           | 1            | 93.6                  | 53.42                   | 5               |
| 5.0SMDJ60A  | 5.0SMDJ60CA  | 5PGK    | 5BGK | 60.0                      | 66.70             | 73.70                           | 1            | 96.8                  | 51.65                   | 5               |
| 5.0SMDJ64A  | 5.0SMDJ64CA  | 5PGM    | 5BGM | 64.0                      | 71.10             | 78.60                           | 1            | 103.0                 | 48.54                   | 5               |
| 5.0SMDJ70A  | 5.0SMDJ70CA  | 5PGP    | 5BGP | 70.0                      | 77.80             | 86.00                           | 1            | 113.0                 | 44.25                   | 5               |
| 5.0SMDJ75A  | 5.0SMDJ75CA  | 5PGR    | 5BGR | 75.0                      | 83.30             | 92.10                           | 1            | 121.0                 | 41.32                   | 5               |
| 5.0SMDJ78A  | 5.0SMDJ78CA  | 5PGT    | 5BGT | 78.0                      | 86.70             | 95.80                           | 1            | 126.0                 | 39.68                   | 5               |
| 5.0SMDJ80A  | 5.0SMDJ80CA  | 5PGB    | 5BGB | 80.0                      | 88.80             | 97.60                           | 1            | 129.6                 | 38.58                   | 5               |
| 5.0SMDJ85A  | 5.0SMDJ85CA  | 5PGV    | 5BGV | 85.0                      | 94.40             | 104.00                          | 1            | 137.0                 | 36.50                   | 5               |
| 5.0SMDJ90A  | 5.0SMDJ90CA  | 5PGX    | 5BGX | 90.0                      | 100.00            | 111.00                          | 1            | 146.0                 | 34.25                   | 5               |
| 5.0SMDJ100A | 5.0SMDJ100CA | 5PGZ    | 5BGZ | 100.0                     | 111.00            | 123.00                          | 1            | 162.0                 | 30.86                   | 5               |
| 5.0SMDJ110A | 5.0SMDJ110CA | 5PHE    | 5BHE | 110.0                     | 122.00            | 135.00                          | 1            | 177.0                 | 28.25                   | 5               |
| 5.0SMDJ120A | 5.0SMDJ120CA | 5PHG    | 5BHG | 120.0                     | 133.00            | 147.00                          | 1            | 193.0                 | 25.91                   | 5               |
| 5.0SMDJ130A | 5.0SMDJ130CA | 5PHK    | 5BHK | 130.0                     | 144.00            | 159.00                          | 1            | 209.0                 | 23.92                   | 5               |



**Electrical Characteristics**

| Type Number |              | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage               |        | Test Current   | Max. Clamping Voltage           | Max. Peak Pulse Current | Reverse Leakage                |
|-------------|--------------|---------|------|---------------------------|---------------------------------|--------|----------------|---------------------------------|-------------------------|--------------------------------|
|             |              |         |      | V <sub>R</sub>            | V <sub>BR</sub> @I <sub>T</sub> |        | I <sub>T</sub> | V <sub>C</sub> @I <sub>PP</sub> | I <sub>PP</sub>         | I <sub>R</sub> @V <sub>R</sub> |
|             |              |         |      |                           | Min                             | Max    |                |                                 |                         |                                |
| UNI         | BI           | UNI     | BI   | V                         | V                               | V      | mA             | V                               | A                       | μA                             |
| 5.0SMDJ140A | 5.0SMDJ140CA | 5PHB    | 5BHB | 140.00                    | 155.00                          | 171.00 | 1              | 226.8                           | 22.05                   | 5                              |
| 5.0SMDJ150A | 5.0SMDJ150CA | 5PHM    | 5BHM | 150.00                    | 167.00                          | 185.00 | 1              | 243.0                           | 20.58                   | 5                              |
| 5.0SMDJ160A | 5.0SMDJ160CA | 5PHP    | 5BHP | 160.00                    | 178.00                          | 197.00 | 1              | 259.0                           | 19.31                   | 5                              |
| 5.0SMDJ170A | 5.0SMDJ170CA | 5PHR    | 5BHR | 170.00                    | 189.00                          | 209.00 | 1              | 275.0                           | 18.18                   | 5                              |
| 5.0SMDJ180A | 5.0SMDJ180CA | 5PHT    | 5BHT | 180.00                    | 200.00                          | 220.00 | 1              | 291.6                           | 17.15                   | 5                              |
| 5.0SMDJ190A | 5.0SMDJ190CA | 5PHV    | 5BHV | 190.00                    | 211.00                          | 232.00 | 1              | 307.8                           | 16.24                   | 5                              |
| 5.0SMDJ200A | 5.0SMDJ200CA | 5PHW    | 5BHW | 200.00                    | 224.00                          | 247.00 | 1              | 324.0                           | 15.43                   | 5                              |
| 5.0SMDJ220A | 5.0SMDJ220CA | 5PHX    | 5BHX | 220.00                    | 246.00                          | 272.00 | 1              | 356.0                           | 14.04                   | 5                              |
| 5.0SMDJ250A | 5.0SMDJ250CA | 5PHZ    | 5BHZ | 250.00                    | 279.00                          | 309.00 | 1              | 405.0                           | 12.35                   | 5                              |
| 5.0SMDJ300A | 5.0SMDJ300CA | 5PJE    | 5BJE | 300.00                    | 335.00                          | 371.00 | 1              | 486.0                           | 10.29                   | 5                              |
| 5.0SMDJ350A | 5.0SMDJ350CA | 5PJG    | 5BJG | 350.00                    | 391.00                          | 432.00 | 1              | 567.0                           | 8.82                    | 5                              |
| 5.0SMDJ400A | 5.0SMDJ400CA | 5PJK    | 5BJK | 400.00                    | 447.00                          | 494.00 | 1              | 648.0                           | 7.72                    | 5                              |
| 5.0SMDJ440A | 5.0SMDJ440CA | 5PJM    | 5BJM | 440.00                    | 492.00                          | 543.00 | 1              | 713.0                           | 7.01                    | 5                              |

**I-V Curve Characteristics**



P<sub>PPM</sub> Peak Pulse Power Dissipation -- Max power dissipation

V<sub>R</sub> Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

V<sub>BR</sub> Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I<sub>T</sub>)

V<sub>C</sub> Clamping Voltage -- Peak voltage measured across the TVS at a specified I<sub>ppm</sub> (peak impulse current)

I<sub>R</sub> Reverse Leakage Current -- Current measured at V<sub>R</sub>

V<sub>F</sub> Forward Voltage Drop for Uni-directional



Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Figure 1 - TVS Transients Clamping Waveform

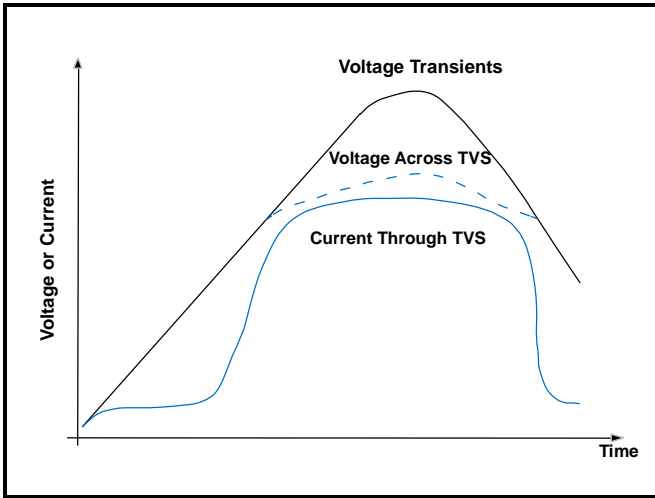


Figure 2 - Peak Pulse Power Rating Curve

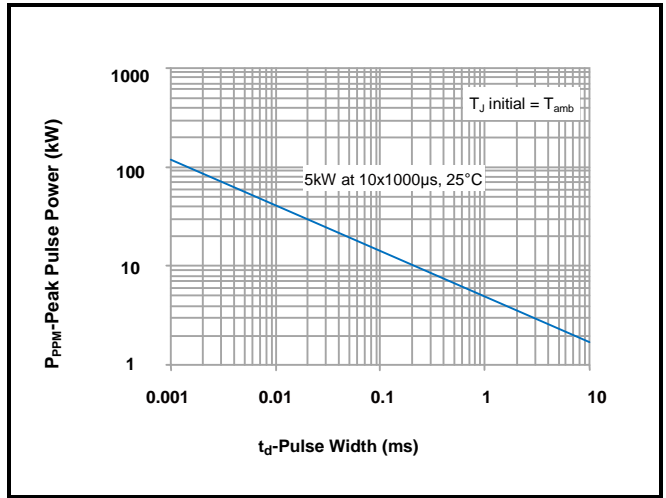


Figure 3 - Pulse Derating Curve

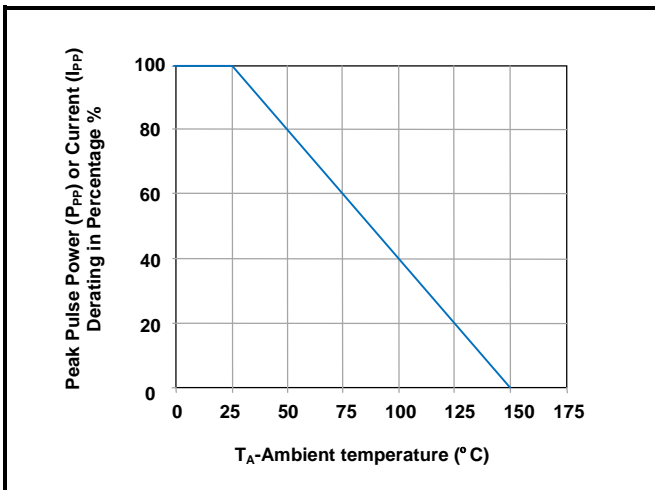


Figure 4 - Pulse Waveform

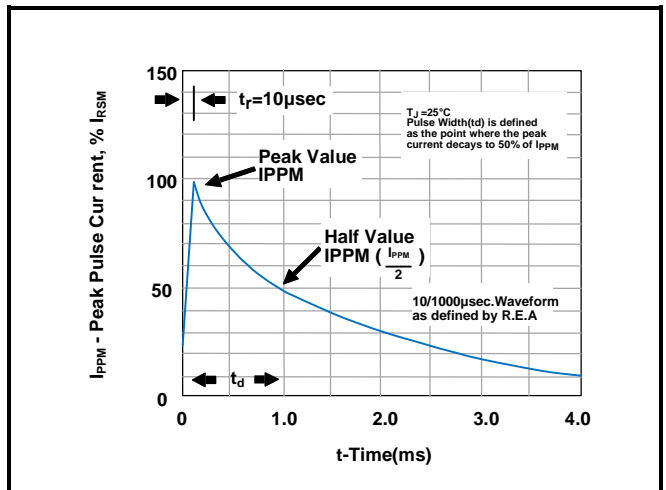


Figure 5 - Typical Junction Capacitance

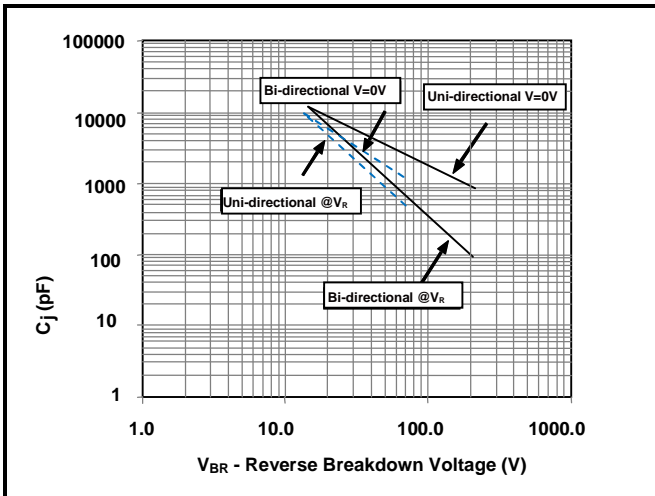


Figure 6 - Steady State Power Derating Curve

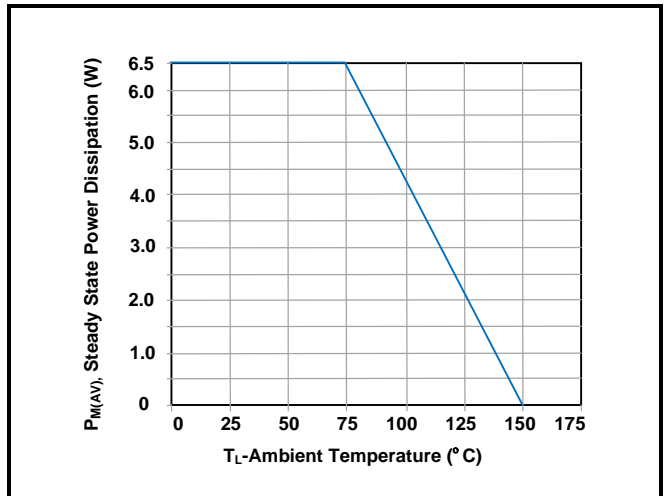
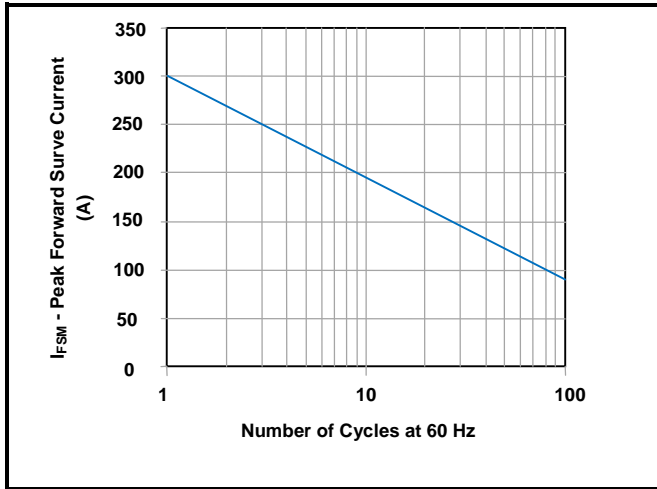
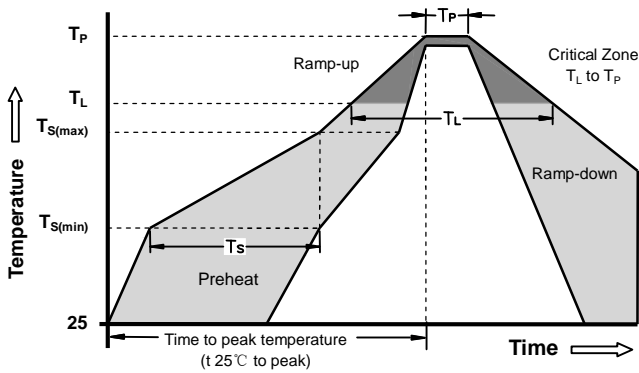


Figure 7 - Maximum Non-Repetitive Surge Current

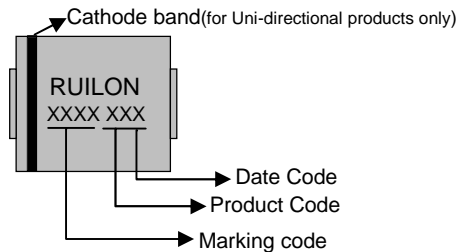


Soldering Parameters - Reflow Soldering (Surface Mount Devices)

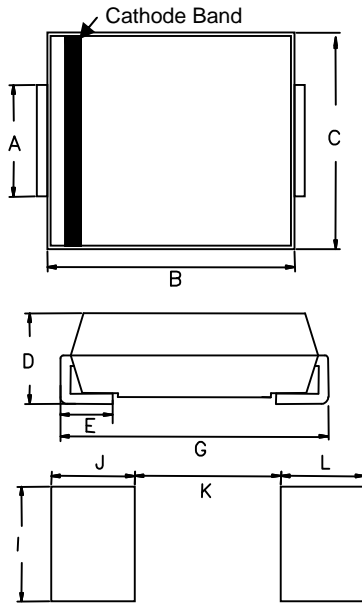


| Reflow Condition                                     |                                   | Pb - Free assembly |
|--|-----------------------------------|--------------------|
| Pre Heat   | -Temperature Min ( $T_{S(min)}$ ) | 150°C              |
|  | -Temperature Max ( $T_{S(max)}$ ) | 200°C              |
|  | - Time (min to max) ( $t_s$ )     | 60 -180 Seconds    |
| Average ramp up rate ( Liquids Temp $T_L$ to peak)   |                                   | 3°C/second max     |
| $T_{S(max)}$ to $T_L$ - Ramp-up Rate                 |                                   | 3°C/second max     |
| Reflow   | - Temperature ( $T_L$ ) (Liquids) | 217°C              |
|  | - Time (min to max) ( $t_s$ )     | 60 -150 Seconds    |
| Peak Temperature ( $T_P$ )                           |                                   | 260 +0/-5°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 ( $T_P$ )              |                                   | 8 minutes Max      |
| Do not exceed  |                                   | 260°C              |

Part Marking System

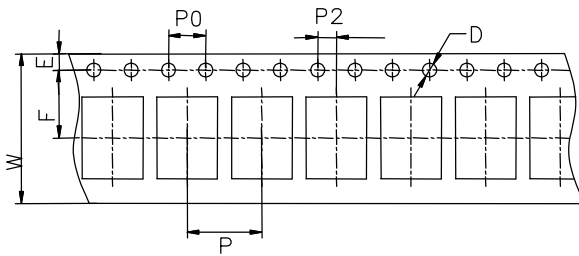


**Dimensions**

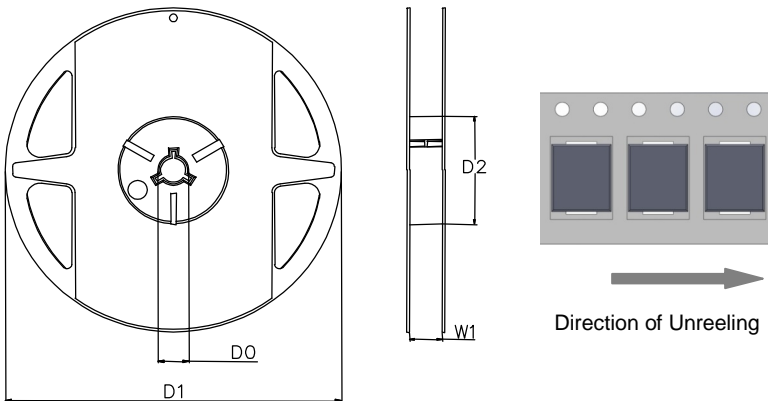


| DIM | Millimeters |      | Inches |       |
|-----|-------------|------|--------|-------|
|     | Min         | Max  | Min    | Max   |
| A   | 2.90        | 3.20 | 0.114  | 0.126 |
| B   | 6.60        | 7.15 | 0.260  | 0.281 |
| C   | 5.55        | 6.22 | 0.219  | 0.245 |
| D   | 1.98        | 2.62 | 0.078  | 0.103 |
| E   | 0.75        | 1.52 | 0.030  | 0.060 |
| G   | 7.75        | 8.13 | 0.305  | 0.320 |
| I   | 3.30        | -    | 0.129  | -     |
| J   | 2.40        | -    | 0.094  | -     |
| K   | -           | 4.20 | -      | 0.165 |
| L   | 2.40        | -    | 0.094  | -     |

**Taping and Reel Specifications**



| Symbol | Millimeters  | Inches             |
|--------|--------------|--------------------|
| W      | 16±0.3       | 0.630±0.012        |
| P      | 8±0.1        | 0.315±0.004        |
| F      | 7.25±0.1     | 0.285±0.004        |
| E      | 1.75±0.1     | 0.069±0.004        |
| D      | 1.5+0.1/-0.0 | 0.059+0.004/-0.0   |
| P0     | 4±0.1        | 0.157±0.004        |
| P2     | 2±0.1        | 0.079±0.004        |
| D0     | 16.7±0.15    | 0.657±0.006        |
| D1     | 178±2        | 7.007±0.079        |
| D2     | 59.6+1/-2    | 2.346+0.039/-0.079 |
| W1     | 17.2±0.4     | 0.677±0.016        |



| Part Number     | Component package | Quantity | Packaging option      | Packaging specification |
|-----------------|-------------------|----------|-----------------------|-------------------------|
| 5.0SMDJXXXXA/CA | DO-214AB          | 500      | Tape&Reel-16mm/7"tape | EIA STD RS-481          |



单击下面可查看定价，库存，交付和生命周期等信息

[>>RUILON\(瑞隆源\)](#)