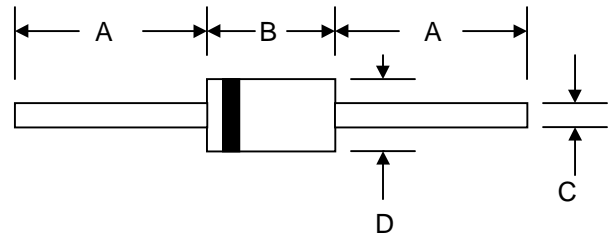


Features

- Glass Passivated Die Construction
- 500W Peak Pulse Power Dissipation
- 180V – 220V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O



Mechanical Data

- Case: DO-15, Molded Plastic
- Terminals: Axial Leads, Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band Except Bi-Directional
- Marking: Type Number
- Weight: 0.40 grams (approx.)
- **Lead Free: For RoHS / Lead Free Version, Add "-LF" Suffix to Part Number, See Page 5**

| DO-15 | | |
|-----------------------------|------|-------|
| Dim | Min | Max |
| A | 25.4 | — |
| B | 5.50 | 7.62 |
| C | 0.71 | 0.864 |
| D | 2.60 | 3.60 |
| All Dimensions in mm | | |

"C" Suffix Designates Bi-directional Devices
 "A" Suffix Designates 5% Tolerance Devices
 No Suffix Designates 10% Tolerance Devices

Maximum Ratings and Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|----------------|-------------|------------------|
| Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 1, 2, 5) Figure 3 | PPPM | 500 Minimum | W |
| Peak Forward Surge Current (Note 3) | IFSM | 70 | A |
| Peak Pulse Current on 10/1000 μS Waveform (Note 1) Figure 1 | IPPM | See Table 1 | A |
| Steady State Power Dissipation (Note 2, 4) | PM(AV) | 1.0 | W |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

- Note: 1. Non-repetitive current pulse per Figure 1 and derated above $T_A = 25^\circ\text{C}$ per Figure 4.
 2. Mounted on 40mm² copper pad.
 3. 8.3ms single half sine-wave duty cycle = 4 pulses per minutes maximum.
 4. Lead temperature at 75 $^\circ\text{C}$.
 5. Peak pulse power waveform is 10/1000 μS .

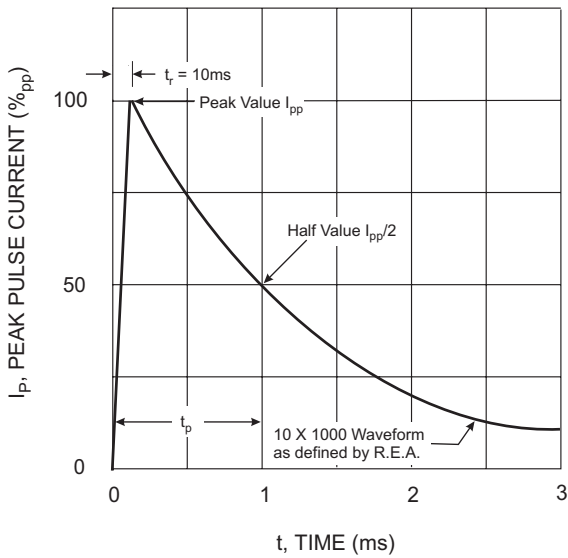


Fig. 1 Pulse Waveform

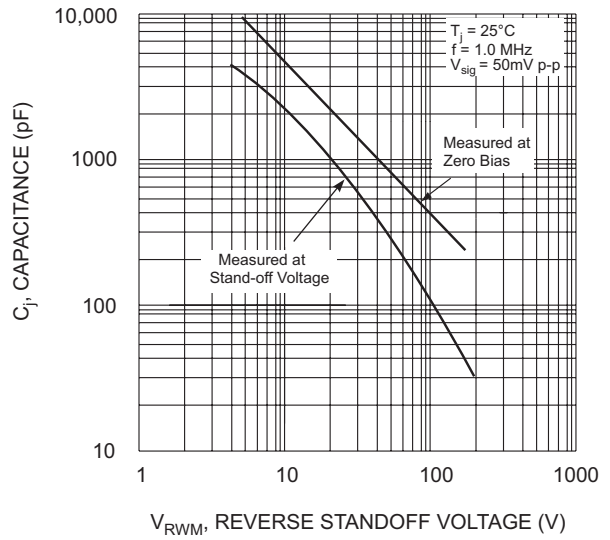


Fig. 2 Typical Junction Capacitance

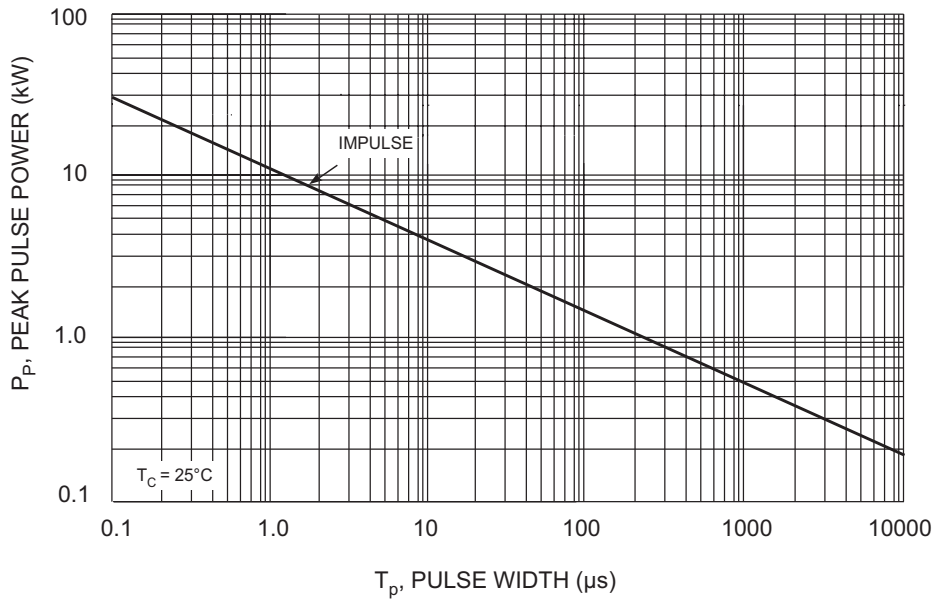


Fig. 3 Pulse Rating Curve

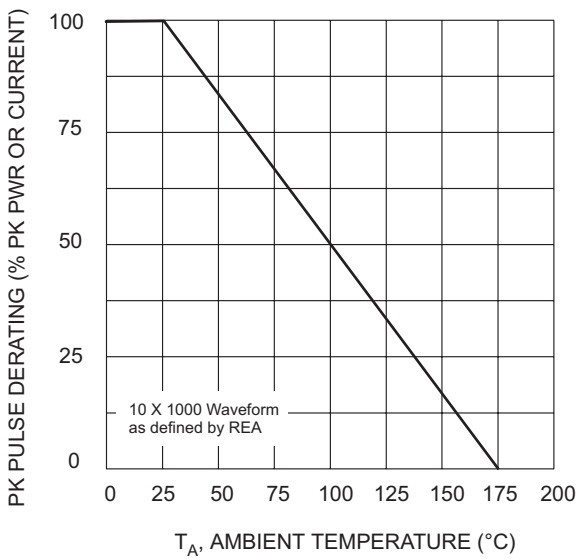


Fig. 4 Pulse Derating Curve

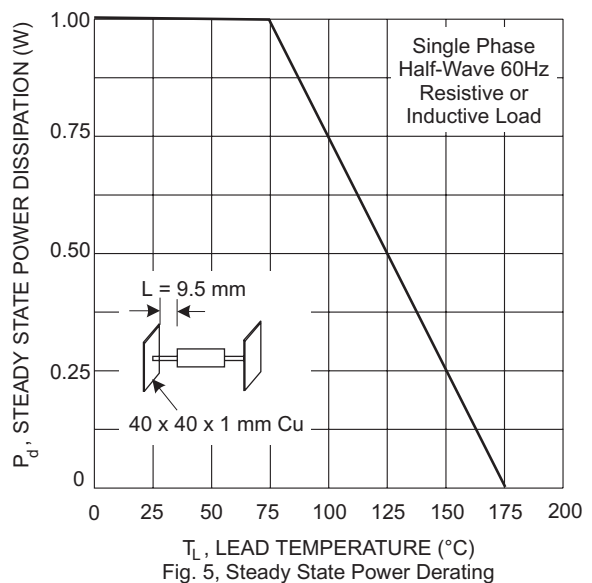


Fig. 5, Steady State Power Derating

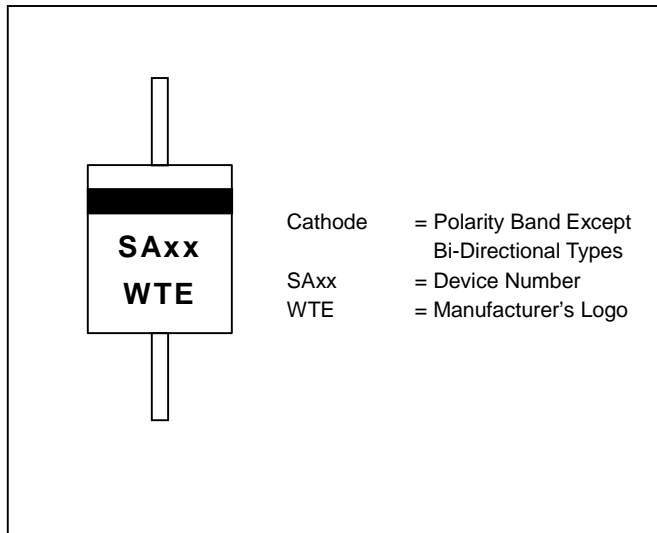
UNI-DIRECTIONAL 500 WATT AXIAL LEAD TVS

| UNI-DIRECTIONAL PART NUMBER | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @IT | BREAKDOWN VOLTAGE VBR (V) MAX. @IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @VRWM IR (uA) |
|-----------------------------|------------------------------------|------------------------------------|------------------------------------|----------------------|--------------------------------------|----------------------------|-------------------------------|
| SA180 | 180.00 | 198.00 | 253.80 | 1 | 322.0 | 1.6 | 1 |
| SA180A | 180.00 | 198.00 | 230.40 | 1 | 292.0 | 1.7 | 1 |
| SA190 | 190.00 | 209.00 | 267.90 | 1 | 340.0 | 1.5 | 1 |
| SA190A | 190.00 | 209.00 | 243.20 | 1 | 308.0 | 1.6 | 1 |
| SA200 | 200.00 | 220.00 | 282.00 | 1 | 358.0 | 1.4 | 1 |
| SA200A | 200.00 | 220.00 | 256.00 | 1 | 324.0 | 1.5 | 1 |
| SA210 | 210.00 | 231.00 | 296.10 | 1 | 376.0 | 1.3 | 1 |
| SA210A | 210.00 | 231.00 | 268.80 | 1 | 340.0 | 1.5 | 1 |
| SA220 | 220.00 | 242.00 | 310.20 | 1 | 394.0 | 1.3 | 1 |
| SA220A | 220.00 | 242.00 | 281.60 | 1 | 356.0 | 1.4 | 1 |

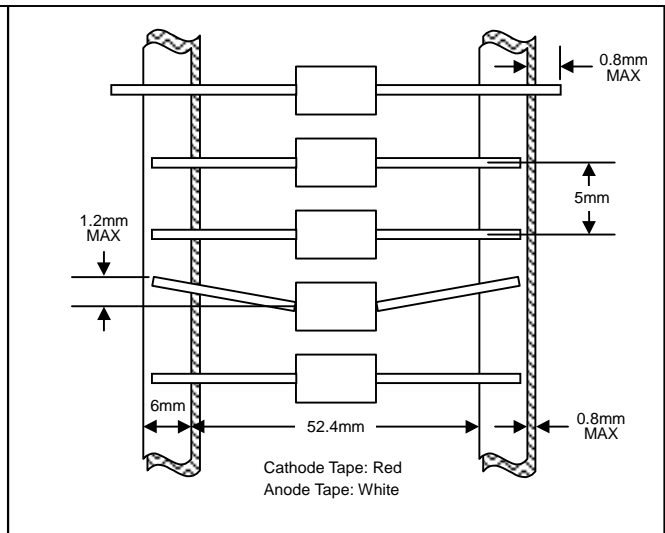
BI-DIRECTIONAL 500 WATT AXIAL LEAD TVS

| BI-DIRECTIONAL PART NUMBER | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @IT | BREAKDOWN VOLTAGE VBR (V) MAX. @IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @VRWM IR (uA) |
|----------------------------|------------------------------------|------------------------------------|------------------------------------|----------------------|--------------------------------------|----------------------------|-------------------------------|
| SA180C | 180.00 | 198.00 | 253.80 | 1 | 322.0 | 1.6 | 1 |
| SA180CA | 180.00 | 198.00 | 230.40 | 1 | 292.0 | 1.7 | 1 |
| SA190C | 190.00 | 209.00 | 267.90 | 1 | 340.0 | 1.5 | 1 |
| SA190CA | 190.00 | 209.00 | 243.20 | 1 | 308.0 | 1.6 | 1 |
| SA200C | 200.00 | 220.00 | 282.00 | 1 | 358.0 | 1.4 | 1 |
| SA200CA | 200.00 | 220.00 | 256.00 | 1 | 324.0 | 1.5 | 1 |
| SA210C | 210.00 | 231.00 | 296.10 | 1 | 376.0 | 1.3 | 1 |
| SA210CA | 210.00 | 231.00 | 268.80 | 1 | 340.0 | 1.5 | 1 |
| SA220C | 220.00 | 242.00 | 310.20 | 1 | 394.0 | 1.3 | 1 |
| SA220CA | 220.00 | 242.00 | 281.60 | 1 | 356.0 | 1.4 | 1 |

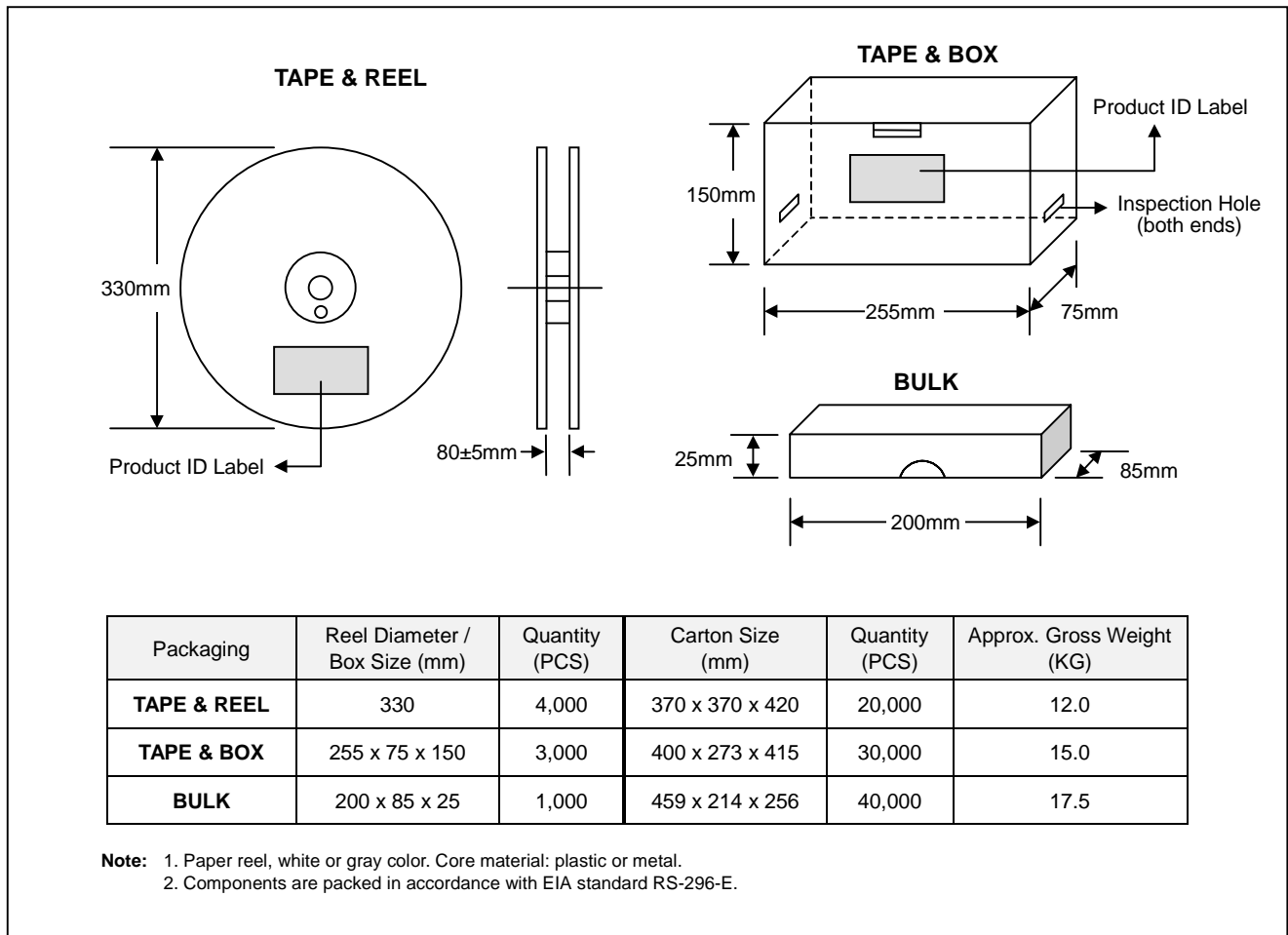
MARKING INFORMATION



TAPING SPECIFICATIONS



PACKAGING INFORMATION



ORDERING INFORMATION

| Product No. | Package Type | Shipping Quantity |
|----------------|--------------|-------------------|
| SAxx-T3 | DO-15 | 4000/Tape & Reel |
| SAxx-TB | DO-15 | 3000/Tape & Box |
| SAxx | DO-15 | 1000 Units/Box |

1. Products listed in **bold** are WTE **Preferred** devices.
2. Shipping quantity given is for minimum packing quantity only. For minimum order quantity, please consult the Sales Department.
3. **To order RoHS / Lead Free version, add "-LF" suffix to part number above. For example, SA180-TB-LF.**

Won-Top Electronics Co., Ltd (WTE) has checked all information carefully and believes it to be correct and accurate. However, WTE cannot assume any responsibility for inaccuracies. Furthermore, this information does not give the purchaser of semiconductor devices any license under patent rights to manufacturer. WTE reserves the right to change any or all information herein without further notice.

WARNING: DO NOT USE IN LIFE SUPPORT EQUIPMENT. WTE power semiconductor products are not authorized for use as critical components in life support devices or systems without the express written approval.

Won-Top Electronics Co., Ltd.

No. 44 Yu Kang North 3rd Road, Chine Chen Dist., Kaohsiung, Taiwan

Phone: 886-7-822-5408 or 886-7-822-5410

Fax: 886-7-822-5417

Email: sales@wontop.com

Internet: <http://www.wontop.com>

We power your everyday.