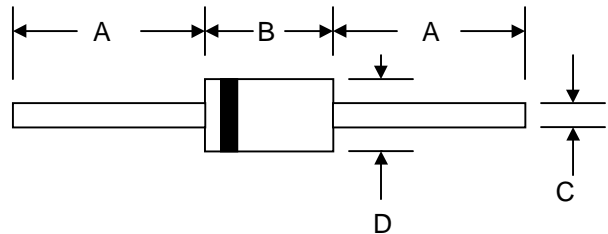


## Features

- 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 $\mu\text{S}$ 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 40mm<sup>2</sup> 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 $\mu\text{S}$ .

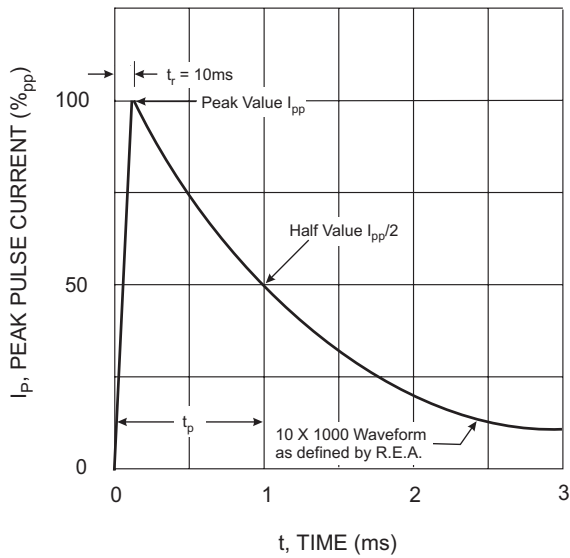


Fig. 1 Pulse Waveform

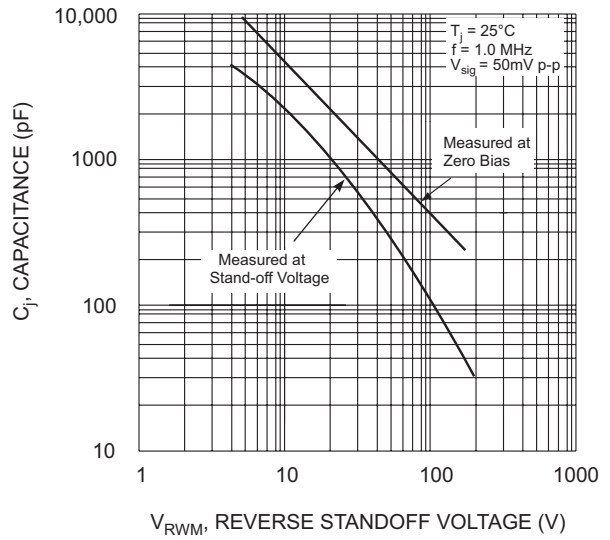


Fig. 2 Typical Junction Capacitance

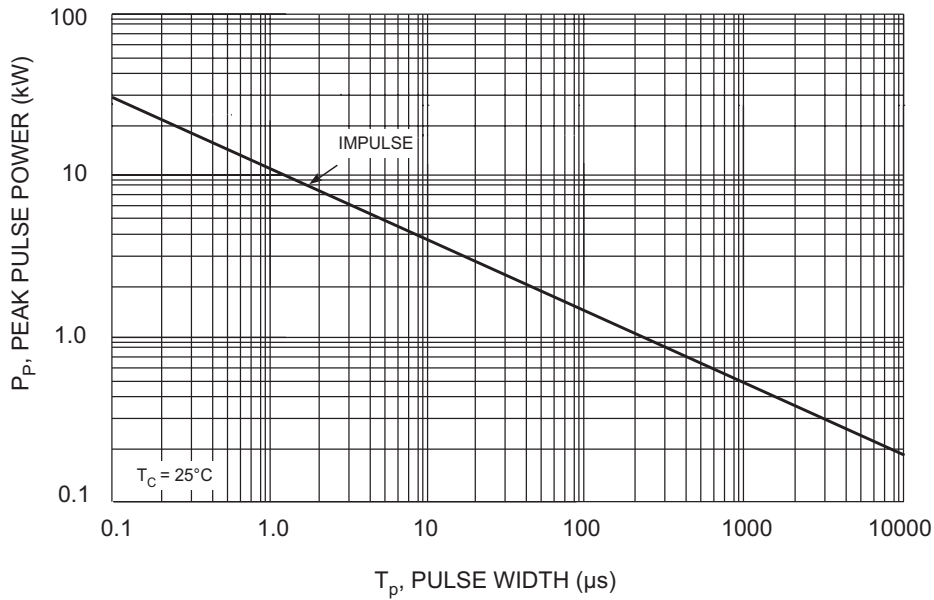


Fig. 3 Pulse Rating Curve

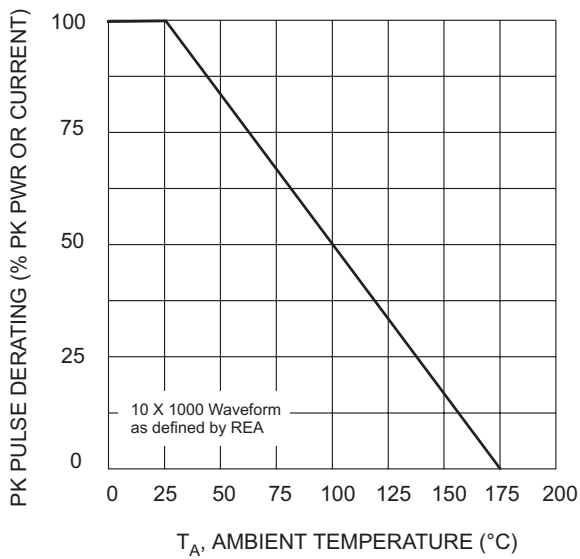


Fig. 4 Pulse Derating Curve

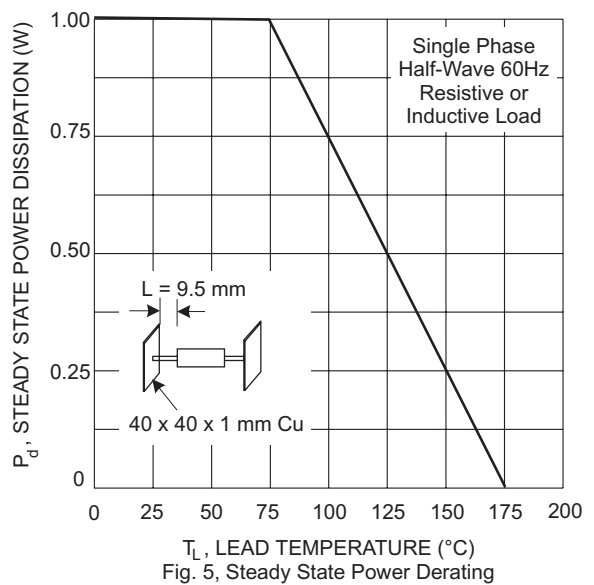


Fig. 5, Steady State Power Derating

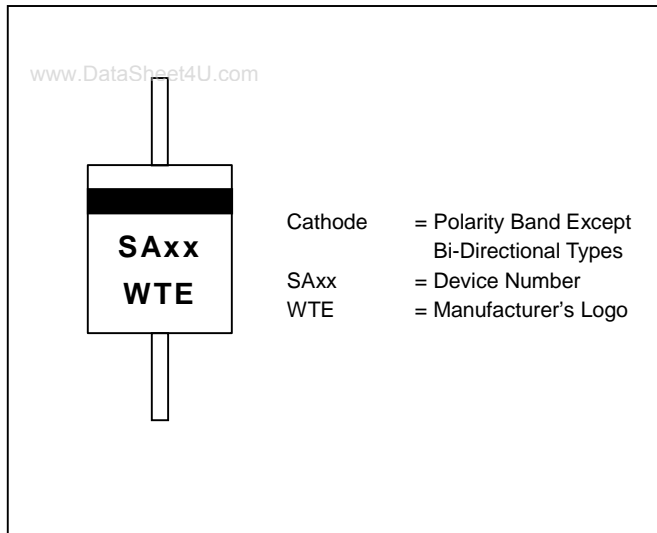
## UNI-DIRECTIONAL 500 WATT AXIAL LEAD TVS

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

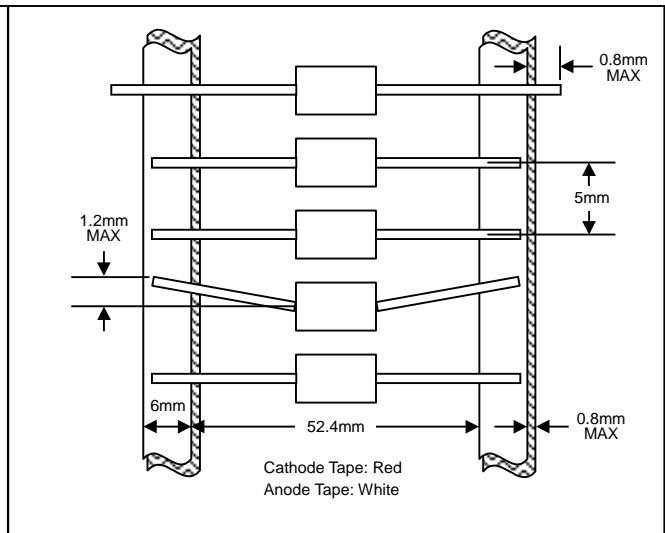
## BI-DIRECTIONAL 500 WATT AXIAL LEAD TVS

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

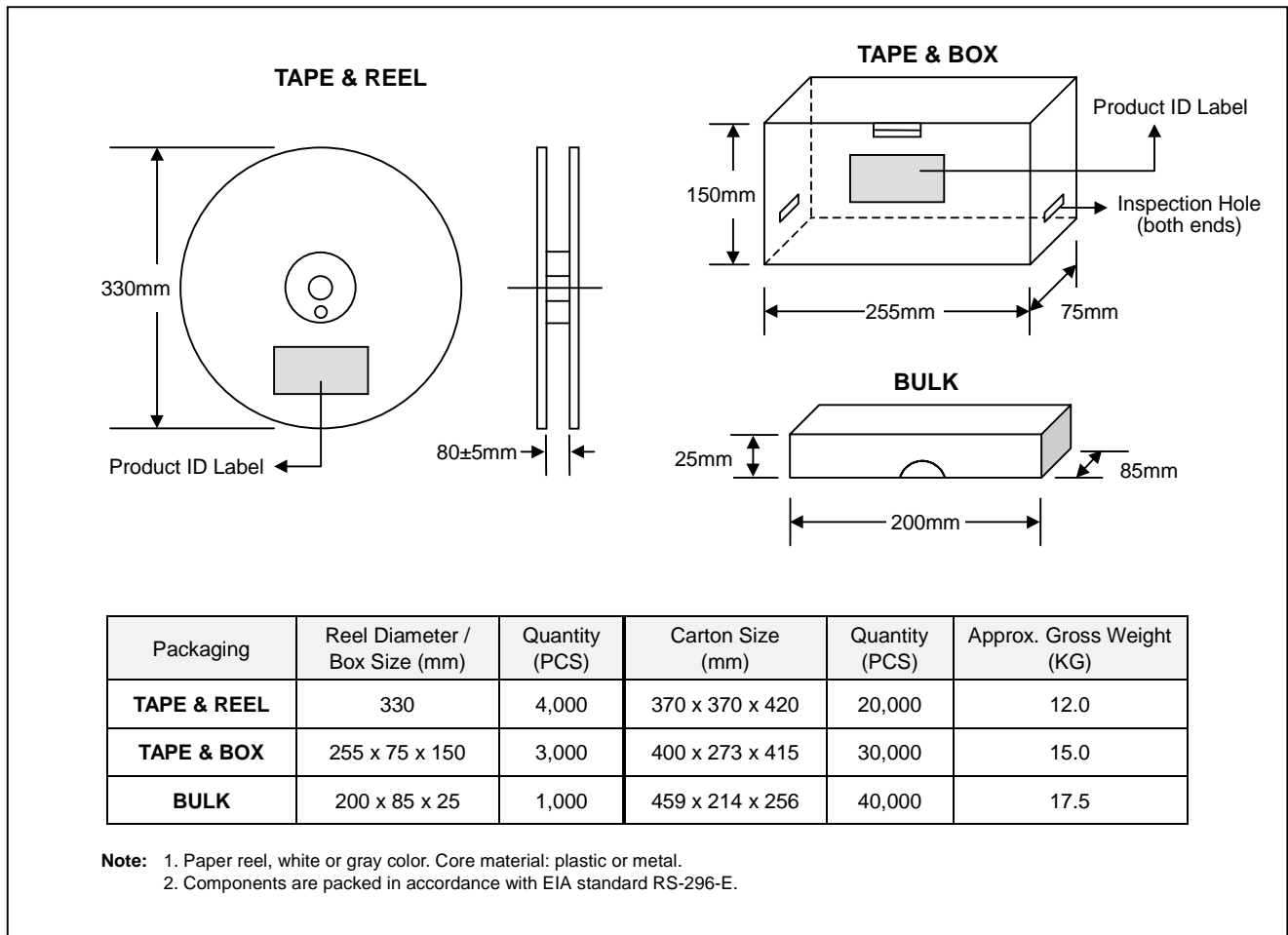
## MARKING INFORMATION



## TAPING SPECIFICATIONS



## PACKAGING INFORMATION



### ORDERING INFORMATION

Product No.	Package Type	Shipping Quantity
SAxx-T3	DO-15	4000/Tape & Reel
<b>SAxx-TB</b>	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.

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**Internet:** http://www.wontop.com

*We power your everyday.*