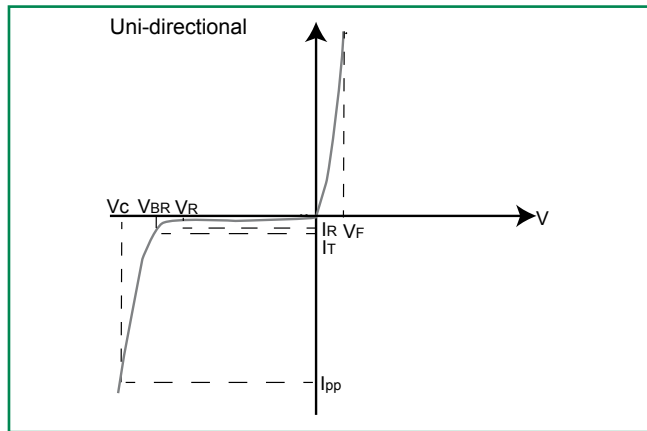


Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Part Number (Uni)	Marking	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_c @ I_{pp} (V)	Maximum Peak Pulse Current I_{pp} (A)	Maximum Reverse Leakage I_R @ V_R (μA)
			MIN	MAX				
SMAJ300A-E	XE	300	335.0	371.0	1	486.0	0.80	1
SMAJ350A-E	XG	350	391.0	432.0	1	567.0	0.70	1
SMAJ400A-E*	XK	400	447.0	494.0	1	648.0	0.60	1
SMAJ450A-E*	XM	440	492.0	543.0	1	713.0	0.60	1
SMAJ500A-E*	XN	500	558.0	618.0	1	810.0	0.50	1
SMAJ550A-E*	XP	550	614.0	680.0	1	891.0	0.46	1
SMAJ600A-E*	XR	600	670.0	741.0	1	971.0	0.42	1
SMAJ650A-E*	XS	650	726.0	803.0	1	1052.0	0.39	1
SMAJ700A-E*	XT	700	782.0	865.0	1	1133.0	0.36	1
SMAJ750A-E*	XU	750	837.0	927.0	1	1213.0	0.33	1
SMAJ850A-E*	XV	850	950.0	1050.0	1	1365.0	0.30	1

Note: for parts with * are still under development

I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation – Max power dissipation

V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage – Maximum voltage that flows though the TVS at a specified test current (I_T)

V_c Clamping Voltage – Peak voltage measured across the TVS at a specified I_{ppm} (peak impulse current)

I_R Reverse Leakage Current – Current measured at V_R

V_f 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

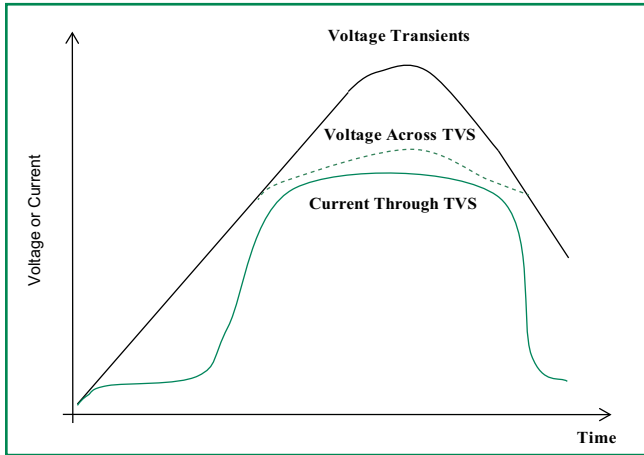


Figure 2 - Peak Pulse Power Rating Curve

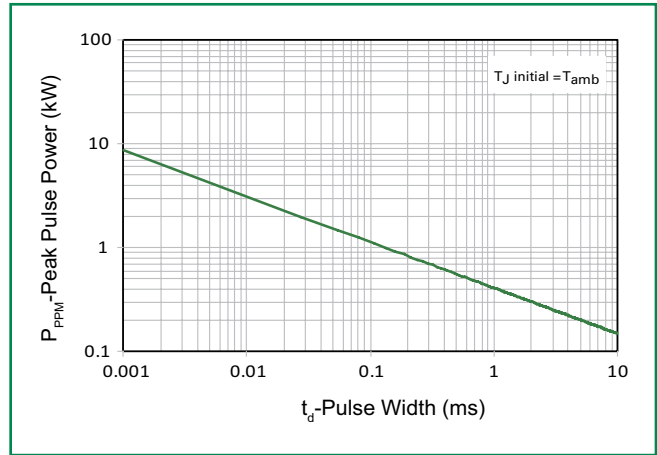


Figure 3 - Peak Pulse Power Derating Curve

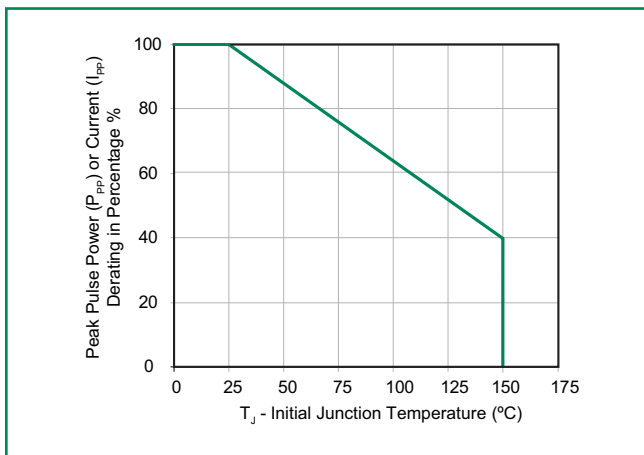


Figure 4 - Pulse Waveform

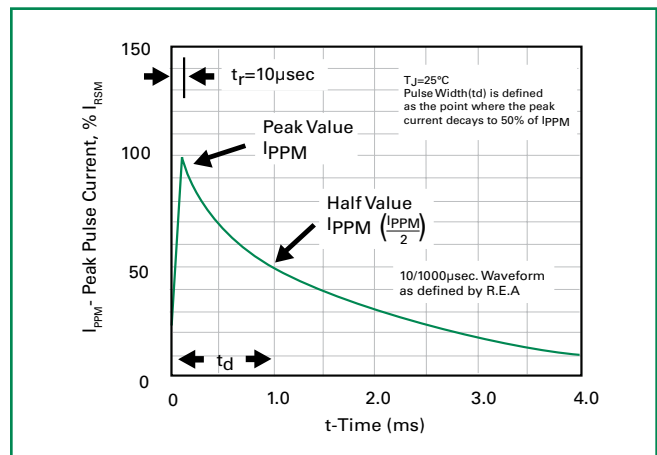


Figure 5 - Typical Junction Capacitance

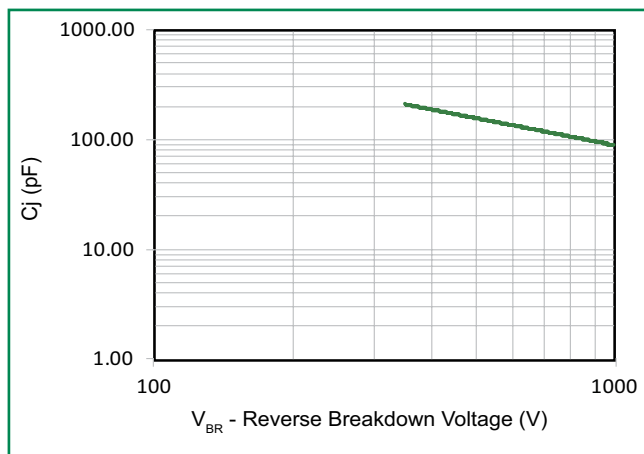


Figure 6 - Typical Transient Thermal Impedance

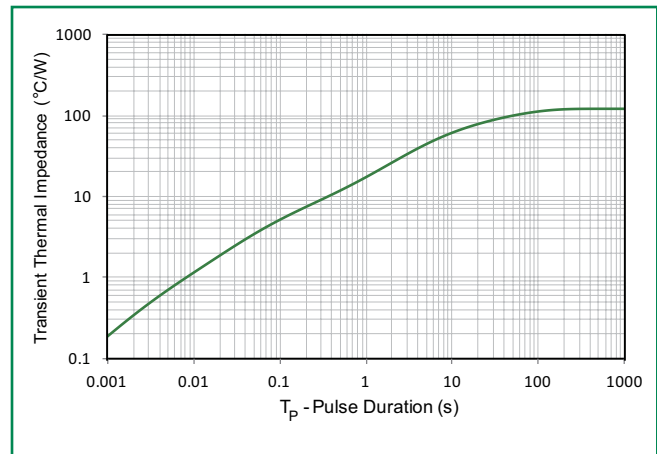


Figure 7 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

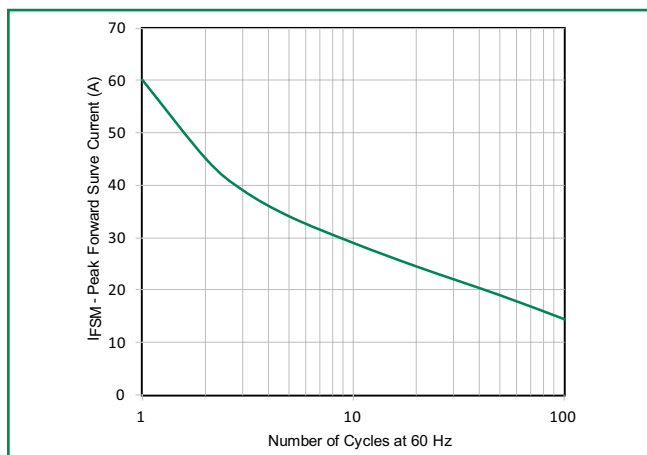
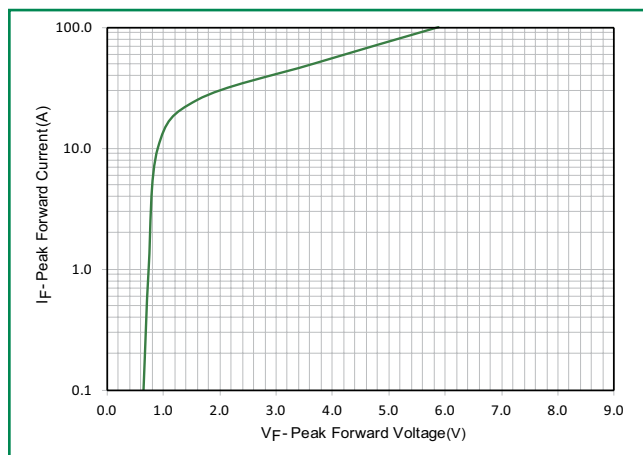
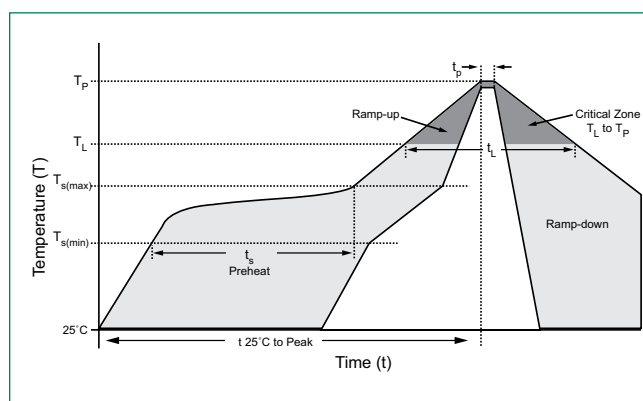


Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



Soldering Parameters

Reflow Condition		Lead-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 secs
Average ramp up rate (Liquidus Temp (T_A) to peak)		3°C/second max
$T_{s(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	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



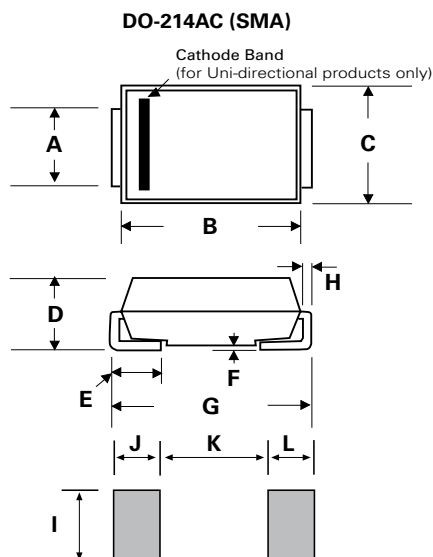
Physical Specifications

Weight	0.002 ounce, 0.061 gram
Case	JEDEC DO-214AC Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102

Environmental Specifications

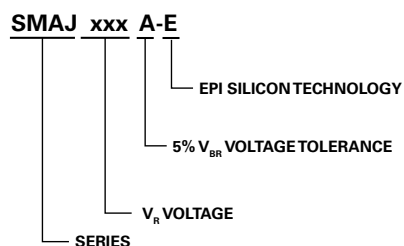
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Temperature Cycling	JESD22-A104
MSL	JEDEC-J-STD-020, Level 1
H3TRB	JESD22-A101
RSH	JESD22-A111

Dimensions

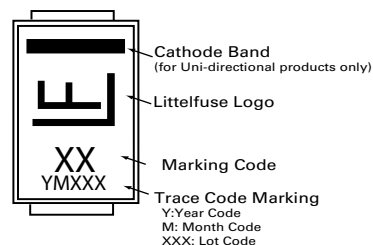


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.049	0.065	1.250	1.650
B	0.157	0.181	3.990	4.600
C	0.095	0.110	2.400	2.790
D	0.075	0.090	1.900	2.290
E	0.030	0.060	0.780	1.520
F	-	0.008	-	0.203
G	0.189	0.208	4.800	5.280
H	0.006	0.012	0.152	0.305
I	0.070	-	1.800	-
J	0.082	-	2.100	-
K	-	0.090	-	2.300
L	0.082	-	2.100	-

Part Numbering System



Part Marking System



Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
SMAJxxxA-E	DO-214AC	5000	Tape & Reel - 12mm tape/13" reel	EIA STD RS-481

Tape and Reel Specification

