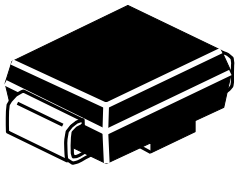
Transient Voltage Suppression Diodes
Surface Mount – 6600W

Descriptions

Transient Voltage Suppressors (TVS) are semiconductor devices designed to provide protection against over voltage transients. When over voltage events occur, the silicon TVS actives from an very high impedance status to a very low impedance status by operating in the avalanche mode and uses a large junction area to absorb large transient currents in a fast response time, protecting voltage sensitive electronics equipment from damaging.

Boarden supplies unipolar and bipolar TVS devices with axial and SMD packages.



SMC
(JEDEC DO-214AB)

Features

- Glass passivated chip junction in DO-214AB Package
- Junction passivation optimized design passivated anisotropic rectifier technology
- T_J = 175℃ capability suitable for high reliability and automotive requirement
- Available in uni-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge specification (varied by test condition)
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245℃
- AEC-Q101 qualified
- RoHS compliant

Applications

Used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

Maximum Ratings and Thermal Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10/1000μs Test Waveform	P_{PPM}	6600	W
Steady State Power Dissipation on Infinite Heat Sink at T_L=50°C	P_D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional Only (1)	I_{FSM}	300	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only	V_F	5.0	V
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	°C
Typical Thermal Resistance Junction to Lead	R_{uJL}	15	°C/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	75	°C/W

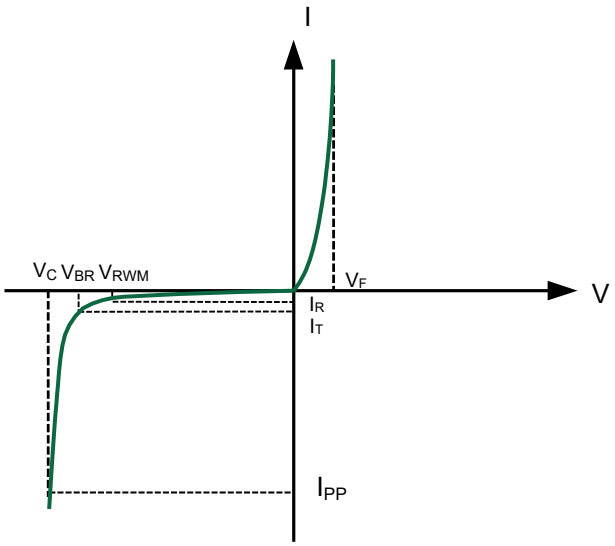
Notes:
1) Non-repetitive current pulse derated above TA=25° C

Electrical Characteristics (TA=25°C unless otherwise noted)

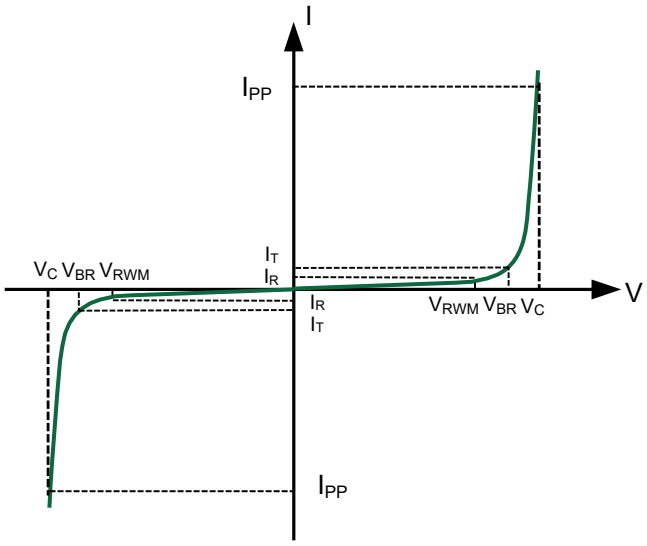
Part Number		V_{RWM}	V_{BR}@I_TV		I_T	I_{PP}	V_C@I_{PP}Max.	I_R@V_{RWM}	Package
UNT	BI	V	min.	max.	mA	A	V	uA	Package
6.6SMDJ10A	6.6SMDJ10CA	10.0	11.10	12.30	5	388.0	17.0	1000	DO-214AB
6.6SMDJ11A	6.6SMDJ11CA	11.0	12.20	13.50	5	363.0	18.2	800	DO-214AB
6.6SMDJ12A	6.6SMDJ12CA	12.0	13.30	14.70	5	332.0	19.9	800	DO-214AB
6.6SMDJ13A	6.6SMDJ13CA	13.0	14.40	15.90	5	307.0	21.5	500	DO-214AB
6.6SMDJ14A	6.6SMDJ14CA	14.0	15.60	17.20	5	284.0	23.2	200	DO-214AB
6.6SMDJ15A	6.6SMDJ15CA	15.0	16.70	18.50	5	270.0	24.4	100	DO-214AB
6.6SMDJ16A	6.6SMDJ16CA	16.0	17.80	19.70	5	254.0	26.0	50	DO-214AB
6.6SMDJ17A	6.6SMDJ17CA	17.0	18.90	20.90	5	239.0	27.6	10	DO-214AB
6.6SMDJ18A	6.6SMDJ18CA	18.0	20.00	22.10	5	226.0	29.2	10	DO-214AB
6.6SMDJ20A	6.6SMDJ20CA	20.0	22.20	24.50	5	204.0	32.4	5	DO-214AB
6.6SMDJ22A	6.6SMDJ22CA	22.0	24.40	26.90	5	186.0	35.5	2	DO-214AB
6.6SMDJ24A	6.6SMDJ24CA	24.0	26.70	29.50	5	170.0	38.9	2	DO-214AB
6.6SMDJ26A	6.6SMDJ26CA	26.0	28.90	31.90	5	157.0	42.1	2	DO-214AB
6.6SMDJ28A	6.6SMDJ28CA	28.0	31.10	34.40	5	145.0	45.4	2	DO-214AB
6.6SMDJ30A	6.6SMDJ30CA	30.0	33.30	36.80	5	136.0	48.4	2	DO-214AB
6.6SMDJ33A	6.6SMDJ33CA	33.0	36.70	40.60	5	124.0	53.3	2	DO-214AB
6.6SMDJ36A	6.6SMDJ36CA	36.0	40.00	44.20	5	114.0	58.1	2	DO-214AB
6.6SMDJ40A	6.6SMDJ40CA	40.0	44.40	49.10	5	102.0	64.5	2	DO-214AB
6.6SMDJ43A	6.6SMDJ43CA	43.0	47.80	52.80	5	95.1	69.4	2	DO-214AB

For all types maximum V_F = 5V at I_F = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

I-V Curve Characteristics



Uni-Directional TVS



Bi-Directional TVS

V_{RWM} - Reverse Stand-Off Voltage - Working Peak Reverse Voltage

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

I_T - Test Current - Test Current

V_C - Clamping Voltage - Peak voltage measured across the suppressor at a specified Ippm (peak impulse current)

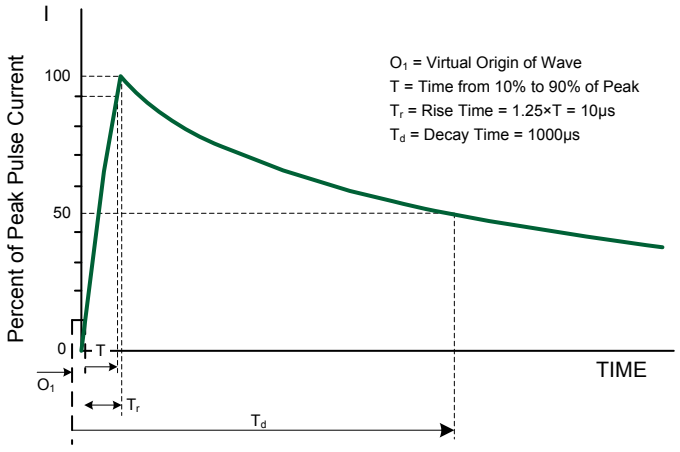
I_{PP} - Peak Pulse Current - Maximum Reverse Peak Pulse Current

P_{PP} - Peak Pulse Power Dissipation - Max power dissipation

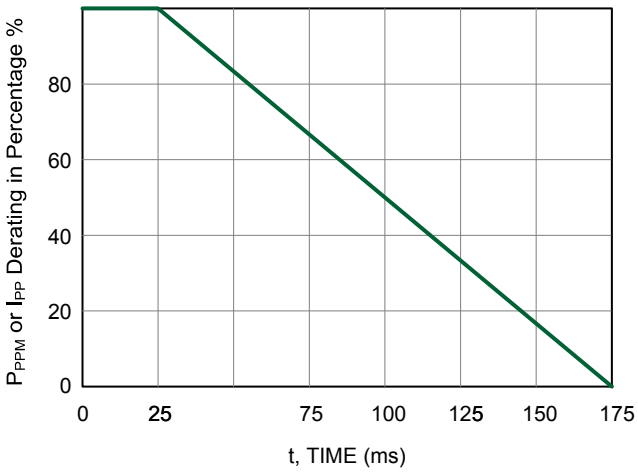
I_R - Reverse Leakage Current - Current measured at V_{RWM}

V_F - Forward Voltage - Drop for Uni-directional

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

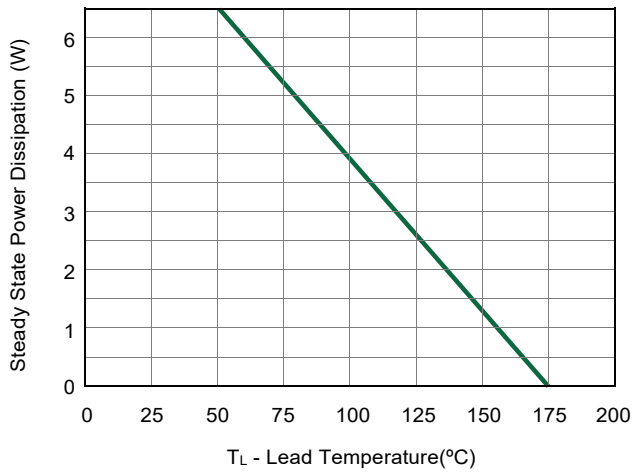


Pulse Waveform- 10/1000μs

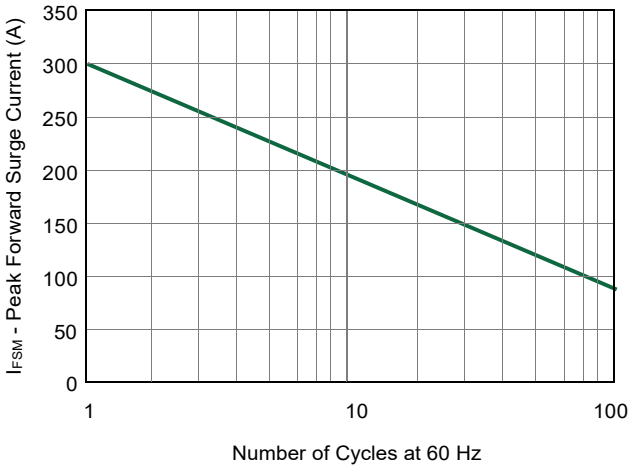


Pulse Derating Curve

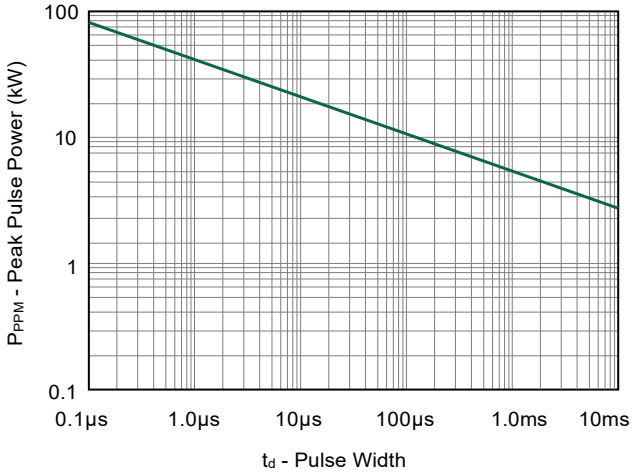
Ratings and Characteristic Curves (TA=25°C unless otherwise noted)



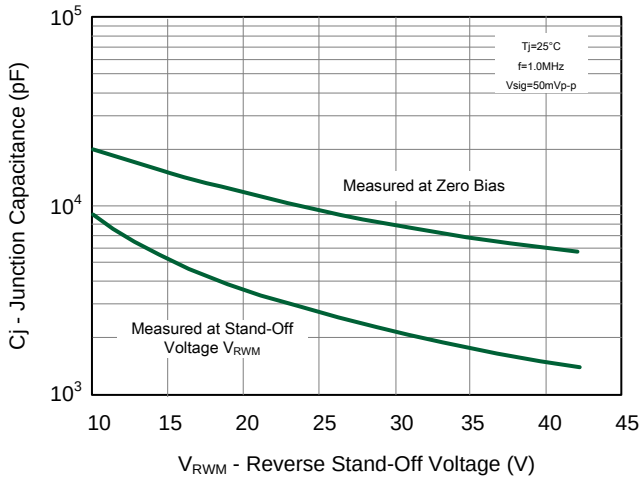
Steady State Power Derating Curve



Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



Peak Pulse Power Rating Curve

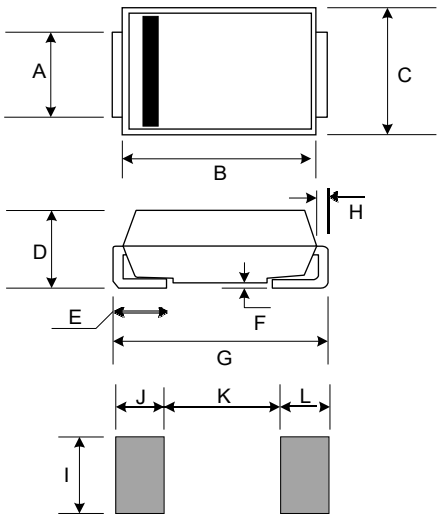


Typical Junction Capacitance

Product Dimensions

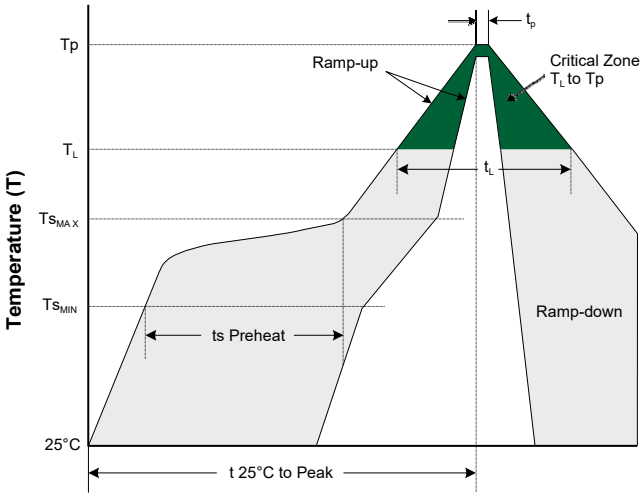
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.128	2.750	3.250
B	0.260	0.291	6.600	7.400
C	0.220	0.246	5.590	6.250
D	0.078	0.116	1.980	2.950
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.303	0.323	7.700	8.200
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

SMC (DO-214AB)

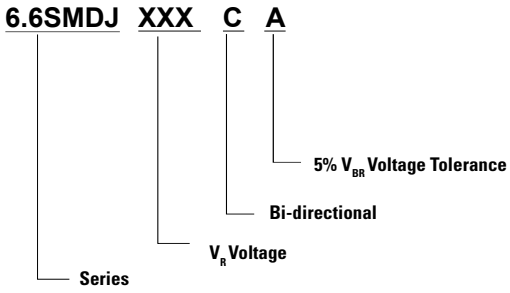


Soldering Parameters

Profile Feature	Lead-Free Assembly
Average Ramp-up Rate (Ts_{MAX} to Tp) Average Ramp-down Rate (Tp to T_L)	3°C/second max. 6°C/second max.
Preheat • Temperature Min (Ts_{MIN}) • Temperature Max (Ts_{MAX}) • Time (ts Preheat)	 150°C 200°C 60-180 seconds
Time maintained above: • Temperature (T_L) • Time (t_L)	 217°C 60-150 seconds
Peak/Classification Temperature • Temperature (Tp)	 $260^{+0/-5}$°C
Time within 5°C of actual Peak Time (t_p)	 20-40 seconds
Time 25°C to peak Temperature	8 minutes max
Do not exceed	260 °C



Part Numbering System



Order Information

Device	Package	Quantity	Tape
6.6SMDJ series	SMC/DO-214AB	500	7" Reel
6.6SMDJ series	SMC/DO-214AB	3000	13" Reel