Prisemi®

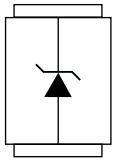
6.0SMDJ Series

Surface Mount-6600W Transient Voltage Suppression Diodes

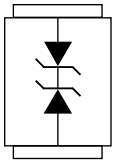
Description

The 6.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Unidirectional



Bidirectional



Feature

- For surface mounted application to optimize board space
- Low profile package
- Built-in strain relief
- Typical maximum temperature coefficient
  $\triangle V_{BR}=0.1\%\times V_{BR}@25℃\times\triangle T$
- Glass passivated chip junction
- 6600W peak pulse power capability at 10/1000μs waveform, repetition rate(duty cycles):0.01%
- Fast response time: typically less than 1.0ps from 0V to V_R min
- Excellent clamping capability
- Low incremental surge resistance
- High temperature soldering guaranteed:260℃/40 seconds at terminals

Applications

TVS device are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom, computer industrial and consumer electronic application

Maximum Ratings and Thermal Characteristics(T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_A=25℃ by 10*1000μs waveform(Fig.1) (Note 1),(Note 2)	P_{PPM}	6600	W
Power Dissipation on infinite heat sink at T_A=50℃	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current,8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	350	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only (Note 4)	V_F	5.0	V
Operation Junction and Storage Temperature Range	T_J,T_{STG}	-65 to 150	℃
Typical Thermal Resistance Junction to Lead	R_{uJL}	15	℃/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	75	℃/W

Notes:

1. Non-repetitive current pulse , per Fig. 3 and derated above T_A=50℃ per Fig. 2.
2. Mounted on copper pad area of 0.31*0.31” (8.0*8.0mm) to each terminal.
3. Measured on 8.3ms single half sine wace or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

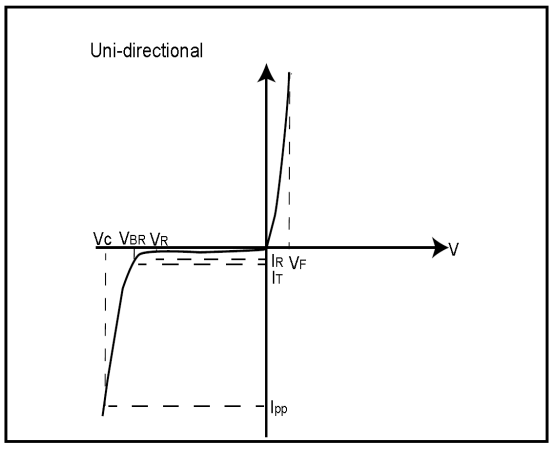
Electrical characteristics per line@25℃(unless otherwise specified)

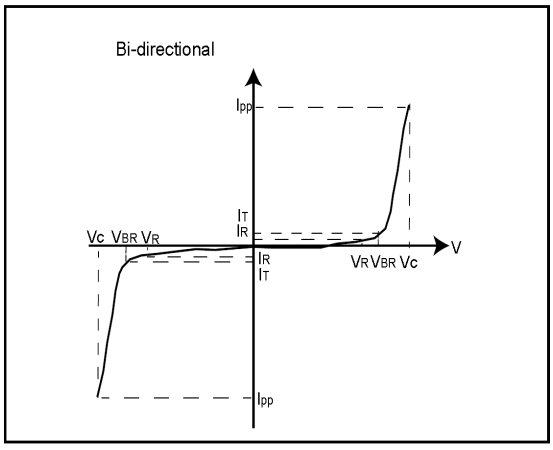
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_R (V)	Breakdown Voltage V_{BR} @ I_T (V)		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A) (A)	Maximum Reverse Leakage I_R @ V_R (μA)
			MIN	MAX				
6.0SMDJ12A	6.0SMDJ12CA	12.0	13.30	14.70	10	19.9	331.00	800
6.0SMDJ13A	6.0SMDJ13CA	13.0	14.40	15.90	10	21.5	306.00	500
6.0SMDJ14A	6.0SMDJ14CA	14.0	15.60	17.20	10	23.2	284.00	200
6.0SMDJ15A	6.0SMDJ15CA	15.0	16.70	18.50	1	24.4	270.00	100
6.0SMDJ16A	6.0SMDJ16CA	16.0	17.80	19.70	1	26.0	253.00	50
6.0SMDJ17A	6.0SMDJ17CA	17.0	18.90	20.90	1	27.6	239.00	20
6.0SMDJ18A	6.0SMDJ18CA	18.0	20.00	22.10	1	29.2	226.00	10
6.0SMDJ20A	6.0SMDJ20CA	20.0	22.20	24.50	1	32.4	203.00	5
6.0SMDJ22A	6.0SMDJ22CA	22.0	24.40	26.90	1	35.5	185.00	5
6.0SMDJ24A	6.0SMDJ24CA	24.0	26.70	29.50	1	38.9	169.00	5
6.0SMDJ26A	6.0SMDJ26CA	26.0	28.90	31.90	1	42.1	156.00	5
6.0SMDJ28A	6.0SMDJ28CA	28.0	31.10	34.40	1	45.4	145.00	5
6.0SMDJ30A	6.0SMDJ30CA	30.0	33.30	36.80	1	48.4	136.00	5
6.0SMDJ33A	6.0SMDJ33CA	33.0	36.70	40.60	1	53.3	123.00	5
6.0SMDJ36A	6.0SMDJ36CA	36.0	40.00	44.20	1	58.1	103.00	5
6.0SMDJ40A	6.0SMDJ40CA	40.0	44.40	49.10	1	64.5	102.00	5
6.0SMDJ43A	6.0SMDJ43CA	43.0	47.80	52.80	1	69.4	95.00	5
6.0SMDJ45A	6.0SMDJ45CA	45.0	50.00	55.30	1	72.7	90.00	5
6.0SMDJ48A	6.0SMDJ48CA	48.0	53.30	58.90	1	77.4	85.00	5
6.0SMDJ51A	6.0SMDJ51CA	51.0	56.70	62.70	1	82.4	80.00	5
6.0SMDJ54A	6.0SMDJ54CA	54.0	60.00	66.30	1	87.1	75.00	5
6.0SMDJ58A	6.0SMDJ58CA	58.0	64.40	71.20	1	93.6	70.00	5
6.0SMDJ60A	6.0SMDJ60CA	60.0	66.70	73.70	1	96.8	68.00	5
6.0SMDJ64A	6.0SMDJ64CA	64.0	71.10	78.60	1	103.0	64.00	5
6.0SMDJ70A	6.0SMDJ70CA	70.0	77.80	86.00	1	113.0	58.00	5
6.0SMDJ75A	6.0SMDJ75CA	75.0	83.30	92.10	1	121.0	54.00	5
6.0SMDJ78A	6.0SMDJ78CA	78.0	86.70	95.80	1	126.0	52.00	5
6.0SMDJ85A	6.0SMDJ85CA	85.0	94.40	104.00	1	137.0	48.00	5

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_R	Breakdown Voltage V_{BR} @ I_T (V)		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)
			MIN	MAX				
6.0SMDJ90A	6.0SMDJ90CA	90.0	100.00	111.00	1	146.0	45.00	5
6.0SMDJ100A	6.0SMDJ100CA	100.0	111.00	123.00	1	162.0	40.00	5
6.0SMDJ110A	6.0SMDJ110CA	110.0	122.00	135.00	1	177.0	37.00	5
6.0SMDJ120A	6.0SMDJ120CA	120.0	133.00	147.00	1	193.0	34.00	5
6.0SMDJ130A	6.0SMDJ130CA	130.0	144.00	159.00	1	209.0	31.00	5
6.0SMDJ150A	6.0SMDJ150CA	150.0	167.00	185.00	1	243.0	27.00	5
6.0SMDJ160A	6.0SMDJ160CA	160.0	178.00	197.00	1	259.0	25.00	5
6.0SMDJ170A	6.0SMDJ170CA	170.0	189.00	209.00	1	275.0	24.00	5

For bidirectional type having VR of 10 volts and less, the IR limit is double.
For parts without A the VBR is ±10% and VC is 5% higher than with A parts.

I-V Curve Characteristics





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

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

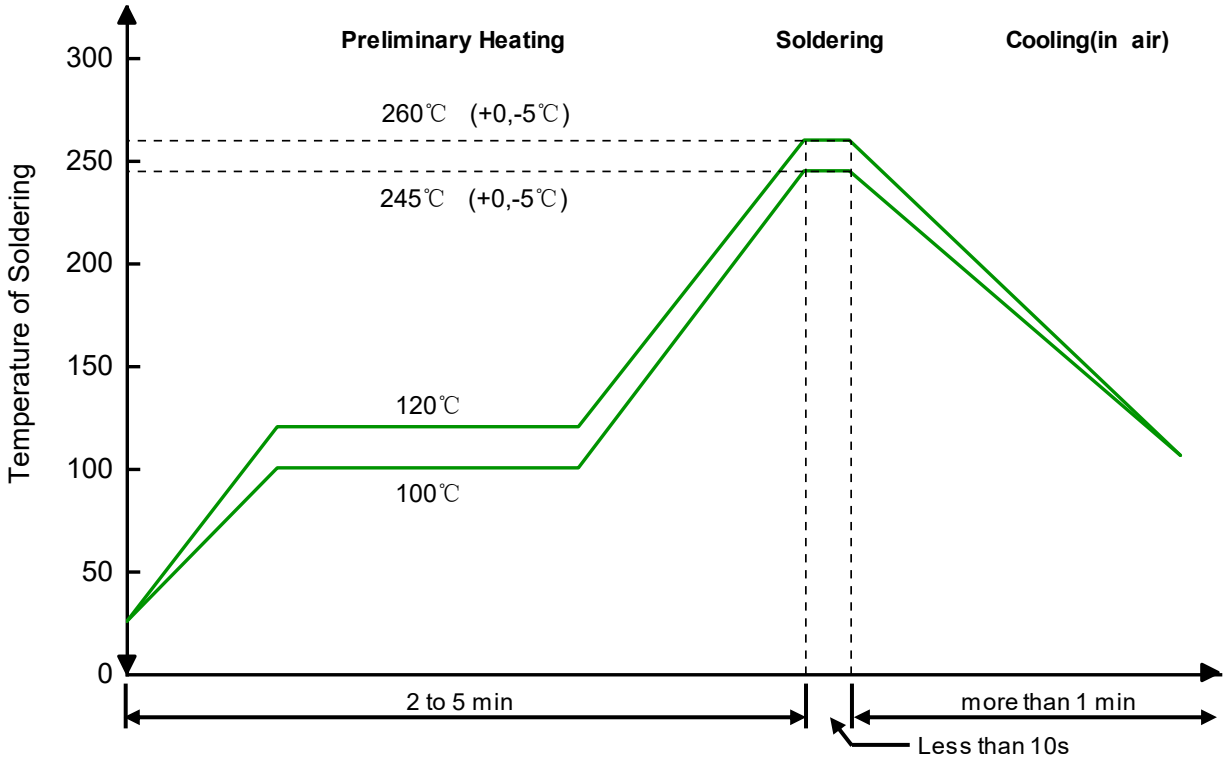
V_{BR} Breakdown Voltage -- Maximum current that flows though the TVS at a specified test current (IT)

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

I_R Reverse Leakage Current -- Current measured at VR

V_F Forward Voltage Drop for Uni-directional

Solder Reflow Recommendation



Remark: Pb free for 260℃; Pb for 245℃.

Ratings and Characteristic Curves T_A=25℃ unless otherwise noted

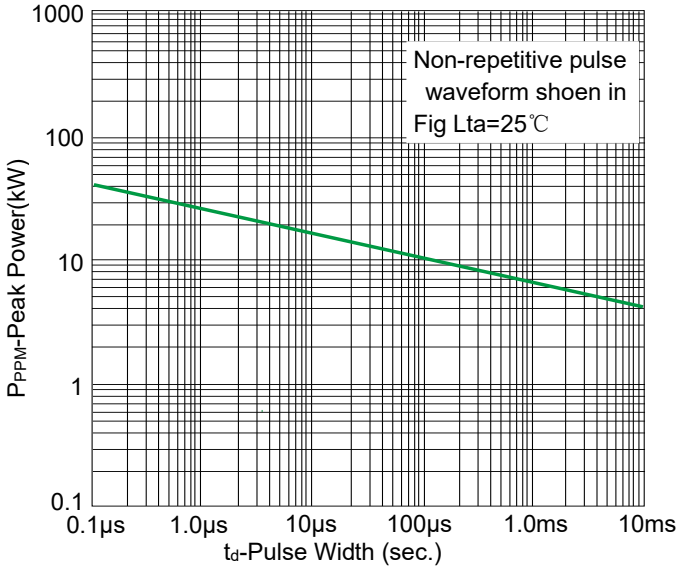


Figure 1-Peak Pulse Power Rating

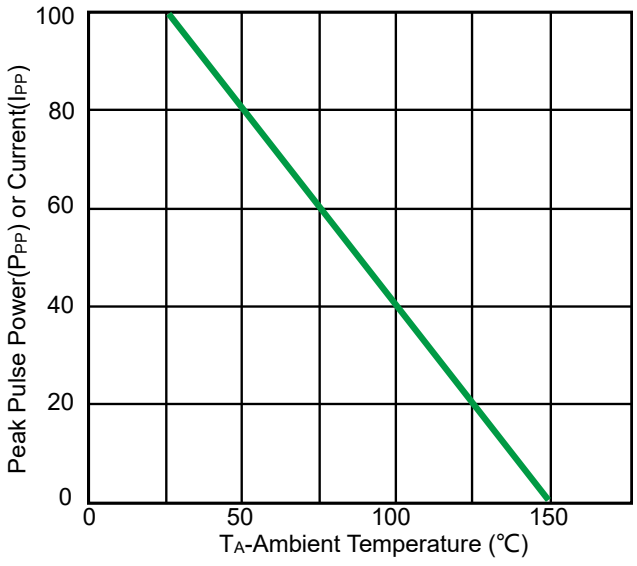


Figure 2-Pulse Derating Curve

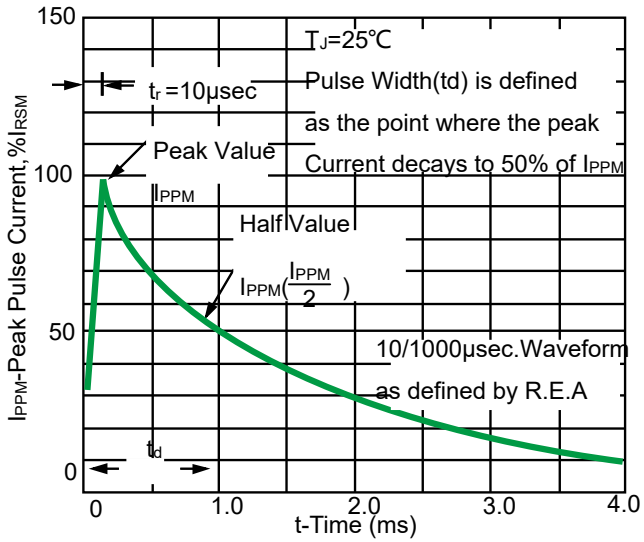


Figure 3-Pulse Waveform

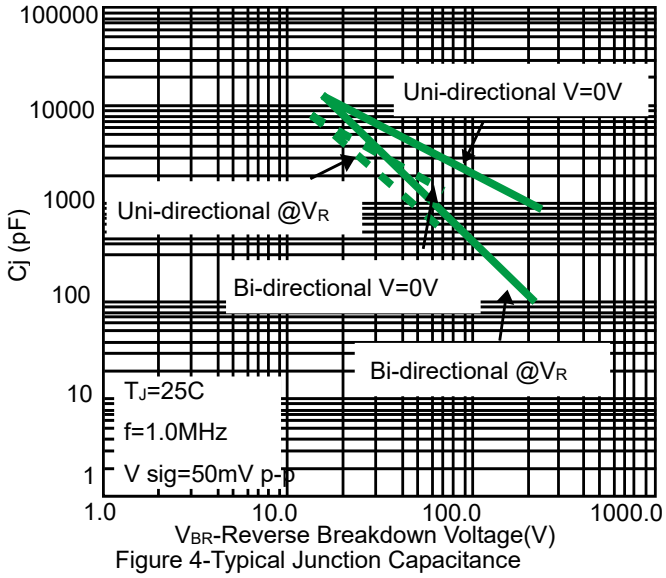


Figure 4-Typical Junction Capacitance

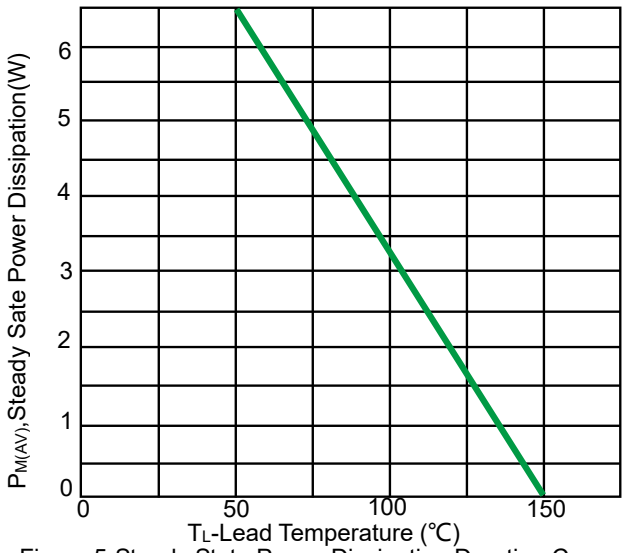


Figure 5-Steady State Power Dissipation Derating Curve

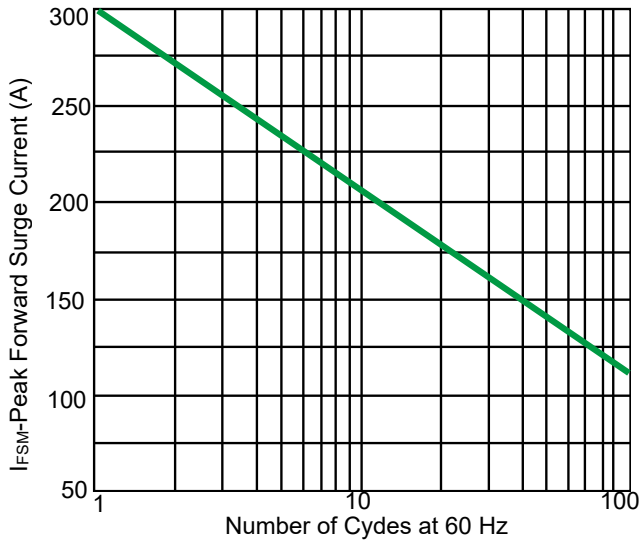
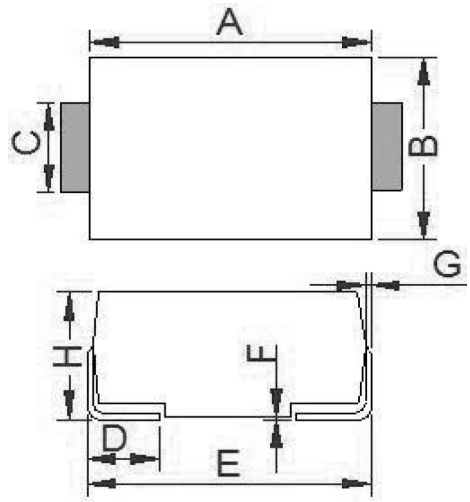
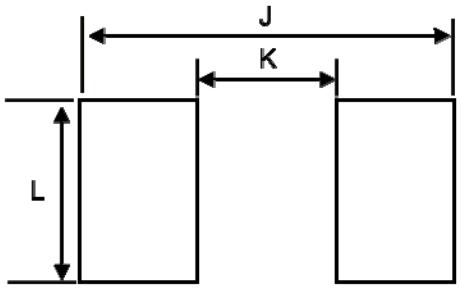


Figure 6-Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Product dimension(SMC(DO214AB))



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.260	0.280	6.60	7.11
B	0.220	0.244	5.59	6.20
C	0.108	0.126	2.75	3.20
D	0.030	0.060	0.76	1.52
E	0.304	0.320	7.71	8.13
F	0.002	0.008	0.051	0.203
G	0.006	0.012	0.15	0.31
H	0.081	0.108	2.06	2.75
J	0.320	-	8.12	-
K	-	0.185	-	4.69
L	0.121	-	3.07	-



Suggested PCB Layout

Ordering information

Device	Package	Shipping
6.0 SMDJ Series	SMC(DO214AB)	500 / Tape & Reel

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