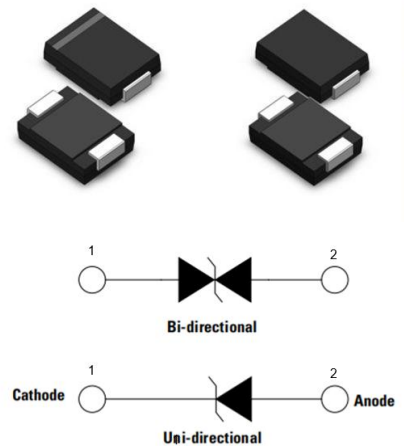
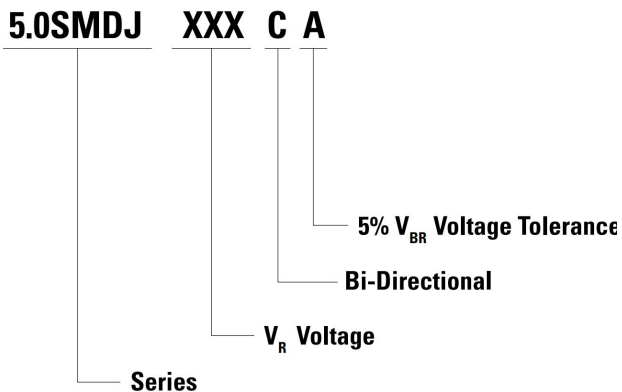


TVS Diodes **5.0SMDJ Series**

Transient Voltage Suppressors

Features

- ◆ 5000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- ◆ For surface mounted applications to optimize board space
- ◆ Low incremental surge impedance
- ◆ Excellent clamping capability
- ◆ Typical I_R less than 5μA above 20V
- ◆ High Temperature soldering guaranteed: 260°C/40 seconds at terminals
- ◆ Plastic package has underwriters laboratory flammability 94V-0
- ◆ Meets MSL level 1, per J-STD-020
- ◆ Meet Halogen free and RoHS compliant

**Part Number Coding System****Applications**

- ◆ I/O interface
- ◆ AC/DC power supply
- ◆ Low frequency signal transmission line(RS232,RS485,etc.)

Mechanical Data

- ◆ Case: JEDEC DO-214AB
- ◆ Polarity: Color band denotes positive end(cathode) except bi-directional models
- ◆ Weight: About 0.93g

Dimensions (SMC)

Ref.	Millimeters		Inches	
	Min	Max	Min.	Max.
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.06	2.62	0.079	0.103
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	7.75	8.130	0.305	0.320
H	0.152	0.305	0.006	0.012
I	3.30	-	0.129	-
J	2.40	-	0.094	-
K	-	4.20	-	0.165

Maximum Rating and Characteristics

Parameters at 25°C ambient temperature unless otherwise Noted.

Rating	Symbol	Value	Unit
Peak Pulse power Dissipation at 10/1000μs Waveform (Note1, Note2,)	P _{PPM}	Minimum 5000	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.2)	I _{PPM}	See Table	Amps
Steady state power dissipation at T _A =50°C	P _{M(AV)}	6.5	Watts
Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only	V _F	5.0	V
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.5)	I _{FSM}	300	Amps
Operating junction Temperature Range.	T _J	-65 to +150	°C
Storage Temperature Range	T _{STG}	-65 to +175	°C

Notes:

1. Non-repetitive current pulse, per Fig.2 and derated above T_A=25°C per Fig.1.
2. Mounted on 8.0mm×8.0mm copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

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

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
5.0SMDJ11A	5.0SMDJ11CA	11.0	12.20~13.50	10	18.2	275.00	800
5.0SMDJ12A	5.0SMDJ12CA	12.0	13.30~14.70	10	19.9	252.00	800
5.0SMDJ13A	5.0SMDJ13CA	13.0	14.40~15.90	10	21.5	233.00	500
5.0SMDJ14A	5.0SMDJ14CA	14.0	15.60~17.20	10	23.2	216.00	200
5.0SMDJ15A	5.0SMDJ15CA	15.0	16.70~18.50	1	24.4	205.00	100
5.0SMDJ16A	5.0SMDJ16CA	16.0	17.80~19.70	1	26.0	193.00	50
5.0SMDJ17A	5.0SMDJ17CA	17.0	18.90~20.90	1	27.6	181.00	20
5.0SMDJ18A	5.0SMDJ18CA	18.0	20.00~22.10	1	29.2	172.00	10
5.0SMDJ20A	5.0SMDJ20CA	20.0	22.20~24.50	1	32.4	155.00	5
5.0SMDJ22A	5.0SMDJ22CA	22.0	24.40~26.90	1	35.5	141.00	5
5.0SMDJ24A	5.0SMDJ24CA	24.0	26.70~29.50	1	38.9	129.00	5
5.0SMDJ26A	5.0SMDJ26CA	26.0	28.90~31.90	1	42.1	119.00	5
5.0SMDJ28A	5.0SMDJ28CA	28.0	31.10~34.40	1	45.4	110.00	5
5.0SMDJ30A	5.0SMDJ30CA	30.0	33.30~36.80	1	48.4	103.00	5
5.0SMDJ33A	5.0SMDJ33CA	33.0	36.70~40.60	1	53.3	93.90	5
5.0SMDJ36A	5.0SMDJ36CA	36.0	40.00~44.20	1	58.1	86.10	5
5.0SMDJ40A	5.0SMDJ40CA	40.0	44.40~49.10	1	64.5	77.60	5
5.0SMDJ43A	5.0SMDJ43CA	43.0	47.80~52.80	1	69.4	72.10	5
5.0SMDJ45A	5.0SMDJ45CA	45.0	50.00~55.30	1	72.7	68.80	5
5.0SMDJ48A	5.0SMDJ48CA	48.0	53.30~58.90	1	77.4	64.70	5
5.0SMDJ51A	5.0SMDJ51CA	51.0	56.70~62.70	1	82.4	60.70	5
5.0SMDJ54A	5.0SMDJ54CA	54.0	60.00~66.30	1	87.1	57.50	5
5.0SMDJ58A	5.0SMDJ58CA	58.0	64.40~71.20	1	93.6	53.50	5
5.0SMDJ60A	5.0SMDJ60CA	60.0	66.70~73.70	1	96.8	51.70	5
5.0SMDJ64A	5.0SMDJ64CA	64.0	71.10~78.60	1	103.0	48.60	5
5.0SMDJ70A	5.0SMDJ70CA	70.0	77.80~86.00	1	113.0	44.30	5
5.0SMDJ75A	5.0SMDJ75CA	75.0	83.30~92.10	1	121.0	41.40	5
5.0SMDJ78A	5.0SMDJ78CA	78.0	86.70~95.80	1	126.0	39.70	5
5.0SMDJ85A	5.0SMDJ85CA	85.0	94.40~104.00	1	137.0	36.50	5
5.0SMDJ90A	5.0SMDJ90CA	90.0	100.00~111.00	1	146.0	34.30	5
5.0SMDJ100A	5.0SMDJ100CA	100.0	111.00~123.00	1	162.0	30.90	5
5.0SMDJ110A	5.0SMDJ110CA	110.0	122.00~135.00	1	177.0	28.30	5
5.0SMDJ120A	5.0SMDJ120CA	120.0	133.00~147.00	1	193.0	26.00	5
5.0SMDJ130A	5.0SMDJ130CA	130.0	144.00~159.00	1	209.0	24.00	5
5.0SMDJ140A	5.0SMDJ140CA	140.0	156.00~172.00	1	226.1	22.2	5
5.0SMDJ150A	5.0SMDJ150CA	150.0	167.00~185.00	1	243.0	20.60	5
5.0SMDJ160A	5.0SMDJ160CA	160.0	178.00~197.00	1	259.0	19.30	5
5.0SMDJ170A	5.0SMDJ170CA	170.0	189.00~209.00	1	275.0	18.20	5

Note: For bidirectional type having V_{RWM} of 20V and less, the I_R limit is double.

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Derating Curve

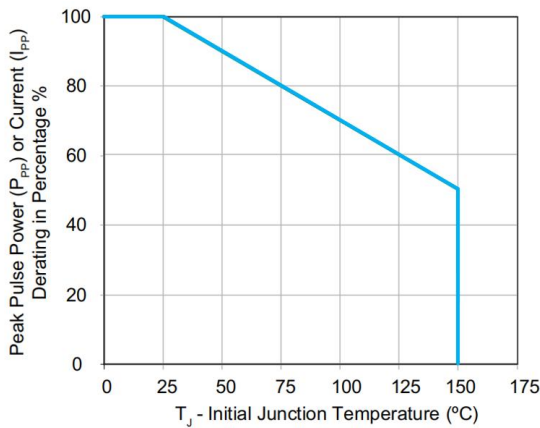


Figure 2. Pulse Waveform

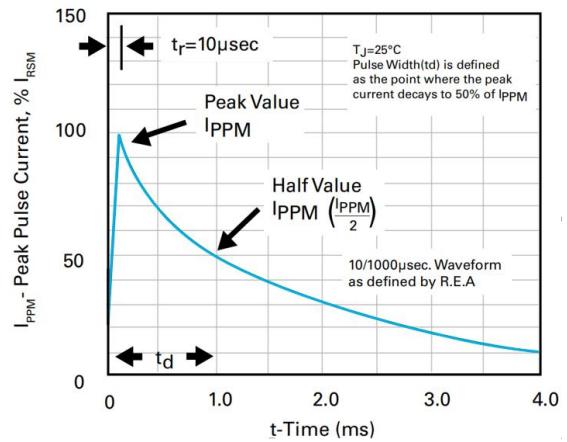


Figure 3. Typical Junction Capacitance

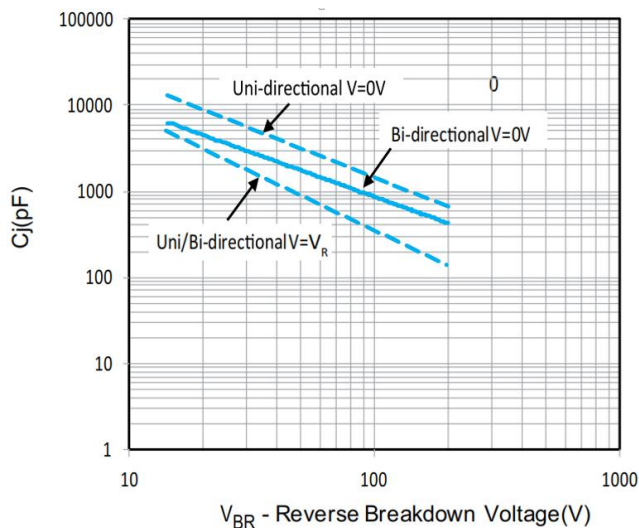


Figure 4. Typical Transient Thermal Impedance

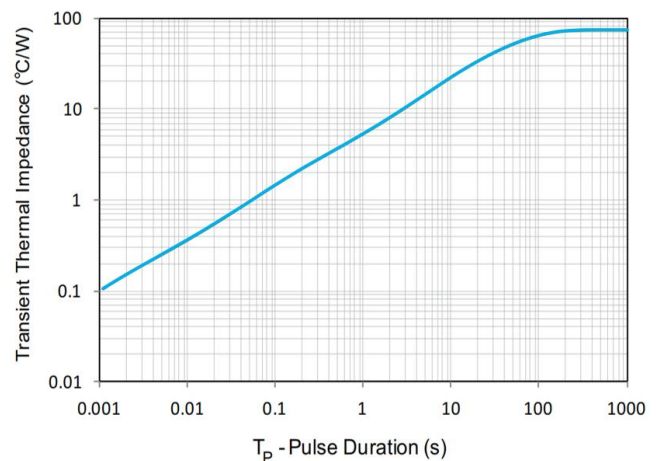


Figure 5. Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

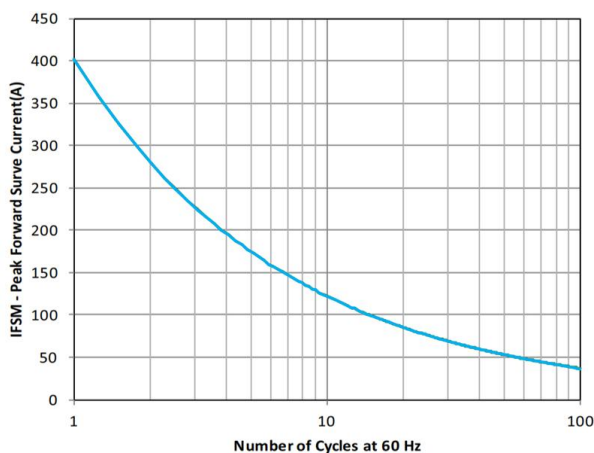
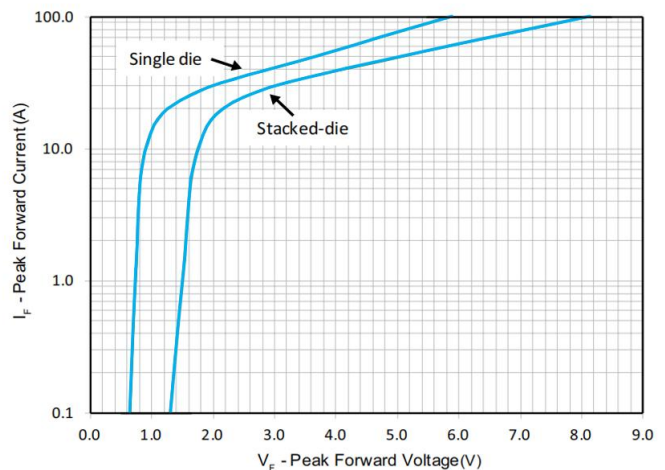
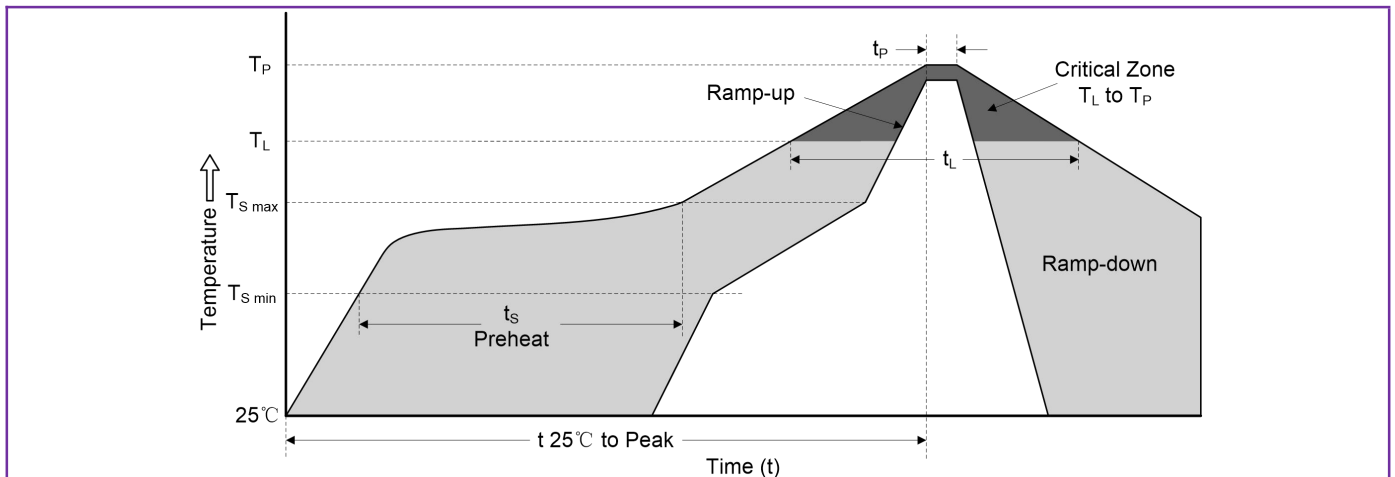


Figure 6. Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



Reflow 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)	60-120 seconds
Average ramp-up rate (T_L to T_P)		3°C/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (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

Reliability

Items	Standards
Terminal strength	MIL-STD-750 Method 2036
Mechanical shock	JESD22-B104
Vibration	JESD22-B103
High Temp. Storage	JESD22-A103
High Temp Reverse Bias	JESD22-A108
Temperature Cycling	JESD22-A104
High Temp High Humidity Reverse Bias	JESD22-A101
Resistance to solder heat	JESD22-A111(SMD)