

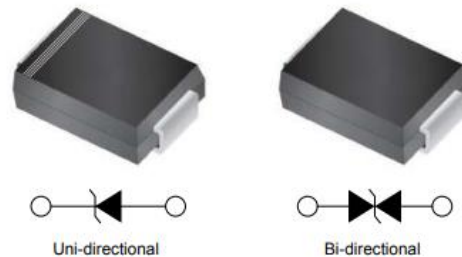
Transient Voltage Suppression Diodes: 5.0SMDJ Series

SMD Type 5000 W



■ Features

1. Glass passivated chip
2. 5000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
3. Excellent clamping capability
4. Very fast response time
5. Low clamping voltage
6. Low leakage current
7. Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C
8. JESD22-A114-B ESD Voltage: HBM 15KV
9. JEDEC EIA/JESD22-C101F ESD Voltage: CDM 500V
10. JEDEC EIA/JESD22-A115 ESD Voltage: MM 400V
11. ESD-immunity acc. IEC 61000-4-2 ±30kV(contact), ±30kV(air)
12. Halogen free and RoHS compliant



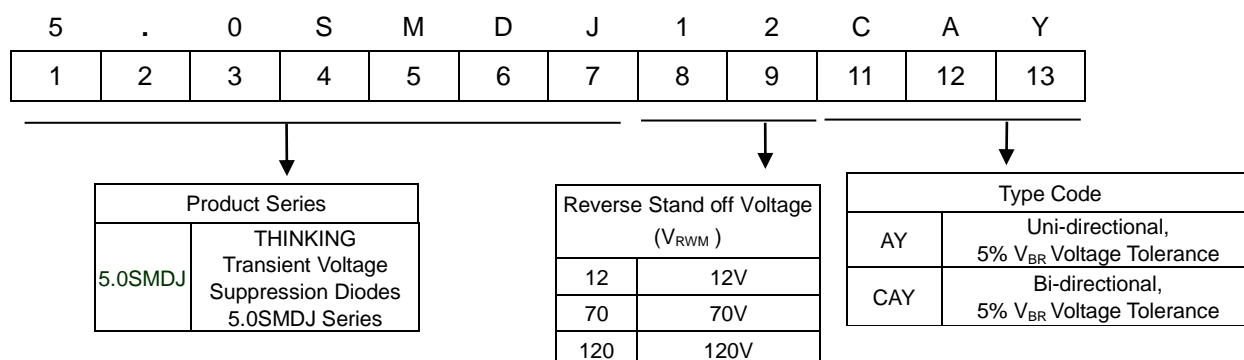
■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

■ Mechanical Data

1. Case: Molded plastic, SMC / DO-214AB
2. Epoxy: UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

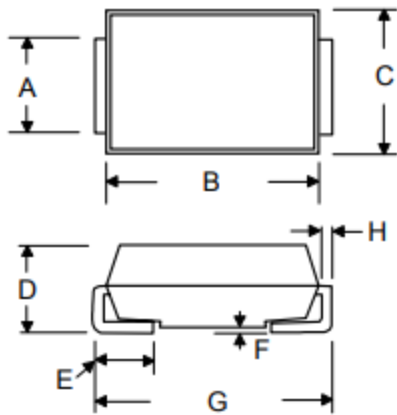


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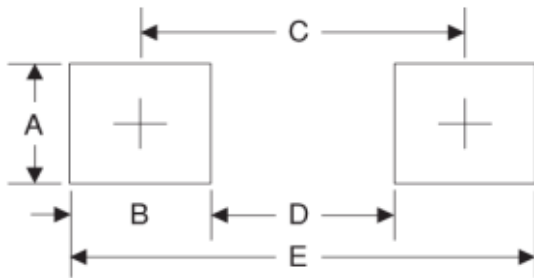
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Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	2.90	3.20
B	6.60	7.11
C	5.59	6.22
D	2.06	2.62
E	0.76	1.52
F	-	0.20
G	7.75	8.13
H	0.15	0.31



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
D	4.40	0.173
E	9.40	0.370

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μs waveform (Note 1,2)	P_{PPM}	5000	W
Peak pulse current with 10/1000 μs waveform (Note 1)	I_{PPM}	See next table	A
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	300	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	6.5	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on 8.0 x 8.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

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■ Electrical Characteristics (T_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage V _{RWM} (V)	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp} V _C (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _{RWM} I _R (μA)	Marking Code	
			Min(V)	Max(V)					Uni	Bi
5.0SMDJ11AY	5.0SMDJ11CAY	11	12.2	13.5	10	18.2	274.7	800	5PEN	5BEN
5.0SMDJ12AY	5.0SMDJ12CAY	12	13.3	14.7	10	19.9	251.3	800	5PEP	5BEP
5.0SMDJ13AY	5.0SMDJ13CAY	13	14.4	15.9	10	21.5	232.6	500	5PEQ	5BEQ
5.0SMDJ14AY	5.0SMDJ14CAY	14	15.6	17.2	10	23.2	215.5	200	5PER	5BER
5.0SMDJ15AY	5.0SMDJ15CAY	15	16.7	18.5	1	24.4	204.9	100	5PES	5BES
5.0SMDJ16AY	5.0SMDJ16CAY	16	17.8	19.7	1	26	192.3	50	5PET	5BET
5.0SMDJ17AY	5.0SMDJ17CAY	17	18.9	20.9	1	27.6	181.2	20	5PEU	5BEU
5.0SMDJ18AY	5.0SMDJ18CAY	18	20	22.1	1	29.2	171.2	10	5PEV	5BEV
5.0SMDJ20AY	5.0SMDJ20CAY	20	22.2	24.5	1	32.4	154.3	5	5PEW	5BEW
5.0SMDJ22AY	5.0SMDJ22CAY	22	24.4	26.9	1	35.5	140.8	5	5PEX	5BEX
5.0SMDJ24AY	5.0SMDJ24CAY	24	26.7	29.5	1	38.9	128.5	5	5PEZ	5BEZ
5.0SMDJ26AY	5.0SMDJ26CAY	26	28.9	31.9	1	42.1	118.8	5	5PFE	5BFE
5.0SMDJ28AY	5.0SMDJ28CAY	28	31.1	34.4	1	45.4	110.1	5	5PFG	5BFG
5.0SMDJ30AY	5.0SMDJ30CAY	30	33.3	36.8	1	48.4	103.3	5	5PFK	5BFK
5.0SMDJ33AY	5.0SMDJ33CAY	33	36.7	40.6	1	53.3	93.8	5	5PFM	5BFM
5.0SMDJ36AY	5.0SMDJ36CAY	36	40	44.2	1	58.1	86.1	5	5PFP	5BFP
5.0SMDJ40AY	5.0SMDJ40CAY	40	44.4	49.1	1	64.5	77.5	5	5PFR	5BFR
5.0SMDJ43AY	5.0SMDJ43CAY	43	47.8	52.8	1	69.4	72	5	5PFT	5BFT
5.0SMDJ45AY	5.0SMDJ45CAY	45	50	55.3	1	72.7	68.8	5	5PFV	5BFV
5.0SMDJ48AY	5.0SMDJ48CAY	48	53.3	58.9	1	77.4	64.6	5	5PFX	5BFX
5.0SMDJ51AY	5.0SMDJ51CAY	51	56.7	62.7	1	82.4	60.7	5	5PFZ	5BFZ
5.0SMDJ54AY	5.0SMDJ54CAY	54	60	66.3	1	87.1	57.4	5	5PGE	5BGE
5.0SMDJ58AY	5.0SMDJ58CAY	58	64.4	71.2	1	93.6	53.4	5	5PGG	5BGG
5.0SMDJ60AY	5.0SMDJ60CAY	60	66.7	73.7	1	96.8	51.7	5	5PGK	5BGK
5.0SMDJ64AY	5.0SMDJ64CAY	64	71.1	78.6	1	103	48.5	5	5PGM	5BGM
5.0SMDJ70AY	5.0SMDJ70CAY	70	77.8	86	1	113	44.2	5	5PGP	5BGB
5.0SMDJ75AY	5.0SMDJ75CAY	75	83.3	92.1	1	121	41.3	5	5PGR	5BGR
5.0SMDJ78AY	5.0SMDJ78CAY	78	86.7	95.8	1	126	39.7	5	5PGT	5BGT
5.0SMDJ85AY	5.0SMDJ85CAY	85	94.4	104	1	137	36.5	5	5PGV	5BGV
5.0SMDJ90AY	5.0SMDJ90CAY	90	100	111	1	146	34.2	5	5PGX	5BGX

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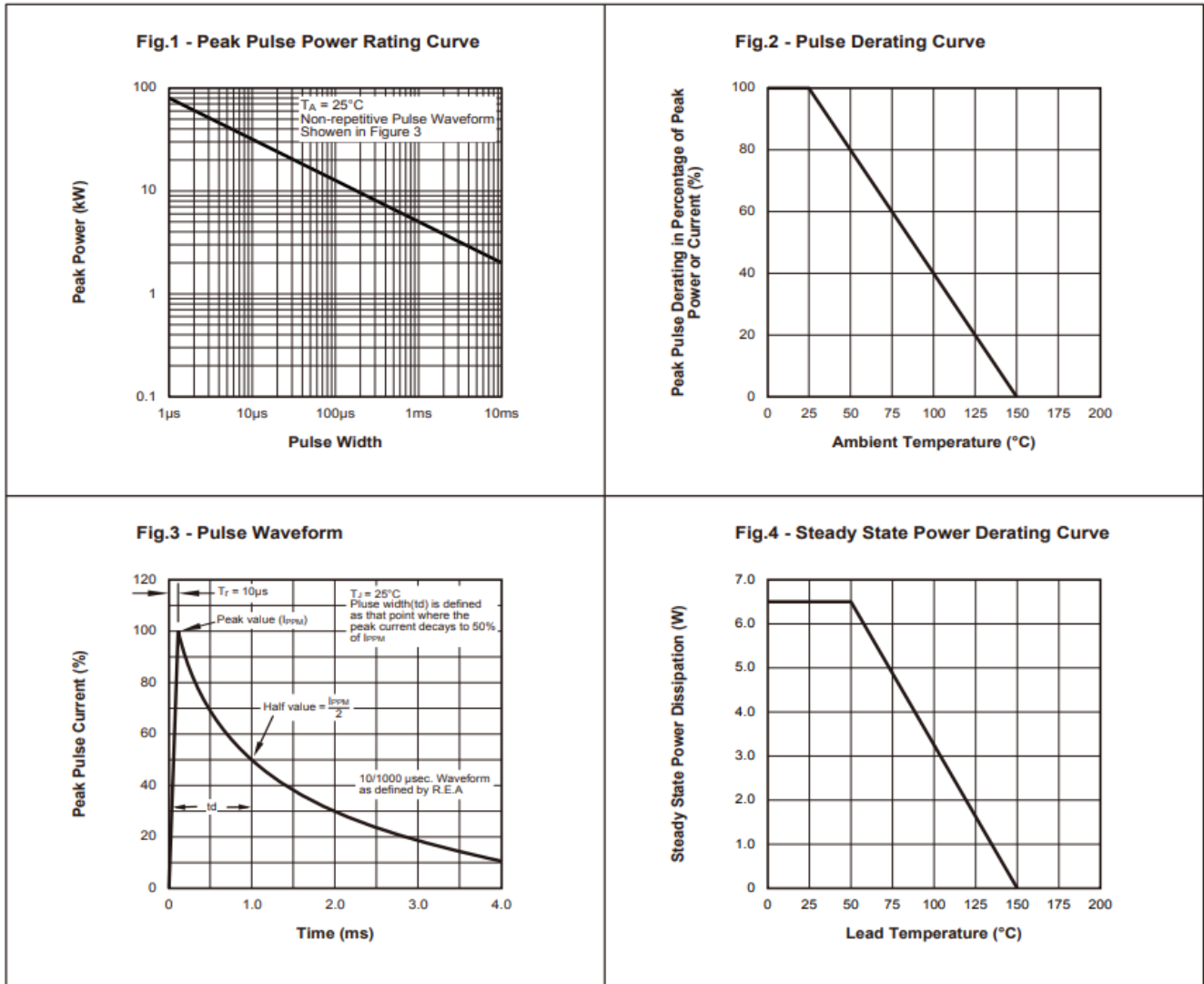
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage V _{RWM} (V)	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp} V _C (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @V _{RWM} I _R (μA)	Marking Code	
			Min(V)	Max(V)					Uni	Bi
5.0SMDJ100AY	5.0SMDJ100CAY	100	111	123	1	162	30.9	5	5PGZ	5BGZ
5.0SMDJ110AY	5.0SMDJ110CAY	110	122	135	1	177	28.2	5	5PHE	5BHE
5.0SMDJ120AY	5.0SMDJ120CAY	120	133	147	1	193	25.9	5	5PHG	5BHG
5.0SMDJ130AY	5.0SMDJ130CAY	130	144	159	1	209	23.9	5	5PHK	5BHK
5.0SMDJ140AY	5.0SMDJ140CAY	140	155	171	1	226.8	22	5	5PHL	5BHL
5.0SMDJ150AY	5.0SMDJ150CAY	150	167	185	1	243	20.6	5	5PHM	5BHM
5.0SMDJ160AY	5.0SMDJ160CAY	160	178	197	1	259	19.3	5	5PHP	5BHB
5.0SMDJ170AY	5.0SMDJ170CAY	170	189	209	1	275	18.2	5	5PHR	5BHR

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

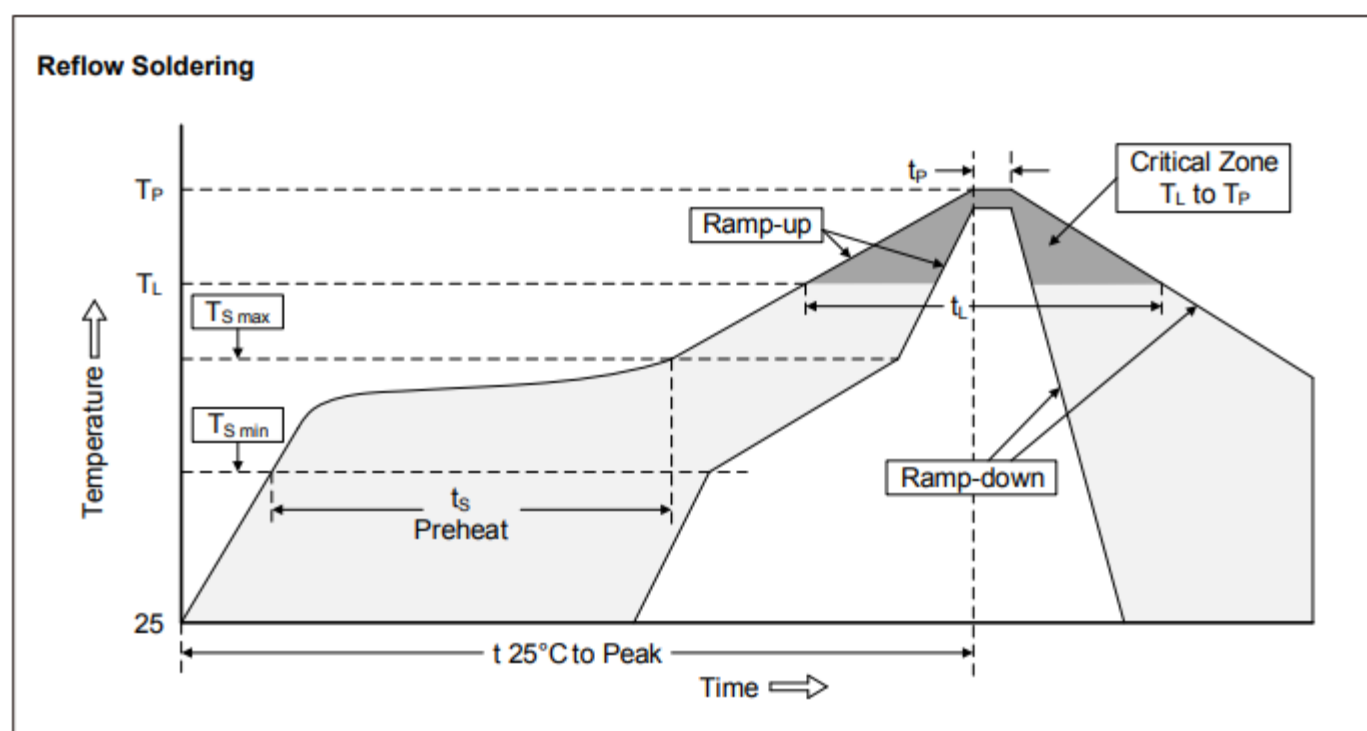


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■ Soldering Recommendation



Recommended Conditions

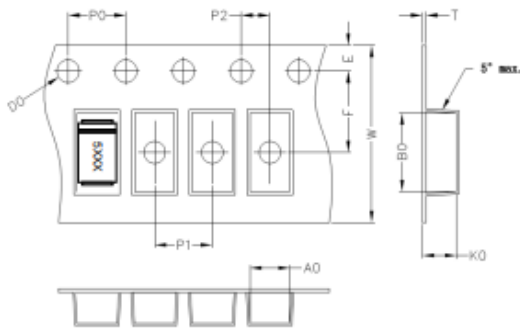
Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°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	8 minutes max.

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■ Packaging



A0	B0	K0	D0	E	F
6.05	8.31	2.54	1.55	1.75	7.50
P0	P1	P2	T	W	Tolerance
4.0	8.0	2.0	0.25	16	0.1

■ Quantity

Series Type	Packaging option	Base quantity	Packaging specification
5.0SMDJ	Tape and reel	3000pcs/reel	EIA STD RS-481

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$
 2. Relative Humidity: $\leq 75\%RH$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.