

HF RoHS

5.0SMDJ Series





Agency Approvals

AGENCY	AGENCY FILE NUMBER
. P	E230531

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

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by $10\times1000\mu\text{s}$ waveform (Fig.1)(Note 1), (Note 2)	P _{PPM}	5000	W
Power Dissipation on infinite heat sink at T_A =50°C	P _{M(AV)}	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I _{FSM}	300	А
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V _F	5.0	V
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-65 to 150	°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 , per Fig. 3 and derated above $\rm T_{\rm A}$ = 25°C per Fig. 2.
- 2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
- Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only,duty cycle=4 per minute maximum.

Description

The 5.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features

- Halogen-Free
- RoHS compliant
- For surface mounted applications to optimize board space
- Low profile package
- Built-in strain relief
- Typical maximum temperature coefficient ΔV_{BR} = 0.1% x V_{BR}@25°C x ΔT
- Glass passivated chip junction
- 5000W 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 BV min
- Excellent clamping capability
- Low incremental surge resistance
- Typical I_R less than 5μA above 22V
- High Temperature soldering guaranteed: 260°C/40 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability 94V-O
- Matte Tin Lead-free Plated

Applications

TVS devices are ideal for the protection of I/O Interfaces, $V_{\rm cc}$ bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Transient Voltage Suppression DiodesSurface Mount – 5000W > 5.0SMDJ series



Electrical Characteristics

Part Number (Uni)	Part Number (Bi)	Mar	king	Reverse Stand off Voltage V	Volta	kdown ge V _{BR} s) @ I _T	Test Current I _T	Maximum Clamping Voltage V _c @	Maximum Peak Pulse Current I _{pp}	Maximum Reverse Leakage I _R @ V	Agency Approval
(3,	(=.,	UNI	BI	V _R (Volts)	MIN	MAX	(mA)	(V) ^{pp}	(A)	@ V̄ _R " (μΑ)	® /
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12.0	13.30	14.70	10	19.9	252.00	800	X
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13.0	14.40	15.90	10	21.5	233.00	500	X
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14.0	15.60	17.20	10	23.2	216.00	200	X
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15.0	16.70	18.50	1	24.4	205.00	100	X
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16.0	17.80	19.70	1	26.0	193.00	50	X
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17.0	18.90	20.90	1	27.6	181.00	20	X
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18.0	20.00	22.10	1	29.2	172.00	10	X
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20.0	22.20	24.50	1	32.4	155.00	5	X
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	35.5	141.00	5	X
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.00	5	X
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.00	5	X
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	45.4	110.00	5	X
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	48.4	103.00	5	X
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	53.3	93.90	5	X
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.10	5	X
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	64.5	77.60	5	X
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.10	5	X
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	72.7	68.80	5	Χ
5.0SMDJ48A	-	5PFX	-	48.0	53.30	58.90	1	77.4	64.70	5	X
5.0SMDJ51A	-	5PFZ	-	51.0	56.70	62.70	1	82.4	60.70	5	X
5.0SMDJ54A	-	5RGE	-	54.0	60.00	66.30	1	87.1	57.50	5	X
5.0SMDJ58A	-	5PGG	-	58.0	64.40	71.20	1	93.6	53.50	5	X
5.0SMDJ60A	-	5PGK	-	60.0	66.70	73.70	1	96.8	51.70	5	X
5.0SMDJ64A	-	5PGM	-	64.0	71.10	78.60	1	103.0	48.60	5	Χ
5.0SMDJ70A	-	5PGP	-	70.0	77.80	86.00	1	113.0	44.30	5	Χ
5.0SMDJ75A	-	5PGR	-	75.0	83.30	92.10	1	121.0	41.40	5	X
5.0SMDJ78A	-	5PGT	-	78.0	86.70	95.80	1	126.0	39.70	5	X
5.0SMDJ85A	-	5PGV	-	85.0	94.40	104.00	1	137.0	36.50	5	X
5.0SMDJ90A	-	5PGX	-	90.0	100.00	111.00	1	146.0	34.30	5	X
5.0SMDJ100A	-	5PGZ	-	100.0	111.00	123.00	1	162.0	30.90	5	Х
5.0SMDJ110A	-	5PHE	-	110.0	122.00	135.00	1	177.0	28.30	5	X
5.0SMDJ120A	-	5PHG	-	120.0	133.00	147.00	1	193.0	26.00	5	Х
5.0SMDJ130A	-	5PHK	-	130.0	144.00	159.00	1	209.0	24.00	5	Х
5.0SMDJ150A	-	5PHM	-	150.0	167.00	185.00	1	243.0	20.60	5	X
5.0SMDJ160A	-	5PHP	-	160.0	178.00	197.00	1	259.0	19.30	5	X
5.0SMDJ170A	-	5PHR	-	170.0	189.00	209.00	1	275.0	18.20	5	X

For Bidirectional type having $\rm V_{R}$ of 20 volts and less,the $\rm I_{R}$ limit is double.



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

Figure 1 - Peak Pulse Power Rating Curve

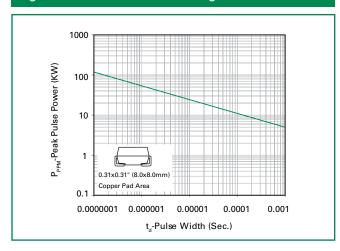


Figure 2 - Pulse Derating Curve

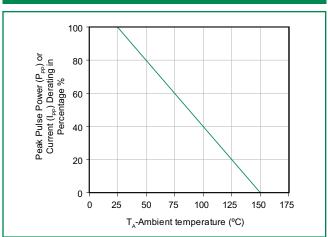


Figure 3 - Pulse Waveform

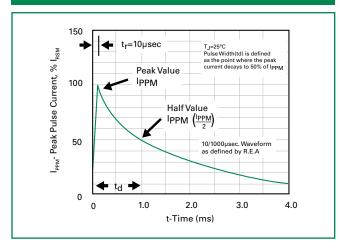


Figure 4 - Typical Junction Capacitance

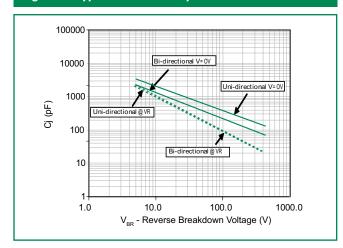


Figure 5 - Steady State Power Derating Curve

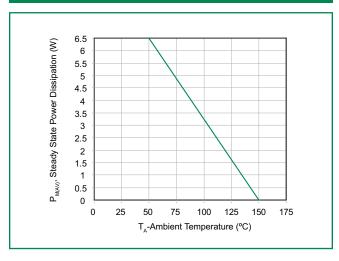
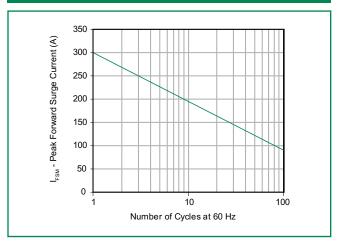


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

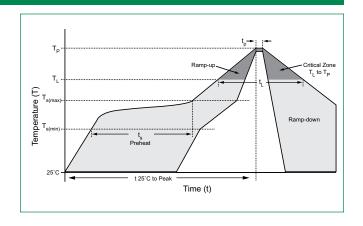


Transient Voltage Suppression DiodesSurface Mount – 5000W > 5.0SMDJ series



Soldering Parameters

Reflow Co	ndition	Lead-free assembly		
	-Temperature Min (T _{s(min)})	150°C		
Pre Heat	-Temperature Max (T _{s(max)})	200°C		
	-Time (min to max) (t _s)	60 – 180 secs		
Average ra	amp up rate (Liquidus Temp k	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		
PeakTemp	perature (T _P)	260 ^{+0/-5} °C		
Time with Temperate	in 5°C of actual peak ure (t _p)	20 - 40 seconds		
Ramp-dov	vn Rate	6°C/second max		
Time 25°C	to peakTemperature (T _P)	8 minutes Max.		
Do not exc	ceed	280°C		



Physical Specifications

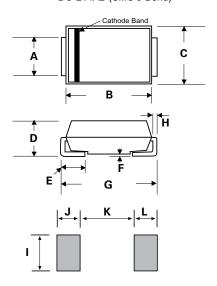
Weight	0.007 ounce, 0.21 grams
Case	JEDEC DO214AB. Molded plastic body over glass passivated junction
Polarity	Color band denotes positive end (cathode) except Bidirectional.
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Dimensions

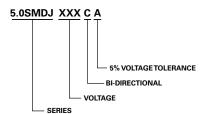
DO-214AB (SMC J-Bend)



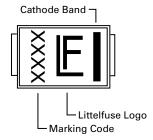
Dimensions	Inc	hes	Millimeters		
Dimensions	Min	Max	Min	Max	
А	0.114	0.126	2.900	3.200	
В	0.260	0.280	6.600	7.110	
С	0.220	0.245	5.590	6.220	
D	0.079	0.103	2.060	2.620	
E	0.030	0.060	0.760	1.520	
F	-	0.008	-	0.203	
G	0.305	0.320	7.750	8.130	
Н	0.006	0.012	0.152	0.305	
I	0.129	-	3.300	-	
J	0.094	-	2.400	-	
K	-	0.165	-	4.200	
L	0.094	-	2.400	-	



Part Numbering System



Part Marking System



Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
5.0SMDJxxxXX	DO-214AB	3000	Tape & Reel – 16mm/13" tape	EIA STD RS-481