

SMDJ Series

Transient Voltage Suppressors

Stand-off Voltage : 5 to 440 V

Peak Pulse Power : 3000 W

Features

- 3000 W peak pulse power capability on 10 /1000 μ s
- Excellent clamping capability
- Fast response time: typically less than 1 ps from 0 V to V(BR) for unidirectional types

Mechanical Data

- Case: SMC (DO-214AB) molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Terminals: Solder plated
- Polarity: Color band denotes cathode end

Types for Bidirectional Applications

- For bidirectional use CA suffix for types SMDJ5.0A thru types SMDJ440A (e.g. SMDJ5.0A, SMDJ440CA)
- Electrical characteristics apply in both directions

Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 50 Hz, resistive or inductive load. For capacitive load, derate by 20%

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 μ s Waveform ^{1) 2)}	P _{PPM}	Min. 3000	W
Peak Pulse Current with a 10/1000 μ s Waveform ¹⁾	I _{PPM}	See Next Table	A
Power Dissipation On Infinite Heatsink At T _L = 50 °C	P _D	6.5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Unidirectional only ³⁾	I _{FSM}	300	A
Maximum Instantaneous Forward Voltage At 100 A For Unidirectional Only ⁴⁾	V _F	3.5/6.5	V
Operating Junction and Storage Temperature Range	T _j , T _{stg}	- 55 to + 150	°C

¹⁾ Non-repetitive current pulse. per Fig 3 and derated above Ta = 25°C per Fig. 2

²⁾ Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) 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.

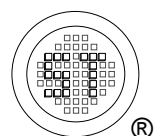
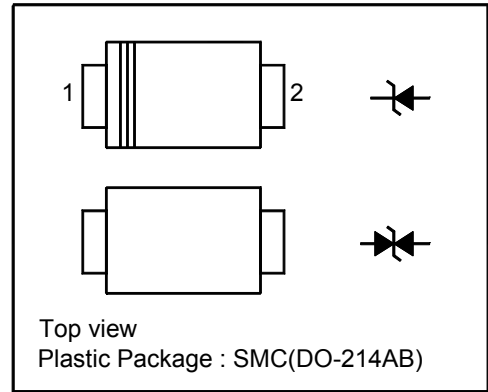
⁴⁾ V_F<3.5V for devices of V_{BR}<200V and V_F<6.5V for devices of V_{BR}>201V.

Thermal Characteristics

Parameter	Symbol	Value	Unit
Typical Thermal Resistance from Junction to Ambient	R _{θJA}	75	°C/W
Typical Thermal Resistance Junction to Lead	R _{θJL}	15	°C/W

PINNING

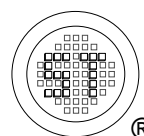
PIN	DESCRIPTION
1	Cathode
2	Anode



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

Uni-directional / Bi-directional Type ¹⁾	Stand-off Voltage V_{WM} (V)	Breakdown Voltage ²⁾		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current I_{PPM} (A)	Maximum Reverse Leakage ³⁾ I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
SMDJ5.0A / CA	5	6.4	7.25	10	9.2	326.1	1000
SMDJ6.0A / CA	6	6.67	7.67	10	10.3	291.3	1000
SMDJ6.5A / CA	6.5	7.22	8.3	10	11.2	267.9	500
SMDJ7.0A / CA	7	7.78	8.95	10	12	250	200
SMDJ7.5A / CA	7.5	8.33	9.58	1	12.9	232.6	100
SMDJ8.0A / CA	8	8.89	10.23	1	13.6	220.6	50
SMDJ8.5A / CA	8.5	9.44	10.82	1	14.4	208.4	20
SMDJ9.0A / CA	9	10	11.5	1	15.4	194.81	10
SMDJ10A / CA	10	11.1	12.8	1	17	176.5	5
SMDJ11A / CA	11	12.2	14	1	18.2	164.8	5
SMDJ12A / CA	12	13.3	15.3	1	19.9	150.8	2
SMDJ13A / CA	13	14.4	16.5	1	21.5	139.5	2
SMDJ14A / CA	14	15.6	17.9	1	23.2	129.4	2
SMDJ15A / CA	15	16.7	19.2	1	24.4	123	1
SMDJ16A / CA	16	17.8	20.5	1	26	115.4	1
SMDJ17A / CA	17	18.9	21.7	1	27.6	108.7	1
SMDJ18A / CA	18	20	23.3	1	29.2	102.8	1
SMDJ20A / CA	20	22.2	25.5	1	32.4	92.6	1
SMDJ22A / CA	22	24.4	28	1	35.5	84.5	1
SMDJ24A / CA	24	26.7	30.7	1	38.9	77.2	1
SMDJ26A / CA	26	28.9	33.2	1	42.1	71.3	1
SMDJ28A / CA	28	31.1	35.8	1	45.4	66.1	1
SMDJ30A / CA	30	33.3	38.3	1	48.4	62	1
SMDJ33A / CA	33	36.7	42.2	1	53.3	56.3	1
SMDJ36A / CA	36	40	46	1	58.1	51.6	1
SMDJ40A / CA	40	44.4	51.1	1	64.5	46.5	1
SMDJ43A / CA	43	47.8	54.9	1	69.4	43.2	1
SMDJ45A / CA	45	50	57.5	1	72.7	41.3	1
SMDJ48A / CA	48	53.3	61.3	1	77.4	38.8	1
SMDJ51A / CA	51	56.7	65.2	1	82.4	36.4	1
SMDJ54A / CA	54	60	69	1	87.1	34.4	1
SMDJ58A / CA	58	64.4	74.1	1	93.6	32.1	1
SMDJ60A / CA	60	66.7	76.7	1	96.8	31	1
SMDJ64A / CA	64	71.1	81.8	1	103	29.2	1
SMDJ70A / CA	70	77.8	89.5	1	113	26.6	1
SMDJ75A / CA	75	83.3	95.8	1	121	24.8	1
SMDJ78A / CA	78	86.7	99.7	1	126	23.8	1
SMDJ85A / CA	85	94.4	108.2	1	137	21.9	1
SMDJ90A / CA	90	100	115.5	1	146	20.6	1
SMDJ100A / CA	100	111	128	1	162	18.6	1
SMDJ110A / CA	110	122	140.5	1	177	16.9	1
SMDJ120A / CA	120	133	153	1	193	15.6	1
SMDJ130A / CA	130	144	165.5	1	209	14.4	1
SMDJ150A / CA	150	167	192.5	1	243	12.4	1
SMDJ160A / CA	160	178	205	1	259	11.6	1
SMDJ170A / CA	170	189	217.5	1	275	11	1



SMDJ Series

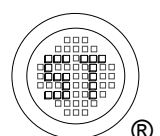
Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Uni-directional / Bi-directional Type ¹⁾	Stand-off Voltage V_{WM} (V)	Breakdown Voltage ²⁾		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current I_{PPM} (A)	Maximum Reverse Leakage ³⁾ I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
SMDJ180A / CA	180	198	230.4	1	292	10.3	1
SMDJ190A / CA	190	209	243.2	1	308	9.75	1
SMDJ200A / CA	200	220	256	1	324	9.3	1
SMDJ220A / CA	220	242	281.6	1	356	8.43	1
SMDJ250A / CA	250	279	309	1	405	7.41	1
SMDJ300A / CA	300	335	371	1	486	6.17	1
SMDJ350A / CA	350	391	432	1	567	5.29	1
SMDJ400A / CA	400	447	494	1	648	4.63	1
SMDJ440A / CA	440	492	543	1	713	4.21	1

¹⁾ Suffix C denotes Bi-directional device.

²⁾ V_{BR} measured with I_T current pulse = 300 μs .

³⁾ For Bi-Directional devices having V_{RWM} of 10V and under, the I_R is doubled.



SMDJ Series

Electrical Characteristics Curves

Fig.1 Peak Pulse Power Rating Curve

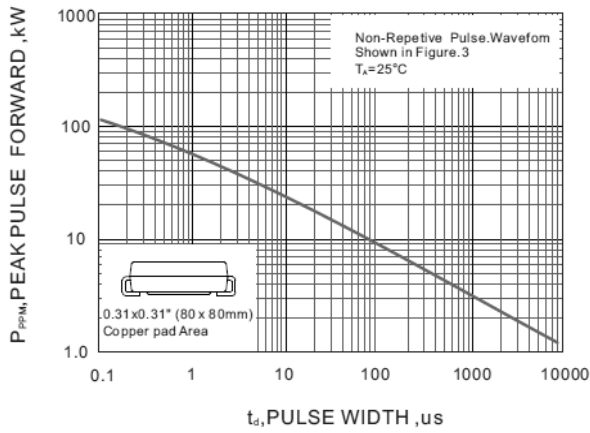


Fig.2 Forward Current Derating Curve

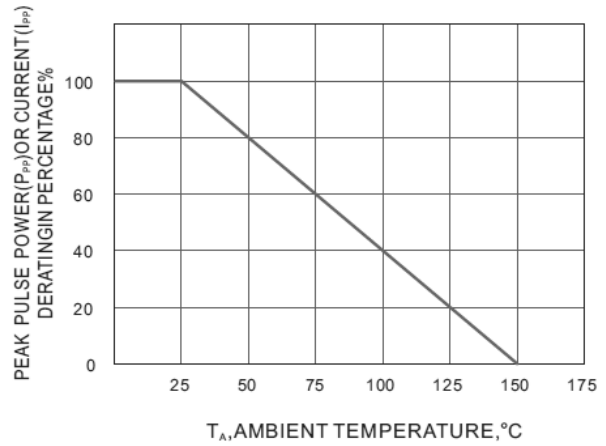


Fig.3 Pulse Waveform

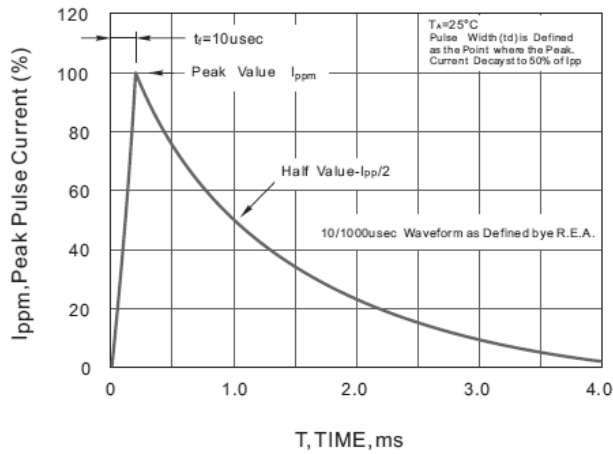


Fig.4 Typical Junction Capacitance

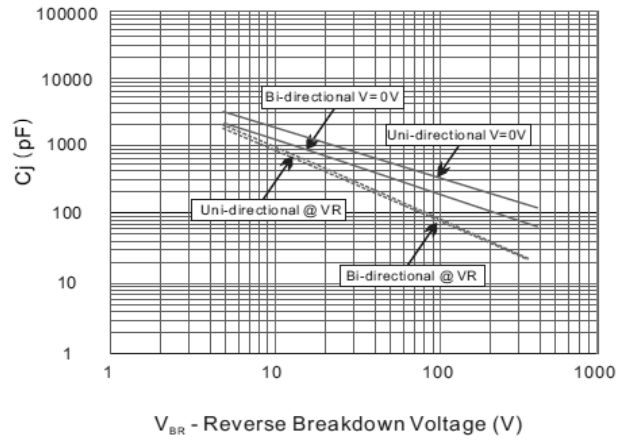


Fig.5 Steady State Power Derating Curve

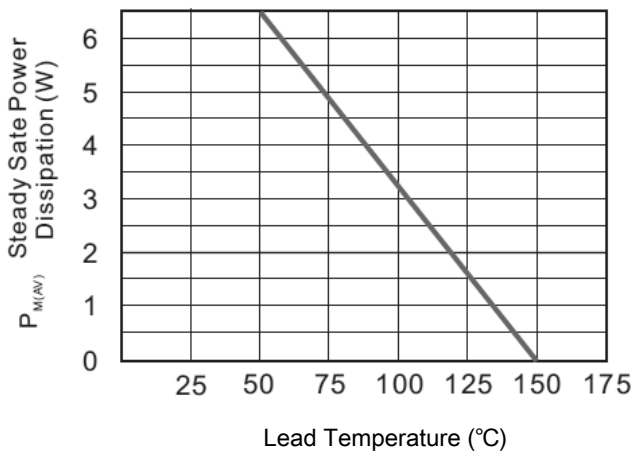
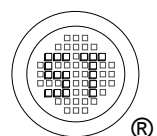
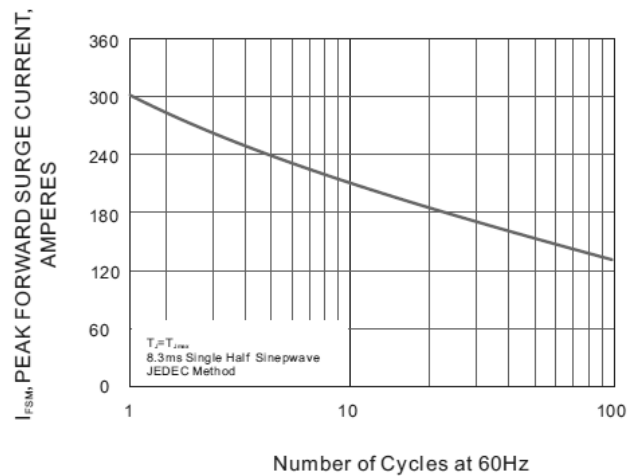


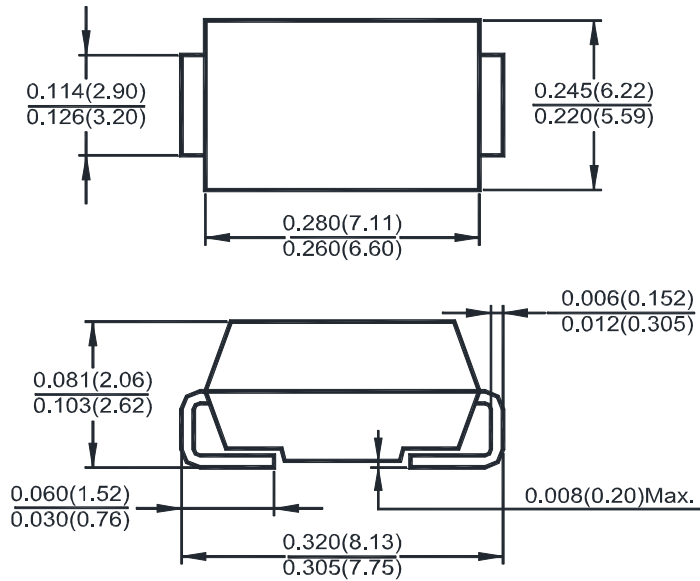
Fig.6 Maximum Non-Repetitive Peak Forward Surge Current



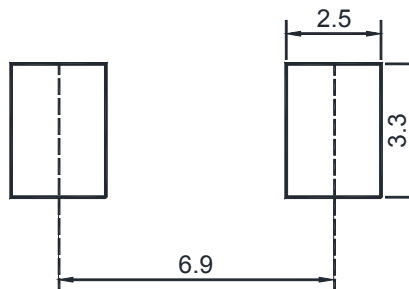
SMDJ Series

Package Outline Dimensions in inches (millimeters)

SMC(DO-214AB)



Recommended Soldering Footprint



Marking information

" ***A/CA " = Part No.

" III " = Cathode line

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