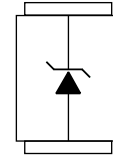


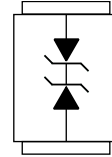
Description

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

Unidirectional



Bidirectional



Feature

- For surface mounted applications in order to optimize board space
- Low profile package
- Low inductance
- Glass passivated chip
- Very fast response time
- Excellent clamping capability
- Typical I_D less than 1UA at V_{WM}
- 3000W peak pulse power capability with a 10/1000 us Waveform

Applications

Electrical characteristics apply in both directions.

Mechanical Characteristics

- Case: JEDEC DO-214AB molded plastic body over glass passivated chip
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: For uni-directional types the band by laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

Major Rating and Characteristics

Major Rating and Characteristics	
P_{PPM}	3000W
V_{RRM}	5V to 220V
I_{FSM}	200A
T_{jmax}	150°C

Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 μs waveform (see fig.1)	P_{PPM}	3000	W
Peak pulse current with a waveform (see fig.3, single pulse)	I_{PPM}	See Next Table	A
Peak Forward Surge Current 8.3ms Single Half Sine-Wave uni-directional only	I_{FSM}	200	A
Typical thermal resistance, Junction to ambient ⁽¹⁾	$R_{\theta JA}$	75	°C/W
Typical thermal resistance , Junction to Lead ⁽¹⁾	$R_{\theta JL}$	15	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

Notes:

1. Mounted on P.C.B. with 0.32X0.32" (8.0X8.0 mm) copper pad areas.

Electrical characteristics

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_{WM} (V)	Breakdown Voltage V_{BR} @ $I_T^{(1)}$ V_{BR} (V)		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PPM} (V)	Maximum Peak Pulse Surge Current I_{PPM} (A) ⁽²⁾	Maximum Reverse Leakage I_D @ V_{WM} (μ A)
			MIN	MAX				
SMDJ5.0A	SMDJ5.0CA	5	6.4	7	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	6	6.67	7.37	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	6.5	7.22	7.98	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	7	7.78	8.6	10	12	250	200
SMDJ7.5A	SMDJ7.5CA	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	8	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	8.5	9.44	10.4	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	9	10	11.1	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	10	11.1	12.3	1	17	176.5	5
SMDJ11A	SMDJ11CA	11	12.2	13.5	1	18.2	164.8	2
SMDJ12A	SMDJ12CA	12	13.3	14.7	1	19.9	150.8	2
SMDJ13A	SMDJ13CA	13	14.4	15.9	1	21.5	139.5	2
SMDJ14A	SMDJ14CA	14	15.6	17.2	1	23.2	129.3	2
SMDJ15A	SMDJ15CA	15	16.7	18.5	1	24.4	123	2
SMDJ16A	SMDJ16CA	16	17.8	19.7	1	26	115.4	2
SMDJ17A	SMDJ17CA	17	18.9	20.9	1	27.6	108.7	2
SMDJ18A	SMDJ18CA	18	20	22.1	1	29.2	102.7	2
SMDJ20A	SMDJ20CA	20	22.2	24.5	1	32.4	92.6	2
SMDJ22A	SMDJ22CA	22	24.4	26.9	1	35.5	84.5	2
SMDJ24A	SMDJ24CA	24	26.7	29.5	1	38.9	77.1	2
SMDJ26A	SMDJ26CA	26	28.9	31.9	1	42.1	71.3	2
SMDJ28A	SMDJ28CA	28	31.1	34.4	1	45.4	66.1	2
SMDJ30A	SMDJ30CA	30	33.3	36.8	1	48.4	62	2
SMDJ33A	SMDJ33CA	33	36.7	40.6	1	53.3	56.3	2
SMDJ36A	SMDJ36CA	36	40	44.2	1	58.1	51.6	2
SMDJ40A	SMDJ40CA	40	44.4	49.1	1	64.5	46.5	2
SMDJ43A	SMDJ43CA	43	47.8	52.8	1	69.4	43.2	2
SMDJ45A	SMDJ45CA	45	50	55.3	1	72.7	41.3	2

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_{WM} (V)	Breakdown Voltage V_{BR} @ $I_T^{(1)}$ V_{BR} (V)		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PPM} (V)	Maximum Peak Pulse Surge Current I_{PPM} (A)	Maximum Reverse Leakage I_D @ V_{WM} (μ A)
			MIN	MAX				
SMDJ48A	SMDJ48CA	48	53.3	58.9	1	77.4	38.8	2
SMDJ50A	SMDJ50CA	50	56.2	61.2	1	80.7	37.2	2
SMDJ51A	SMDJ51CA	51	56.7	62.7	1	82.4	36.4	2
SMDJ54A	SMDJ54CA	54	60	66.3	1	87.1	34.4	2
SMDJ58A	SMDJ58CA	58	64.4	71.2	1	93.6	32.1	2
SMDJ60A	SMDJ60CA	60	66.7	73.7	1	96.8	31	2
SMDJ64A	SMDJ64CA	64	71.1	78.6	1	103	29.1	2
SMDJ70A	SMDJ70CA	70	77.8	86	1	113	26.5	2
SMDJ75A	SMDJ75CA	75	83.3	92.1	1	121	24.8	2
SMDJ78A	SMDJ78CA	78	86.7	95.8	1	126	23.8	2
SMDJ85A	SMDJ85CA	85	94.4	104	1	137	21.9	2
SMDJ90A	SMDJ90CA	90	100	111	1	146	20.5	2
SMDJ100A	SMDJ100CA	100	111	123	1	162	18.5	2
SMDJ110A	SMDJ110CA	110	122	135	1	177	16.9	2
SMDJ120A	SMDJ120CA	120	133	147	1	193	15.5	2
SMDJ130A	SMDJ130CA	130	144	159	1	209	14.4	2
SMDJ150A	SMDJ150CA	150	167	185	1	243	12.3	2
SMDJ160A	SMDJ160CA	160	178	197	1	259	11.6	2
SMDJ170A	SMDJ170CA	170	189	209	1	275	10.9	2
SMDJ180A	SMDJ180CA	180	200	221	1	292	10.3	2
SMDJ220A	SMDJ220CA	220	244	270	1	356	8.4	2

Notes:

1. Pulse test : $T_p \leq 50$ ms
2. Surge current waveform Per Fig.3 and derate Per Fig.2

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

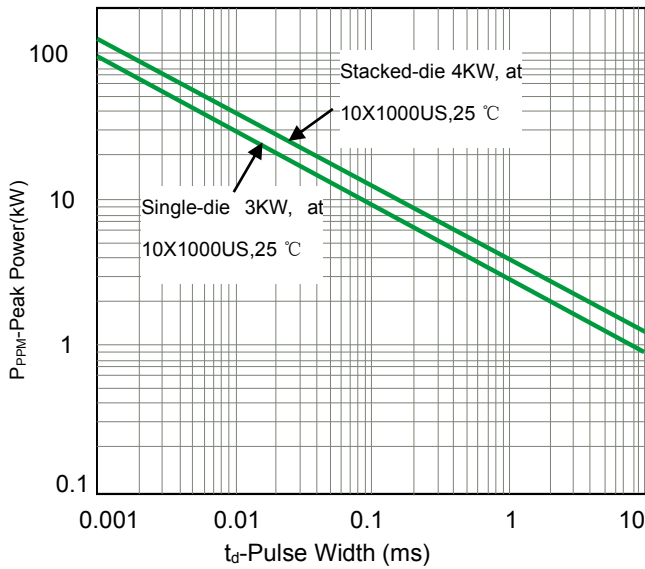


Figure 1-Peak Pulse Power Rating

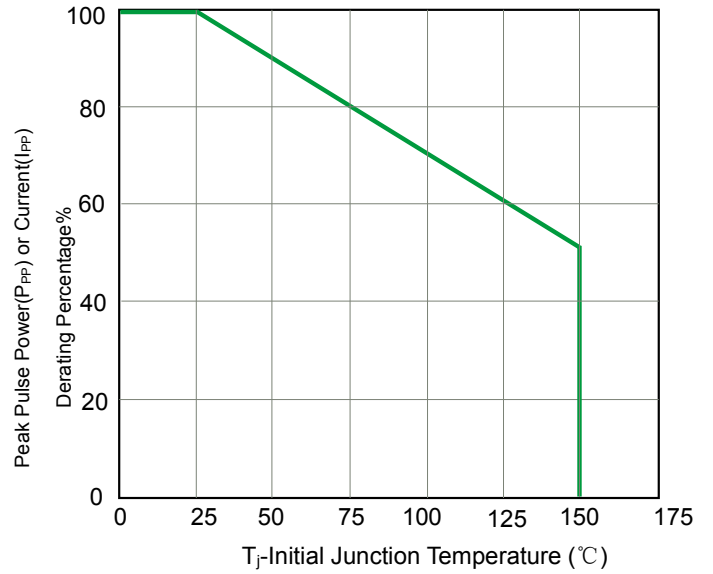


Figure 2-Peak Pulse Derating Curve

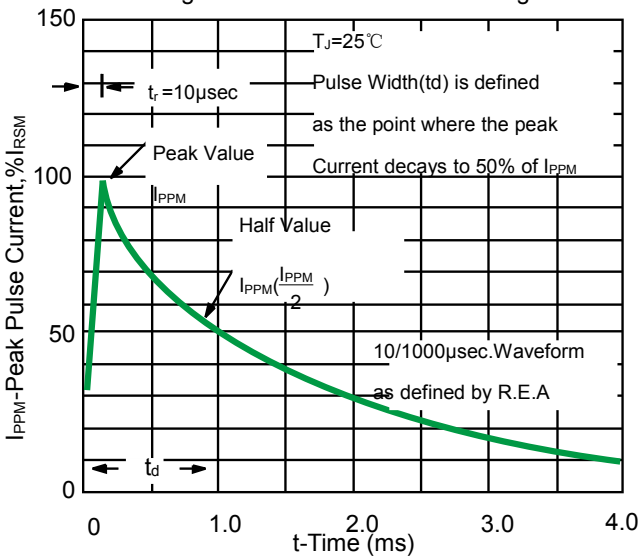


Figure 3-Pulse Waveform

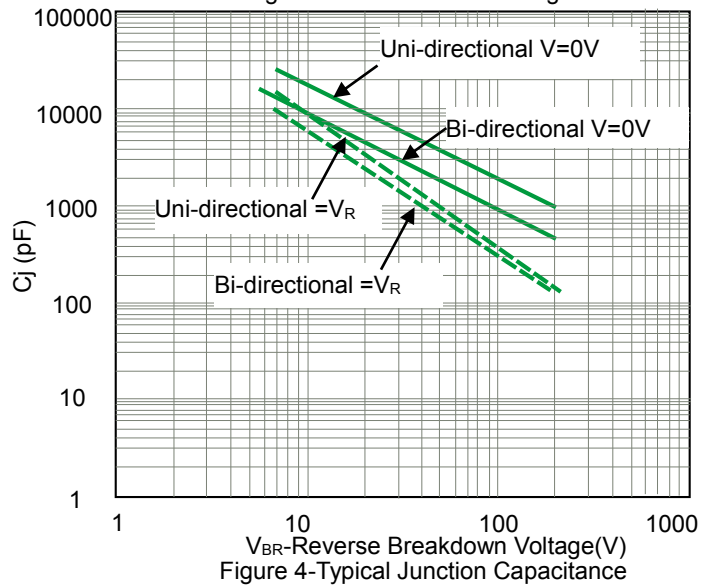


Figure 4-Typical Junction Capacitance

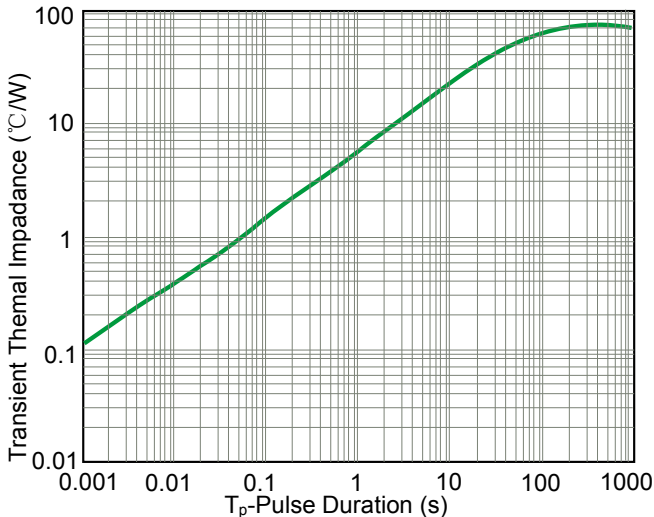


Figure 5-Typical Transient Thermal Impedance

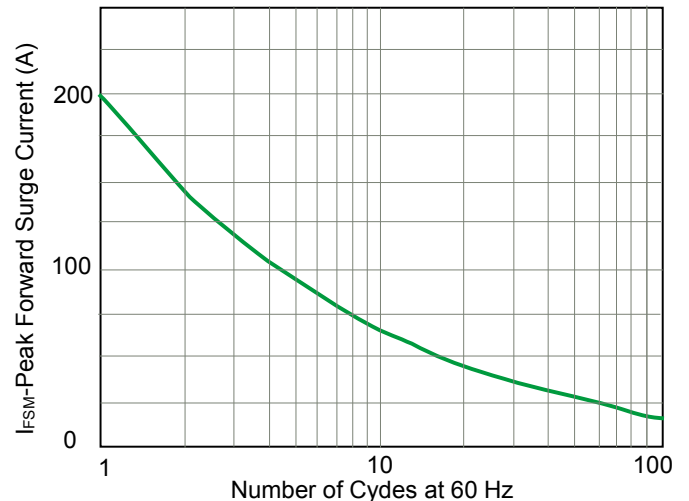
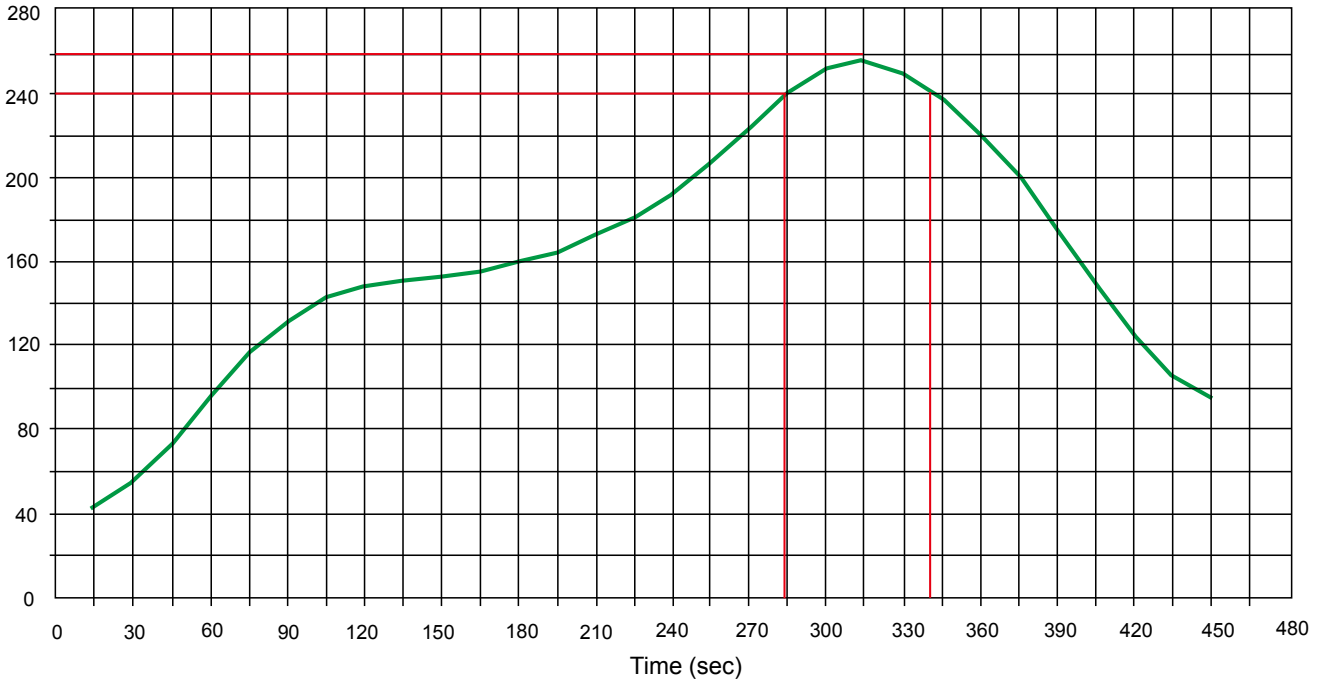


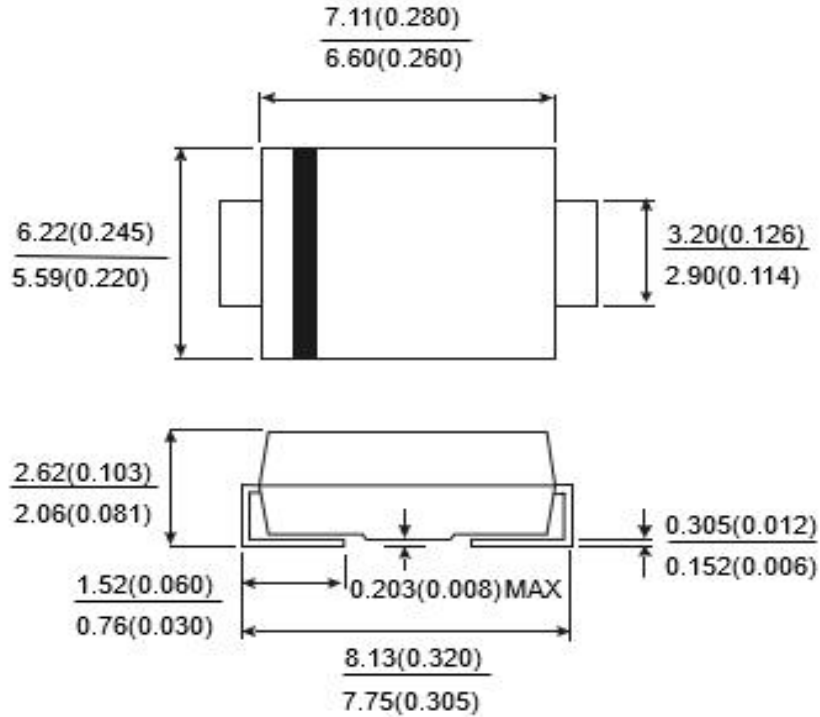
Figure 6-Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Solder Reflow Recommendation

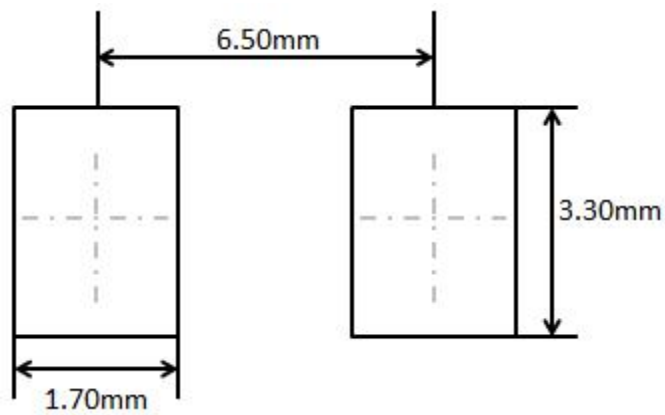
Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension (DO-214AB)



Dimensions in millimeters and (inches)




Suggested PCB Layout

Ordering information

Device	Package	Shipping
SMDJ Series	DO-214AB(Pb-Free)	3000 / Tape & Reel


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