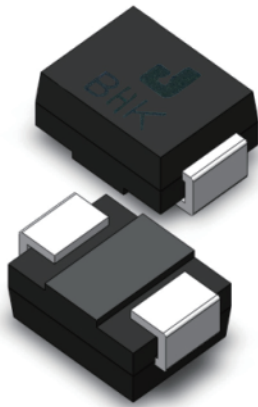


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PRODUCT DATASHEET

SMD TVS Devices

SMDJ Series SMD TVS Devices



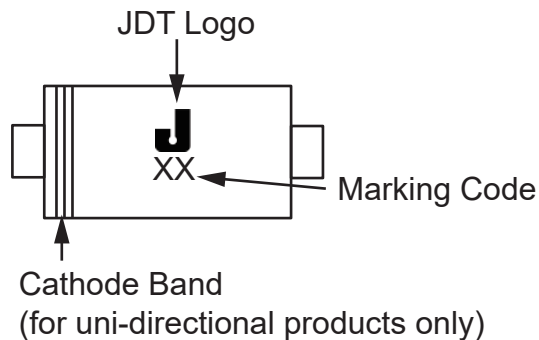
Description

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

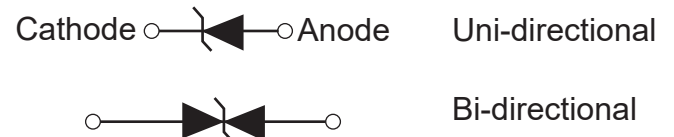
Features

- Low leakage
- Glass passivated chip
- Very fast response time
- Uni and Bidirectional unit
- Excellent clamping capability
- 3000W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%

Pin Description



Schematic Diagram



Maximum Ratings($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000 μ s waveform	P_{PP}	3000	W
Maximum instantaneous forward voltage at 25A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave(Note1)	I_{FSM}	300	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}\text{C/W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	T_J / T_{STG}	-55 to +150	$^{\circ}\text{C}$

Notes: Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

Performance Specification I.

Model		Reverse Stand off Voltage V_R	Breakdown Voltage $V_{BR} @ I_T$		Test Current I_T	Clamping Voltage $V_C @ I_{PP}$	Peak Pulse Current I_{PP}	Reverse Leakage $I_R @ V_R$	Marking	
(Uni)	(Bi)	(V)	Min(V)	Max(V)	(mA)	Max(V)	Max(A)	Max(μA)	Uni.	Bi.
SMDJ5.0A	SMDJ5.0CA	5.0	6.40	7.00	10	9.2	326.1	800	RDE	DDE
SMDJ6.0A	SMDJ6.0CA	6.0	6.67	7.37	10	10.3	291.3	800	RDG	DDG
SMDJ6.5A	SMDJ6.5CA	6.5	7.22	7.98	10	11.2	267.9	500	RDK	DDK
SMDJ7.0A	SMDJ7.0CA	7.0	7.78	8.60	10	12.0	250.0	200	PDM	DDM
SMDJ7.5A	SMDJ7.5CA	7.5	8.33	9.21	1	12.9	232.6	100	PDP	DDP
SMDJ8.0A	SMDJ8.0CA	8.0	8.89	9.83	1	13.6	220.6	50	PDR	DDR
SMDJ8.5A	SMDJ8.5CA	8.5	9.44	10.4	1	14.4	208.3	20	PDT	DDT
SMDJ9.0A	SMDJ9.0CA	9.0	10.0	11.1	1	15.4	194.8	10	PDV	DDV
SMDJ10A	SMDJ10CA	10.0	11.1	12.3	1	17.0	176.5	5	PDX	DDX
SMDJ11A	SMDJ11CA	11.0	12.2	13.5	1	18.2	164.8	1	PDZ	DDZ
SMDJ12A	SMDJ12CA	12.0	13.3	14.7	1	19.9	150.8	1	PEE	DEE
SMDJ13A	SMDJ13CA	13.0	14.4	15.9	1	21.5	139.5	1	PEG	DEG
SMDJ14A	SMDJ14CA	14.0	15.6	17.2	1	23.2	129.3	1	PEK	DEK
SMDJ15A	SMDJ15CA	15.0	16.7	18.5	1	24.4	123.0	1	PEM	DEM
SMDJ16A	SMDJ16CA	16.0	17.8	19.7	1	26.0	115.4	1	PEP	DEP
SMDJ17A	SMDJ17CA	17.0	18.9	20.9	1	27.6	108.7	1	PER	DER
SMDJ18A	SMDJ18CA	18.0	20.0	22.1	1	29.2	102.7	1	PET	DET
SMDJ20A	SMDJ20CA	20.0	22.2	24.5	1	32.4	92.6	1	PEV	DEV
SMDJ22A	SMDJ22CA	22.0	24.4	26.9	1	35.5	84.5	1	PEX	DEX
SMDJ24A	SMDJ24CA	24.0	26.7	29.5	1	38.9	77.1	1	PEZ	DEZ
SMDJ26A	SMDJ26CA	26.0	28.9	31.9	1	42.1	71.3	1	PFE	DFE
SMDJ28A	SMDJ28CA	28.0	31.1	34.4	1	45.4	66.1	1	PFG	DFG
SMDJ30A	SMDJ30CA	30.0	33.3	36.8	1	48.4	62.0	1	PFK	DFK
SMDJ33A	SMDJ33CA	33.0	36.7	40.6	1	53.3	56.3	1	PFM	DFM
SMDJ36A	SMDJ36CA	36.0	40.0	44.2	1	58.1	51.6	1	PFP	DFP
SMDJ40A	SMDJ40CA	40.0	44.4	49.1	1	64.5	46.5	1	PFR	DFR
SMDJ43A	SMDJ43CA	43.0	47.8	52.8	1	69.4	43.2	1	PFT	DFT
SMDJ45A	SMDJ45CA	45.0	50.0	55.3	1	72.7	41.3	1	PFV	DFV
SMDJ48A	SMDJ48CA	48.0	53.3	58.9	1	77.4	38.8	1	PFX	DFX
SMDJ51A	SMDJ51CA	51.0	56.7	62.7	1	82.4	36.4	1	PFZ	DFZ
SMDJ54A	SMDJ54CA	54.0	60.0	66.3	1	87.1	34.4	1	RGE	DGE
SMDJ58A	SMDJ58CA	58.0	64.4	71.2	1	93.6	32.1	1	PGG	DGG
SMDJ60A	SMDJ60CA	60.0	66.7	73.7	1	96.8	31.0	1	PGK	DGK
SMDJ64A	SMDJ64CA	64.0	71.1	78.6	1	103.0	29.1	1	PGM	DGM

Performance Specification II.

Model		Reverse Stand off Voltage V_R	Breakdown Voltage $V_{BR} @ I_T$		Test Current I_T	Clamping Voltage $V_C @ I_{PP}$	Peak Pulse Current I_{PP}	Reverse Leakage $I_R @ V_R$	Marking	
(Uni)	(Bi)	(V)	Min(V)	Max(V)	(mA)	Max(V)	Max(A)	Max(μA)	Uni.	Bi.
SMDJ70A	SMDJ70CA	70.0	77.8	86.0	1	113.0	26.5	1	PGP	DGP
SMDJ75A	SMDJ75CA	75.0	83.3	92.1	1	121.0	24.8	1	PGR	DGR
SMDJ78A	SMDJ78CA	78.0	86.7	95.8	1	126.0	23.8	1	PGT	DGT
SMDJ85A	SMDJ85CA	85.0	94.4	104.0	1	137.0	21.9	1	PGV	DGV
SMDJ90A	SMDJ90CA	90.0	100.0	111.0	1	146.0	20.5	1	PGX	DGX
SMDJ100A	SMDJ100CA	100.0	111.0	123.0	1	162.0	18.5	1	PGZ	DGZ
SMDJ110A	SMDJ110CA	110.0	122.0	135.0	1	177.0	16.9	1	PHE	DHE
SMDJ120A	SMDJ120CA	120.0	133.0	147.0	1	193.0	15.5	1	PHG	DHG
SMDJ130A	SMDJ130CA	130.0	144.0	159.0	1	209.0	14.4	1	PHK	DHK
SMDJ150A	SMDJ150CA	150.0	167.0	185.0	1	243.0	12.3	1	PHM	DHM
SMDJ160A	SMDJ160CA	160.0	178.0	197.0	1	259.0	11.6	1	PHP	DHP
SMDJ170A	SMDJ170CA	170.0	189.0	209.0	1	275.0	10.9	1	PHR	DHR
SMDJ180A	SMDJ180CA	180.0	201.0	222.0	1	292.0	10.3	1	PHT	DHT
SMDJ190A	SMDJ190CA	190.0	211.0	234.0	1	307.0	9.7	1	PHU	DHU
SMDJ200A	SMDJ200CA	200.0	224.0	247.0	1	324.0	9.3	1	PHV	DHV
SMDJ210A	SMDJ210CA	210.0	233.0	258.0	1	337.0	8.8	1	PHW	DHW
SMDJ220A	SMDJ220CA	220.0	244.0	270.0	1	356.0	8.4	1	PKE	DKE
SMDJ250A	SMDJ250CA	250.0	279.0	309.0	1	405.0	7.4	1	PKG	DKG
SMDJ300A	SMDJ300CA	300.0	335.0	371.0	1	486.0	6.1	1	PKI	DKI
SMDJ350A	SMDJ350CA	350.0	391.0	432.0	1	567.0	5.3	1	PKJ	DKJ
SMDJ400A	SMDJ400CA	400.0	447.0	494.0	1	648.0	4.6	1	PKL	DKL
SMDJ440A	SMDJ440CA	440.0	492.0	543.0	1	713.0	4.2	1	PKN	DKN

Typical Performance Characteristics

(TA=25°C unless otherwise Specified)

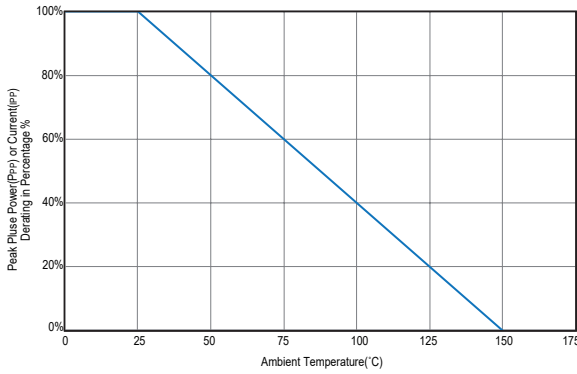


Fig. 1: Pulse Derating Curve

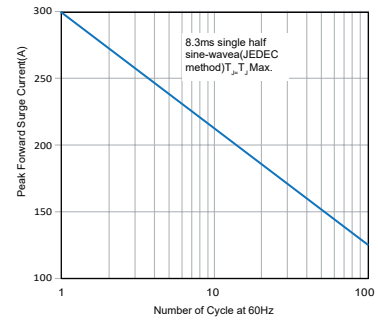


Fig. 2: Max. Non-Repetitive Surge Current

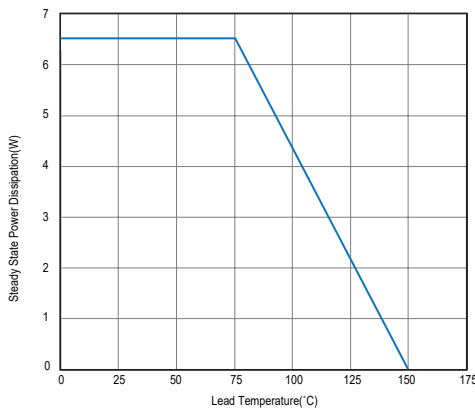


Fig. 3: Steady State Power Derating Curve

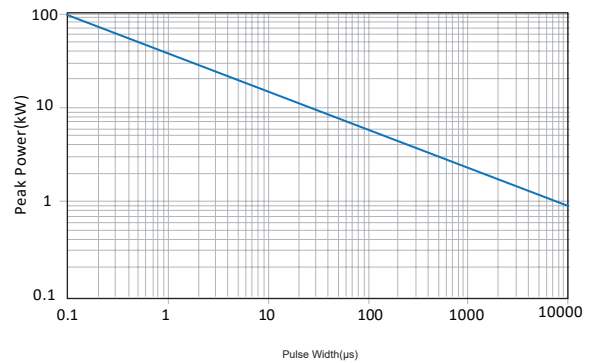


Fig. 4: Peak Pulse Power Rating Curve

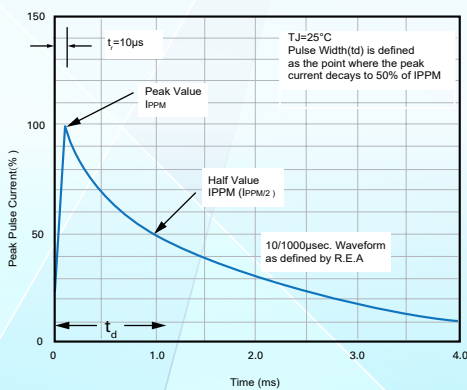


Fig 5: Pulse Waveform

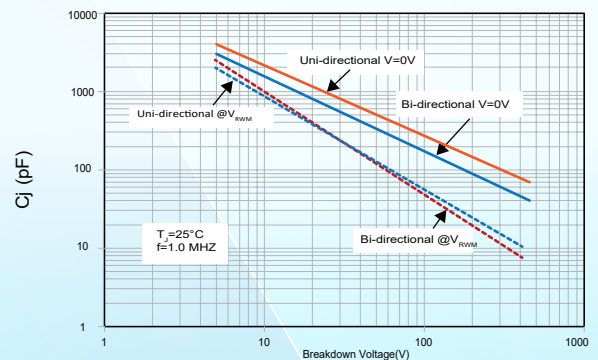
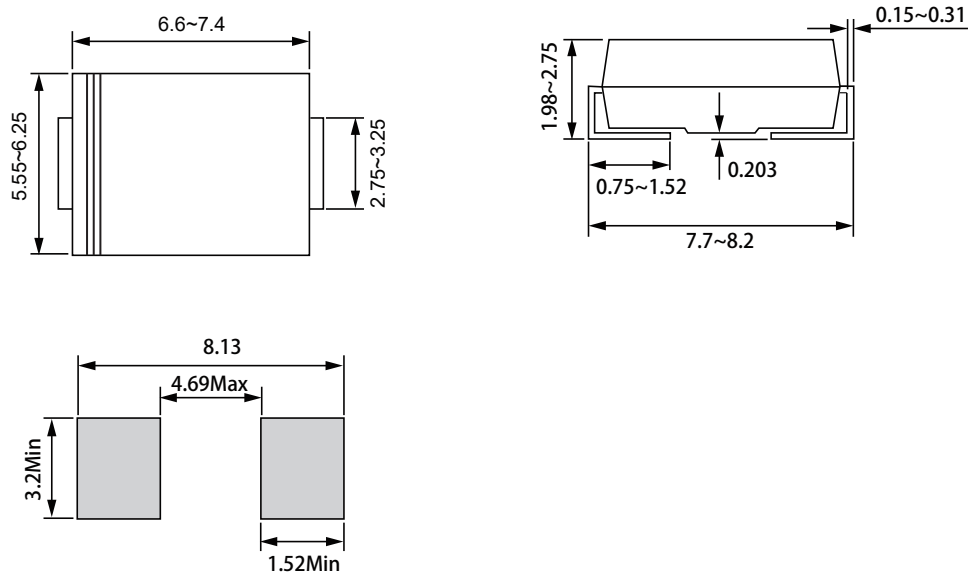


Fig 6: Typical Junction Capacitance

Mechanical Data

Case	SMC Molded Plastic
Terminals	Solderable per MIL-STD-750, method 2026
Polarity	Color band denoted cathode end except bipolar

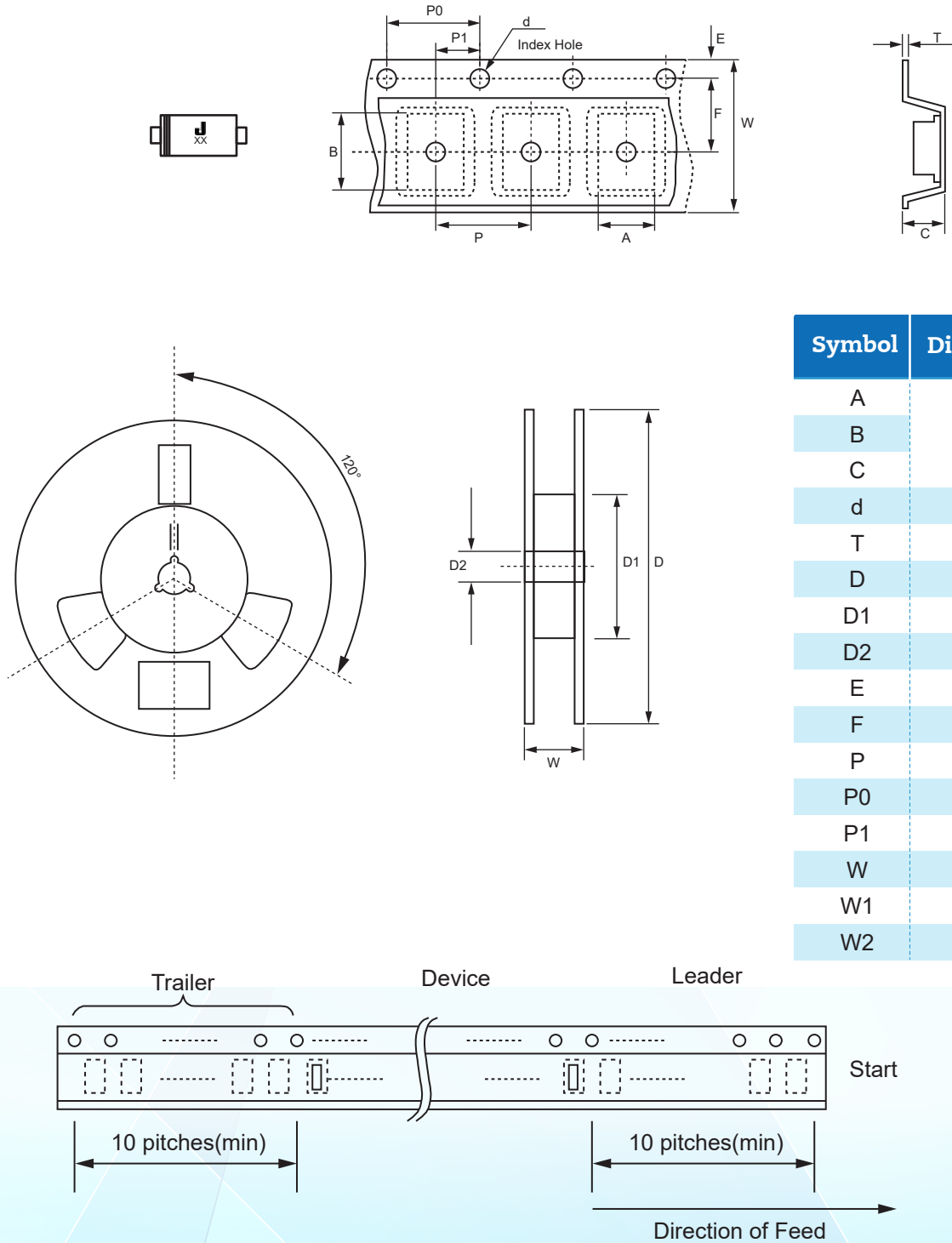


Recommend Pad Layout

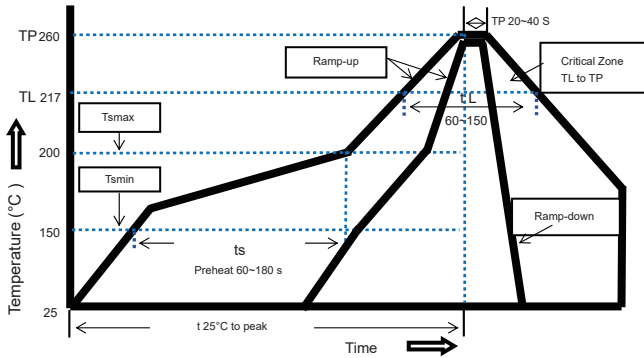
Packaging Quantity

Package	Weight	Quantity	Reel Size	Packaging Option
DO-214AB	0.26g(approx)	3000pcs	13 inch	Tape and reel-12mm tape/13"reel

Tape and Reel Specification



Soldering Parameters



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free
- Recommended maximum paste thickness is 0.25mm
Devices can be cleaned using standard industry methods and solvents.
- Note 1: All temperature refer to topside of the package, measured on the package body surface.
- Note 2: If reflow temperatures exceed the recommended

Profile Feature

Pb-Free Assembly

Average Ramp-Up Rate 3°C/second max.
(Ts max to T p)

Preheat

-Temperature Min(Ts min) 150°C
-Temperature Max(Ts max) 200°C
-Time(Ts min to Ts max) 60~180 seconds

Time maintained above:

-Temperature(TL) 217°C
-Time(tL) 60~150 seconds

Peak Temperature(Tp) 260°C

Ramp-Down Rate 6°C/second max.

Time 25°C to Peak Temperature 8 minutes max

Storage Condition 0°C~35°C, ≤70%RH

Part Number System

SMDJ XXX C A

5% VOLTAGE TOLERANCE

BI-DIRECTIONAL

VOLTAGE

SERIES