

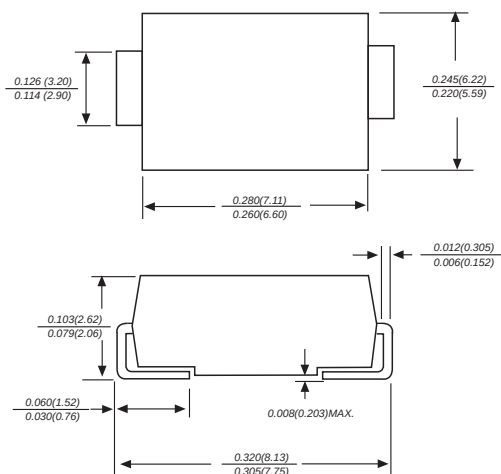


SMDJ Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage: 5.0-170 Volts Peak pulse power: 3000 Watts

DO-214AB/SMC



Dimensions in inches and (millimeters)

FEATURE

- ◆ For surface mounted applications in order to optimize board space
- ◆ Low profile package
- ◆ Built-in strain relief
- ◆ Glass passivated junction
- ◆ Low inductance
- ◆ Excellent clamping capability
- ◆ 3000W peak pulse power capability at 10/1000 μ s waveform,
- ◆ repetition rate (duty cycle): 0.01%
- ◆ Fast response time
- ◆ Typical I_R less than 2 μ A above 12V
- ◆ High Temperature soldering: 260 $^{\circ}$ C/10 seconds at terminals
- ◆ Plastic package has underwriters laboratory flammability 94V-0

MECHANICAL DATA

Case: JEDEC DO-214AB. Molded plastic over glass passivated junction
Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode except bi-directional models
Standard Packaging: 12mm tape (EIA STD RS-481)

APPLICATIONS

- ◆ I/O interface
- ◆ AC/DC power supply
- ◆ Low frequency signal transmission line (RS232, RS485, etc.)

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified.

Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Note2)	P_{PPM}	3000	Watts
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V_F	3.5	Volts
Steady state power dissipation at $T_A=50^{\circ}$ C	$P_{M(AV)}$	6.5	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3)	I_{FSM}	300	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-65 to +150	$^{\circ}$ C
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}$ C/W

- Notes:
1. Non-repetitive current pulse , per Fig. 3 and derated above $T_A = 25^{\circ}$ 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.



Electrical Characteristics (TA=25°C)

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{CP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)	Agency Approval 
		UNI	BI		MIN	MAX					
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5.0	6.40	7.00	10	9.2	326.1	800	X
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6.0	6.67	7.37	10	10.3	291.3	800	X
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	500	X
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7.0	7.78	8.60	10	12.0	250.0	200	X
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	100	X
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8.0	8.89	9.83	1	13.6	220.6	50	X
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.40	1	14.4	208.3	20	X
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9.0	10.00	11.10	1	15.4	194.8	10	X
SMDJ10A	SMDJ10CA	PDX	DDX	10.0	11.10	12.30	1	17.0	176.5	5	X
SMDJ11A	SMDJ11CA	PDZ	DDZ	11.0	12.20	13.50	1	18.2	164.8	2	X
SMDJ12A	SMDJ12CA	PEE	DEE	12.0	13.30	14.70	1	19.9	150.8	2	X
SMDJ13A	SMDJ13CA	PEG	DEG	13.0	14.40	15.90	1	21.5	139.5	2	X
SMDJ14A	SMDJ14CA	PEK	DEK	14.0	15.60	17.20	1	23.2	129.3	2	X
SMDJ15A	SMDJ15CA	PEM	DEM	15.0	16.70	18.50	1	24.4	123.0	2	X
SMDJ16A	SMDJ16CA	PEP	DEP	16.0	17.80	19.70	1	26.0	115.4	2	X
SMDJ17A	SMDJ17CA	PER	DER	17.0	18.90	20.90	1	27.6	108.7	2	X
SMDJ18A	SMDJ18CA	PET	DET	18.0	20.00	22.10	1	29.2	102.7	2	X
SMDJ20A	SMDJ20CA	PEV	DEV	20.0	22.20	24.50	1	32.4	92.6	2	X
SMDJ22A	SMDJ22CA	PEX	DEX	22.0	24.40	26.90	1	35.5	84.5	2	X
SMDJ24A	SMDJ24CA	PEZ	DEZ	24.0	26.70	29.50	1	38.9	77.1	2	X
SMDJ26A	SMDJ26CA	PFE	DFE	26.0	28.90	31.90	1	42.1	71.3	2	X
SMDJ28A	SMDJ28CA	PFG	DFG	28.0	31.10	34.40	1	45.4	66.1	2	X
SMDJ30A	SMDJ30CA	PFK	DFK	30.0	33.30	36.80	1	48.4	62.0	2	X
SMDJ33A	SMDJ33CA	PFM	DFM	33.0	36.70	40.60	1	53.3	56.3	2	X
SMDJ36A	SMDJ36CA	PFP	DFP	36.0	40.00	44.20	1	58.1	51.6	2	X
SMDJ40A	SMDJ40CA	PFR	DFR	40.0	44.40	49.10	1	64.5	46.5	2	X
SMDJ43A	SMDJ43CA	PFT	DFT	43.0	47.80	52.80	1	69.4	43.2	2	X
SMDJ45A	SMDJ45CA	PFV	DFV	45.0	50.00	55.30	1	72.7	41.3	2	X
SMDJ48A	SMDJ48CA	PFX	DFX	48.0	53.30	58.90	1	77.4	38.8	2	X
SMDJ51A	SMDJ51CA	PFZ	DFZ	51.0	56.70	62.70	1	82.4	36.4	2	X
SMDJ54A	SMDJ54CA	RGE	DGE	54.0	60.00	66.30	1	87.1	34.4	2	X
SMDJ58A	SMDJ58CA	PGG	DGG	58.0	64.40	71.20	1	93.6	32.1	2	X
SMDJ60A	SMDJ60CA	PGK	DGK	60.0	66.70	73.70	1	96.8	31.0	2	X
SMDJ64A	SMDJ64CA	PGM	DGM	64.0	71.10	78.60	1	103.0	29.1	2	X
SMDJ70A	SMDJ70CA	PGP	DGP	70.0	77.80	86.00	1	113.0	26.5	2	X
SMDJ75A	SMDJ75CA	PGR	DGR	75.0	83.30	92.10	1	121.0	24.8	2	X
SMDJ78A	SMDJ78CA	PGT	DGT	78.0	86.70	95.80	1	126.0	23.8	2	X
SMDJ85A	SMDJ85CA	PGV	DGV	85.0	94.40	104.00	1	137.0	21.9	2	X
SMDJ90A	SMDJ90CA	PGX	DGX	90.0	100.00	111.00	1	146.0	20.5	2	X
SMDJ100A	SMDJ100CA	PGZ	DGZ	100.0	111.00	123.00	1	162.0	18.5	2	X
SMDJ110A	SMDJ110CA	PHE	DHE	110.0	122.00	135.00	1	177.0	16.9	2	X
SMDJ120A	SMDJ120CA	PHG	DHG	120.0	133.00	147.00	1	193.0	15.5	2	X
SMDJ130A	SMDJ130CA	PHK	DHK	130.0	144.00	159.00	1	209.0	14.4	2	X
SMDJ150A	SMDJ150CA	PHM	DHM	150.0	167.00	185.00	1	243.0	12.3	2	X
SMDJ160A	SMDJ160CA	PHP	DHP	160.0	178.00	197.00	1	259.0	11.6	2	X
SMDJ170A	SMDJ170CA	PHR	DHR	170.0	189.00	209.00	1	275.0	10.9	2	X

For parts without A, the V_{BR} is $\pm 10\%$, and V_C is 5% higher than A parts.

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTIC CURVES SMDJ series

Figure 1 - Peak Pulse Power Rating Curve

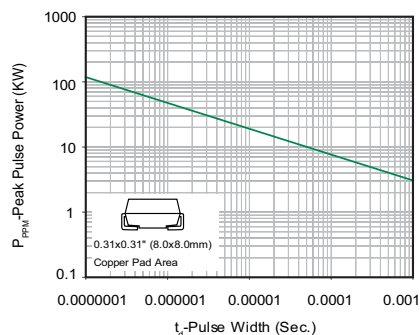


Figure 2 - Pulse Derating Curve

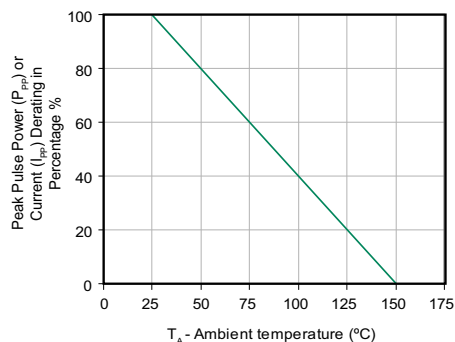


Figure 3 - Pulse Waveform

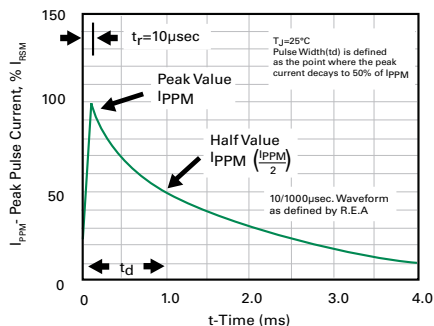


Figure 4 - Typical Junction Capacitance

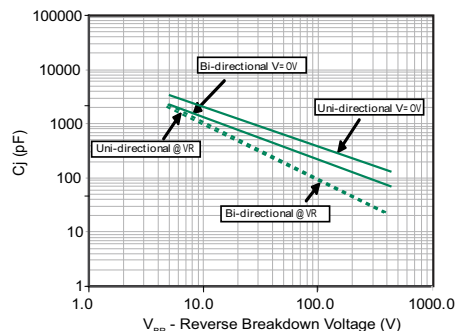


Figure 5 - Steady State Power Derating Curve

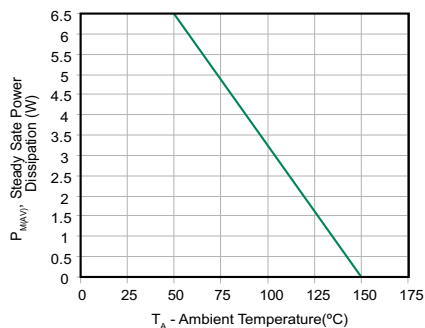
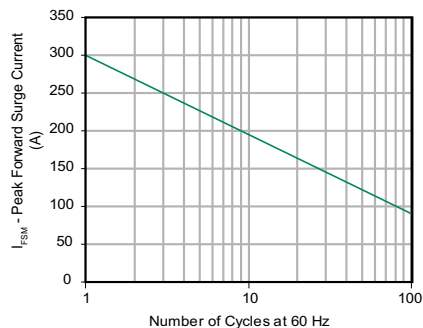


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional only



The cruve graph is for reference only, can't be the basis for judgment(曲线图仅供参考)!



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Figure 5. Steady State Power Dissipation Derating Curve

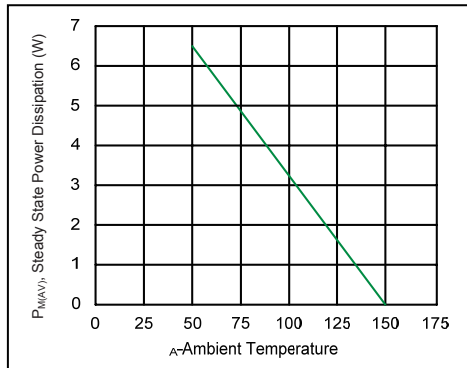
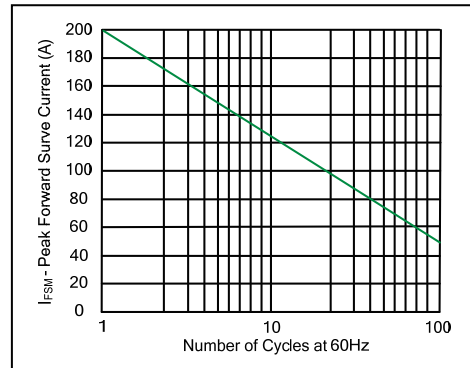
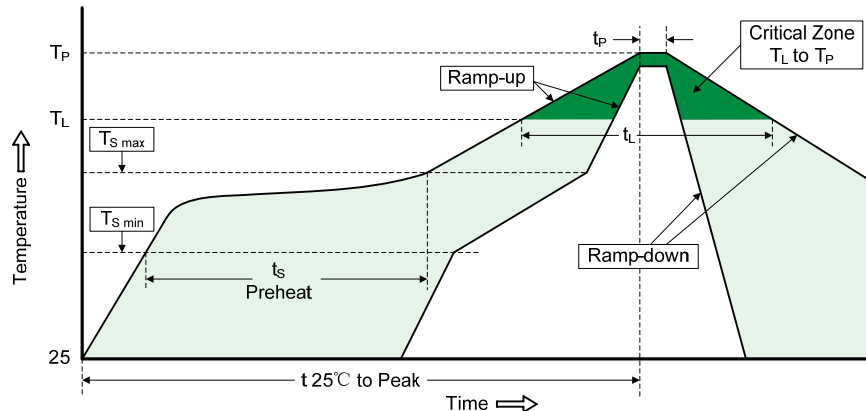


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



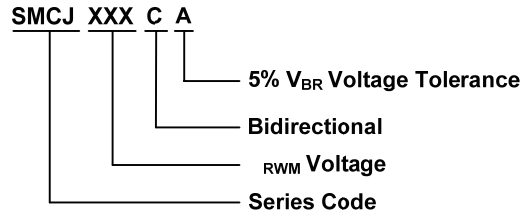
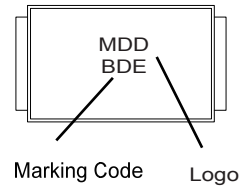
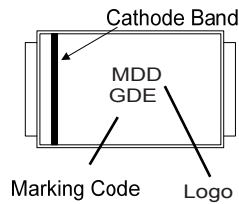
Reflow Soldering



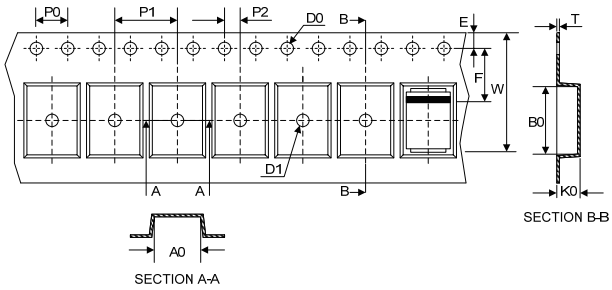
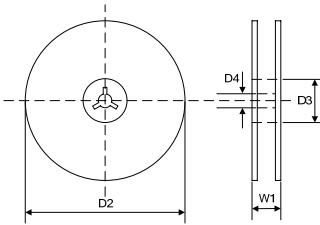
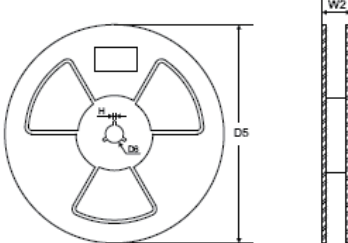
Recommended Conditions

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

Marking Code



Packaging

Tape		Symbol	Dimension (mm)
		W	16.00±0.20
		P0	4.00±0.10
		P1	8.00±0.10
		P2	2.00±0.10
		D0	Φ1.5±0.10
		D1	Φ1.5±0.10
		E	1.75±0.10
		F	7.50±0.10
		A0	6.27±0.10
		B0	8.30±0.10
		K0	3.15±0.15
		T	0.30±0.05
		D2	Φ178.0±2.0
7" Reel		D3	Φ50.0Min.
		D4	Φ13.0±0.5
		W1	20.0±2.0
		Quantity: 500PCS	
13" Reel		D5	Φ330.0±2.0
		D6	Φ13.5±0.5
		H	2.5±1.0
		W2	20.0±2.0
		Quantity: 3000PCS	