

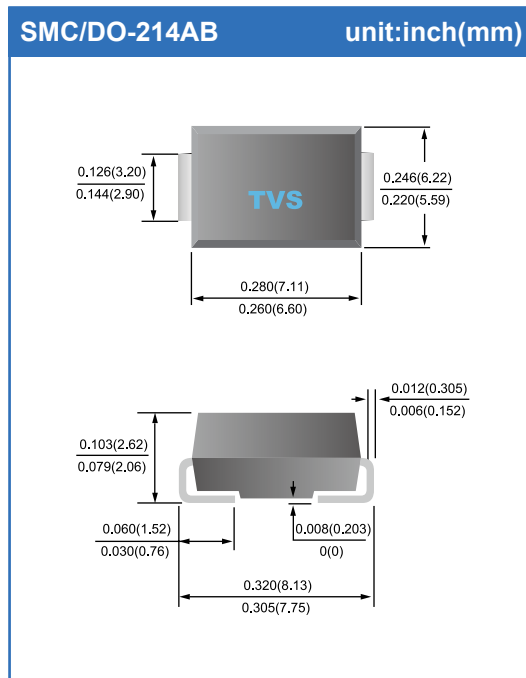
Transient Voltage Suppressors Diodes

Surface Mount - 3000W > SMDJ5.0~220CA Series

The SMDJ 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
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR@25^{\circ}\text{C}} \times \Delta T$
- Glass passivated Chip junction in DO-214AB package
- 3000W peak pulse capability at 10×1000μs waveform, repetition rate (duty cycles):0.01%
- Fast response time:typically less than 1.0ps from 0 Volts to BV min
- Excellent clamping capability
- Low incremental surge resistance
- Typical I_R less than 5μA above 12V
- High temperature soldering guaranteed: 260°C/40 seconds / 0.375", (9.5mm) lead length, 5lbs., (2.3kg) tension
- Plastic package has underwriters laboratory flammability classification 94v-0



Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

Maximum Ratings And Characteristics (TA=25°C unless otherwise noted)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by 10x1000μs test waveform (Fig.1)(Note 1)	P_{PPM}	3000	Watts
Steady State Power Dissipation on infinite heat sink at TL=75°C (Fig. 5)	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 2)	I_{FSM}	300	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 3)	V_F	3.5	V
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to 175	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	°C/W

Notes:

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

Type Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage@I _T		Test Current	Maximum Clamping Voltage@I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
(UNI)	(BI)	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
SMDJ5.0A	SMDJ5.0CA	HDE	IDE	5.0	6.40	7.25	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	HDG	IDG	6.0	6.67	7.67	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	HDK	IDK	6.5	7.22	8.30	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	HDM	IDM	7.0	7.78	8.95	10	12.0	250.0	200
SMDJ7.5A	SMDJ7.5CA	HDP	IDP	7.5	8.33	9.58	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	HDR	IDR	8.0	8.89	10.23	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	HDT	IDT	8.5	9.44	10.82	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	HDV	IDV	9.0	10.00	11.50	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	HDX	IDX	10.0	11.10	12.80	1	17.0	176.5	5.0
SMDJ11A	SMDJ11CA	HDZ	IDZ	11.0	12.20	14.00	1	18.2	164.8	5.0
SMDJ12A	SMDJ12CA	HEE	IEE	12.0	13.30	15.30	1	19.9	150.8	5.0
SMDJ13A	SMDJ13CA	HEG	IEG	13.0	14.40	16.50	1	21.5	139.5	5.0
SMDJ14A	SMDJ14CA	HEK	IEK	14.0	15.60	17.90	1	23.2	129.3	5.0
SMDJ15A	SMDJ15CA	HEM	IEM	15.0	16.70	19.20	1	24.4	123.0	5.0
SMDJ16A	SMDJ16CA	HEP	IEP	16.0	17.80	20.50	1	26.0	115.4	5.0
SMDJ17A	SMDJ17CA	HER	IER	17.0	18.90	21.70	1	27.6	108.7	5.0
SMDJ18A	SMDJ18CA	HET	IET	18.0	20.00	23.30	1	29.2	102.7	5.0
SMDJ20A	SMDJ20CA	HEV	IEV	20.0	22.20	25.50	1	32.4	92.6	5.0
SMDJ22A	SMDJ22CA	HEX	IEX	22.0	24.40	28.00	1	35.5	84.5	5.0
SMDJ24A	SMDJ24CA	HEZ	IEZ	24.0	26.70	30.70	1	38.9	77.1	5.0
SMDJ26A	SMDJ26CA	HFE	IFE	26.0	28.90	33.20	1	42.1	71.3	5.0
SMDJ28A	SMDJ28CA	HFG	IFG	28.0	31.10	35.80	1	45.4	66.1	5.0
SMDJ30A	SMDJ30CA	HFK	IFK	30.0	33.30	38.30	1	48.4	62.0	5.0
SMDJ33A	SMDJ33CA	HFM	IFM	33.0	36.70	42.20	1	53.3	56.3	5.0
SMDJ36A	SMDJ36CA	HFP	IFP	36.0	40.00	46.00	1	58.1	51.6	5.0
SMDJ40A	SMDJ40CA	HFR	IFR	40.0	44.40	51.10	1	64.5	46.5	5.0
SMDJ43A	SMDJ43CA	HFT	IFT	43.0	47.80	54.90	1	69.4	43.2	5.0
SMDJ45A	SMDJ45CA	HFV	IFV	45.0	50.00	57.50	1	72.7	41.3	5.0
SMDJ48A	SMDJ48CA	HFX	IFX	48.0	53.30	61.30	1	77.4	38.8	5.0
SMDJ51A	SMDJ51CA	HFZ	IFZ	51.0	56.70	65.20	1	82.4	36.4	5.0
SMDJ54A	SMDJ54CA	HGE	IGE	54.0	60.00	69.00	1	87.1	34.4	5.0
SMDJ58A	SMDJ58CA	HGG	IGG	58.0	64.40	74.10	1	93.6	32.1	5.0
SMDJ60A	SMDJ60CA	HGK	IGK	60.0	66.70	76.70	1	96.8	31.0	5.0
SMDJ64A	SMDJ64CA	HGM	IGM	64.0	71.10	81.80	1	103.0	29.1	5.0
SMDJ70A	SMDJ70CA	HGP	IGP	70.0	77.80	89.50	1	113.0	26.5	5.0
SMDJ75A	SMDJ75CA	HGR	IGR	75.0	83.30	95.80	1	121.0	24.8	5.0
SMDJ78A	SMDJ78CA	HGT	IGT	78.0	86.70	99.70	1	126.0	23.8	5.0
SMDJ85A	SMDJ85CA	HGV	IGV	85.0	94.40	108.20	1	137.0	20.8	5.0
SMDJ90A	SMDJ90CA	HGX	IGX	90.0	100.00	115.50	1	146.0	20.6	5.0
SMDJ100A	SMDJ100CA	HGZ	IGZ	100.0	111.00	128.00	1	162.0	18.6	5.0
SMDJ110A	SMDJ110CA	HHE	IHE	110.0	122.00	140.50	1	177.0	16.8	5.0
SMDJ120A	SMDJ120CA	HHG	IHG	120.0	133.00	153.00	1	193.0	15.6	5.0
SMDJ130A	SMDJ130CA	HHK	IHK	130.0	144.00	165.50	1	209.0	14.4	5.0
SMDJ150A	SMDJ150CA	HHM	IHM	150.0	167.00	192.50	1	243.0	12.4	5.0
SMDJ160A	SMDJ160CA	HHP	IHP	160.0	178.00	205.00	1	259.0	11.6	5.0
SMDJ170A	SMDJ170CA	HHR	IHR	170.0	189.00	217.50	1	275.0	11.0	5.0
SMDJ180A	SMDJ180CA	HHT	IHT	180.0	198.00	230.40	1	292.0	10.3	5.0
SMDJ190A	SMDJ190CA	HHV	IHV	190.0	209.00	243.20	1	308.0	9.7	5.0
SMDJ200A	SMDJ200CA	HHX	IHX	200.0	220.00	256.00	1	324.0	9.3	5.0
SMDJ210A	SMDJ210CA	HHZ	IHZ	210.0	231.00	268.80	1	340.0	8.8	5.0
SMDJ220A	SMDJ220CA	HIE	IIE	220.0	242.00	281.00	1	356.0	8.4	5.0

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

Figure 1 - Peak Pulse Power Rating Curve

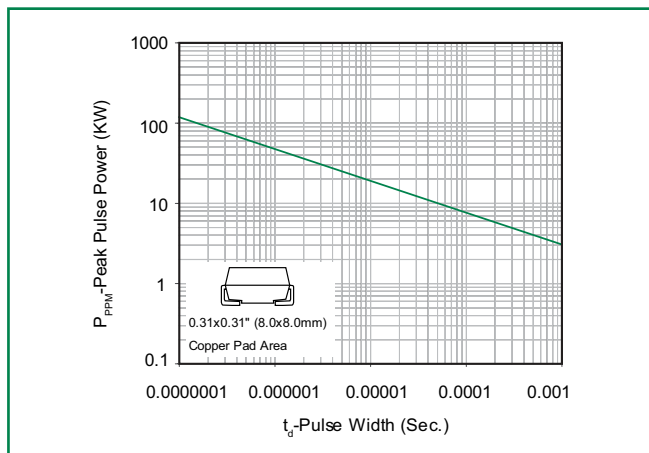


Figure 2 - Pulse Derating Curve

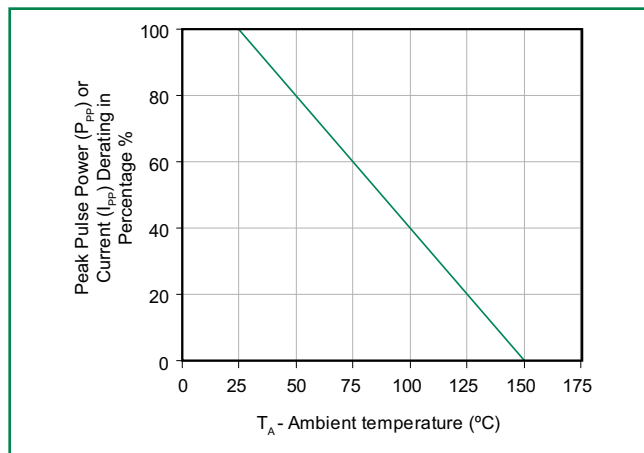


Figure 3 - Pulse Waveform

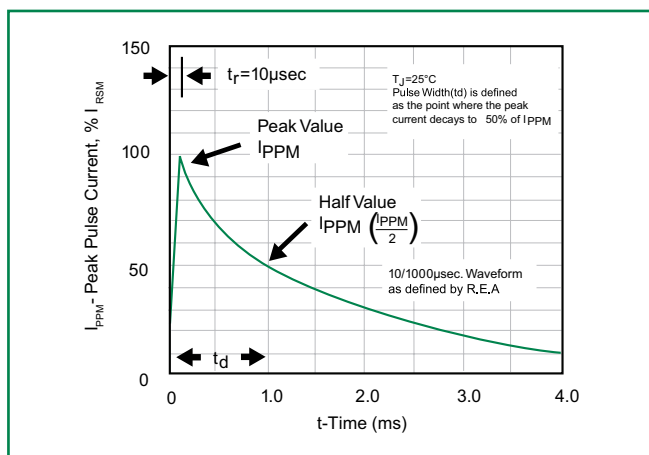


Figure 4 - Typical Junction Capacitance

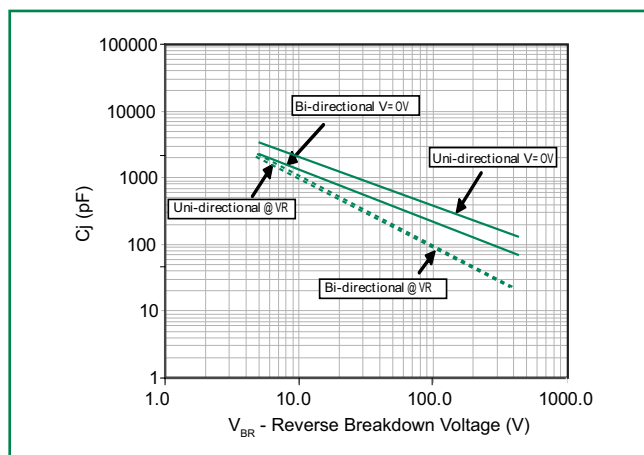


Figure 5 - Steady State Power Derating Curve

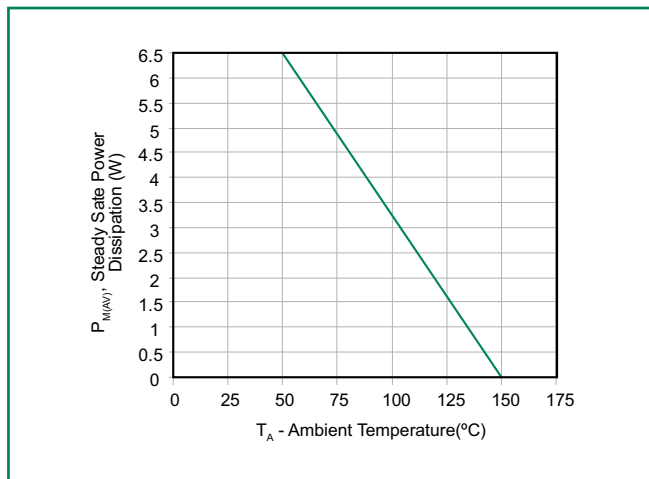
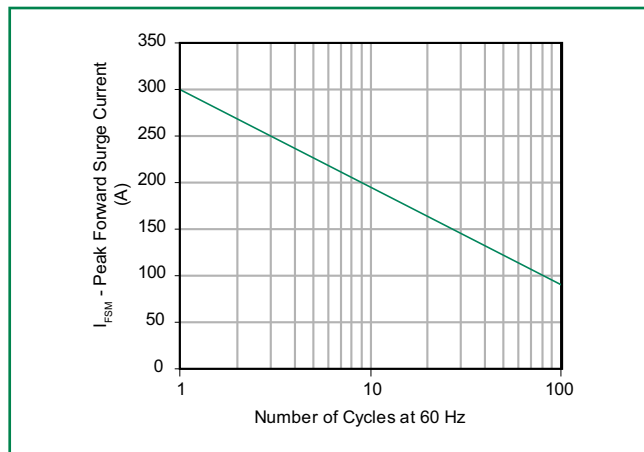
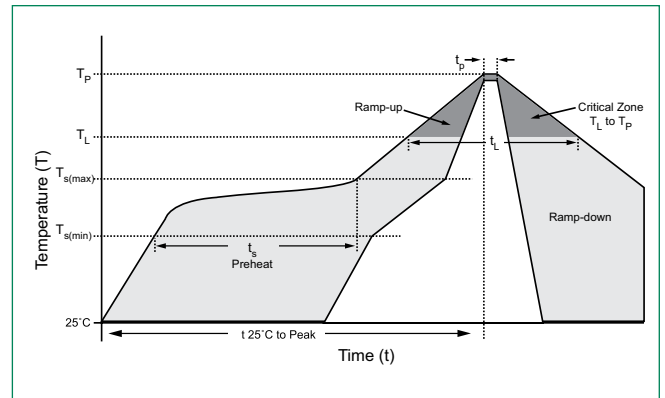


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional only



Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		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
Peak Temperature (T_p)		260 ^{+0/-5} °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 (T_p)		8 minutes Max.
Do not exceed		280°C



Physical Specifications

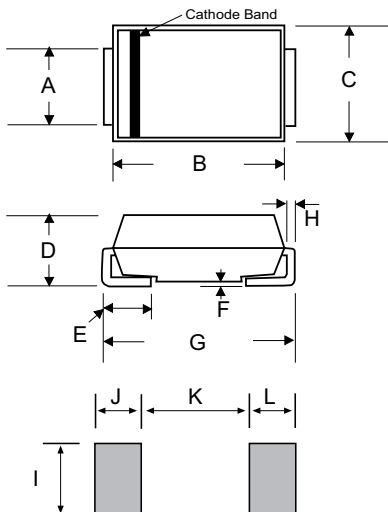
Weight	0.007 ounce, 0.21 grams
Case	JEDEC DO214AB. Molded plastic body over glass passivated junction
Polarity	Color band denotes positive end (cathode) except Bidirectional.
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

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

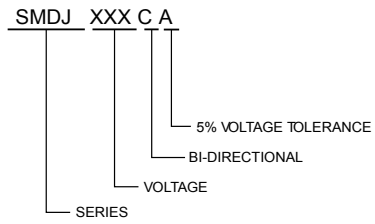
Dimensions

DO-214AB (SMC -Bend)

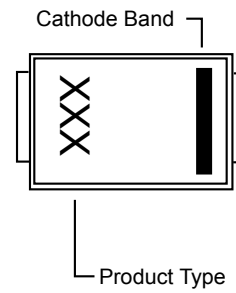


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200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

Part Numbering System



Part Marking System



Packaging

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