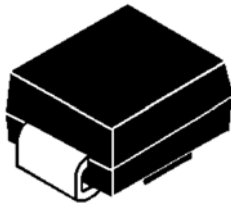


## Transient Voltage Suppressor



**Breakdown Voltage 5.0 to 170 Volts**  
**Peak Pulse Power 1500 Watts**

### Features

- Breakdown Voltages ( $V_{BR}$ ) from 5.0 to 170V
- 1500W peak pulse power capability with a 10/1000 $\mu$ s waveform, repetitive rate (duty cycle):0.01%
- Fast Response Time
- Low incremental surge resistance
- Excellent clamping capability
- Available in uni-directional and bi-directional
- High temperature soldering guaranteed: 260 $^{\circ}$ C /10 seconds at terminals.

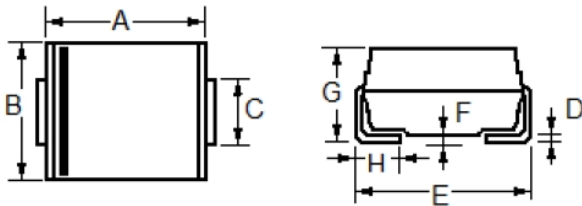
### Application

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFE, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication

### Mechanical Data

- **Case:** Void-free transfer molded thermosetting epoxy body meeting UL94V-O
- **Terminals:** Tin-Lead or ROHS Compliant annealed matte-Tin plating readily solderable per MIL-STD-750, Method 2026
- **Marking:** Body marked with part number
- **Polarity:** Cathode indicated by band. No marking on bi-directional devices

#### CASE: SMC (DO214AB)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	6.60	7.11	0.260	0.280
B	5.59	6.22	0.220	0.245
C	2.90	3.20	0.114	0.126
D	0.125	0.305	0.006	0.012
E	7.60	8.13	0.299	0.320
F	----	0.203	----	0.008
G	2.06	2.62	0.079	0.103
H	0.76	1.52	0.030	0.060

### Maximum Ratings and Electrical Characteristics @ 25 $^{\circ}$ C unless otherwise specified

Symbol	Conditions	Value	Unit
$P_{PPM}$	Peak pulse power capability with a 10/1000 $\mu$ s	1500	W
$I_{PPM}$	Peak pulse current with a 10/1000 $\mu$ s	SEE TABLE1	A
$P_{M(AV)}$	Steady state power dissipation at $T_L=30^{\circ}$ C	6.0	W
	Steady state power dissipation at $T_A=25^{\circ}$ C when mounted on FR4 PC described for thermal resistance	1.56	W
$I_{FSM}$	Peak forward surge current,8.3ms single half sine-wave unidirectional only	200	A
$V_F$	Maximum instantaneous forward voltage at 100A for unidirectional only(1)	3.5	V
$R_{\theta JL}$	Thermal resistance junction to lead	20	$^{\circ}$ C/W
$R_{\theta JA}$	Thermal resistance junction to ambient	80	$^{\circ}$ C/W
$T_J, T_{STG}$	Operating and Storage Temperature	-65 to +150	$^{\circ}$ C

Notes:

(1) Measured on 8.3ms single half sine-wave

**Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1**

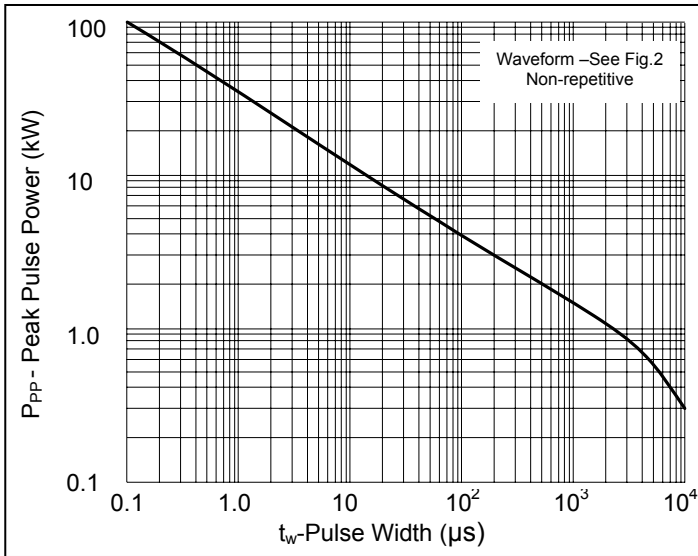
Part Number	Breakdown Voltage $V_{BR} @ I_{BR}$			Reverse Stand Off Voltage	Maximum Standby current $I_D @ V_{WM}$	Maximum Peak Pulse Current $I_{PP}$	Maximum Clamping Voltage $V_C @ I_{PP}$
	MIN	MAX					
	$V_{BR}(V)$		$I_{BR}(mA)$				
SMCJ5.0	6.40	7.30	10	5.0	1000	156.2	9.6
SMCJ5.0A	6.40	7.00	10	5.0	1000	163.0	9.2
SMCJ6.0	6.67	8.15	10	6.0	1000	131.6	11.4
SMCJ6.0A	6.67	7.37	10	6.0	1000	145.6	10.3
SMCJ6.5	7.22	8.82	10	6.5	500	122.0	12.3
SMCJ6.5A	7.22	7.98	10	6.5	500	133.9	11.2
SMCJ7.0	7.78	9.51	10	7.0	200	112.8	13.3
SMCJ7.0A	7.78	8.60	10	7.0	200	125.0	12.0
SMCJ7.5	8.33	10.2	1	7.5	100	104.9	14.3
SMCJ7.5A	8.33	9.21	1	7.5	100	116.3	12.9
SMCJ8.0	8.89	10.9	1	8.0	50	100.0	15.0
SMCJ8.0A	8.89	9.83	1	8.0	50	110.3	13.6
SMCJ8.5	9.44	11.5	1	8.5	20	94.3	15.9
SMCJ8.5A	9.44	10.4	1	8.5	20	104.2	14.4
SMCJ9.0	10.0	12.2	1	9.0	10	88.7	16.9
SMCJ9.0A	10.0	11.1	1	9.0	10	97.4	15.4
SMCJ10	11.1	13.6	1	10.0	5	79.8	18.8
SMCJ10A	11.1	12.3	1	10.0	5	88.2	17.0
SMCJ11	12.2	14.9	1	11.0	5	74.6	20.1
SMCJ11A	12.2	13.5	1	11.0	5	82.4	18.2
SMCJ12	13.3	16.3	1	12.0	5	68.2	22.0
SMCJ12A	13.3	14.7	1	12.0	5	75.3	19.9
SMCJ13	14.4	17.6	1	13.0	1	63.0	23.8
SMCJ13A	14.4	15.9	1	13.0	1	69.7	21.5
SMCJ14	15.6	19.1	1	14.0	1	58.1	25.8
SMCJ14A	15.6	17.2	1	14.0	1	64.7	23.2
SMCJ15	16.7	20.4	1	15.0	1	55.8	26.9
SMCJ15A	16.7	18.5	1	15.0	1	61.5	24.4
SMCJ16	17.8	21.8	1	16.0	1	52.1	28.8
SMCJ16A	17.8	19.7	1	16.0	1	57.7	26.0
SMCJ17	18.9	23.1	1	17.0	1	49.2	30.5
SMCJ17A	18.9	20.9	1	17.0	1	53.3	27.6
SMCJ18	20.0	24.4	1	18.0	1	46.6	32.2
SMCJ18A	20.0	22.1	1	18.0	1	51.4	29.2
SMCJ20	22.2	27.1	1	20.0	1	41.9	35.8
SMCJ20A	22.2	24.5	1	20.0	1	46.3	32.4
SMCJ22	24.4	29.8	1	22.0	1	38.1	39.4
SMCJ22A	24.4	26.9	1	22.0	1	42.2	35.5
SMCJ24	26.7	32.6	1	24.0	1	34.9	43.0
SMCJ24A	26.7	29.5	1	24.0	1	38.6	38.9
SMCJ26	28.9	35.3	1	26.0	1	32.2	46.6
SMCJ26A	28.9	31.9	1	26.0	1	35.6	42.1
SMCJ28	31.1	38.0	1	28.0	1	30.0	50.0
SMCJ28A	31.1	34.4	1	28.0	1	33.0	45.4
SMCJ30	33.3	40.7	1	30.0	1	28.0	53.5
SMCJ30A	33.3	36.8	1	30.0	1	31.0	48.4
SMCJ33	36.7	44.9	1	33.0	1	25.2	59.0
SMCJ33A	36.7	40.6	1	33.0	1	28.1	53.3
SMCJ36	40.0	48.9	1	36.0	1	23.3	64.3
SMCJ36A	40.0	44.2	1	36.0	1	25.8	58.1
SMCJ40	44.4	54.3	1	40.0	1	21.0	71.4
SMCJ40A	44.4	49.1	1	40.0	1	23.2	64.5

**Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1**

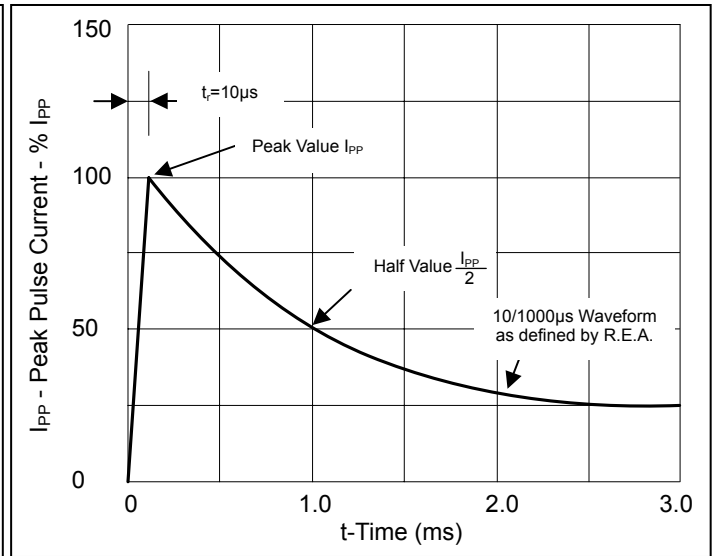
Part Number	Breakdown Voltage $V_{BR} @ I_{BR}$			Rated Stand Off Voltage	Maximum Standby current $I_D @ V_{WM}$	Maximum Peak Pulse Current	Maximum Clamping Voltage $V_C @ I_{PP}$
	MIN	MAX					
	$V_{BR}(V)$		$I_{BR}(mA)$				
SMCJ43	47.8	58.4	1	43.0	1	19.6	76.7
SMCJ43A	47.8	52.8	1	43.0	1	21.6	69.4
SMCJ45	50.0	61.1	1	45.0	1	18.7	80.3
SMCJ45A	50.0	55.3	1	45.0	1	20.6	72.7
SMCJ48	53.3	65.1	1	48.0	1	17.5	85.5
SMCJ48A	53.3	58.9	1	48.0	1	19.4	77.4
SMCJ51	56.7	69.3	1	51.0	1	16.5	91.1
SMCJ51A	56.7	62.7	1	51.0	1	18.2	82.4
SMCJ54	60.0	73.3	1	54.0	1	15.6	96.3
SMCJ54A	60.0	66.3	1	54.0	1	17.2	87.1
SMCJ58	64.4	78.7	1	58.0	1	14.6	103.0
SMCJ58A	64.4	71.2	1	58.0	1	16.0	93.6
SMCJ60	66.7	81.5	1	60.0	1	14.0	107.0
SMCJ60A	66.7	73.7	1	60.0	1	15.5	96.8
SMCJ64	71.1	86.9	1	64.0	1	13.2	114.0
SMCJ64A	71.1	78.6	1	64.0	1	14.6	103.0
SMCJ70	77.8	95.1	1	70.0	1	12.0	125.0
SMCJ70A	77.8	86.0	1	70.0	1	13.3	113.0
SMCJ75	83.3	102.0	1	75.0	1	11.2	134.0
SMCJ75A	83.3	92.1	1	75.0	1	12.4	121.0
SMCJ78	86.7	106.0	1	78.0	1	10.8	139.0
SMCJ78A	86.7	95.8	1	78.0	1	11.4	126.0
SMCJ85	94.4	115.0	1	85.0	1	9.9	151.0
SMCJ85A	94.4	104.0	1	85.0	1	10.4	137.0
SMCJ90	100.0	122.0	1	90.0	1	9.4	160.0
SMCJ90A	100.0	111.0	1	90.0	1	10.3	146.0
SMCJ100	111.0	136.0	1	100.0	1	8.4	179.0
SMCJ100A	111.0	123.0	1	100.0	1	9.3	162.0
SMCJ110	122.0	149.0	1	110.0	1	7.7	196.0
SMCJ110A	122.0	135.0	1	110.0	1	8.5	177.0
SMCJ120	133.0	163.0	1	120.0	1	7.0	214.0
SMCJ120A	133.0	147.0	1	120.0	1	7.8	193.0
SMCJ130	144.0	176.0	1	130.0	1	6.5	231.0
SMCJ130A	144.0	159.0	1	130.0	1	7.2	209.0
SMCJ150	167.0	204.0	1	150.0	1	5.6	268.0
SMCJ150A	167.0	185.0	1	150.0	1	6.2	243.0
SMCJ160	178.0	218.0	1	160.0	1	5.2	287.0
SMCJ160A	178.0	197.0	1	160.0	1	5.8	259.0
SMCJ170	189.0	231.0	1	170.0	1	4.9	304.0
SMCJ170A	189.0	209.0	1	170.0	1	5.5	275.0

1. For bi-directional construction, indicate a C or CA suffix after part number, i.e. SMCJ170C or SMCJ170CA

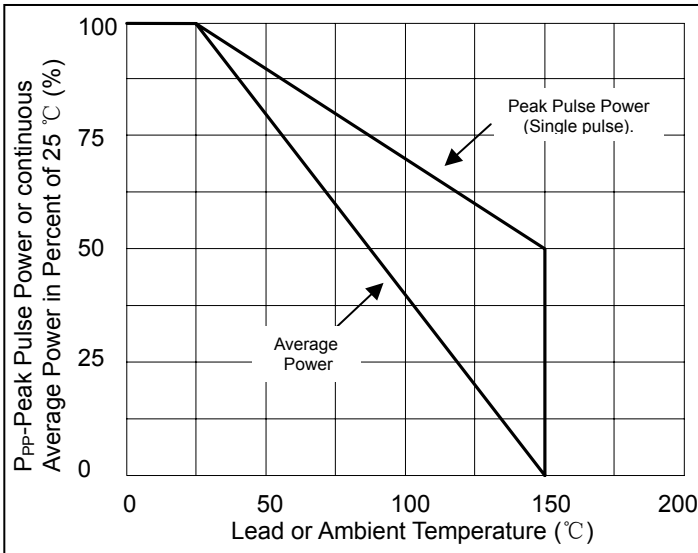
## Characteristic Curve



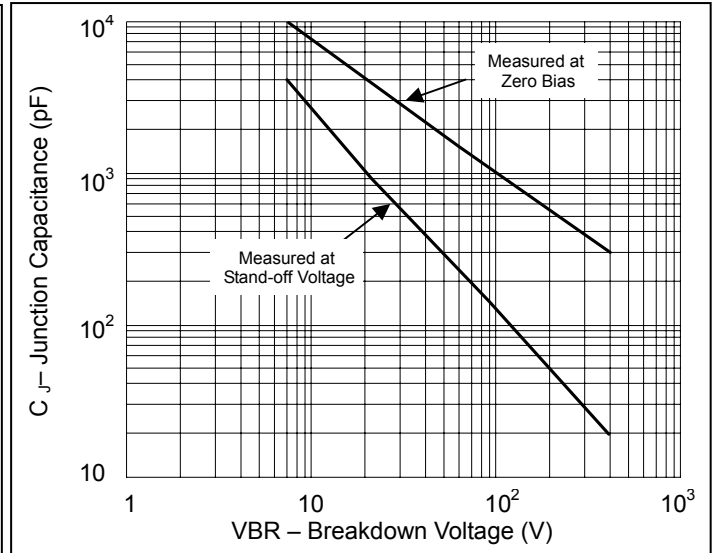
**Fig. 1 Peak Pulse Power vs. Pulse Time**



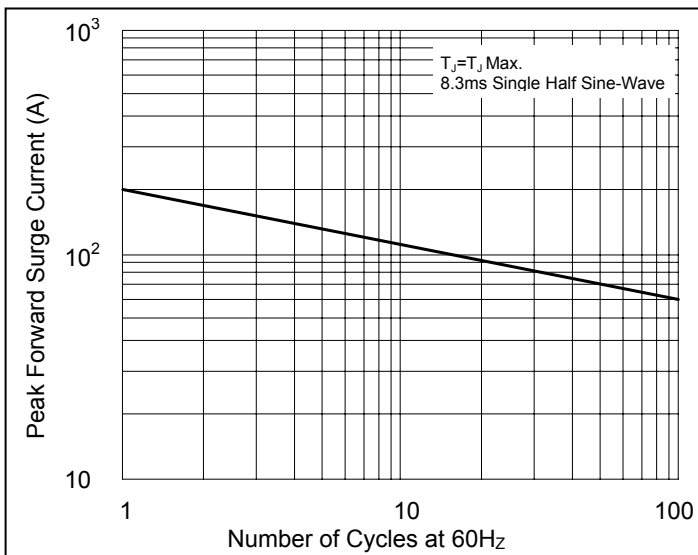
**Fig. 2 Pulse Waveform for Exponential Surge**



**Fig. 3 Derating Curve**



**Fig. 4 Typical Capacitance vs. Breakdown Voltage (Unipolar)**



**Fig. 5 Max. Non-Repetitive Forward Surge Current Uni-Directional Only**