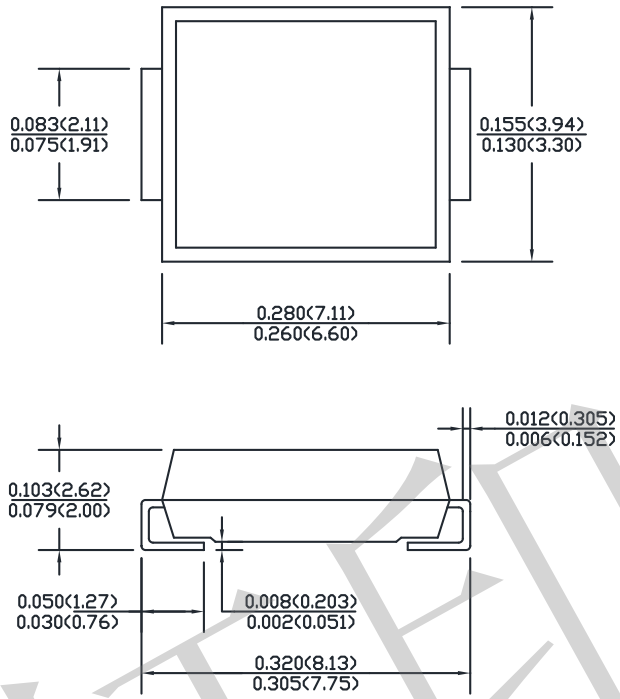
SMCJCE6.5 thru SMCJLCE170A



Transient Voltage Suppressor

Breakdown Voltage 6.5 to 170 Volts
Peak Pulse Power 1500 Watts

CASE: SMC (DO214AB)



Dimensions in inches and (millimeters)

Features

- Breakdown Voltages (V_{BR}) from 6.5 to 170V
- 1500W peak pulse power capability with a 10/1000μs waveform, repetitive rate (duty cycle):0.01%
- Low capacitance
- Fast Response Time
- Excellent clamping capability
- High temperature soldering guaranteed: 265℃ /10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3kg) tension

Application

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on IC_S, 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
- **Weight:** 0.21g（Approximately）

Maximum Ratings and Electrical Characteristics @ 25°C unless otherwise specified

Symbol	Conditions	Value	Unit
P_{PPM}	Peak pulse power capability with a 10/1000μs	1500	W
I_{PPM}	Peak pulse current with a 10/1000μs	SEE TABLE1	A
$P_{M(AV)}$	Steady state power dissipation at T_L=50℃ ,Lead lengths 0.375"(10mm)	5	W
V_F	Maximum instantaneous forward voltage at 100A	3.5	V
$R_{\theta JL}$	Thermal resistance junction to lead	20	℃/W
T_J, T_{STG}	Operating and Storage Temperature	-65 to +150	℃

SMCJCE6.5 thru SMCJLCE170A

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

Microsemi 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} @ 10/1000μs	Maximum Clamping Voltage V_C @ I_{PP}	Maximum Capacitance @ 0V f=1MHz	Working Inverse Blocking Voltage II_{IB} @V_{WIB}		Peak Inverse Blocking Voltage
	MIN	MAX	I_{BR} (mA)	V_{WM}(V)	I_D(μA)	I_{PP} (A)	V_C(V)	pF	V_{WIB}(V)	I_{IB}(μA)	V_{PIB}(V)
	V_{BR}(V)										
SMCJLCE6.5	7.22	8.82	10	6.5	1000	100.0	12.3	100	75	10	100
SMCJLCE6.5A	7.22	7.98	10	6.5	1000	100.0	11.2	100	75	10	100
SMCJLCE7.0	7.78	9.51	10	7.0	500	100.0	13.3	100	75	10	100
SMCJLCE7.0A	7.78	8.60	10	7.0	500	100.0	12.0	100	75	10	100
SMCJLCE7.5	8.33	10.2	10	7.5	250	100.0	14.3	100	75	10	100
SMCJLCE7.5A	8.33	9.21	10	7.5	250	100.0	12.9	100	75	10	100
SMCJLCE8.0	8.89	10.9	1	8.0	100	100.0	15.0	100	75	10	100
SMCJLCE8.0A	8.89	9.83	1	8.0	100	100.0	13.6	100	75	10	100
SMCJLCE8.5	9.44	11.5	1	8.5	50	94.0	15.9	100	75	10	100
SMCJLCE8.5A	9.44	10.4	1	8.5	50	100.0	14.4	100	75	10	100
SMCJLCE9.0	10.0	12.2	1	9.0	10	89.0	16.9	100	75	10	100
SMCJLCE9.0A	10.0	11.1	1	9.0	10	97.0	15.4	100	75	10	100
SMCJLCE10	11.1	13.6	1	10.0	5	80.0	18.8	100	75	10	100
SMCJLCE10A	11.1	12.3	1	10.0	5	88.0	17.0	100	75	10	100
SMCJLCE11	12.2	14.9	1	11.0	5	74.0	20.1	100	75	10	100
SMCJLCE11A	12.2	13.5	1	11.0	5	82.0	18.2	100	75	10	100
SMCJLCE12	13.3	16.3	1	12.0	5	68.0	22.0	100	75	10	100
SMCJLCE12A	13.3	14.7	1	12.0	5	75.0	19.9	100	75	10	100
SMCJLCE13	14.4	17.6	1	13.0	5	63.0	23.8	100	75	10	100
SMCJLCE13A	14.4	15.9	1	13.0	5	70.0	21.5	100	75	10	100
SMCJLCE14	15.6	19.1	1	14.0	5	58.0	25.8	100	75	10	100
SMCJLCE14A	15.6	17.2	1	14.0	5	65.0	23.2	100	75	10	100
SMCJLCE15	16.7	20.4	1	15.0	5	56.0	26.9	100	75	10	100
SMCJLCE15A	16.7	18.5	1	15.0	5	61.0	24.4	100	75	10	100
SMCJLCE16	17.8	21.8	1	16.0	5	52.0	28.8	100	75	10	100
SMCJLCE16A	17.8	19.7	1	16.0	5	57.0	26.0	100	75	10	100
SMCJLCE17	18.9	23.1	1	17.0	5	49.0	30.5	100	75	10	100
SMCJLCE17A	18.9	20.9	1	17.0	5	54.0	27.6	100	75	10	100
SMCJLCE18	20.0	24.4	1	18.0	5	45.0	32.2	100	75	10	100
SMCJLCE18A	20.0	22.1	1	18.0	5	51.0	29.2	100	75	10	100
SMCJLCE20	22.2	27.1	1	20.0	5	42.0	35.8	100	75	10	100
SMCLLCE20A	22.2	24.5	1	20.0	5	46.0	32.4	100	75	10	100
SMCJLCE22	24.4	29.8	1	22.0	5	38.0	39.4	100	75	10	100
SMCJLCE22A	24.4	26.9	1	22.0	5	42.0	35.5	100	75	10	100
SMCJLCE24	26.7	32.6	1	24.0	5	35.0	43.0	100	75	10	100
SMCJLCE24A	26.7	29.5	1	24.0	5	39.0	38.9	100	75	10	100
SMCJLCE26	28.9	35.3	1	26.0	5	32.0	46.6	100	75	10	100
SMCJLCE26A	28.9	31.9	1	26.0	5	36.0	42.1	100	75	10	100
SMCJLCE28	31.1	38.0	1	28.0	5	30.0	50.0	100	75	10	100
SMCJLCE28A	31.1	34.4	1	28.0	5	33.0	45.5	100	75	10	100
SMCJLCE30	33.3	40.7	1	30.0	5	28.0	53.5	100	75	10	100
SMCJLCE30A	33.3	36.8	1	30.0	5	31.0	48.4	100	75	10	100
SMCJLCE33	36.7	44.9	1	33.0	5	25.4	58.0	100	75	10	100
SMCJLCE33A	36.7	40.6	1	33.0	5	28.1	53.3	100	75	10	100
SMCJLCE36	40.0	48.9	1	36.0	5	23.3	64.3	100	75	10	100
SMCJLCE36A	40.0	44.2	1	36.0	5	25.8	58.1	100	75	10	100
SMCJLCE40	44.4	54.3	1	40.0	5	21.0	71.4	100	75	10	100
SMCJLCE40A	44.4	49.1	1	40.0	5	23.3	64.5	100	75	10	100
SMCJLCE43	47.8	58.4	1	43.0	5	19.5	76.7	100	150	10	200
SMCJLCE43A	47.8	52.8	1	43.0	5	21.6	69.4	100	150	10	200
SMCJLCE45	50.0	61.1	1	45.0	5	18.7	80.3	100	150	10	200
SMCJLCE45A	50.0	55.3	1	45.0	5	20.6	72.7	100	150	10	200

SMCJCE6.5 thru SMCJLCE170A

Microsemi 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} @ 10/1000μs	Maximum Clamping Voltage V_C @ I_{PP}	Maximum Capacitance @ 0V f=1MHz	Working Inverse Blocking Voltage II_{IB} @V_{WIB}		Peak Inverse Blocking Voltage
	MIN	MAX	I_{BR} (mA)	V_{WM}(V)	I_D(μA)	I_{PP} (A)	V_C(V)	pF	V_{WIB}(V)	IIB(μA)	V_{PIB}(V)
	V_{BR}(V)										
SMCJLCE48	53.3	65.1	1	48.0	5	17.5	85.5	100	150	10	200
SMCJLCE48A	53.3	58.9	1	48.0	5	19.4	77.4	100	150	10	200
SMCJLCE51	56.7	69.3	1	51.0	5	16.5	91.1	100	150	10	200
SMCJLCE51A	56.7	62.7	1	51.0	5	18.2	82.4	100	150	10	200
SMCJLCE54	60.0	73.3	1	54.0	5	15.6	96.3	100	150	10	200
SMCJLCE54A	60.0	66.3	1	54.0	5	17.2	87.1	100	150	10	200
SMCJLCE58	64.4	78.7	1	58.0	5	14.6	103.0	100	150	10	200
SMCJLCE58A	64.4	71.2	1	58.0	5	16.0	93.6	100	150	10	200
SMCJLCE60	66.7	81.5	1	60.0	5	14.0	107.0	90	150	10	200
SMCJLCE60A	66.7	73.7	1	60.0	5	15.5	96.8	90	150	10	200
SMCJLCE64	71.1	86.9	1	64.0	5	13.2	114.0	90	150	10	200
SMCJLCE64A	71.1	78.6	1	64.0	5	14.6	103.0	90	150	10	200
SMCJLCE70	77.8	95.1	1	70.0	5	12.0	125.0	90	150	10	200
SMCJLCE70A	77.8	86.0	1	70.0	5	13.3	113.0	90	150	10	200
SMCJLCE75	83.3	102.0	1	75.0	5	11.2	134.0	90	150	10	200
SMCJLCE75A	83.3	92.1	1	75.0	5	12.4	121.0	90	150	10	200
SMCJLCE80	88.7	108.0	1	80.0	5	10.6	142.0	90	150	10	200
SMCJLCE80A	88.7	98.0	1	80.0	5	11.6	129.0	90	150	10	200
SMCJLCE90	100.0	122.0	1	90.0	5	9.4	160.0	90	300	10	200
SMCJLCE90A	100.0	111.0	1	90.0	5	10.3	146.0	90	300	10	200
SMCJLCE100	111.0	136.0	1	100.0	5	8.4	179.0	90	300	10	200
SMCJLCE100A	111.0	123.0	1	100.0	5	9.3	162.0	90	300	10	200
SMCJLCE110	122.0	149.0	1	110.0	5	7.7	196.0	90	300	10	400
SMCJLCE110A	122.0	135.0	1	110.0	5	8.4	178.0	90	300	10	400
SMCJLCE120	133.0	163.0	1	120.0	5	7.0	214.0	90	300	10	400
SMCJLCE120A	133.0	147.0	1	120.0	5	7.8	193.0	90	300	10	400
SMCJLCE130	144.0	176.0	1	130.0	5	6.5	230.0	90	300	10	400
SMCJLCE130A	144.0	159.0	1	130.0	5	7.2	209.0	90	300	10	400
SMCJLCE150	167.0	204.0	1	150.0	5	5.6	268.0	90	300	10	400
SMCJLCE150A	167.0	185.0	1	150.0	5	6.2	243.0	90	300	10	400
SMCJLCE160	178.0	218.0	1	160.0	5	5.2	287.0	90	300	10	400
SMCJLCE160A	178.0	197.0	1	160.0	5	5.8	259.0	90	300	10	400
SMCJLCE170	189.0	231.0	1	170.0	5	4.9	304.0	90	300	10	400
SMCJLCE170A	189.0	209.0	1	170.0	5	5.4	275.0	90	300	10	400

Note1: A transient voltage suppressor is normally selected according to voltage (V_{WM}), which should be equal to or greater than the dc or continuous peak operating voltage level.

Characteristic Curve

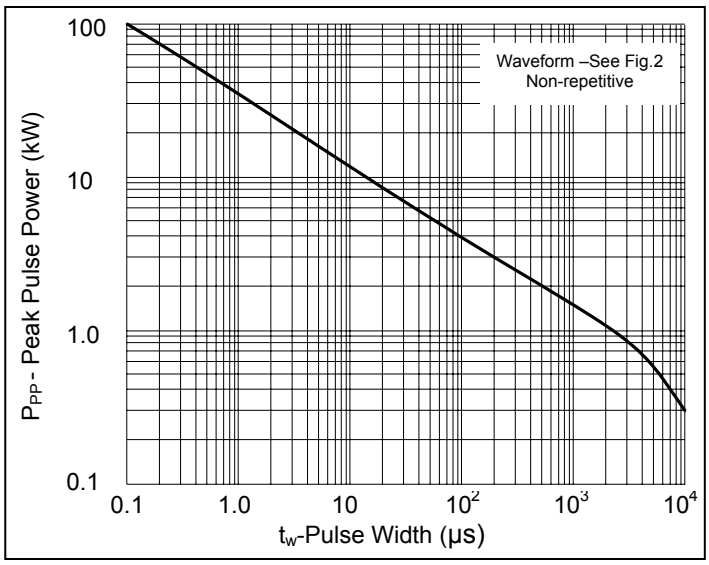


Fig. 1 Peak Pulse Power vs. Pulse Time

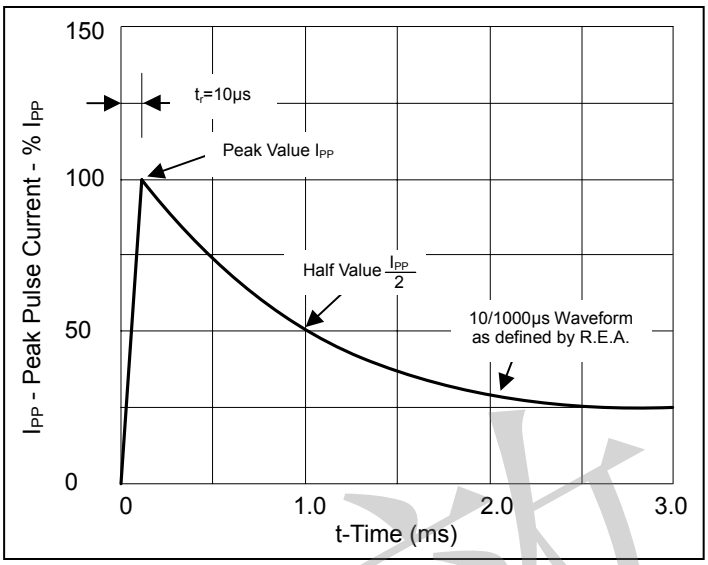


Fig.2 Pulse Waveform for Exponential Surge

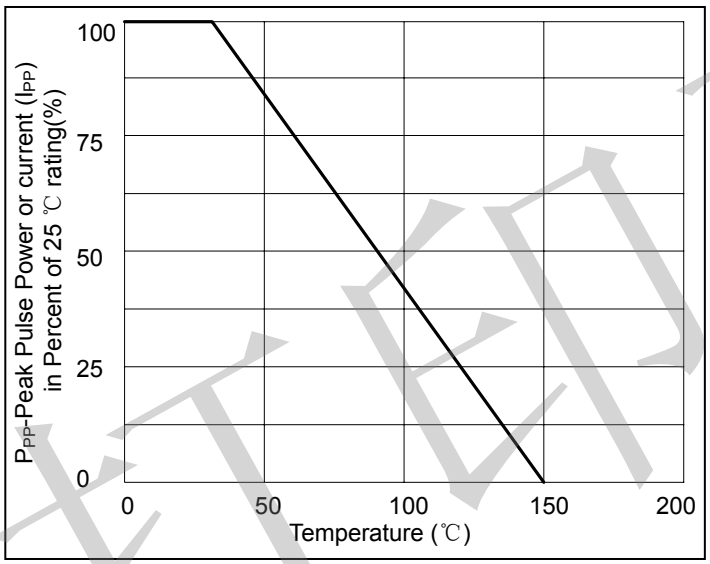


Fig.3 Derating Curve

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Schematic Applications

The TVS low capacitance device configuration is shown in Fig.4. As a further option for unidirectional applications, an additional low capacitance rectifier diode may be used in parallel in the sane polarity direction as the TVS as shown in Fig.5. In applications where random high voltage transients occur, this will prevent reverse transients from damaging the internal low capacitance rectifier diode and also provide a low voltage conducting direction. The added rectifier diode should be of similar low capacitance and also have a higher reverse voltage rating than the TVS clamping voltage $V_{C.}$ If using two (2) low capacitance TVS devices in also provided. The unidirectional and bidirectional configurations in Fig.5 and 6 will both in twice the capacitance of Fig.4

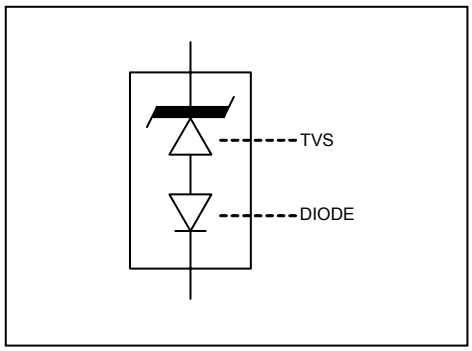


Fig.4 TVS with internal Low Capacitance Diode

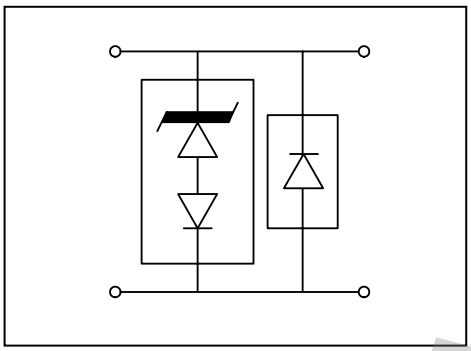


Fig.5 Optional Unidirectional configuration (TVS and separate rectifier diode in parallel)

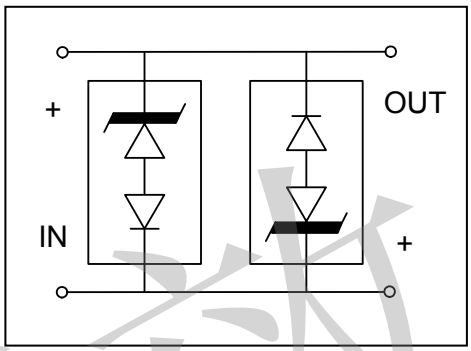


Fig.6 Optional Bidirectional configuration (two TVS and devices in anti-parallel)

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