Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Reverse Voltage 5.0 - 440 Volts

Power Dissipation - 1500 Watts

Features

- For surface mounted applications in order to optimize board space
- Low profile space
- Glass passivated chip
- Typical I_R less than 1 μA above 10V
- Fast response time: typically less than 1.0ns for Uni-direction,less than 5.0ns fo Bi-direction,from 0 Volts to BV min

Mechanical Data

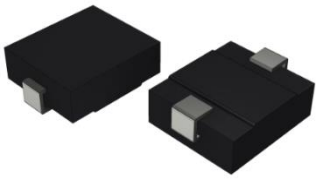
- Case: SMC molded plastic
- Polarity: Color band denotes cathode

Note: Products with logo HY® or hy® are made by HY Electronic (Cayman) Limited.

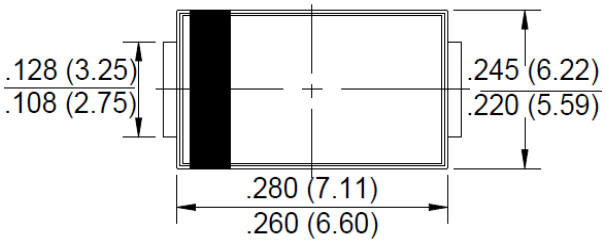
Applications

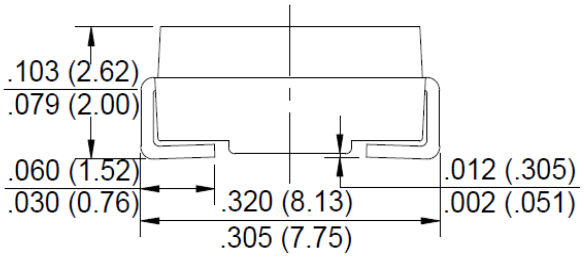
- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs,MOSFET。

SMC



RoHS COMPLIANT





Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25℃ ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristics	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000μs waveform	P_{PPM}	1500	W
Peak pulse current with a waveform	I_{PPM}	See Next Table	W
Peak Forward Surge Current, 8.3mS Single Half Sine-Wave, Superimposed on Rated Load (JEDEC Method)	I_{FSM}	200	A
Typical Thermal Resistance Junction to Lead (Note 1)	$R_{\theta JL}$	15	℃/W
Typical Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	75	℃/W
Operating Junction Temperature Range	T_J	-55 to + 150	℃
Storage Temperature Range	T_{STG}	-55 to + 150	℃

Notes: 1. Mounted on P.C.B. with 0.032 x 0.032" (8.0*8.0mm) copper pad areas.

2. 8.3ms single half sine-wave duty cycle= 4 pulses per minutes maximum (uni-directional units only)

3. The typical data above is for reference only .

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Fig. 1 - Maximum Non-Repetitive Peak Forwaed Surge Current

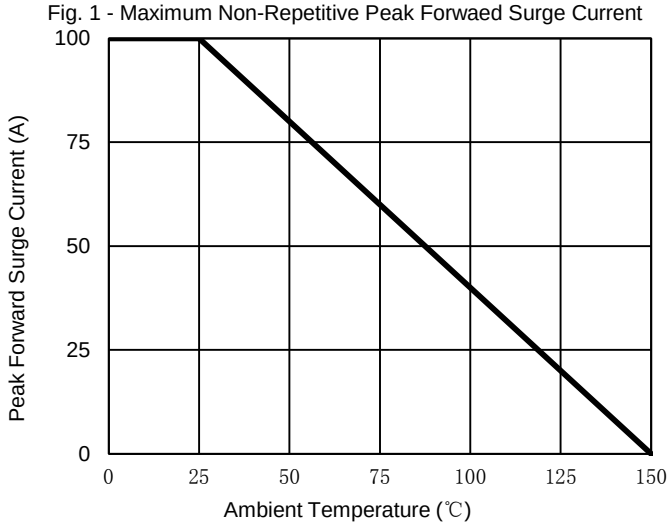


Fig. 2 - Maximum Non-Repetitive Surge Current

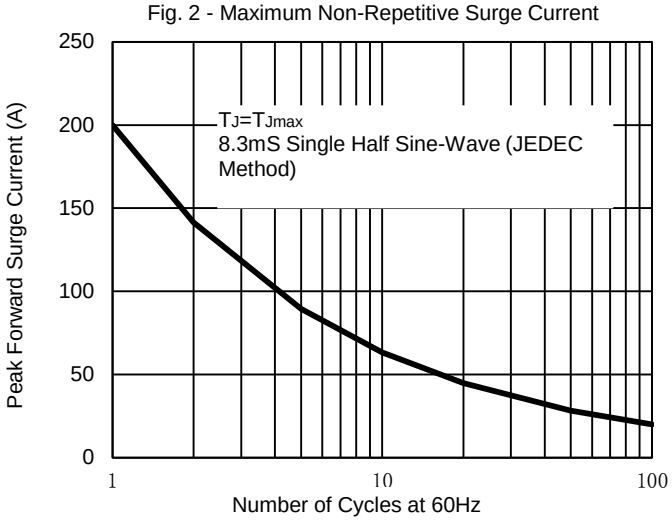


Fig. 3 - Pulse Waveform

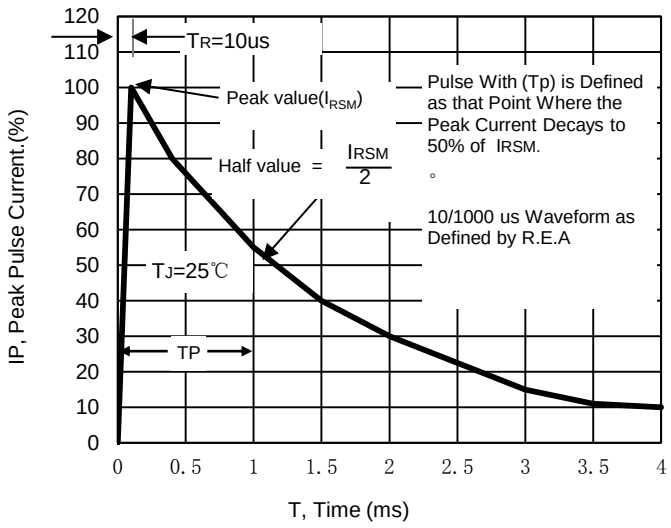


Fig.4- Typical Junction Capacitance

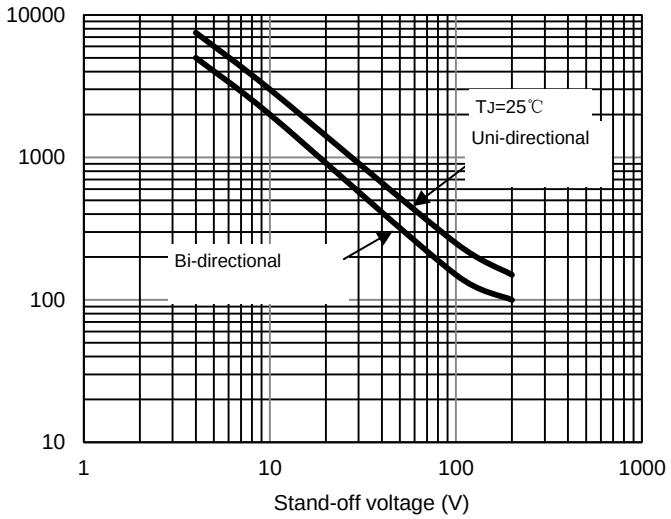
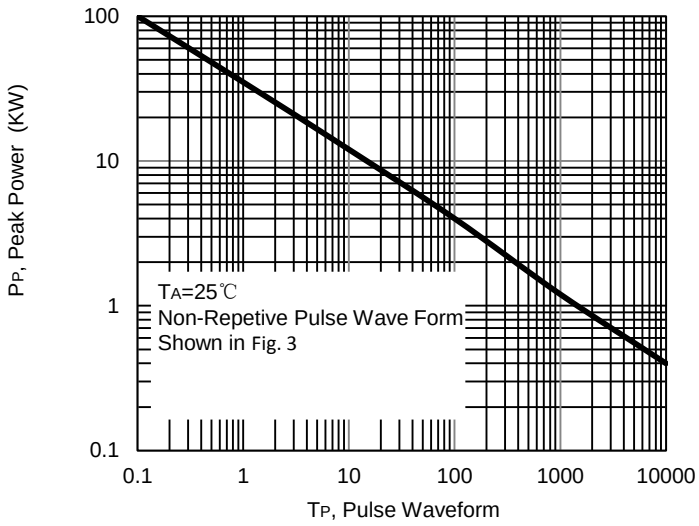


Fig. 5 - Pulse Rating Curve



The curve above is for reference only.

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Part number with C donoteo Bi-Directional		Stand-off Voltage	Breakdown Voltage at I_T[2] $V_{(BR)}$ (V)		Test Current	Maximum Clamping Voltage at I_{PPM}	Maximum Peak Pulse Surge Current[3]	Maximum Reverse Leakage at V_{WM} [4]
UNI	BI	V_{WM} (V)	Min(V)	Max(V)	@ I_T(mA)	V_C (V)	I_{PPM} (A)	I_D (μA)
SMCJ5.0A	SMCJ5.0CA	5.0	6.40	7.07	10	9.2	163.0	1000
SMCJ6.0A	SMCJ6.0CA	6.0	6.67	7.37	10	10.3	145.6	1000
SMCJ6.5A	SMCJ6.5CA	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7.0A	SMCJ7.0CA	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7.5A	SMCJ7.5CA	7.5	8.33	9.21	1.0	12.9	116.3	100
SMCJ8.0A	SMCJ8.0CA	8.0	8.89	9.83	1.0	13.6	110.3	50
SMCJ8.5A	SMCJ8.5CA	8.5	9.44	10.40	1.0	14.4	104.2	20
SMCJ9.0A	SMCJ9.0CA	9.0	10.00	11.10	1.0	15.4	97.4	10
SMCJ10A	SMCJ10CA	10.0	11.10	12.30	1.0	17.0	88.2	5.0
SMCJ11A	SMCJ11CA	11.0	12.20	13.50	1.0	18.2	82.4	5.0
SMCJ12A	SMCJ12CA	12.0	13.30	14.70	1.0	19.9	75.4	5.0
SMCJ13A	SMCJ13CA	13.0	14.40	15.90	1.0	21.5	69.8	1.0
SMCJ14A	SMCJ14CA	14.0	15.60	17.20	1.0	23.2	64.7	1.0
SMCJ15A	SMCJ15CA	15.0	16.70	18.50	1.0	24.4	61.5	1.0
SMCJ16A	SMCJ16CA	16.0	17.80	19.70	1.0	26.0	57.7	1.0
SMCJ17A	SMCJ17CA	17.0	18.90	20.90	1.0	27.6	54.3	1.0
SMCJ18A	SMCJ18CA	18.0	20.00	22.10	1.0	29.2	51.4	1.0
SMCJ20A	SMCJ20CA	20.0	22.20	24.50	1.0	32.4	46.3	1.0
SMCJ22A	SMCJ22CA	22.0	24.40	26.90	1.0	35.5	42.3	1.0
SMCJ24A	SMCJ24CA	24.0	26.70	29.50	1.0	38.9	38.6	1.0
SMCJ26A	SMCJ26CA	26.0	28.90	31.90	1.0	42.1	35.6	1.0
SMCJ28A	SMCJ28CA	28.0	31.10	34.40	1.0	45.4	33.0	1.0
SMCJ30A	SMCJ30CA	30.0	33.30	36.80	1.0	48.4	31.0	1.0
SMCJ33A	SMCJ33CA	33.0	36.70	40.60	1.0	53.3	28.1	1.0
SMCJ36A	SMCJ36CA	36.0	40.0	44.2	1.0	58.1	25.8	1.0
SMCJ40A	SMCJ40CA	40.0	44.4	49.1	1.0	64.5	23.3	1.0
SMCJ43A	SMCJ43CA	43.0	47.8	52.8	1.0	69.4	21.6	1.0
SMCJ45A	SMCJ45CA	45	50.0	55.3	1.0	72.7	20.6	1.0
SMCJ48A	SMCJ48CA	48	53.3	58.9	1.0	77.4	19.4	1.0
SMCJ51A	SMCJ51CA	51	56.7	62.7	1.0	82.4	18.2	1.0
SMCJ54A	SMCJ54CA	54	60.0	66.3	1.0	87.1	17.2	1.0
SMCJ58A	SMCJ58CA	58	64.4	71.2	1.0	93.6	16.0	1.0
SMCJ60A	SMCJ60CA	60	66.7	73.7	1.0	96.8	15.5	1.0
SMCJ64A	SMCJ64CA	64	71.1	78.6	1.0	103	14.6	1.0
SMCJ70A	SMCJ70CA	70	77.8	86.0	1.0	113	13.3	1.0
SMCJ75A	SMCJ75CA	75	83.3	92.1	1.0	121	12.4	1.0
SMCJ78A	SMCJ78CA	78	86.7	95.8	1.0	126	11.9	1.0
SMCJ85A	SMCJ85CA	85	94.4	104	1.0	137	10.9	1.0
SMCJ90A	SMCJ90CA	90	100	111	1.0	146	10.3	1.0
SMCJ100A	SMCJ100CA	100	111	123	1.0	162	9.3	1.0
SMCJ110A	SMCJ110CA	110	122	135	1.0	177	8.5	1.0
SMCJ120A	SMCJ120CA	120	133	147	1.0	193	7.8	1.0
SMCJ130A	SMCJ130CA	130	144	159	1.0	209	7.2	1.0
SMCJ150A	SMCJ150CA	150	167	185	1.0	243	6.2	1.0
SMCJ160A	SMCJ160CA	160	178	197	1.0	259	5.8	1.0
SMCJ170A	SMCJ170CA	170	189	209	1.0	275	5.5	1.0

Notes :1.Pulse test : Tp ≦ 50ms.

2.Surge current waveform Per Fig. 3 and derate Per Fig. 1.

3.For bi-directional types with VWM of 10 V and less, the ID limit is doubled

4.VF = 3.5 V at IF = 25 A (uni-directional only)

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Part number with C donoteo Bi-Directional		Stand-off Voltage	Breakdown Voltage at I_T[2] $V_{(BR)}$ (V)		Test Current	Maximum Clamping Voltage at I_{PPM}	Maximum Peak Pulse Surge Current[3]	Maximum Reverse Leakage at V_{WM} [4]
UNI	BI	V_{WM} (V)	Min(V)	Max(V)	@ I_T(mA)	V_C (V)	I_{PPM} (A)	I_D (μA)
SMCJ188A	SMCJ188CA	188	209	231	1.0	328	4.6	1.0
SMCJ200A	SMCJ200CA	200	224	247	1.0	324	4.6	1.0
SMCJ220A	SMCJ220CA	220	246	272	1.0	356	4.2	1.0
SMCJ250A	SMCJ250CA	250	279	309	1.0	405	3.7	1.0
SMCJ300A	SMCJ300CA	300	335	371	1.0	486	3.1	1.0
SMCJ350A	SMCJ350CA	350	391	432	1.0	567	2.6	1.0
SMCJ400A	SMCJ400CA	400	447	494	1.0	648	2.3	1.0
SMCJ440A	SMCJ440CA	440	492	543	1.0	713	2.1	1.0

Notes :1.Pulse test : Tp ≦ 50ms.

2.Surge current waveform Per Fig. 3 and derate Per Fig. 1.

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4.VF = 3.5 V at IF = 25 A (uni-directional only)

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