

Transient Voltage Suppressors

FEATURES

- Chip produced by chemical method
- Junction passivated by high temperature resistant insulating adhesive
- $T_J = 175\text{ }^{\circ}\text{C}$ capability suitable for high reliability and automotive requirement
- Low leakage current
- Low forward voltage drop for uni-directional production
- High surge capability
- Meets ISO16750-2 surge specification (varied by test condition)
- IEC 61000-4-2 ESD 30 kV (Air), 30 kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- AEC-Q101 qualified

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

DO-218AB



Unidirectional



Bidirectional

MAXIMUM RATINGS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	VALUE	UNIT
Peak pulse power dissipation	with 10/1000 μs waveform	P_{PPM}	8000	W
	with 10/10 000 μs waveform		6000	
Power dissipation on infinite heatsink at $T_C = 25\text{ }^{\circ}\text{C}$ (fig. 1)		P_D	8.5	W
Peak pulse current with 10/1000 μs waveform		$I_{PPM}^{(1)}$	See next table	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +175	$^{\circ}\text{C}$

Note

(1) Non-repetitive current pulse derated above $T_A = 25\text{ }^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

DEVICE TYPE	BREAKDOWN VOLTAGE V_{BR} (V)			TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA)	MAXIMUM REVERSE LEAKAGE AT V_{WM} $T_J = 175\text{ }^{\circ}\text{C}$ I_D (μA)	MAX. PEAK PULSE CURRENT AT 10/1000 μs WAVEFORM (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
	MIN.	NOM.	MAX.						
SM80J10UC/BC	11.1	11.7	12.3	5.0	10.0	10	150	471	17.0
SM80J11UC/BC	12.2	12.9	13.5	5.0	11.0	10	150	440	18.2
SM80J12UC/BC	13.3	14.0	14.7	5.0	12.0	10	150	402	19.9
SM80J13UC/BC	14.4	15.2	15.9	5.0	13.0	10	150	372	21.5
SM80J14UC/BC	15.6	16.4	17.2	5.0	14.0	10	150	345	23.2
SM80J15UC/BC	16.7	17.6	18.5	5.0	15.0	10	150	328	24.4
SM80J16UC/BC	17.8	18.8	19.7	5.0	16.0	10	150	308	26.0
SM80J17UC/BC	18.9	19.9	20.9	5.0	17.0	10	150	290	27.6
SM80J18UC/BC	20.0	21.1	22.1	5.0	18.0	10	150	274	29.2
SM80J20UC/BC	22.2	23.4	24.5	5.0	20.0	10	150	247	32.4
SM80J22UC/BC	24.4	25.7	26.9	5.0	22.0	10	150	225	35.5
SM80J24UC/BC	26.7	28.1	29.5	5.0	24.0	10	150	205	38.9
SM80J26UC/BC	28.9	30.4	31.9	5.0	26.0	10	150	190	42.1
SM80J28UC/BC	31.1	32.8	34.4	5.0	28.0	10	150	176	45.4
SM80J30UC/BC	33.3	35.1	36.8	5.0	30.0	10	150	165	48.4
SM80J33UC/BC	36.7	38.7	40.6	5.0	33.0	10	150	150	53.3
SM80J36UC/BC	40.0	42.1	44.2	5.0	36.0	10	150	138	58.1
SM80J40UC/BC	44.4	46.8	49.1	5.0	40.0	10	150	124	64.5
SM80J43UC/BC	47.8	50.3	52.8	5.0	43.0	10	150	115	69.4
SM80J45UC/BC	50.0	52.7	55.3	5.0	45.0	10	150	110	72.7
SM80J48UC/BC	53.3	56.1	58.9	5.0	48.0	10	150	103	77.4
SM80J51UC/BC	56.7	59.7	62.7	5.0	51.0	10	150	97	82.4
SM80J54UC/BC	60.0	63.1	66.3	5.0	54.0	10	150	92	87.1
SM80J58UC/BC	64.4	67.8	71.2	5.0	58.0	10	150	85	93.6
SM80J60UC/BC	66.7	70.2	73.7	5.0	60.0	10	150	83	96.8
SM80J64UC/BC	71.1	74.9	78.6	5.0	64.0	10	150	78	103
SM80J70UC/BC	77.8	81.9	86.0	5.0	70.0	10	150	71	113
SM80J75UC/BC	83.3	87.7	92.1	5.0	75.0	10	150	66	121
SM80J78UC/BC	86.7	91.3	95.8	5.0	78.0	10	150	63	126
SM80J85UC/BC	94.4	99.2	104.0	5.0	85.0	10	150	58	137

Notes

- For all uni-directional types maximum $V_F = 1.8\text{ V}$ at $I_F = 100\text{ A}$ measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

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RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

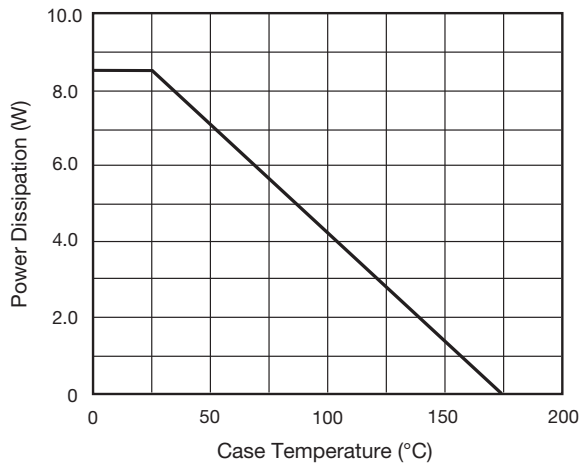


Fig. 1 - Power Derating Curve

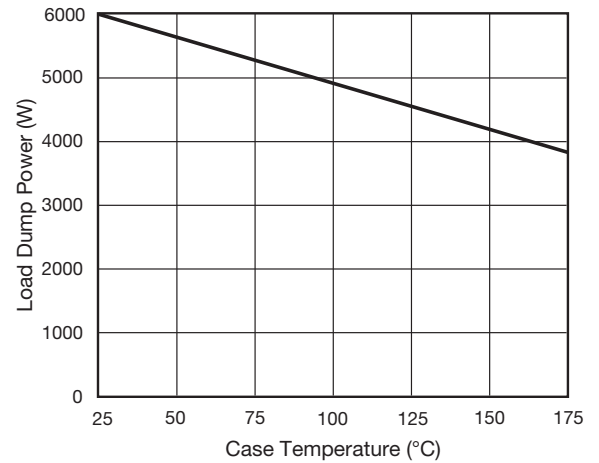


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

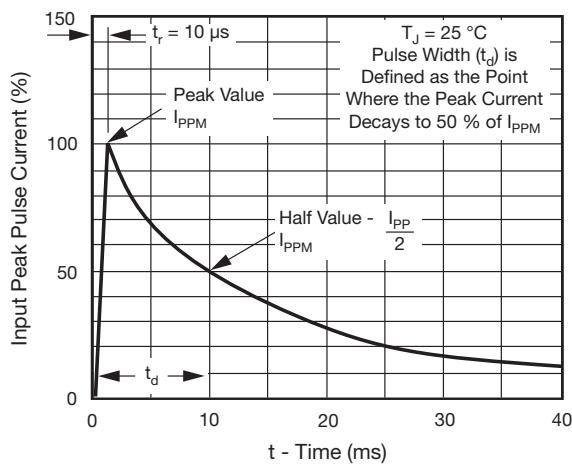


Fig. 3 - Pulse Waveform

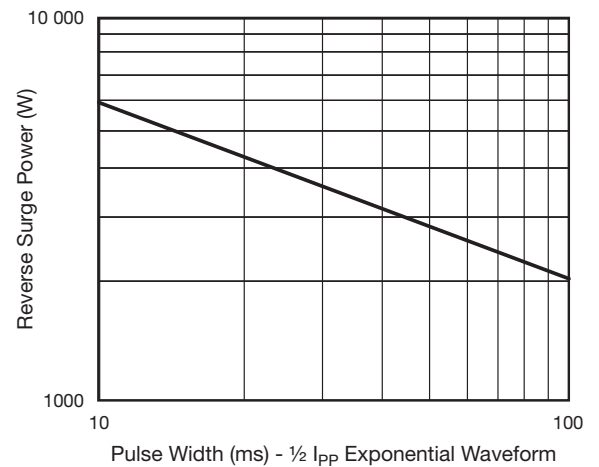
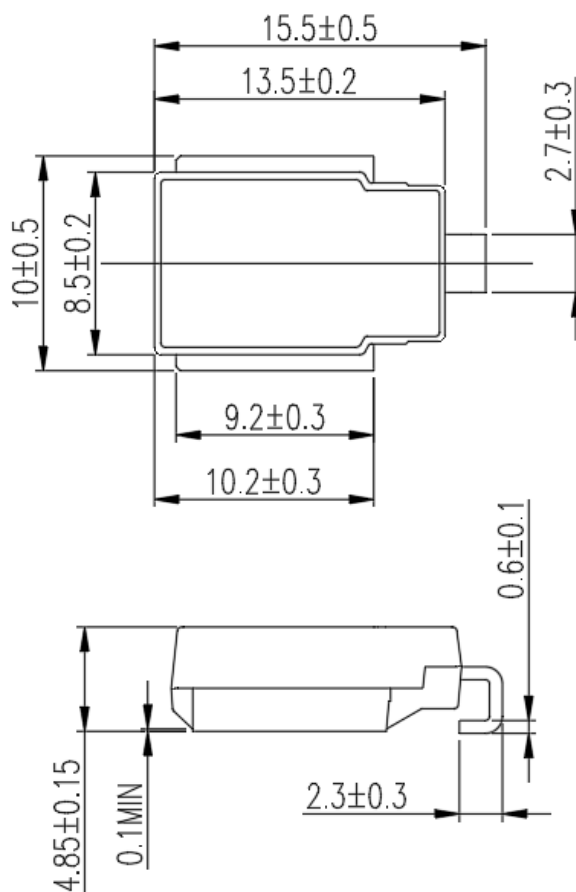


Fig. 4 - Reverse Power Capability

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Dimension outline Unit:mm



Recommended Mounting Pad Layout Unit:mm

