



Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Reverse Voltage 5.0 - 170 Volts

Power Dissipation - 200 Watts

Features

- For surface mounted applications in order to optimize board space
- Low profile space
- Glass passivated chip
- Low inductance
- Very fast response time
- Typical ID less than 1μA at VWM

Mechanical Data

- Case: SOD-123FL molded plastic

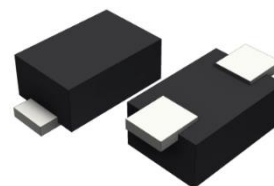
- Polarity: Color band denotes cathode

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

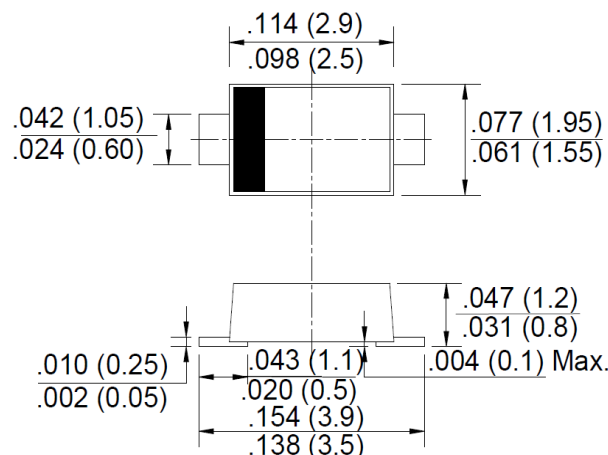
Applications

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

SOD-123FL



RoHS
COMPLIANT



Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25°C 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 (See Fig. 1)	P _{PPM}	200	W
Peak Forward Surge Current 8.3ms Single Half Sine-Wave	I _{FSM}	20	A
Peak Pulse Current with a Waveform (See Fig. 3 , Single Pulse)	I _{PPM}	See Next Table	A
Typical Thermal Resistance Junction to Ambient (Note1)	R _{θJA}	120.0	°C/W
Typical Thermal Resistance Junction to Lead (Note1)	R _{θJL}	30.0	°C/W
Junction Temperature Range	T _J	-55 to + 150	°C
Storage Temperature Range	T _{STG}	-55 to + 150	°C

Notes: 1. Mounted on P.C.B. with 0.036 x 0.06" (0.9 x 1.5mm) 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 - Pulse Rating Curve

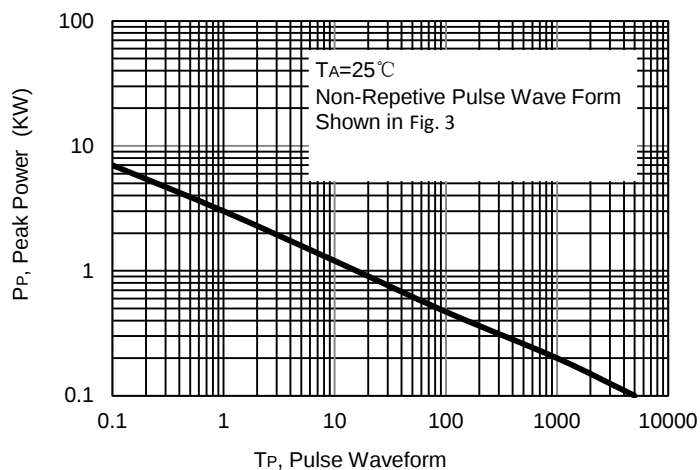


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

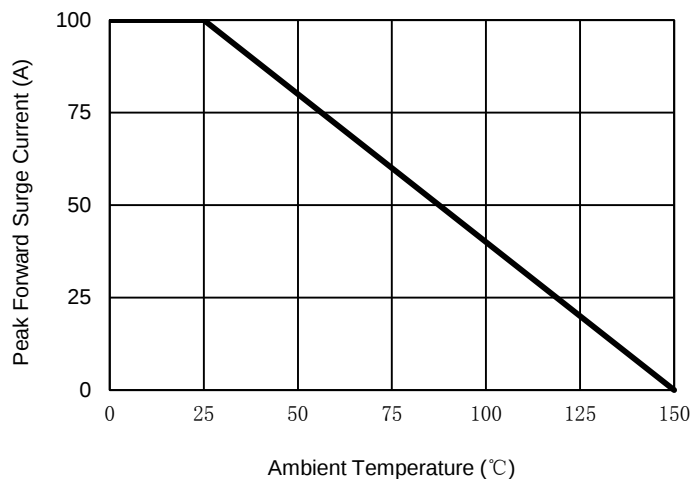


Fig. 3 - Pulse Waveform

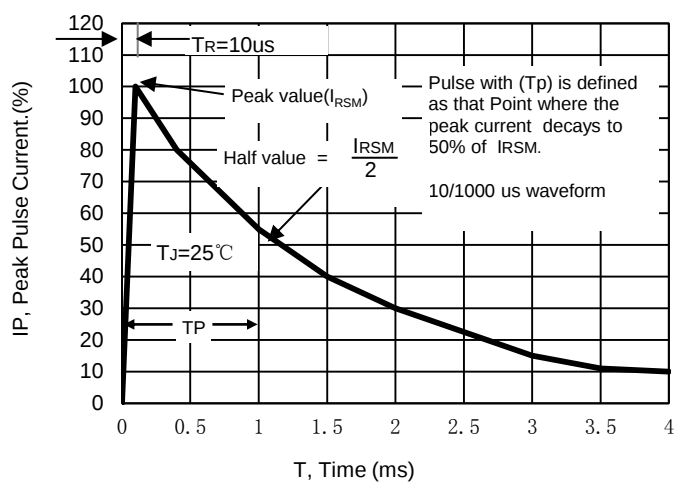


Fig. 4- Typical Junction Capacitance

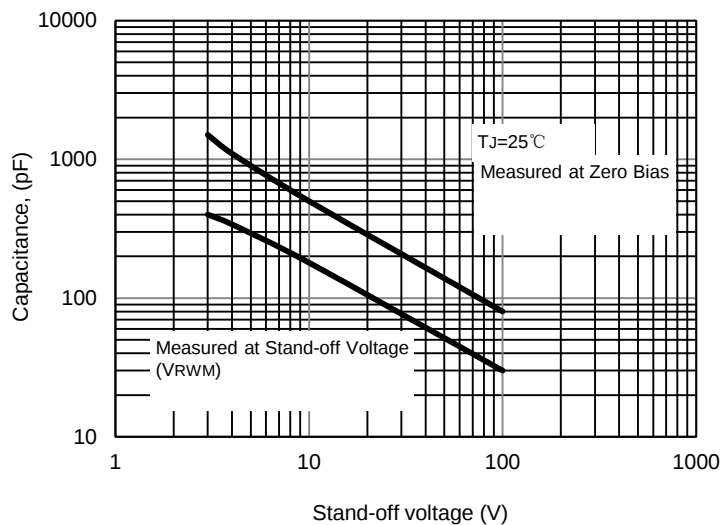
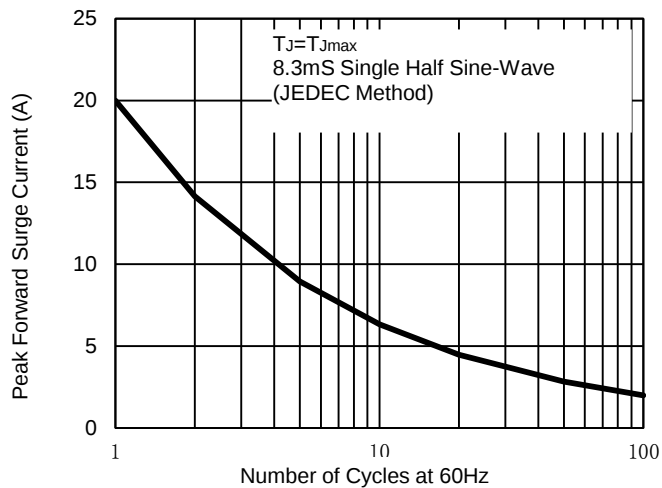


Fig. 2 - Maximum Non-Repetitive Surge Current



The curve above is for reference only.



Part number with C donoteo Bi-Directional (Note 5)	Marking Code		Breakdown Voltage at I_T^2 $V_{(BR)}$ (V)		Test Current	Stand-off Voltage	Maximum Reverse Leakage at $V_{WM}^{(4)}$	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Clamping Voltage at I_{PPM}
Uni	Uni	Bi	Min	Max	I_T (mA)	V_{WM} (V)	I_D (μA)	I_{PPM} (A)	V_C (V)
SMF5.0 (C)A	KE	AE	6.40	7.00	10	5.0	400	21.70	9.2
SMF6.0 (C)A	KG	AG	6.67	7.37	10	6.0	400	19.40	10.3
SMF6.5 (C)A	KK	AK	7.22	7.98	10	6.5	250	17.90	11.2
SMF7.0 (C)A	KM	AM	7.78	8.60	10	7.0	100	16.70	12.0
SMF7.5 (C)A	KP	AP	8.33	9.21	1.0	7.5	50	15.50	12.9
SMF8.0 (C)A	KR	AR	8.89	9.83	1.0	8.0	25	14.70	13.6
SMF8.5 (C)A	KT	AT	9.44	10.40	1.0	8.5	10	13.90	14.4
SMF9.0 (C)A	KV	AV	10.00	11.10	1.0	9.0	5.0	13.00	15.4
SMF10 (C)A	KX	AX	11.10	12.30	1.0	10	2.5	11.80	17.0
SMF11 (C)A	KZ	AZ	12.20	13.50	1.0	11	2.5	11.00	18.2
SMF12 (C)A	LE	BE	13.30	14.70	1.0	12	2.5	10.10	19.9
SMF13 (C)A	LG	BG	14.40	15.90	1.0	13	1.0	9.30	21.5
SMF14 (C)A	LK	BK	15.60	17.20	1.0	14	1.0	8.60	23.2
SMF15 (C)A	LM	BM	16.70	18.50	1.0	15	1.0	8.20	24.4
SMF16 (C)A	LP	BP	17.80	19.70	1.0	16	1.0	7.70	17.0
SMF17 (C)A	LR	BR	18.90	20.90	1.0	17	1.0	7.20	27.6
SMF18 (C)A	LT	BT	20.00	22.10	1.0	18	1.0	6.80	29.2
SMF20 (C)A	LV	BV	22.20	24.50	1.0	20	1.0	6.20	32.4
SMF22 (C)A	LX	BX	24.40	26.90	1.0	22	1.0	5.60	35.5
SMF24 (C)A	LZ	BZ	26.70	29.50	1.0	24	1.0	5.10	38.9
SMF26 (C)A	ME	CE	28.90	31.90	1.0	26	1.0	4.80	42.1
SMF28 (C)A	MG	CG	31.10	34.40	1.0	28	1.0	4.40	45.4
SMF30 (C)A	MK	CK	33.30	36.80	1.0	30	1.0	4.10	48.4
SMF33 (C)A	MM	CM	36.70	40.60	1.0	33	1.0	3.80	53.30
SMF36 (C)A	MP	CP	40.00	44.20	1.0	36	1.0	3.40	58.10
SMF40 (C)A	MR	CR	44.40	49.10	1.0	40	1.0	3.10	64.50
SMF43 (C)A	MT	CT	47.80	52.80	1.0	43	1.0	2.90	69.40
SMF45 (C)A	MV	CV	50.00	55.30	1.0	45	1.0	2.80	72.70
SMF48 (C)A	MX	CX	53.30	58.90	1.0	48	1.0	2.60	77.40
SMF51 (C)A	MZ	CZ	56.70	62.70	1.0	51	1.0	2.40	82.40
SMF54 (C)A	NE	DE	60.00	66.30	1.0	54	1.0	2.30	87.10
SMF58 (C)A	NG	DG	64.40	71.20	1.0	58	1.0	2.20	93.60
SMF60 (C)A	NK	DK	66.70	73.70	1.0	60	1.0	2.10	96.80
SMF64 (C)A	NM	DM	71.10	78.60	1.0	64	1.0	2.00	103.00
SMF70 (C)A	NP	DP	77.80	86.00	1.0	70	1.0	1.80	113.00
SMF75 (C)A	NR	DR	83.30	92.10	1.0	75	1.0	1.70	121.00
SMF78 (C)A	NT	DT	86.70	95.80	1.0	78	1.0	1.60	126.00
SMF85 (C)A	NV	DV	94.40	104.0	1.0	85	1.0	1.50	137.00
SMF90 (C)A	NX	DX	100.0	111.0	1.0	90	1.0	1.40	146.00
SMF100 (C)A	NZ	DZ	111.0	123.0	1.0	100	1.0	1.30	162.00
SMF110 (C)A	PE	EE	122.0	135.0	1.0	110	1.0	1.20	177.00
SMF120 (C)A	PG	EG	133.0	147.0	1.0	120	1.0	1.00	193.00
SMF130 (C)A	PK	EK	144.0	159.0	1.0	130	1.0	1.00	209.00
SMF150 (C)A	PM	EM	167.0	185.0	1.0	150	1.0	0.80	243.00
SMF160 (C)A	PP	EP	178.0	197.0	1.0	160	1.0	0.80	259.00
SMF170 (C)A	PR	ER	189.0	209.0	1.0	170	1.0	0.70	275.00

Notes:1. I_T Pulse test : $T_p \leq 50ms$.2. Surge current waveform 10 / 1000 μS .3. For bi-directional types with V_{WM} of 10 V and less, the I_D limit is doubled4. $V_F = 3.5$ V at $I_F = 25$ A (uni-directional only). $V_F = 3.5$ V at $I_F = 25$ A

5. Suffix C denotes Bi-directional device.

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