SMF Transient Voltage Suppressor Diode Series

General Information

The SMF series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. The SMF series is supplied in YINT Semiconductor's exclusive, cost-effective, highly reliable and is ideally suited for use in communication systems, automotive, numerical controls , process controls, medical equipment, business machines, power supplies and many other industrial/consumer Applications.

Molded plastic
glass passivated junction.

Features

- Case: SOD-123FL
- Low profile maximum height of 1.1mm.
- For surface mounted applications in order to optimize board space.
- Polarity: Color band denoted positive end (cathode) except Bidirectional.
- Typical failure mode is short from over-specified voltage or current
- Fast response time: typically less than 1.0ps from 0 Volts to V_B min.
- High Temperature soldering:260°C/40 seconds at terminals.

Typical Applications

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

Electrical Characteristics (@ T_A = 25°C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T = 1 ms) (note 1)	P_{PK}	200	Watts
Thermal Resistance Junction- to- Ambient	R_{THJ-A}	220	°C/W
Thermal Resistance Junction- to- Lead	R_{THJ-L}	100	°C/W
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Notes:

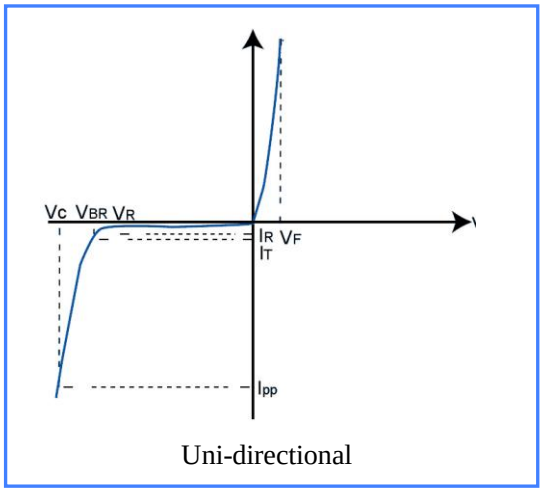
1. Non-repetitive current pulse, per Fig. 4 and derated above T_A=25℃ per Fig. 3.

Electrical Characteristics

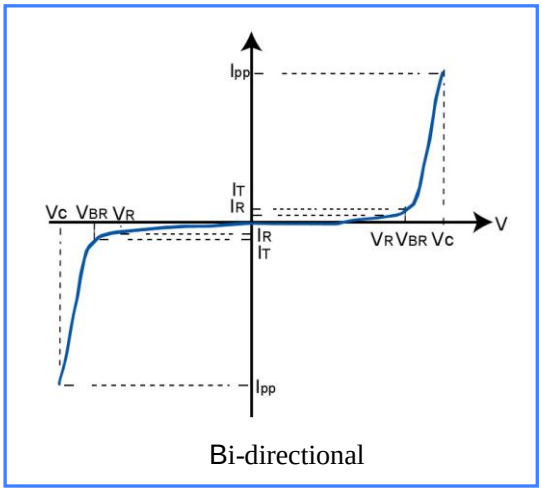
Part Number (Bi)	Part Number (Uni)	Device Marking Code		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R @ V_R(μA)	Maximum Peak Pulse Current Ipp (A)	Maximum Clamping Voltage V_C @ I_{pp}(V)
		BI	UNI		Min .V	Max .V				
SMF5.0CA	SMF5.0A	AE	KE	5.0	6.40	7.00	10	400	21.70	9.2
SMF6.0CA	SMF6.0A	AG	KG	6.0	6.67	7.37	10	400	19.40	10.3
SMF 6.5CA	SMF 6.5A	AK	KK	6.5	7.22	7.98	10	250	17.90	11.2
SMF7.0 CA	SMF7.0 A	AM	KM	7.0	7.78	8.60	10	100	16.70	12.0
SMF 7.5CA	SMF 7.5A	AP	KP	7.5	8.33	9.21	1.0	50	15.50	12.9
SMF 8.0CA	SMF 8.0A	AR	KR	8.0	8.89	9.83	1.0	25	14.70	13.6
SMF8.5 CA	SMF8.5 A	AT	KT	8.5	9.44	10.4	1.0	10	13.90	14.4
SMF9.0 CA	SMF9.0 A	AV	KV	9	10.0	11.1	1.0	5.0	13.00	15.4
SMF10CA	SMF10A	AX	KX	10	11.1	12.3	1.0	2.0	11.80	17.0
SMF11CA	SMF11A	AZ	KZ	11	12.2	13.5	1.0	2.0	11.00	18.2
SMF12CA	SMF12A	BE	LE	12	13.3	14.7	1.0	2.0	10.10	19.9
SMF13CA	SMF13A	BG	LG	13	14.4	15.9	1.0	1.0	9.30	21.5
SMF14CA	SMF14A	BK	LK	14	15.6	17.2	1.0	1.0	8.62	23.2
SMF15CA	SMF15A	BM	LM	15	16.7	18.5	1.0	1.0	8.20	24.4
SMF16CA	SMF16A	BP	LP	16	17.8	19.7	1.0	1.0	7.69	26.0
SMF17CA	SMF17A	BR	LR	17	18.9	20.9	1.0	1.0	7.25	27.6
SMF18CA	SMF18A	BT	LT	18	20.0	22.1	1.0	1.0	6.85	29.2
SMF19CA	SMF19A	BU	LU	19	21.0	23.3	1.0	1.0	6.54	30.6
SMF20CA	SMF20A	BV	LV	20	22.2	24.5	1.0	1.0	6.17	32.4
SMF22CA	SMF22A	BX	LX	22	24.4	26.9	1.0	1.0	5.63	35.5
SMF24CA	SMF24A	BZ	LZ	24	26.7	29.5	1.0	1.0	5.14	38.9
SMF26CA	SMF26A	CE	ME	26	28.9	31.9	1.0	1.0	4.75	42.1
SMF28CA	SMF28A	CG	MG	28	31.1	34.4	1.0	1.0	4.41	45.4
SMF30CA	SMF30A	CK	MK	30	33.3	36.8	1.0	1.0	4.13	48.4
SMF33CA	SMF33A	CM	MM	33	36.7	40.6	1.0	1.0	3.75	53.3
SMF36CA	SMF36A	CP	MP	36	40.0	44.2	1.0	1.0	3.44	58.1
SMF40CA	SMF40A	CR	MR	40	44.4	49.1	1.0	1.0	3.10	64.5
SMF43CA	SMF43A	CT	MT	43	47.8	52.8	1.0	1.0	2.88	69.4
SMF45CA	SMF45A	CV	MV	45	50.0	55.3	1.0	1.0	2.75	72.7
SMF48CA	SMF48A	CX	MX	48	53.3	58.9	1.0	1.0	2.58	77.4
SMF51CA	SMF51A	CZ	MZ	51	56.7	62.7	1.0	1.0	2.43	82.4
SMF54CA	SMF54A	DE	NE	54	60.0	66.3	1.0	1.0	2.30	87.1
SMF58CA	SMF58A	DG	NG	58	64.4	71.2	1.0	1.0	2.14	93.6
SMF60CA	SMF60A	DK	NK	60	66.7	73.7	1.0	1.0	2.07	96.8
SMF64CA	SMF64A	DM	NM	64	71.1	78.6	1.0	1.0	1.94	103
SMF70CA	SMF70A	DP	NP	70	77.8	86.0	1.0	1.0	1.77	113
SMF75CA	SMF75A	DR	NR	75	83.3	92.1	1.0	1.0	1.65	121

Part Number (Bi)	Part Number (Uni)	Device Marking Code		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R @ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C @I_{pp}(V)
		BI	UNI		Min .V	Max.V				
SMF78CA	SMF78A	DT	NT	78	86.7	95.8	1.0	1.0	1.59	126
SMF80CA	SMF80A	DU	NU	80	88.8	97.6	1.0	1.0	1.55	129
SMF85CA	SMF85A	DV	NV	85	94.4	104	1.0	1.0	1.46	137
SMF90CA	SMF90A	DX	NX	90	100	111	1.0	1.0	1.37	146
SMF100CA	SMF100A	DZ	NZ	100	111	123	1.0	1.0	1.23	162
SMF110CA	SMF110A	EE	PE	110	122	135	1.0	1.0	1.13	177
SMF120CA	SMF120A	EG	PG	120	133	147	1.0	1.0	1.04	193
SMF130CA	SMF130A	EK	PK	130	144	159	1.0	1.0	0.96	209
SMF140CA	SMF140A	EL	PL	140	155	171	1.0	1.0	0.89	224
SMF150CA	SMF150A	EM	PM	150	167	185	1.0	1.0	0.82	243
SMF160CA	SMF160A	EP	PP	160	178	197	1.0	1.0	0.77	259
SMF170CA	SMF170A	ER	PR	170	189	209	1.0	1.0	0.73	275
SMF180CA	SMF180A	ET	PT	180	200	220	1.0	1.0	0.69	290

I-V Curve Characteristics



Uni-directional



Bi-directional

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

Rating & Characteristic Curves

Figure 1 - Peak Pulse Power Rating Curve

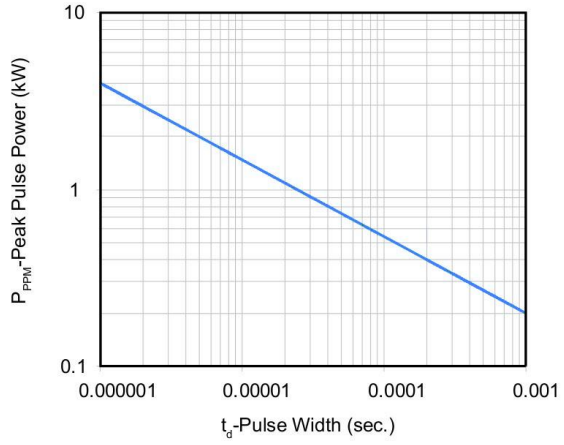


Figure 2 - Pulse Derating Curve

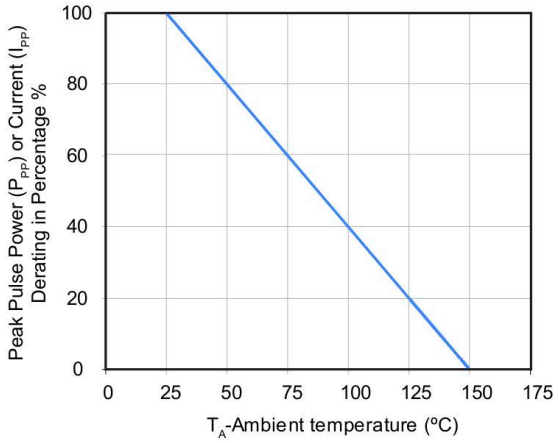


Figure 3 - Pulse Waveform

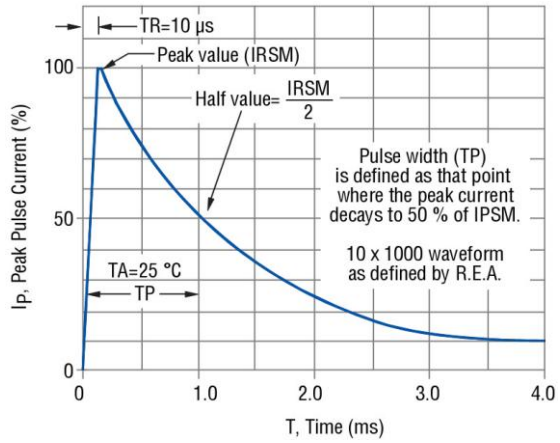


Figure 4 - Typical Junction Capacitance

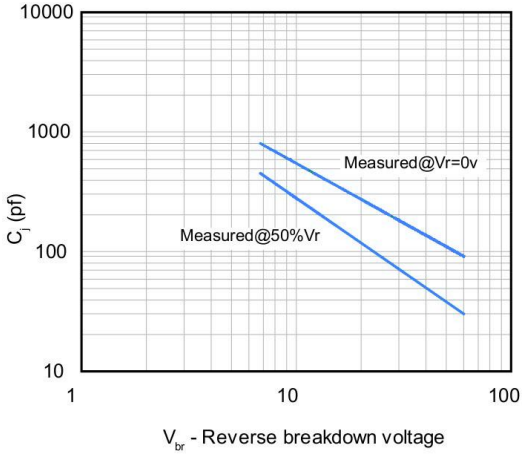


Figure5-Steady State Power Dissipation Derating Curve

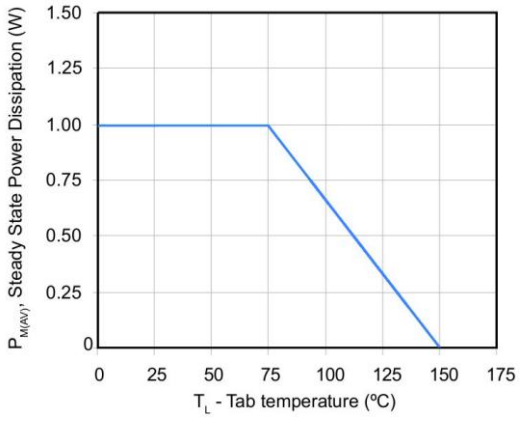
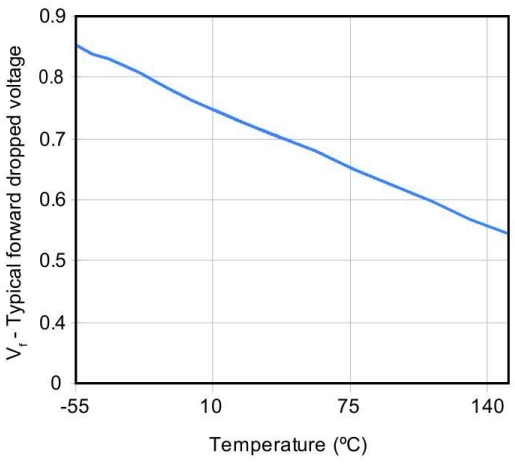
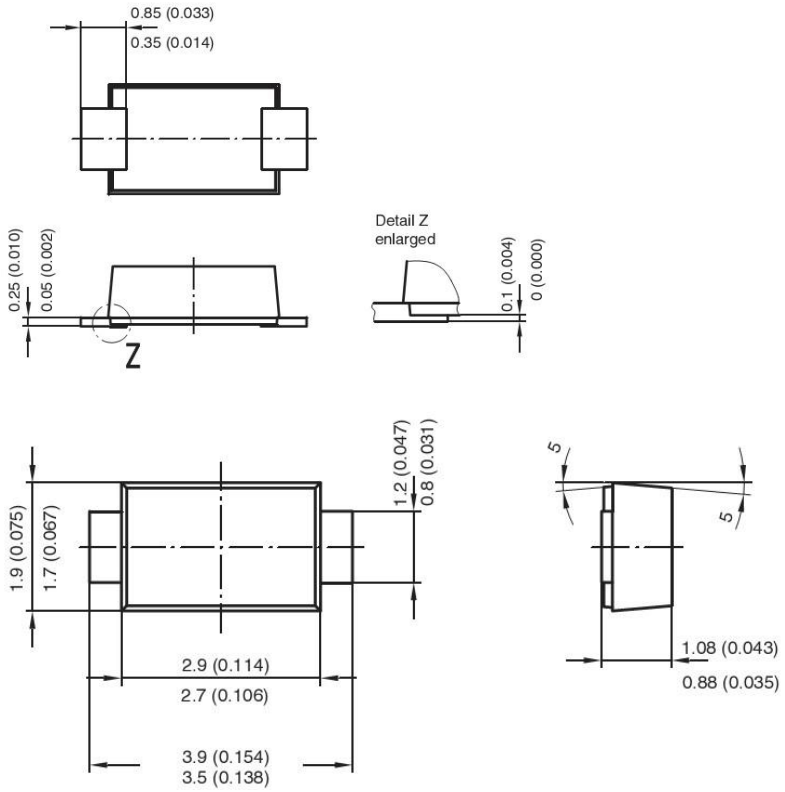


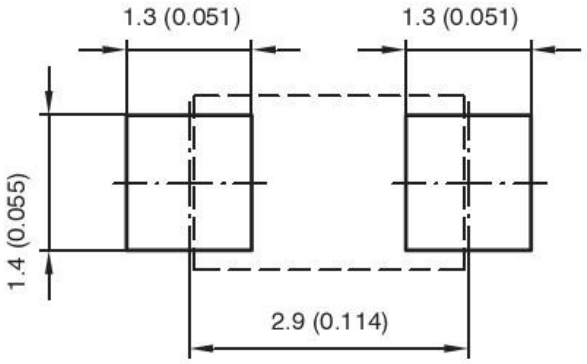
Figure 6 - Forward Voltage



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Foot print recommendation:



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.