TRANSIENT VOLTAGE SUPPRESSOR

1 General Description

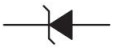
1.1 Features

- For surface mounted applications in order to optimize board space.
- Low profile package
- Glass passivated junction
- Low inductance
- High temperature soldering : 260℃/10 seconds at terminals

Stand-Off Voltage
5.0-440V
Peak Pulse Power
200W

1.2 Typical Applications

- TVS is used for ESD and surge protection. It protects signal interfaces and power lines in consumer, industrial, automotive and telecom equipment against transient over voltage.


Unipolar


Bipolar

1.3 Mechanical Data

- Case: JEDEC SOD-123FL molded plastic body
- Terminals: Solderable per MIL-STD-750, Method 2026
- Mounting Position: Any

2 Maximum Ratings(TA=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power Dissipation on TA=25°C (Note 1,2,5,)	P_{PPM}	200	W
Peak Forward Surge Current (Note 3)	I_{FSM}	20	A
Peak Pulse Current on 10/1000 us waveform (Note 1)	I_{PPM}	see Table 1	A
Steady State Power Dissipation (Note 4)	$P_{M(AV)}$	1.0	W
ESD IEC-61000-4-2 (Air)	V_{ESD}	±30	KV
ESD IEC-61000-4-2 (Contact)		±30	KV
Operating Junction Temperature	T_J	-55 to +150	℃
Storage Temperature	T_{STG}	-55 to +150	℃
Typical Thermal Resistance	$R_{\theta JA}$	180	℃/W

Notes:

1. Non-repetitive current pulse per Fig 3 and derated above T_A=25°C per Fig 2
2. Mounted on 5mm2 copper pads to each terminal
3. 8.3ms single half sine wave, or equivalent square wave duty cycle=4 pulses per minutes maximum
4. lead temperature at T_L=75°C
5. Peak pulse power. waveform is tp=10/1000us
6. A transient suppressor is selected according to the working peak reverse voltage(V_{RWM}), Which Should be equal to or greater than the DC or continuous peak operating voltage level

3 Electrical Characteristics(TA=25℃ Unless otherwise specified)

Type		Marking		V_{RWM}	Breakdown Voltage V_{BR}@I_T		Test Current	Reverse Leakage	Max.Clamp Voltage	Peak Pulse Current
					Min	Max	I_T	I_R @V_{RWM}	V_C@I_{PP}	I_{PP}
Uni	Bi	Uni	Bi	V	V	V	mA	μA	V	A
SMF5.0A	SMF5.0CA	AE	NE	5	6.4	7	10	400	9.2	21.7
SMF6.0A	SMF6.0CA	AG	NG	6	6.67	7.37	10	400	10.3	19.4
SMF6.5A	SMF6.5CA	AK	NK	6.5	7.22	7.98	10	250	11.2	17.9
SMF7.0A	SMF7.0CA	AM	NM	7	7.78	8.6	10	100	12	16.7
SMF7.5A	SMF7.5CA	AP	NP	7.5	8.33	9.21	1	50	12.9	15.5
SMF8.0A	SMF8.0CA	AR	NR	8	8.89	9.83	1	25	13.6	14.7
SMF8.5A	SMF8.5CA	AT	NT	8.5	9.44	10.4	1	10	14.4	13.9
SMF9.0A	SMF9.0CA	AV	NV	9	10	11.1	1	5	15.4	13
SMF10A	SMF10CA	AX	NX	10	11.1	12.3	1	2.5	17	11.8
SMF11A	SMF11CA	AZ	NZ	11	12.2	13.5	1	2.5	18.2	11
SMF12A	SMF12CA	BE	OE	12	13.3	14.7	1	2.5	19.9	10.1
SMF13A	SMF13CA	BG	OG	13	14.4	15.9	1	1	21.5	9.3
SMF14A	SMF14CA	BK	OK	14	15.6	17.2	1	1	23.2	8.6
SMF15A	SMF15CA	BM	OM	15	16.7	18.5	1	1	24.4	8.2
SMF16A	SMF16CA	BP	OP	16	17.8	19.7	1	1	26	7.7
SMF17A	SMF17CA	BR	OR	17	18.9	20.9	1	1	27.6	7.2
SMF18A	SMF18CA	BT	OT	18	20	22.1	1	1	29.2	6.8
SMF20A	SMF20CA	BV	OV	20	22.2	24.5	1	1	32.4	6.2
SMF22A	SMF22CA	BX	OX	22	24.4	26.9	1	1	35.5	5.6
SMF24A	SMF24CA	BZ	OZ	24	26.7	29.5	1	1	38.9	5.1
SMF26A	SMF26CA	CE	PE	26	28.9	31.9	1	1	42.1	4.8
SMF28A	SMF28CA	CG	PG	28	31.1	34.4	1	1	45.4	4.4
SMF30A	SMF30CA	CK	PK	30	33.3	36.8	1	1	48.4	4.1
SMF33A	SMF33CA	CM	PM	33	36.7	40.6	1	1	53.3	3.8
SMF36A	SMF36CA	CP	PP	36	40	44.2	1	1	58.1	3.4
SMF40A	SMF40CA	CR	PR	40	44.4	49.1	1	1	64.5	3.1
SMF43A	SMF43CA	CT	PT	43	47.8	52.8	1	1	69.4	2.9
SMF45A	SMF45CA	CV	PV	45	50	55.3	1	1	72.7	2.8
SMF48A	SMF48CA	CX	PX	48	53.3	58.9	1	1	77.4	2.6
SMF51A	SMF51CA	CZ	PZ	51	56.7	62.7	1	1	82.4	2.4
SMF54A	SMF54CA	DE	PA	54	60	66.3	1	1	87.1	2.3
SMF58A	SMF58CA	DG	PC	58	64.4	71.2	1	1	93.6	2.1
SMF60A	SMF60CA	DK	CDK	60	66.7	73.7	1	1	96.8	1.8
SMF64A	SMF64CA	DM	CDM	64	71.1	78.6	1	1	103	1.7
SMF70A	SMF70CA	DP	CDP	70	77.8	86	1	1	113	1.5
SMF75A	SMF75CA	DR	CDR	75	83.3	92.1	1	1	121	1.4
SMF78A	SMF78CA	DT	CDT	78	86.7	95.8	1	1	126	1.4
SMF85A	SMF85CA	DV	CDV	85	94.4	104	1	1	137	1.3
SMF90A	SMF90CA	DX	CDX	90	100	111	1	1	146	1.2
SMF100A	SMF100CA	DZ	CDZ	100	111	123	1	1	162	1.1
SMF110A	SMF110CA	EE	CEE	110	122	135	1	1	177	1
SMF120A	SMF120CA	EG	CEG	120	133	147	1	1	193	0.9
SMF130A	SMF130CA	EK	CEK	130	144	159	1	1	209	0.8
SMF150A	SMF150CA	EM	CEM	150	167	185	1	1	243	0.7
SMF160A	SMF160CA	EP	CEP	160	178	197	1	1	259	0.7
SMF170A	SMF170CA	ER	CER	170	189	209	1	1	275	0.6
SMF180A	SMF180CA	ET	CET	180	201	222	1	1	292	0.5
SMF190A	SMF190CA	EV	CEV	190	211	232	1	1	308	0.5

Type		Marking		VRWM	Breakdown Voltage VBR@IT		Test Current	Reverse Leakage	Max.Clamp Voltage	Peak Pulse Current
					Min	Max	IT	IR @VRWM	VC@IPP	IPP
Uni	Bi	Uni	Bi	V	V	V	mA	μA	V	A
SMF200A	SMF200CA	EX	CEX	200	224	247	1	1	324	0.5
SMF220A	SMF220CA	E22	CE22	220	246	272	1	1	356	0.5
SMF250A	SMF250CA	E25	CE25	250	279	309	1	1	405	0.5
SMF300A	SMF300CA	E30	CE30	300	335	371	1	1	486	0.45
SMF350A	SMF350CA	E35	CE35	350	391	432	1	1	567	0.4
SMF400A	SMF400CA	E40	CE40	400	447	494	1	1	648	0.35
SMF440A	SMF440CA	E44	CE44	440	492	543	1	1	713	0.3

4 Characteristics Curves(TA=25℃ Unless otherwise specified)

Fig.1 Peak Pulse Power Rating Curve

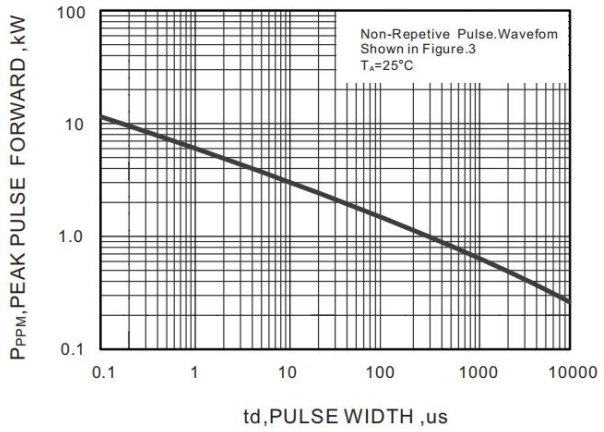


Fig.2 Forward Current Derating Curve

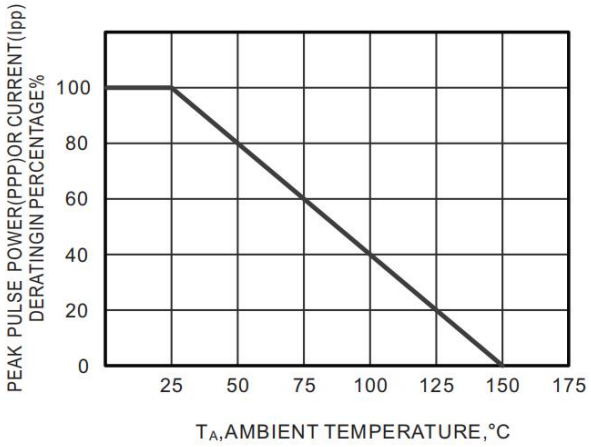


Fig.3 Pulse Waveform

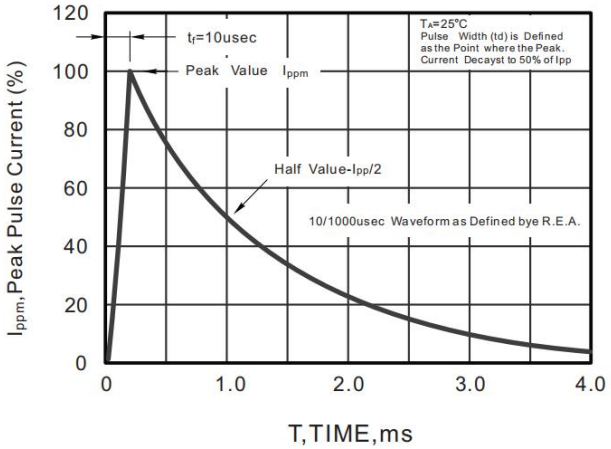
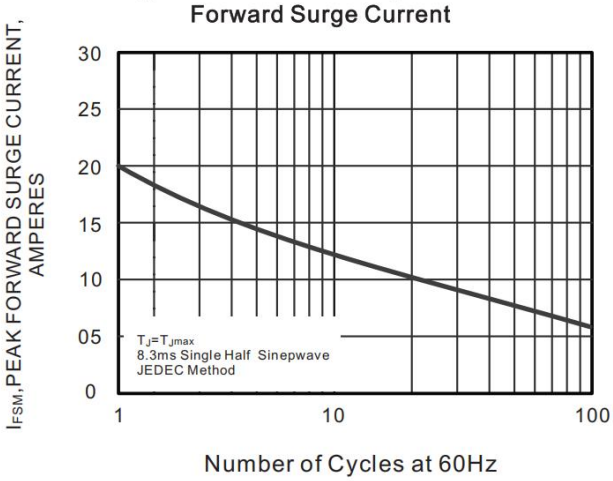
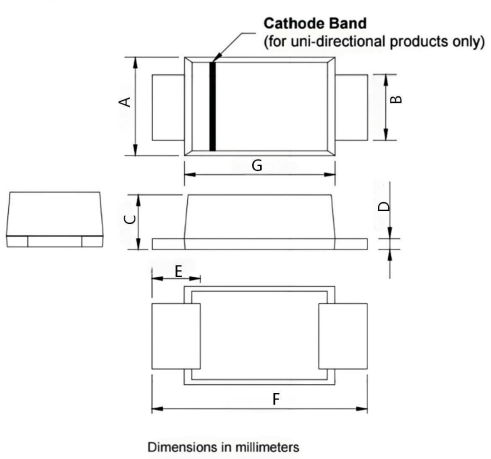


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



5 Package Outline Dimensions



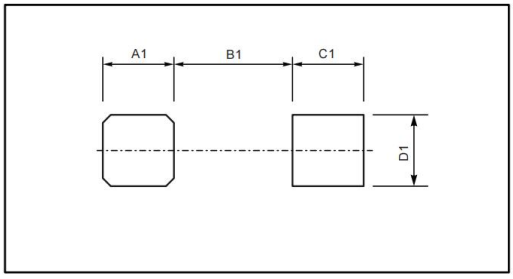
Dimensions in millimeters

Symbol	UNIT(mm)	
	Min	Max
A	1.70	1.90
B	0.85	1.15
C	1.20	1.40
D	0.12	0.20
E	0.70	0.90
F	3.55	3.85
G	2.65	2.95

6 Ordering Information

PACKAGE	UNIT WEIGHT (g)	REEL (pcs)	CARTON (pcs)
SOD-123FL	consult	3000	240000

7 Suggested Pad Layout



Symbol	Unit(mm)	Unit(mil)
A1	1.2	47
B1	2.0	79
C1	1.2	47
D1	1.2	47

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