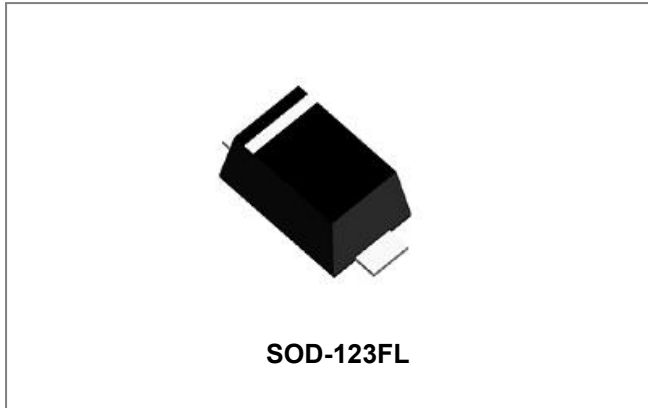


## P4SMF Series TRANSIENT VOLTAGE SUPPRESSOR



### Features

- Compatible with IEC 61000-4-2 (ESD): Air  $\pm 15\text{kV}$ , Contact  $\pm 8\text{kV}$
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 8/20 $\mu\text{s}$  Waveform
- 400 Watts Peak Pulse Power per Line (tp = 10/1000 $\mu\text{s}$ )
- Low Inductance
- Excellent Clamping Capability
- Unidirectional & Bidirectional Configurations
- Low Leakage Current: < 1 $\mu\text{A}$  (Typical)
- Fast Response Time
- Available in Multiple Voltages
- RoHS Compliant
- This is a Halogen Free device

### Circuit Diagram



### Mechanical Data

- Case: JEDEC SOD-123FL
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: For uni-directional types the band by laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

### Maximum Ratings@ $T_A=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 $\mu\text{s}$ waveform (Note1,2)	$P_{PPM}$	400	W
Forward voltage @ $I_F=20\text{A}$	$V_F$	5.0	V
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	100	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	220	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Notes:** 1. Non-repetitive current pulse and derated above  $T_A=25^\circ\text{C}$   
2. Mounted on 5.0mm<sup>2</sup> copper pads to each terminal.

**Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified**

Part Number (Unidirectional)	Part Number (Bidirectional)	Device Marking		Nom. Stand-off Voltage V <sub>wm</sub> (V)	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (V)		Test Current I <sub>T</sub> (mA)	Max. Clamping Voltage V <sub>c</sub> (10/1000μs) @ I <sub>PP</sub> (V)	Peak Pulse Current I <sub>PP</sub> @10/1000μs Waveform (A)	Max. Reverse Leakage Current I <sub>R</sub> @ V <sub>wm</sub> (μA)
		UNI	BI		Min.	Max.				
P4SMF5.0A	P4SMF5.0CA	KE	KEC	5	6.40	7.00	10	9.2	40.1	800
P4SMF6.0A	P4SMF6.0CA	AG	AGC	6	6.67	7.37	10	10.3	35.9	800
P4SMF6.5A	P4SMF6.5CA	AK	AKC	6.5	7.22	7.98	10	11.2	33.1	500
P4SMF7.0A	P4SMF7.0CA	KM	KMC	7	7.78	8.6	10	12	30.9	200
P4SMF7.5A	P4SMF7.5CA	KP	KPC	7.5	8.33	9.21	1	12.9	28.7	100
P4SMF8.0A	P4SMF8.0CA	KR	KRC	8	8.99	9.83	1	13.6	27.2	50
P4SMF8.5A	P4SMF8.5CA	KT	KTC	8.5	9.44	10.4	1	14.4	25.7	20
P4SMF9.0A	P4SMF9.0CA	KV	KVC	9	10	11.1	1	15.4	26.4	5
P4SMF10A	P4SMF10CA	KX	KXC	10	11.1	12.3	1	17	23.5	5
P4SMF11A	P4SMF11CA	KZ	KZC	11	12.2	13.5	1	18.2	22	1
P4SMF12A	P4SMF12CA	BE	BEC	12	13.3	14.7	1	19.9	20.1	1
P4SMF13A	P4SMF13CA	BG	BGC	13	14.4	15.9	1	21.5	18.6	1
P4SMF14A	P4SMF14CA	IK	IKC	14	15.6	17.2	1	23.2	17.2	1
P4SMF15A	P4SMF15CA	BM	BMC	15	16.7	18.5	1	24.4	16.4	1
P4SMF16A	P4SMF16CA	LP	LPC	16	17.8	19.7	1	26	15.4	1
P4SMF17A	P4SMF17CA	LR	LRC	17	18.9	20.9	1	27.6	14.5	1
P4SMF18A	P4SMF18CA	BT	BTC	18	20.0	22.1	1	29.2	13.7	1
P4SMF20A	P4SMF20CA	LV	LVC	20	22.2	24.5	1	32.4	12.3	1
P4SMF22A	P4SMF22CA	LX	LXC	22	24.4	26.9	1	35.5	11.3	1
P4SMF24A	P4SMF24CA	BZ	BZC	24	26.7	29.5	1	38.9	10.3	1
P4SMF26A	P4SMF26CA	ME	MEC	26	28.9	31.9	1	42.1	9.5	1
P4SMF28A	P4SMF28CA	CG	CGC	28	31.1	34.4	1	45.4	8.8	1
P4SMF30A	P4SMF30CA	CK	CKC	30	33.3	36.8	1	48.4	8.3	1
P4SMF33A	P4SMF33CA	MM	MMC	33	36.7	40.6	1	53.3	7.5	1
P4SMF36A	P4SMF36CA	CP	CPC	36	40.0	36.8	1	58.1	6.9	1
P4SMF40A	P4SMF40CA	MR	MRC	40	44.4	49.1	1	64.5	6.2	1
P4SMF43A	P4SMF43CA	MT	MTC	43	47.8	52.8	1	69.4	5.8	1
P4SMF45A	P4SMF45CA	MV	MVC	45	50	55.3	1	72.7	5.5	1
P4SMF48A	P4SMF48CA	MX	MXC	48	53.3	58.9	1	77.4	5.2	1
P4SMF51A	P4SMF51CA	MZ	MZC	51	56.7	62.7	1	82.4	4.9	1
P4SMF54A	P4SMF54CA	NE	NEC	54	60	66.3	1	87.1	4.6	1
P4SMF58A	P4SMF58CA	NG	NGC	58	64.4	71.2	1	93.6	4.3	1
P4SMF60A	P4SMF60CA	NK	NKC	60	66.7	73.7	1	96.8	4.1	1
P4SMF64A	P4SMF64CA	NM	NMC	64	71.1	78.6	1	103	3.9	1
P4SMF70A	P4SMF70CA	NP	NPC	70	77.8	86	1	113	3.5	1
P4SMF75A	P4SMF75CA	NR	NRC	75	83.3	92.1	1	121	3.3	1
P4SMF78A	P4SMF78CA	NT	NTC	78	86.7	95.8	1	126	3.2	1
P4SMF85A	P4SMF85CA	NV	NVC	85	94.4	104	1	137	2.9	1
P4SMF90A	P4SMF90CA	NX	NXC	90	100	111	1	146	1.4	1
P4SMF100A	P4SMF100CA	NZ	NZC	100	111	123	1	162	1.2	1
P4SMF110A	P4SMF110CA	OE	OEC	110	122	135	1	177	1.1	1
P4SMF120A	P4SMF120CA	OG	OGC	120	133	147	1	193	1	1
P4SMF130A	P4SMF130CA	OK	OKC	130	144	159	1	209	1	1
P4SMF150A	P4SMF150CA	OM	OMC	150	167	185	1	243	0.8	1

**Ratings and Characteristics Curves**

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

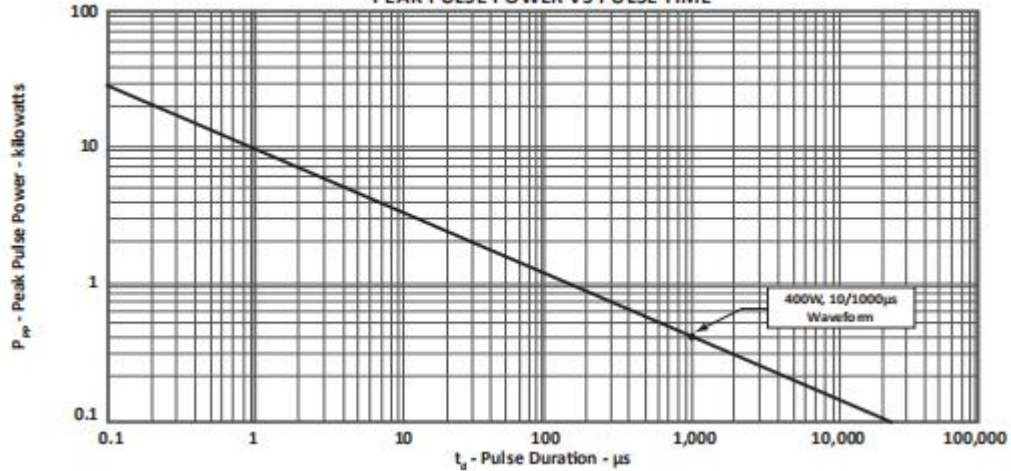


FIGURE 2  
PULSE WAVEFORM

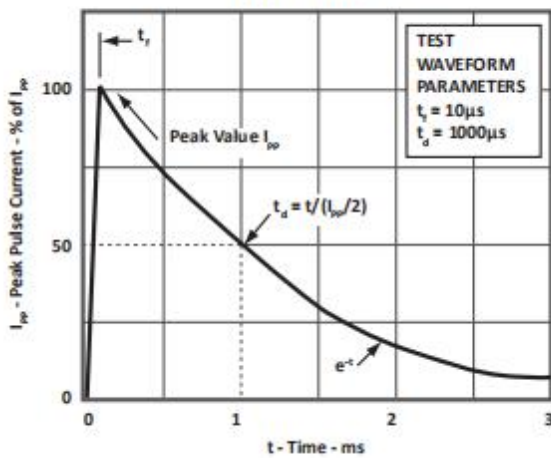
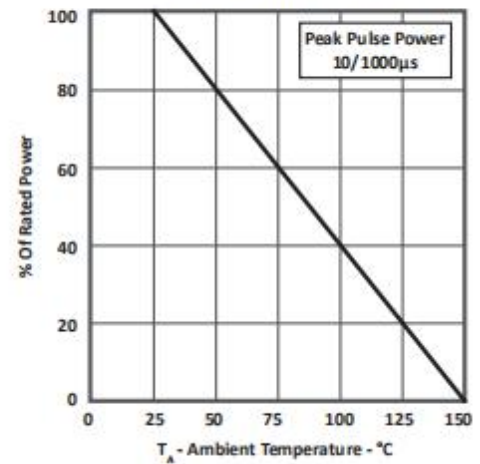
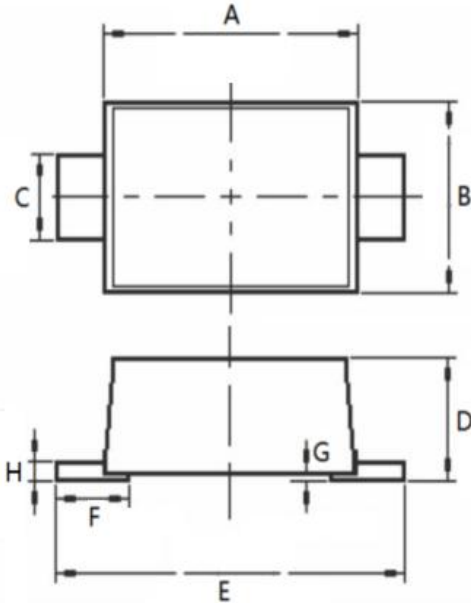


FIGURE 3  
POWER DERATING CURVE



**Mechanical Dimensions SOD-123FL(Millimeters/Inches)**



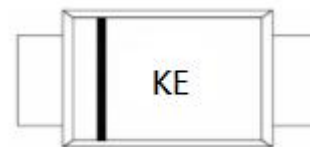
SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.50	3.05	0.098	0.138
B	1.55	1.95	0.061	0.077
C	0.60	1.10	0.024	0.043
D	0.80	1.40	0.031	0.055
E	3.35	4.05	0.132	0.159
F	0.35	1.10	0.0137	0.043
G	-	0.1	-	0.004
H	0.05	0.25	0.002	0.010

**Ordering Information**

Device	Package	Shipping
P4SMF Series	SOD-123FL	3000pcs / reel
P4SMF Series TR	SOD-123FL	3000pcs / reel

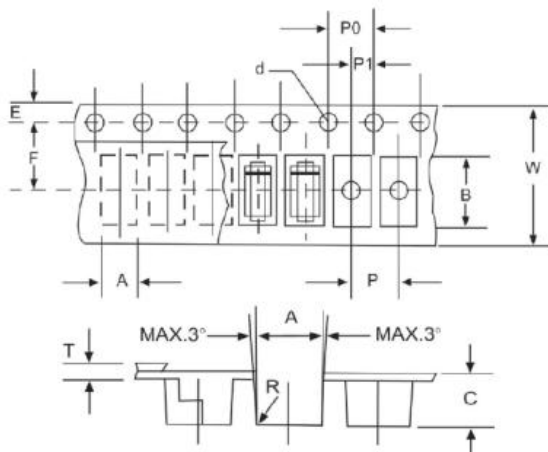
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**



KE = Device Marking

**Carrier Tape Specification SOD-123FL**



SYMBOL	Millimeters	
	Min.	Max.
A	1.95	2.15
B	3.85	4.05
C	1.35	1.55
d	1.50	1.60
E	1.65	1.85
F	3.40	3.60
P	3.90	4.10
P0	3.90	4.10
P1	1.90	2.10
W	7.90	8.30

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