

400 WATT TVS COMPONENT

RTCA DO-160G COMPLIANT PRODUCT



SOD-123FL PACKAGE

DESCRIPTION

The PSMFxxAL/CAL Series is a transient voltage suppressor array, designed to protect applications such as consumer electronic products, automotive, telecommunications, aerospace and intelligent control systems. This series is available in both unidirectional and bidirectional configurations. This series is rated for 400 Watts peak pulse power (10/1000 μ s) and is offered in a space saving SOD-123FL package. The PSMFxxAL series meets IEC 61000-4-2 (ESD) and IEC 61000-4-4 (EFT) requirements.

FEATURES

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

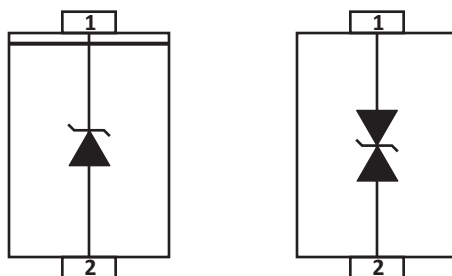
APPLICATIONS

- Consumer Electronics
- Automotive
- Telecommunications
- Aerospace
- Intelligent Control Systems

MECHANICAL CHARACTERISTICS

- Molded SOD-123FL Package
- Approximate Weight: 0.0136 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATIONS



TYPICAL DEVICE CHARACTERISTICS

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MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$	$P_{M(AV)}$	2.8	W
Peak Pulse Power (tp = 10/1000µs) - See Figure 1	P_{PP}	400	Watts
Maximum Instantaneous Forward Voltage at 20A	V_F	5.0	V
Typical Thermal Resistance Junction to Lead	RJL	100	°C/W
Typical Thermal Resistance Junction to Ambient	RJA	220	°C/W

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (See Note 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT $@ I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) $@ I_P$ V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT $@ I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT $@ V_{RWM}$ I_R µA
	UNI	BI		MIN	MAX				
PSMF5.0AL	AE	AEC	5.0	6.4	7.0	10	9.2	40.1	120
PSMF6.0AL	AG	AGC	6.0	6.67	7.37	10	10.3	35.9	120
PSMF6.5AL	AK	AKC	6.5	7.22	7.98	10	11.2	33.1	80
PSMF7.0AL	AM	AMC	7.0	7.78	8.6	10	12.0	30.9	50
PSMF7.5AL	AP	APC	7.5	8.33	9.21	1	12.9	28.7	50
PSMF8.0AL	AR	ARC	8.0	8.89	9.83	1	13.6	27.2	20
PSMF8.5AL*	AT	-	8.5	9.44	10.4	1	14.4	27.8	10
PSMF9.0AL	AV	AVC	9.0	10.0	11.1	1	15.4	24.1	5
PSMF10AL	AX	AXC	10.0	11.1	12.3	1	17.0	23.5	2
PSMF11AL	AZ	AZC	11.0	12.2	13.5	1	18.2	22.0	1
PSMF12AL	BE	BEC	12.0	13.30	14.70	1	19.9	20.1	1
PSMF13AL	BG	BGC	13.0	14.40	15.90	1	21.5	18.6	1
PSMF14AL	BK	BKC	14.0	15.6	17.2	1	23.2	17.2	1
PSMF15AL	BM	BMC	15.0	16.70	18.50	1	24.4	16.4	1
PSMF17AL*	BR	-	17.0	18.9	20.9	1	27.6	14.5	1
PSMF18AL	BT	BTC	18.0	20.0	22.1	1	29.2	13.7	1
PSMF20AL	BV	BVC	20.0	22.2	24.5	1	32.4	12.3	1
PSMF22AL	BX	BXC	22.0	24.4	26.9	1	35.5	11.3	1
PSMF24AL	BZ	BZC	24.0	26.7	29.5	1	38.9	10.3	1
PSMF26AL	CE	CEC	26.0	28.9	31.9	1	42.1	9.5	1
PSMF28AL	CG	CGC	28.0	31.1	34.4	1	45.4	8.8	1
PSMF30AL	CK	CKC	30.0	33.30	36.80	1	48.4	8.3	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (See Note 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT $@ I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) $@ I_P$ V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT $@ I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT $@ V_{RWM}$ I_R μA
	UNI	BI		MIN	MAX				
PSMF33AL	CM	CMC	33.0	36.7	40.6	1	53.3	7.5	1
PSMF36AL	CP	CPC	36.0	40.0	44.2	1	58.1	6.9	1
PSMF40AL	CR	CRC	40.0	44.4	49.1	1	64.5	6.2	1
PSMF43AL	CT	CTC	43.0	47.8	52.8	1	69.4	5.8	1
PSMF45AL	CV	CVC	45.0	50.0	55.3	1	72.7	5.5	1
PSMF48AL	CX	CXC	48.0	53.3	58.9	1	77.4	5.2	1
PSMF51AL*	CZ	-	51.0	56.7	62.7	1	82.4	4.9	1
PSMF58AL*	DE	-	58.0	64.4	71.2	1	93.6	4.3	1
PSMF60AL*	DG	-	60.0	66.7	73.7	1	96.8	4.1	1
PSMF64AL*	DM	-	64.0	71.1	78.6	1	103	3.9	1
PSMF70AL*	DP	-	70.0	77.8	86.0	1	113	3.5	1
PSMF75AL*	DR	-	75.0	83.3	92.1	1	121	3.3	1
PSMF78AL*	DT	-	78.0	86.7	95.8	1	126	3.2	1
PSMF85AL*	DV	-	85.0	94.4	104.0	1	137	2.9	1

NOTE

1. Add a 'CAL' specify a bidirectional device; i.e., "PSMF6.0CAL".
2. *Only offered in unidirectional.
3. Consult factory for other voltages.

TYPICAL DEVICE CHARACTERISTICS

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FIGURE 1
PEAK PULSE POWER VS PULSE TIME

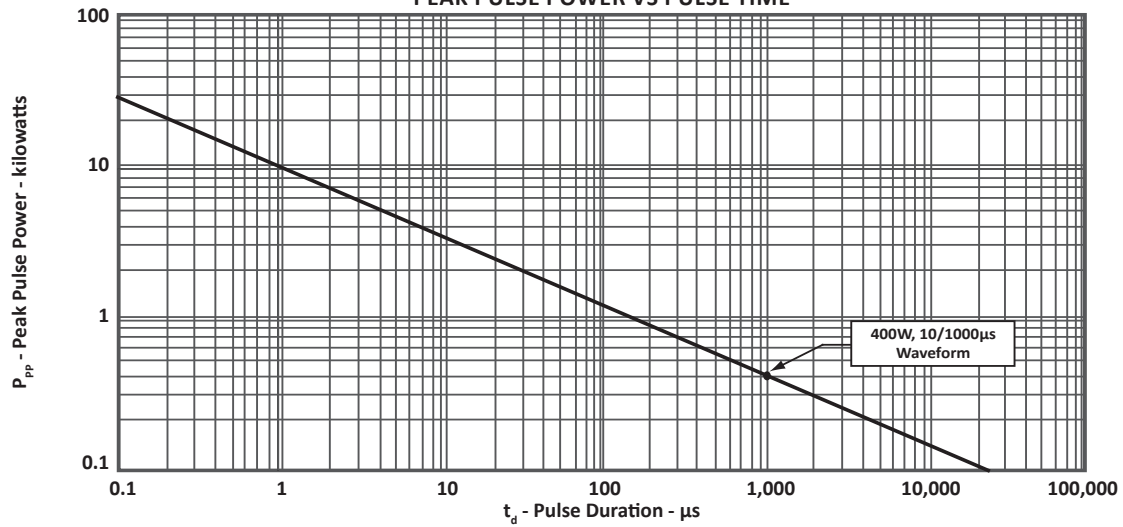


FIGURE 2
PULSE WAVEFORM

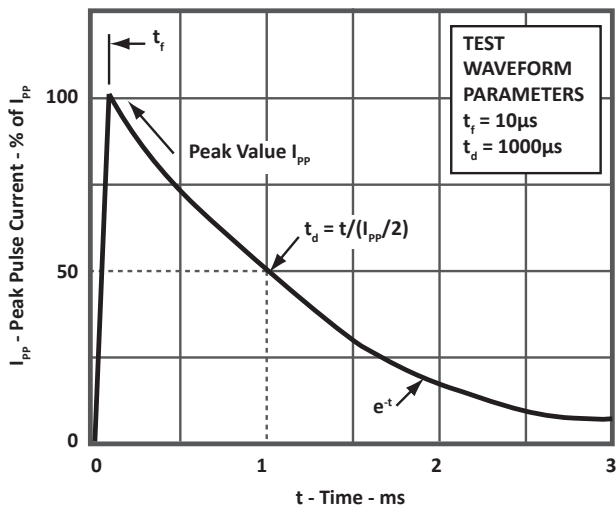
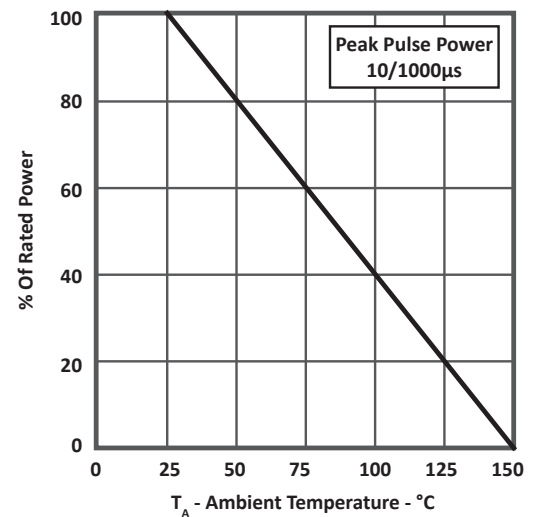


FIGURE 3
POWER DERATING CURVE



PACKAGE INFORMATION

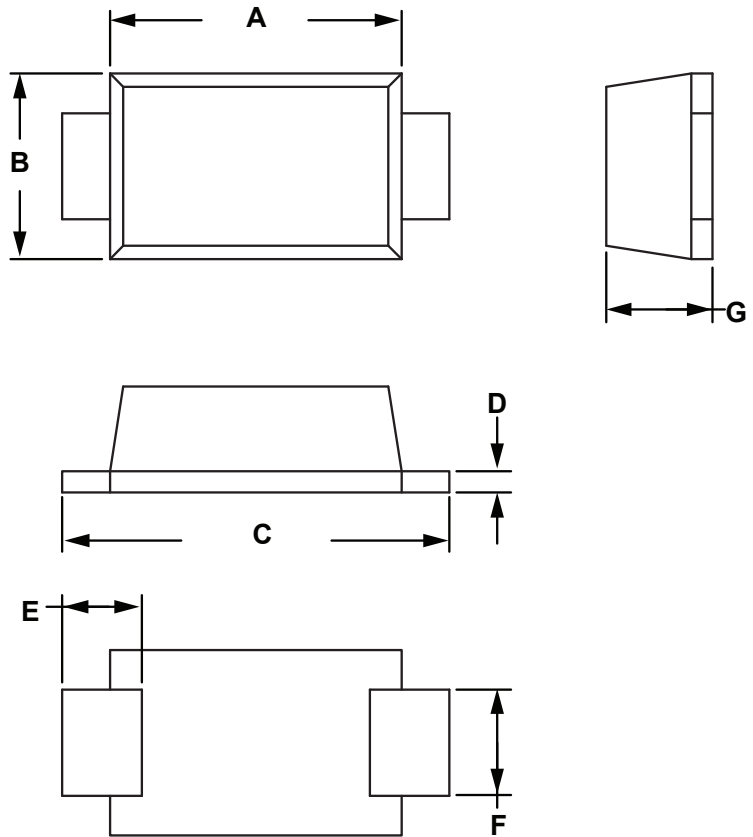
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OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.010
E	0.30	0.90	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053

NOTES

1. Controlling dimension: millimeters.
2. Dimensions are exclusive of mold flash and metal burrs.

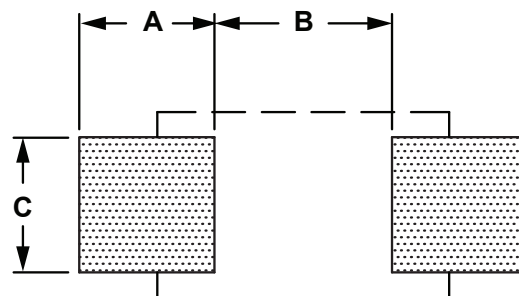


PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.30		0.051	
B		1.70		0.067
C	1.30		0.051	

NOTES

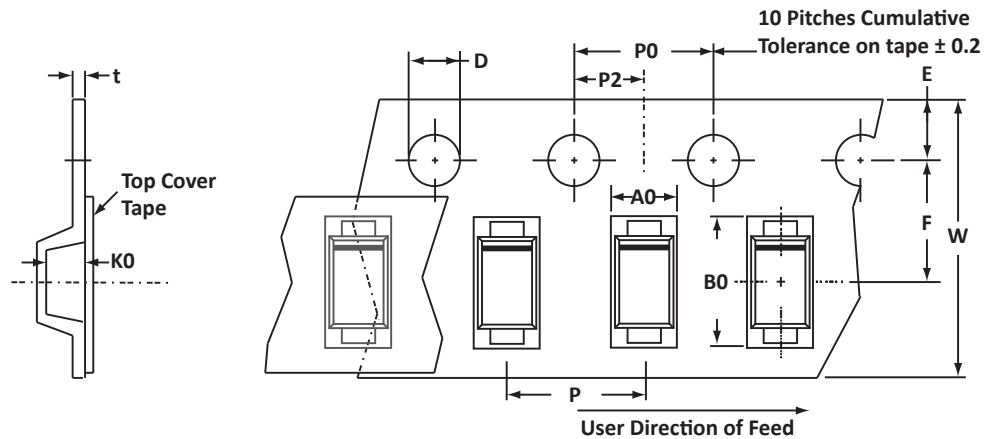
1. Controlling dimension: millimeters





TAPE AND REEL

RTCA DO-160G COMPLIANT PRODUCT



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	1.95 ± 0.3	3.95 ± 0.3	1.40 ± 0.05	1.55 ± 0.10	1.75 ± 0.20	3.50 ± 0.5	8.00 ± 0.20	4.00 ± 0.20	2.00 ± 0.2	4.00 ± 0.20	0.25

NOTES

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Empty pocket between sprocket holes.
4. Marking on Part - marking code (see page 2), polarity band and date code.

ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSMFxxAL/CAL	N/A	-T73	3,000	7"	N/A

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION**RTCA DO-160G COMPLIANT PRODUCT****COMPANY PROFILE**

In business more than 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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