

APPLICATIONS

- ✓ Cellular Phones
- ✓ MP3 Players
- ✓ Personal Digital Assistant (PDA)
- ✓ Notebooks
- ✓ Digital Cameras

IEC COMPATIBILITY (EN61000-4)

- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

FEATURES

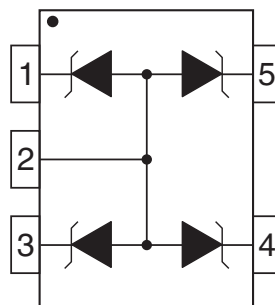
- ✓ 100 Watts Peak Pulse Power per Line (tp=8/20µs)
- ✓ Available in Multiple Voltages
- ✓ Up to Four (4) Lines of Protection
- ✓ ESD Protection > 25 kilovolts
- ✓ Low Clamping Voltage
- ✓ RoHS Compliant

MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SC-70-5L
- ✓ Weight 7 milligrams (Approximate)
- ✓ Available in Lead-Free Plating
- ✓ Solder Reflow Temperature:
Lead-Free - Sn/Ag/Cu, 96/3.5/0.5: 260-270°C
- ✓ Consult Factory for Leaded Device Availability
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Marking: Marking Code & Pin One Defined By Dot on Top of Package



PIN CONFIGURATION



PSMF05 thru PSMF24

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1	P_{PP}	100	Watts
Operating Temperature	T_L	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Forward Voltage @ 1A, 8/20 μs	V_{FP}	1.5	Volts

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE (See Note 1) @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_C VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA	MAXIMUM CAPACITANCE @ 0V, 1 MHz C_J pF
PSMF05	05	5.0	6.0	9.5	12.0V @ 9.0A	10	60
PSMF12	12	12.0	13.3	15.0	22.0V @ 5.0A	1	30
PSMF15	15	15.0	16.7	-	33.0V @ 3.0A	1	25
PSMF24	24	24.0	26.7	-	55.5V @ 1.8A	1	20

Note 1: Test between pins 1 to 2, 3 to 2, 4 to 2 and 5 to 2.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

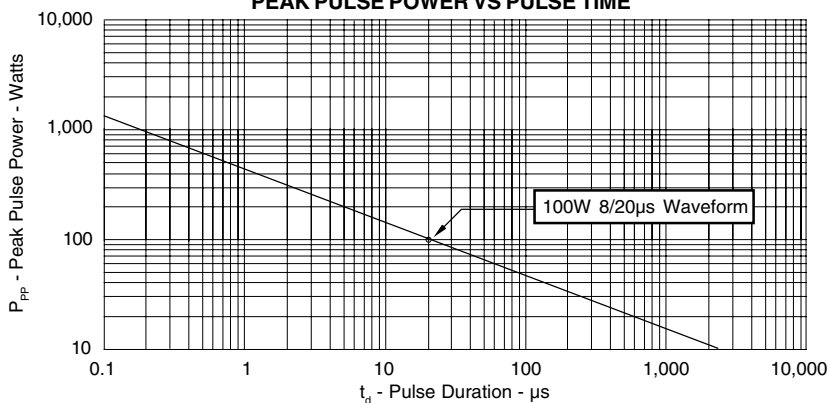
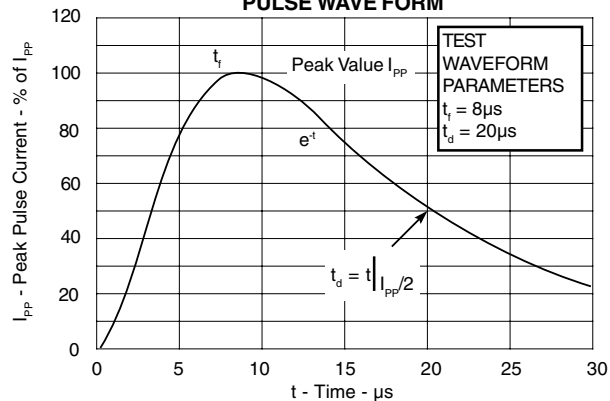
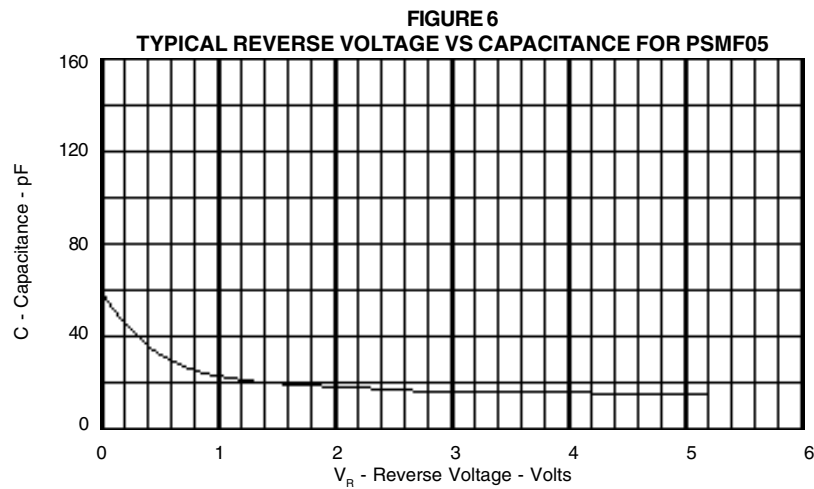
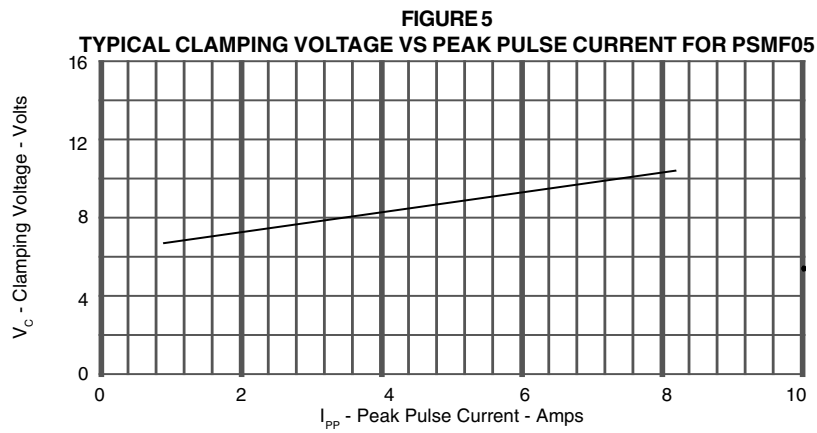
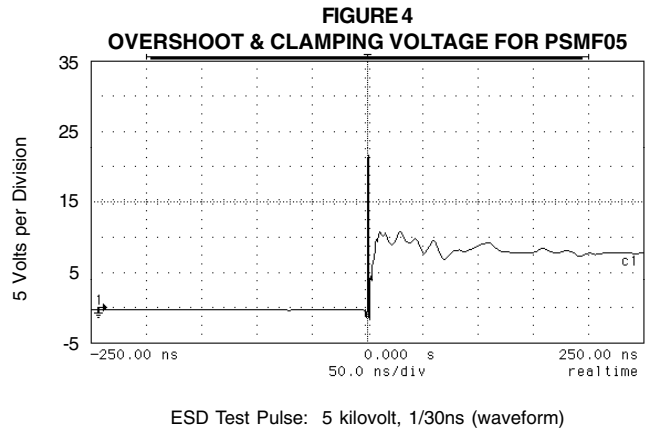
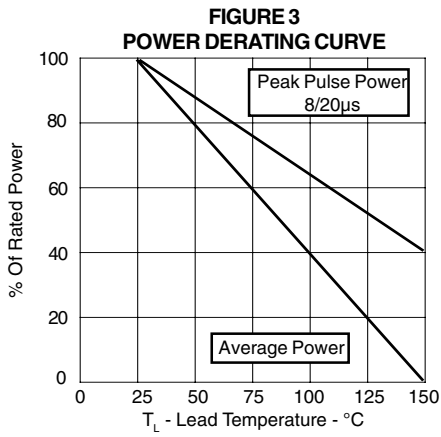


FIGURE 2
PULSE WAVEFORM



GRAPHS



APPLICATION NOTE

The PSMF Series are TVS arrays designed to protect I/O or data lines from the damaging effects of ESD or EFT. This product provides unidirectional protection, with a surge capability of 200 Watts P_{PP} per line for an 8/20 μ s waveform and ESD protection > 25 kilovolts.

UNIDIRECTIONAL COMMON-MODE CONFIGURATION (Figure 1)

The PSMF Series provides up to four (4) lines of protection in a common-mode configuration as depicted in Figure 1. Circuit connectivity is as follows:

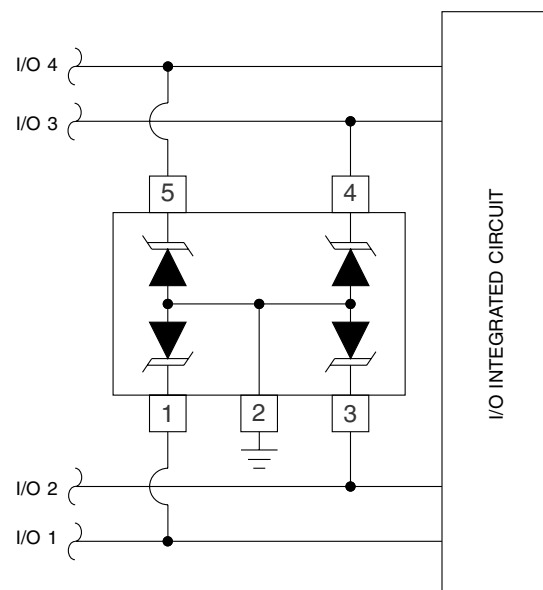
- ✓ I/O 1 is connected to Pin 1.
- ✓ I/O 2 is connected to Pin 3.
- ✓ I/O 3 is connected to Pin 4.
- ✓ I/O 4 is connected to Pin 5.
- ✓ Pin 2 is connected to ground.

CIRCUIT BOARD LAYOUT RECOMMENDATIONS

Circuit board layout is critical for Electromagnetic Compatibility (EMC) protection. The following guidelines are recommended:

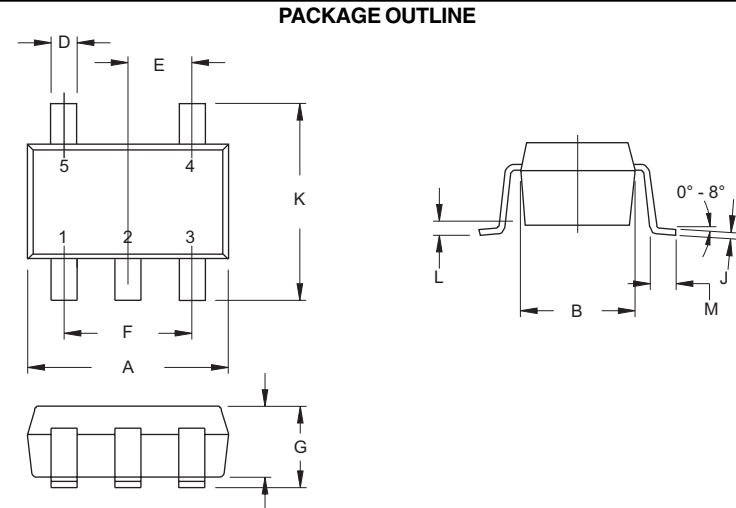

- ✓ The protection device should be placed near the input terminals or connectors, the device will divert the transient current immediately before it can be coupled into the nearby traces.
- ✓ The path length between the TVS device and the protected line should be minimized.
- ✓ All conductive loops including power and ground loops should be minimized.
- ✓ The transient current return path to ground should be kept as short as possible to reduce parasitic inductance.
- ✓ Ground planes should be used whenever possible. For multilayer PCBs, use ground vias.

Figure 1 - Unidirectional Configuration
Common-Mode I/O Port Protection

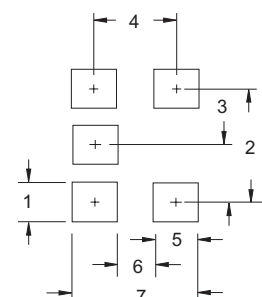


PSMF05 thru PSMF24

SC-70-5L PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE		SC70-5L			
					
PACKAGE DIMENSIONS					
DIM	MILLIMETERS		INCHES		
	MIN	MAX	MIN	MAX	
A	1.90	2.15	0.074	0.084	
B	1.15	1.35	0.045	0.055	
C	0.80	1.00	0.031	0.040	
D	0.15	0.30	0.006	0.012	
E	0.65 BSC	-	0.0255 BSC	-	
F	1.30 BSC	-	0.0512 BSC	-	
G	0.80	1.10	0.031	0.043	
J	0.08	0.25	0.003	0.010	
K	1.90	2.15	0.074	0.084	
L	0	0.10	0	0.004	
M	0.26	0.46	0.010	0.018	

MOUNTING PAD		
TYPICAL		
DIM	Millimeters	Inches
1	0.50	0.020
2	1.30	0.051
3	0.65	0.026
4	1.72	0.068
5	0.60	0.024
6	1.11	0.044
7	2.33	0.092



NOTES

- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Controlling Dimension: Inches
- Dimensions are exclusive of mold flash and metal burrs.

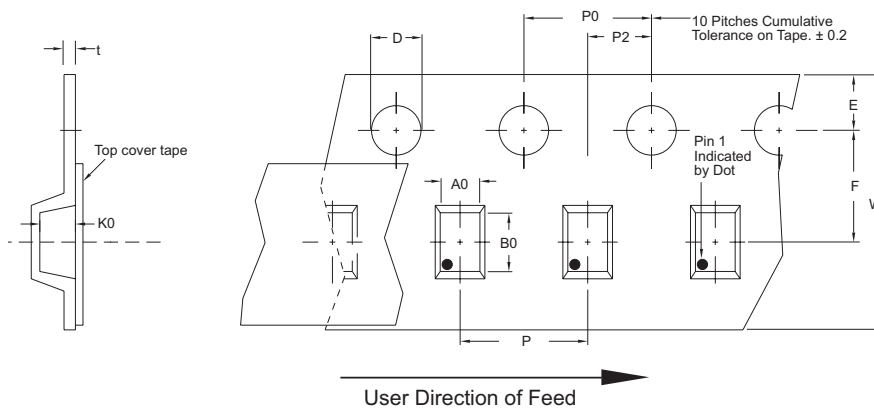
TAPE & REEL ORDERING NOMENCLATURE

- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix-T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., PSMF05-T7.
- Suffix-LF = Lead-Free, Pure-Tin Plating, i.e., PSMF05-LF-T7.

Outline & Dimensions: Rev 2 - 10/05, 06005

Tape & Reel Specifications (Dimensions in millimeters)

Reel Dia.	Tape Width	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	2.25 ± 0.10	2.34 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25



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