

STANDARD CAPACITANCE TVS ARRAY

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

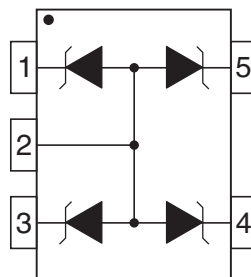
- ✓ 100 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- ✓ Available in 2 Voltages: 5V & 12V
- ✓ Up to Four (4) Lines of Protection
- ✓ ESD Protection > 25 kilovolts
- ✓ Low Clamping Voltage

MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SC-70-4L Package
- ✓ Weight 14 milligrams (Approximate)
- ✓ Flammability rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Marking: Marking Code & Pin One Defined By DOT on Package



PIN CONFIGURATIONS

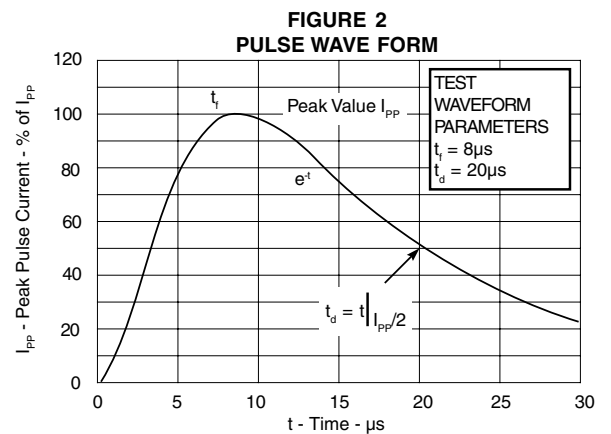
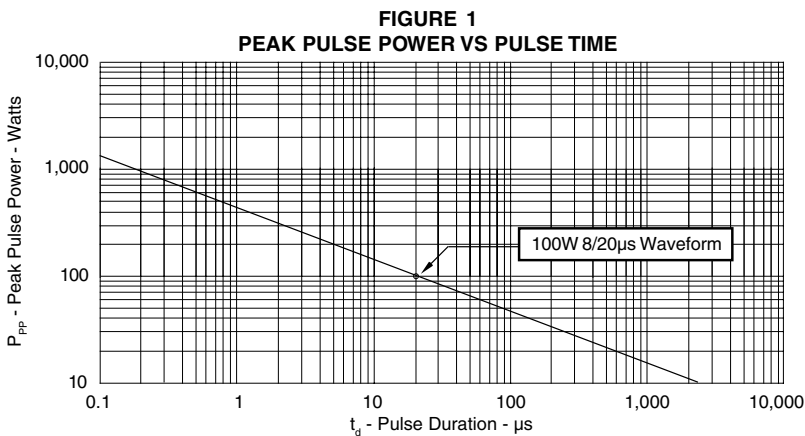


DEVICE CHARACTERISTICS

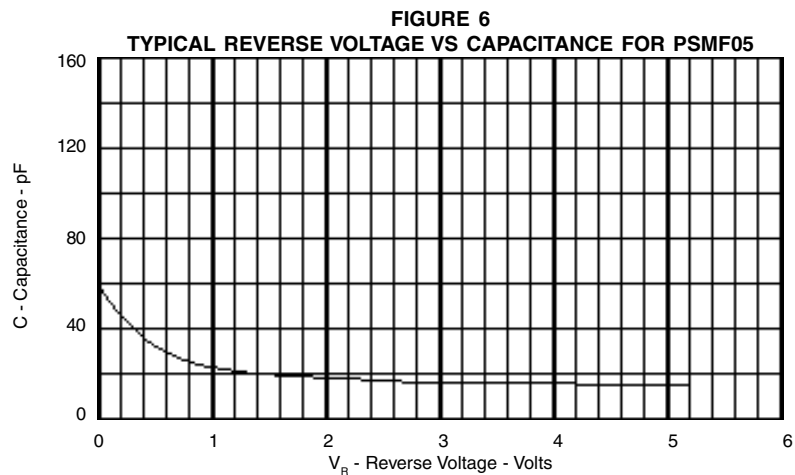
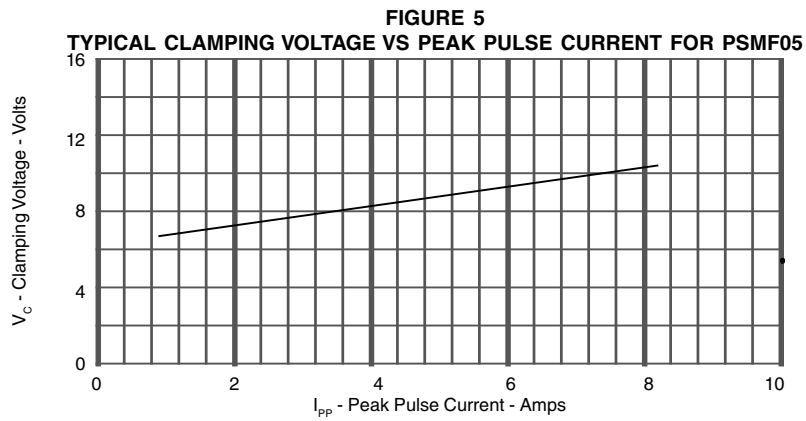
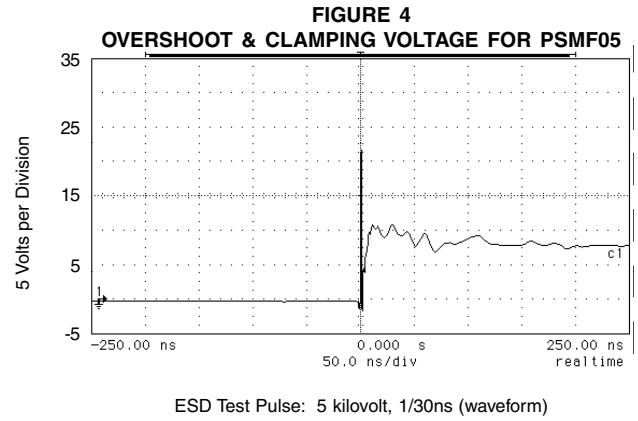
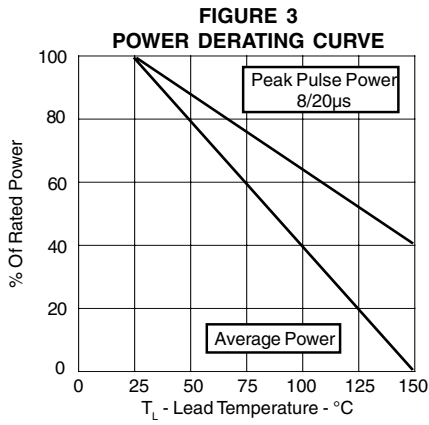
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1	P_{PP}	100	Watts
Operating Temperature	T_J	-55°C to 150°C	°C
Storage Temperature	T_{STG}	-55°C to 150°C	°C
Forward Voltage @ 1A, 8/20 μs	V_{FP}	1.5	Volts

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER	DEVICE MARKING CODE	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE (See Note 1)	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	MAXIMUM LEAKAGE CURRENT	MAXIMUM CAPACITANCE
		V_{WM} VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ $I_p = 1A$ V_c VOLTS	@ 8/20 μs $V_c @ I_{PP}$	@ V_{WM} I_D μA	@ 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

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



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:

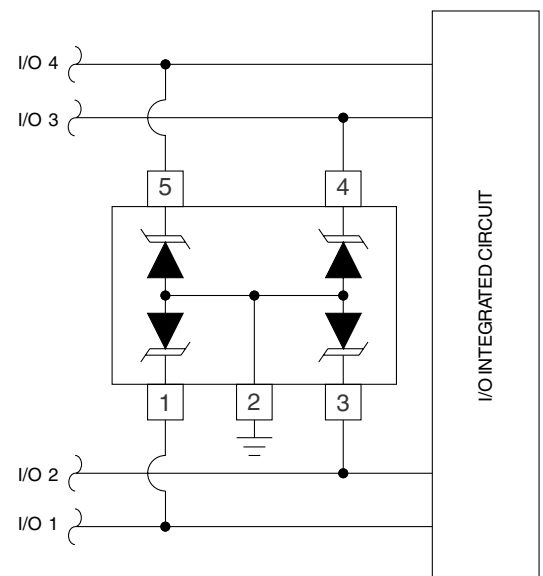
- ✓ I/O 1 is connected to Pin 1.
- ✓ I/O 2 is connected to Pin 3.
- ✓ I/O 3 is connected to Pin 4.
- ✓ I/O 4 is connected to Pin 5.
- ✓ Pin 2 is connected to ground.

CIRCUIT BOARD LAYOUT RECOMMENDATIONS

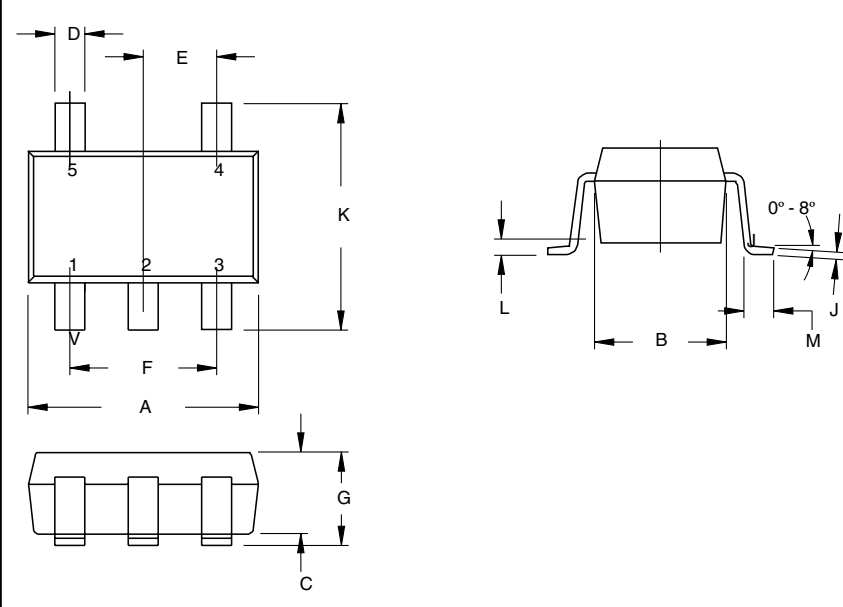

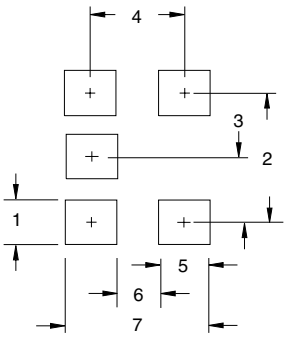
Circuit board layout is critical for Electromagnetic Compatibility (EMC) protection. The following guidelines are recommended:

- ✓ 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



PACKAGE OUTLINE & DIMENSIONS

<p style="text-align: center;">PACKAGE OUTLINE</p> 	<p style="text-align: center;">SC-70-5L</p>  <p style="text-align: center;">PACKAGE DIMENSIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">DIM</th> <th colspan="2">MILLIMETERS</th> <th colspan="2">INCHES</th> </tr> <tr> <th>MIN</th> <th>MAX</th> <th>MIN</th> <th>MAX</th> </tr> </thead> <tbody> <tr><td>A</td><td>1.90</td><td>2.15</td><td>0.074</td><td>0.084</td></tr> <tr><td>B</td><td>1.15</td><td>1.35</td><td>0.045</td><td>0.055</td></tr> <tr><td>C</td><td>0.80</td><td>1.00</td><td>0.031</td><td>0.040</td></tr> <tr><td>D</td><td>0.15</td><td>0.30</td><td>0.006</td><td>0.012</td></tr> <tr><td>E</td><td>0.65 BSC</td><td>-</td><td>0.0255 BSC</td><td>-</td></tr> <tr><td>F</td><td>1.30 BSC</td><td>-</td><td>0.0512 BSC</td><td>-</td></tr> <tr><td>G</td><td>0.80</td><td>1.10</td><td>0.031</td><td>0.043</td></tr> <tr><td>J</td><td>0.08</td><td>0.25</td><td>0.003</td><td>0.010</td></tr> <tr><td>K</td><td>1.90</td><td>2.15</td><td>0.074</td><td>0.084</td></tr> <tr><td>L</td><td>0</td><td>0.10</td><td>0</td><td>0.004</td></tr> <tr><td>M</td><td>0.26</td><td>0.46</td><td>0.010</td><td>0.018</td></tr> </tbody> </table>	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
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<p style="text-align: center;">MOUNTING PAD</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th colspan="3">TYPICAL</th> </tr> <tr> <th>DIM</th> <th>Millimeters</th> <th>Inches</th> </tr> </thead> <tbody> <tr><td>1</td><td>0.50</td><td>0.020</td></tr> <tr><td>2</td><td>1.30</td><td>0.051</td></tr> <tr><td>3</td><td>0.65</td><td>0.026</td></tr> <tr><td>4</td><td>2.40</td><td>0.094</td></tr> <tr><td>5</td><td>0.60</td><td>0.024</td></tr> <tr><td>6</td><td>0.70</td><td>0.028</td></tr> <tr><td>7</td><td>2.50</td><td>0.098</td></tr> </tbody> </table> 	TYPICAL			DIM	Millimeters	Inches	1	0.50	0.020	2	1.30	0.051	3	0.65	0.026	4	2.40	0.094	5	0.60	0.024	6	0.70	0.028	7	2.50	0.098	<p>NOTES</p> <ol style="list-style-type: none"> 1. Dimensioning and tolerances per ANSI Y14.5M, 1985. 2. Controlling Dimension: Inches 3. Dimensions are exclusive of mold flash and metal burrs. <p>TAPE & REEL ORDERING NOMENCLATURE</p> <ol style="list-style-type: none"> 1. Surface mount product is taped and reeled in accordance with EIA-481. 2. Suffix-T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., PSMF05-T7. <p style="text-align: right;">Outline & Dimensions: Rev 0 - 11/01, 06005</p>																																					
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ProTek Devices
2929 South Fair Lane, Tempe, AZ 85282
Tel: 602-431-8101 Fax: 602-431-2288
E-Mail: sales@protekdevices.com
Web Site: www.protekdevices.com