

## SUBMINATURE TVS ARRAYS

### APPLICATIONS

- ✓ Cellular Phones
- ✓ MP3 Players
- ✓ Notebooks & Handheld Devices
- ✓ Personal Digital Assistants (PDAs)
- ✓ Digital Cameras

### IEC COMPATIBILITY (EN61000-4)

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

### FEATURES

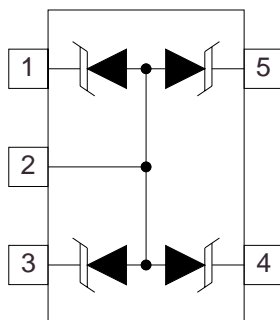
- ✓ ESD Protection > 25 kilovolts
- ✓ 200 Watts Peak Pulse Power per Line ( $t_d=8/20\mu s$ )
- ✓ Low Clamping Voltage & Low Leakage Current
- ✓ Available in 2 Voltages: 5V & 12V
- ✓ Up to Four (4) Lines of Protection

### MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SC-70-5L
- ✓ Weight 0.14 grams (Approximate)
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481-1-A
- ✓ Device Marking: Marking Code



### PIN CONFIGURATION

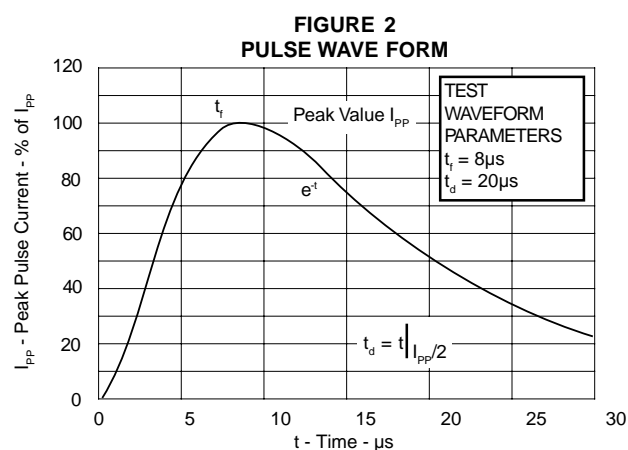
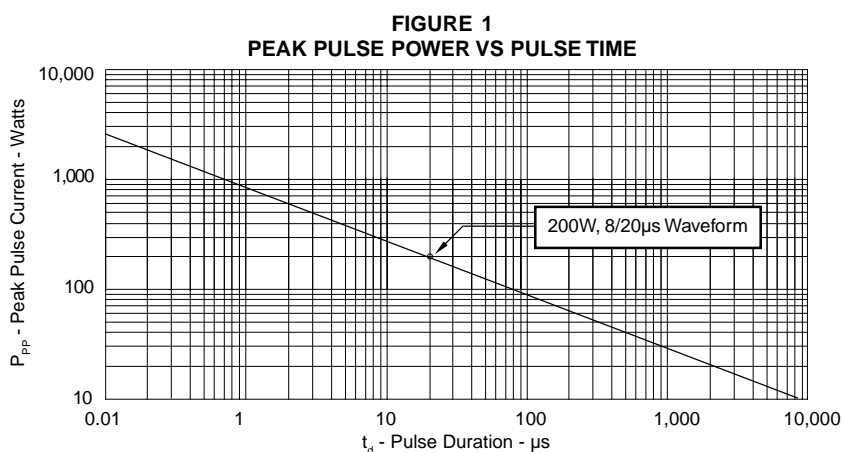


## DEVICE CHARACTERISTICS

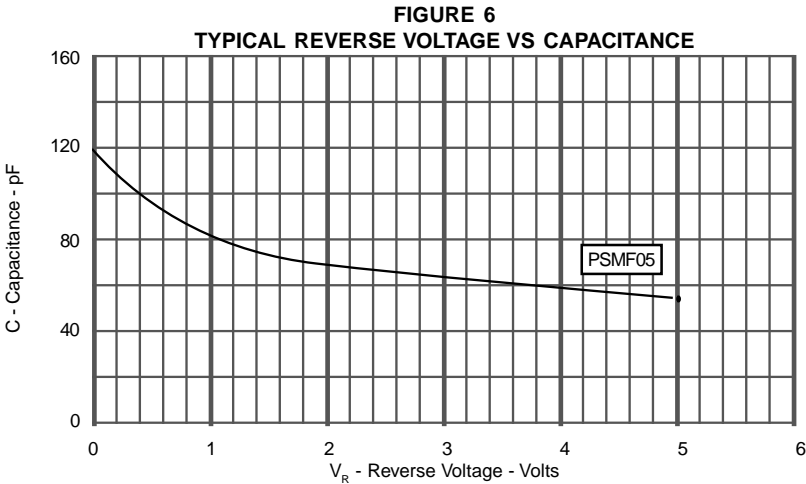
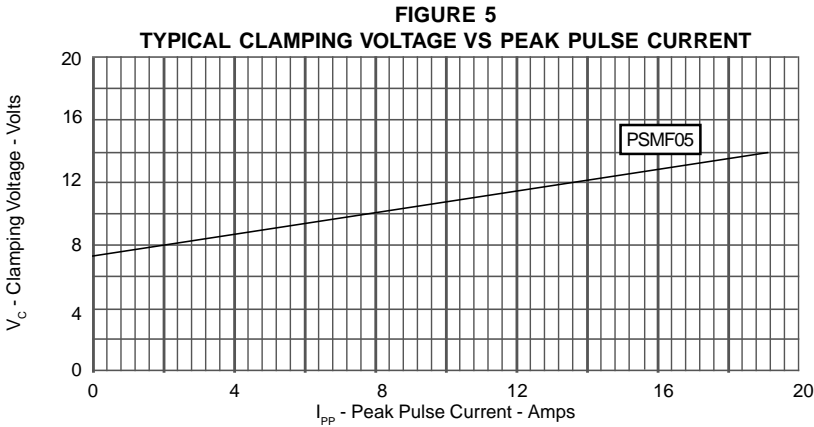
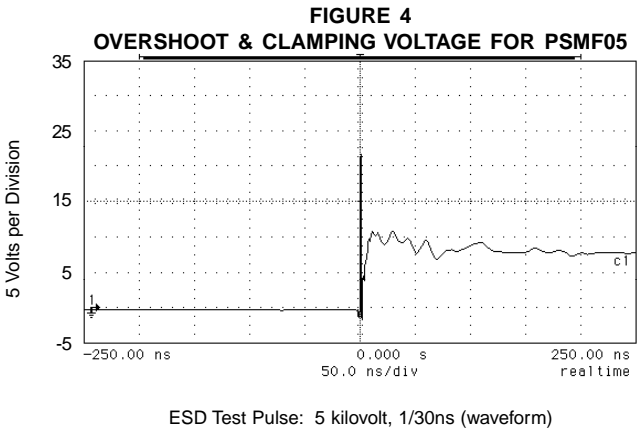
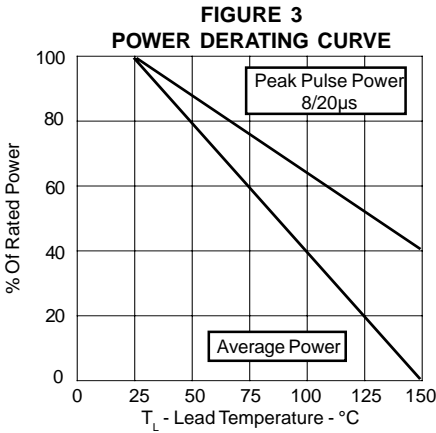
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	200	Watts
Operating Temperature	$T_J$	-55°C to 150°C	°C
Storage Temperature	$T_{STG}$	-55°C to 150°C	°C
Forward Voltage @ 1A, 8/20 $\mu s$	$V_{FP}$	1.5	Volts

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER	DEVICE MARKING	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 $\mu s$ $V_C$ @ $I_{PP}$	@ $V_{WM}$ $I_D$ $\mu A$	0V @ 1 MHz C pF
PSMF05	05	5.0	6.0	9.5	12.0V @ 16.0A	10	175
PSMF12	12	12.0	13.3	15.0	22.0V @ 12.0A	1	75

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



GRAPHS



## APPLICATION NOTES

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

### 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.

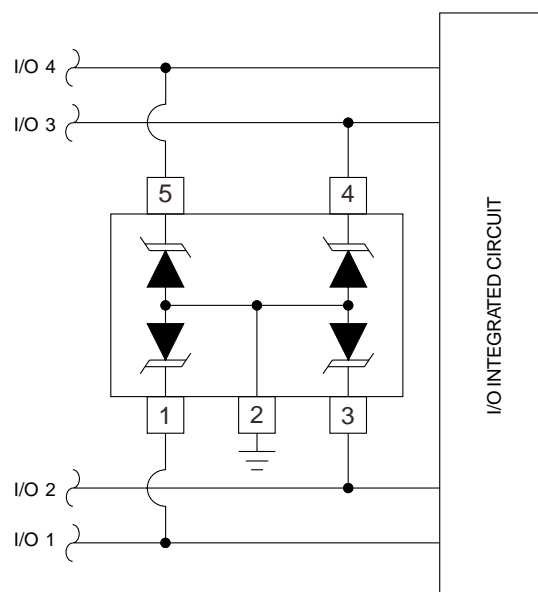
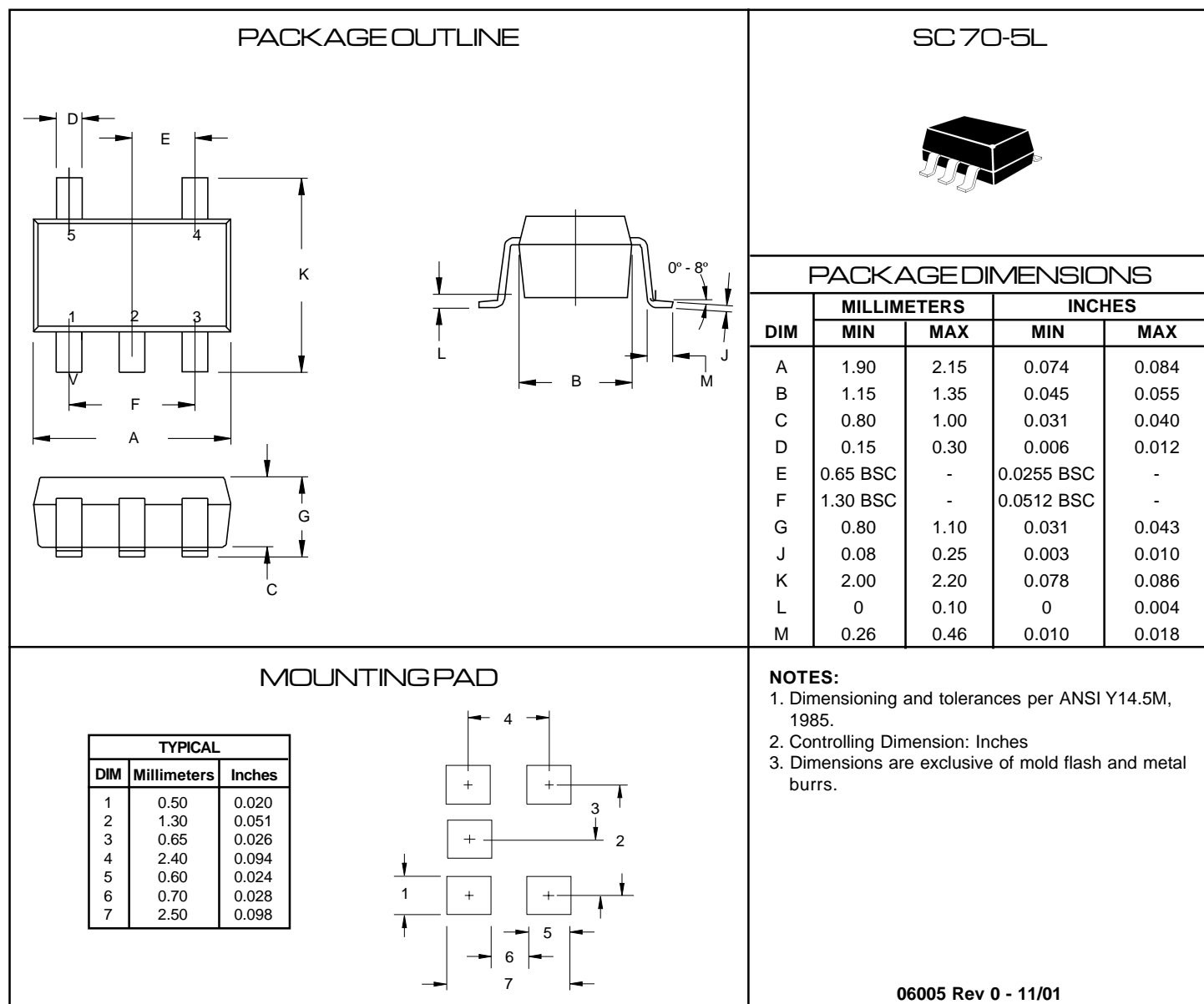


Figure 1 - Unidirectional Configuration  
Common-Mode I/O Port Protection

## PACKAGE OUTLINE & DIMENSIONS



### TAPE & REEL PACKAGING:

Surface mount product is taped and reeled in accordance with EIA-481, reel quantities and sizes are as follows:

7 Inch Reel - 3,000 pieces per reel; 13 Inch Reel - Not Available

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