

## STANDARD TVS ARRAY

### APPLICATIONS

- ✓ Computer Notebooks
- ✓ Communication Systems & Cellular Phones
- ✓ Printers
- ✓ Personal Digital Assistant (PDA)
- ✓ Video Equipment

### IEC COMPATIBILITY (EN61000-4)

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

### FEATURES

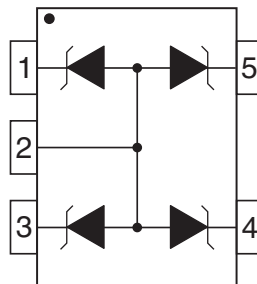
- ✓ 100 Watts Peak Pulse Power per Line ( $t_p=8/20\mu s$ )
- ✓ Monolithic Structure
- ✓ Available in 4 Voltage Types: 5V to 24V
- ✓ Low Clamping Voltage
- ✓ ESD Protection > 40 kilovolts
- ✓ Low Leakage Current
- ✓ Protects Three (3) Bidirectional Lines and Four (4) Unidirectional Lines
- ✓ RoHS Compliant in Lead-Free Versions

### MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SOT-553 Package
- ✓ Weight 3 milligrams (Approximate)
- ✓ Available in Lead-Free Nickel-Paladium-Gold Plating
- ✓ Solder Reflow Temperature:  
Nickel-Paladium-Gold (Ni/Pd/Au) Sn/Ag/Cu: 260-270°C
- ✓ 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

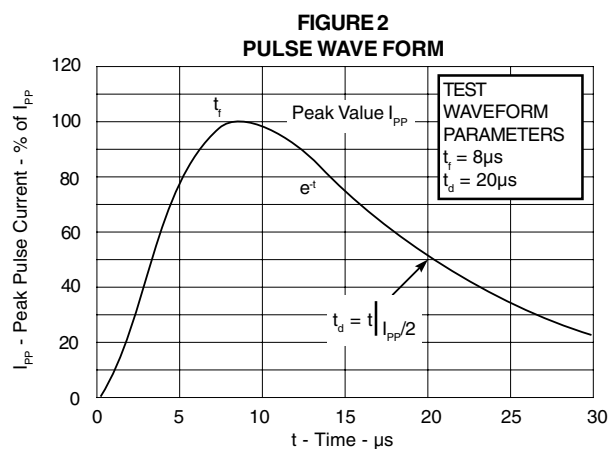
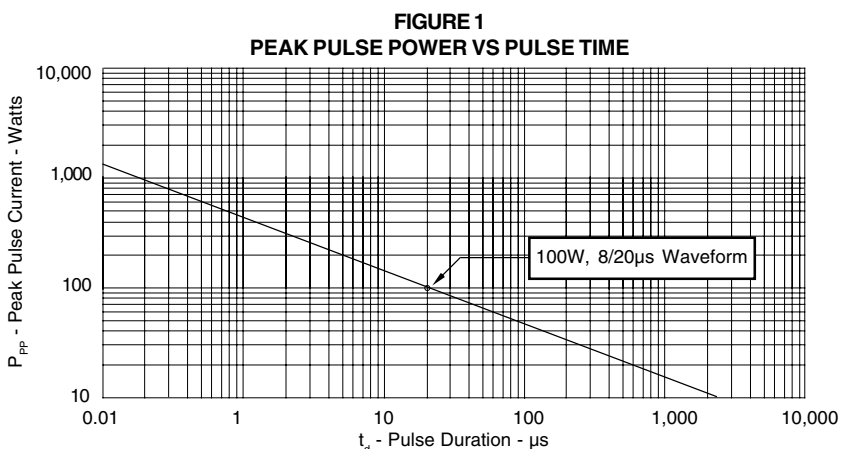


## DEVICE CHARACTERISTICS

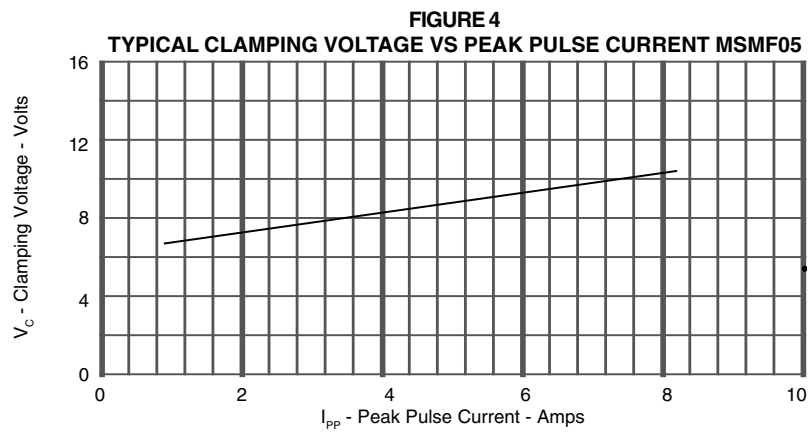
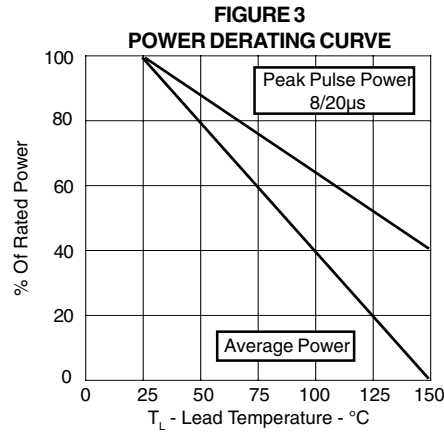
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	100	Watts
Operating Temperature	$T_J$	-55°C to 150°C	°C
Storage Temperature	$T_{STG}$	-55°C to 150°C	°C
Maximum Forward Voltage @ 10mA	$V_F$	1.0	V

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	MAXIMUM LEAKAGE CURRENT	TYPICAL CAPACITANCE (See Note 1)
		$V_{WM}$ VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ 8/20 $\mu s$ $V_C @ I_{PP}$	@ $V_{WM}$ $I_D$ $\mu A$	0V @ 1 MHz C pF
MSMF05	A	5.0	6.0	12.0V @ 9.0A	1	40
MSMF12	C	12.0	13.3	23.8V @ 4.2A	1	20
MSMF15	E	15.0	16.7	33.3V @ 3.0A	1	15
MSMF24	G	24.0	26.7	55.5V @ 1.8A	1	10

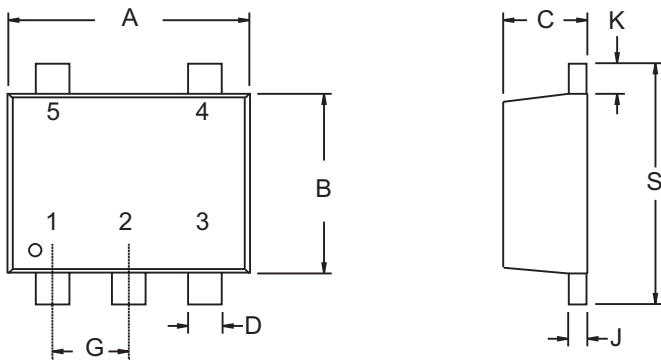

**Note 1:** Pins 1, 3, 4, 5 or 6 to pin 2.



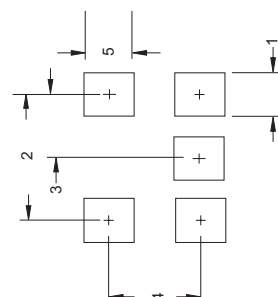
GRAPHS



## PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE		SOT-553			
					
PACKAGE DIMENSIONS					
DIM	MILLIMETERS		INCHES		
	MIN	MAX	MIN	MAX	
A	1.50	1.70	0.059	0.067	
B	1.10	1.30	0.043	0.051	
C	0.50	0.60	0.020	0.024	
D	0.17	0.27	0.007	0.011	
G	0.50 BSC	-	0.020 BSC	-	
J	0.08	0.16	0.003	0.007	
K	0.10	0.30	0.004	0.012	
S	1.50	1.70	0.059	0.067	

MOUNTING PAD			NOTES																								
<table border="1" style="margin: auto;"> <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>0.30</td> <td>0.012</td> </tr> <tr> <td>2</td> <td>1.02</td> <td>0.040</td> </tr> <tr> <td>3</td> <td>0.51</td> <td>0.020</td> </tr> <tr> <td>4</td> <td>1.40</td> <td>0.055</td> </tr> <tr> <td>5</td> <td>0.51</td> <td>0.020</td> </tr> </tbody> </table>			TYPICAL			DIM	Millimeters	Inches	1	0.30	0.012	2	1.02	0.040	3	0.51	0.020	4	1.40	0.055	5	0.51	0.020				
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			<p><b>NOTES</b></p> <ol style="list-style-type: none"> <li>1. Dimensioning and tolerances per ANSI Y14.5M, 1985.</li> <li>2. Controlling Dimension: Inches</li> <li>3. Pin 3 is the cathode (Unidirectional Only).</li> <li>4. Dimensions are exclusive of mold flash and metal burrs.</li> </ol>																								
			<p><b>TAPE &amp; REEL/BULK ORDERING NOMENCLATURE</b></p> <ol style="list-style-type: none"> <li>1. Surface mount product is taped and reeled in accordance with EIA-481.</li> <li>2. Suffix -T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., <i>MSMF05-T7</i>.</li> <li>3. Suffix -T13 = 13 Inch Reel - 10,000 pieces per 8mm tape, i.e., <i>MSMF05-T13</i>.</li> <li>4. Suffix -P = Lead-Free, Nickel-Paladium-Gold Plating, i.e., <i>MSMF05-P-T7</i>.</li> </ol>																								
			<p>Outline &amp; Dimensions: Rev 1 - 9/05, 06050</p>																								

Tape & Reel Specifications (Dimensions in millimeters)

Reel Dia.	Tape Width	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	1.78 ± 0.05	1.78 ± 0.05	0.69 ± 0.05	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

