

# SMF05

## Quad Array for ESD Protection

This quad monolithic silicon overvoltage suppressor is designed for applications requiring transient voltage protection capability. It is intended for use in ESD sensitive equipment such as computers, printers, cell phones, medical equipment, and other applications. Its quad junction common anode design protects four separate lines using only one package. These devices are ideal for situations where board space is at a premium.

### Specification Features

- SC-88A Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 5  $\mu$ A @ 5 V
- Breakdown Voltage: 6.1 V - 7.2 V @ 1 mA
- Low Capacitance (90 pF TYP)
- Provides Protection for IEC61000-4-2

### Mechanical Characteristics

- Void Free, Transfer-Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications

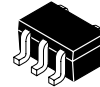
### Applications

- Computers
- Printers
- Cell Phones
- Medical Equipment



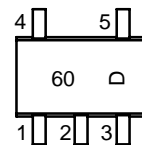
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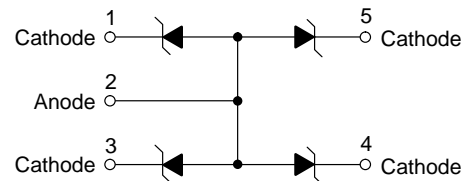


SC-88A/SOT-323  
CASE 419A  
STYLE 5

### MARKING DIAGRAM



60 = Device Marking  
D = One Digit Date Code



### ORDERING INFORMATION

Device	Package	Shipping
SMF05T1	SC-88A	3000/Tape & Reel

# SMF05

## MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Value	Unit
Peak Power Dissipation @ 8 X 20 $\mu\text{s}$ @ $T_A \leq 25^\circ\text{C}$ (Note 1)	$P_{pk}$	200	W
Maximum Junction Temperature	$T_{Jmax}$	150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$
ESD Discharge MIL STD 883C - Method 3015-6 IEC61000-4-2, Air Discharge IEC61000-4-2, Contact Discharge	$V_{pp}$	16	kV
		16	
		9	
Lead Solder Temperature (10 seconds duration)	$T_L$	260	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Breakdown Voltage $V_{BR}$ @ 1 mA (Volts)		Leakage Current $I_R$ @ $V_{RWM} = 5\text{ V}$ ( $\mu\text{A}$ )	Capacitance @ 0 V Bias (pF)	Max $V_F$ @ $I_F = 200\text{ mA}$ (V)	Max Clamping Voltage ( $V_C$ ) @ $I_{PP}$		Max Clamping Voltage ( $V_C$ ) @ $I_{PP}$	
	Min	Max				$I_{PP}$ (A)	$V_C$ (V)	$I_{PP}$ (A)	$V_C$ (V)
SMF05	6.0	7.2	5.0	90	1.25	1.0	9.5	12	12.5

1. Non-repetitive current per Figure 2. Derate per Figure 3.

## TYPICAL PERFORMANCE CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

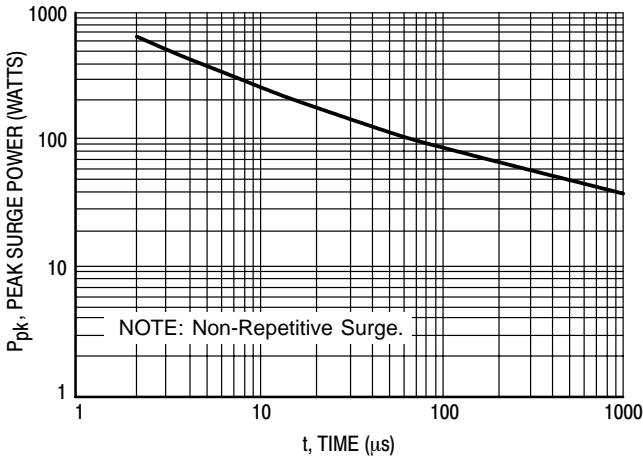


Figure 1. Peak Power Dissipation versus Pulse Width

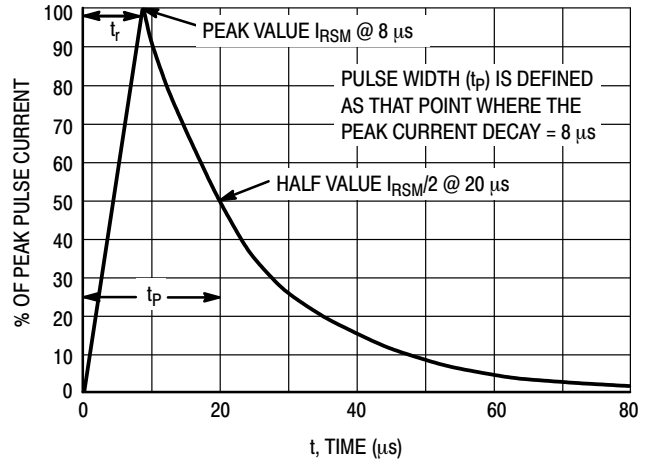
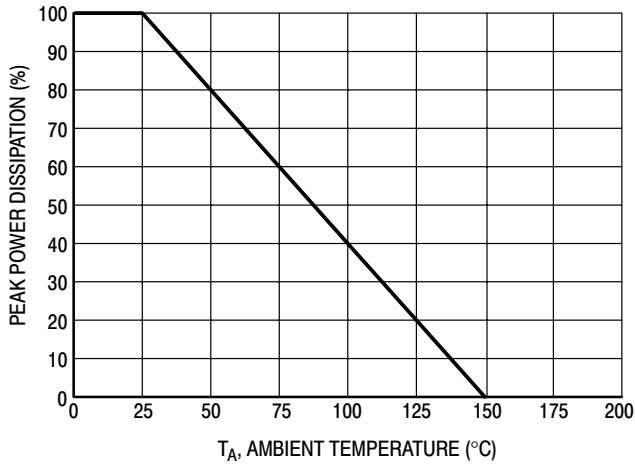


Figure 2. Pulse Waveform 8 x 20  $\mu\text{s}$

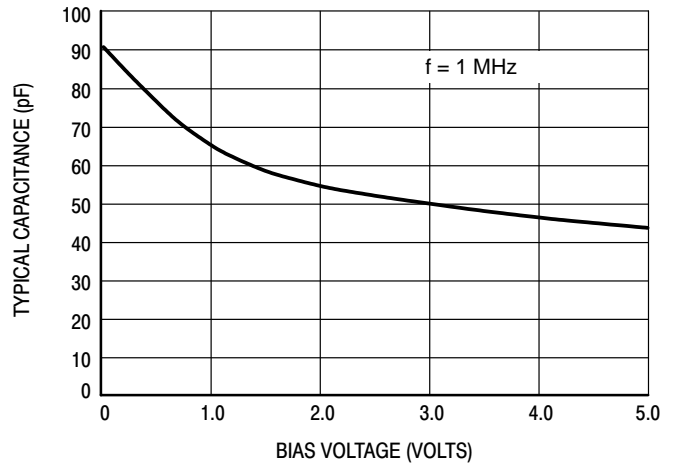
# SMF05

## TYPICAL PERFORMANCE CURVES

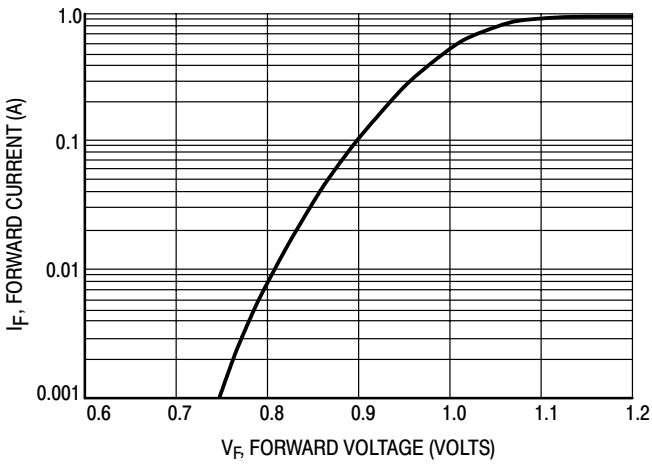
( $T_A = 25^\circ\text{C}$  unless otherwise noted)



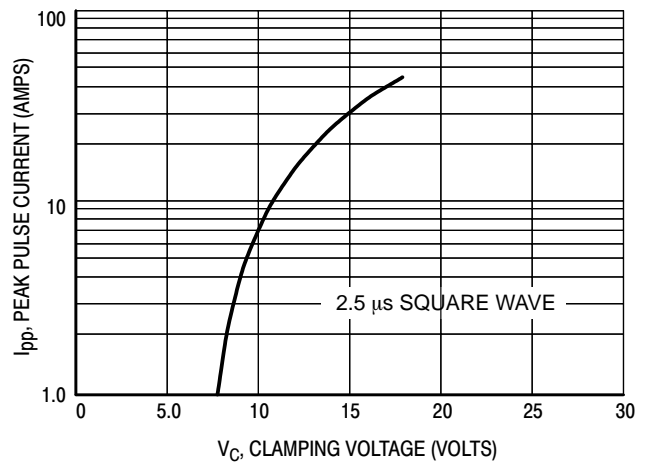
**Figure 3. Power Derating Curve**



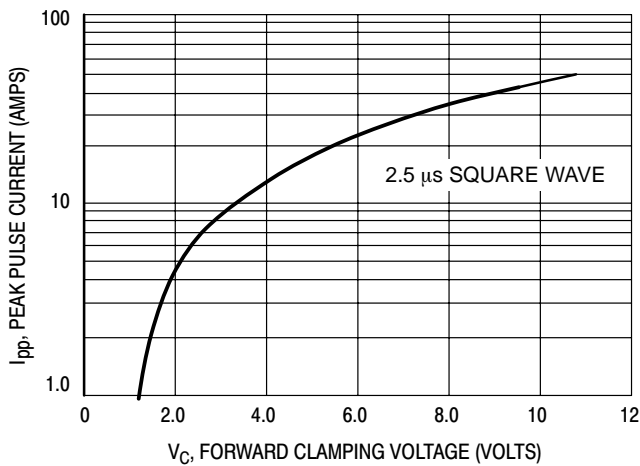
**Figure 4. Junction Capacitance versus Reverse Voltage**



**Figure 5. Forward Voltage Curve**



**Figure 6. Clamping Voltage versus Peak Pulse Current (Reverse Direction)**

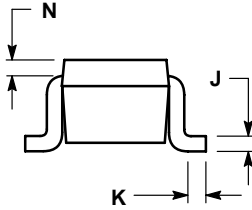
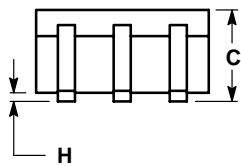
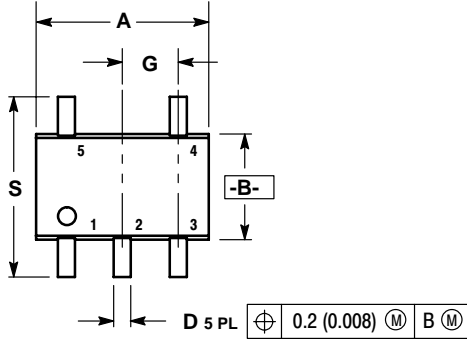


**Figure 7. Clamping Voltage versus Peak Pulse Current (Forward Direction)**

# SMF05

## PACKAGE DIMENSIONS

SC-88A/SOT-323  
5-LEAD PACKAGE  
CASE 419A-02  
ISSUE F



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419A-01 OBSOLETE. NEW STANDARD 419A-02.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

**STYLE 5:**

- PIN 1. CATHODE
2. COMMON ANODE
3. CATHODE 2
4. CATHODE 3
5. CATHODE 4

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