SMF05T1

Quad Array for ESD Protection

This quad monolithic silicon voltage suppressor is designed for applications requiring transient overvoltage protection capability. It is intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, 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

- SC88A Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 5 μA @ 5 Volt
- Breakdown Voltage: 6.1 Volt - 7.2 Volt @ 1 mA
- Low Capacitance (90 pF typical)
- ESD Protection Meeting IEC61000-4-2
- Pb-Free Packages are Available

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

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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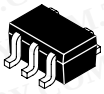
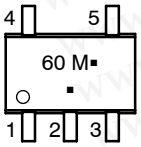
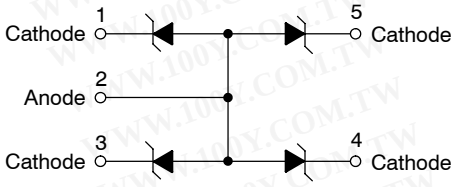


SC-88A/SOT-323
CASE 419A
STYLE 5

MARKING DIAGRAM



60 = Device Marking
M = One Digit Date Code
▪ = Pb-Free Package
(Note: Microdot may be in either location)



ORDERING INFORMATION

Device	Package	Shipping†
SMF05T1	SC-88A	3000/Tape & Reel
SMF05T1G	SC-88A (Pb-Free)	3000/Tape & Reel
SMF05T2G	SC-88A (Pb-Free)	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Value	Unit
Peak Power Dissipation @ 8 X 20 μs @$T_A \le$ 25°C (Note 1)		P_{pk}	200	W
Steady State Power - 1 Diode (Note 2)		P_D	385	mW
Thermal Resistance Junction to Ambient Above 25°C, Derate		$R_{\theta JA}$	325 3.1	°C/W mW/°C
Maximum Junction Temperature		T_{Jmax}	150	°C
Operating Junction and Storage Temperature Range		T_J T_{stg}	-55 to +150	°C
ESD Discharge	IEC61000-4-2, Air Discharge IEC61000-4-2, Contact Discharge		30 30	kV
Lead Solder Temperature (10 seconds duration)		T_L	260	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

ELECTRICAL CHARACTERISTICS

Device	Breakdown Voltage V_{BR} @ 1 mA (Volts)		Leakage Current I_R @ V_{RWM} = 5 V (μA)	Capacitance @ 0 V Bias (pF)	Max V_F @ I_F = 200 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 1. Derate per Figure 2.
2. Only 1 diode under power. For all 4 diodes under power, P_D will be 25%. Mounted on FR-4 board with min pad.

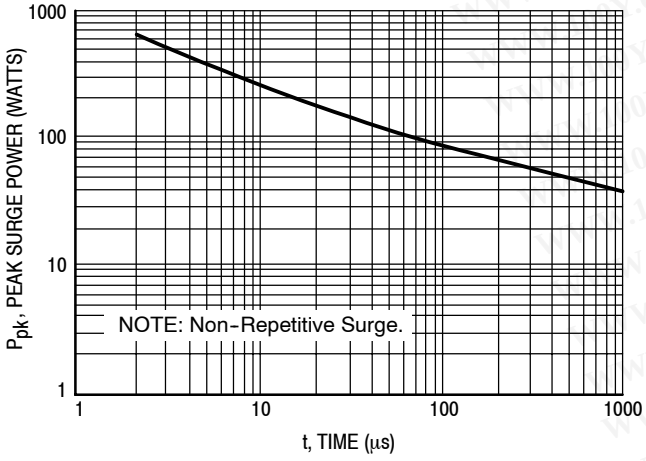


Figure 1. Pulse Width

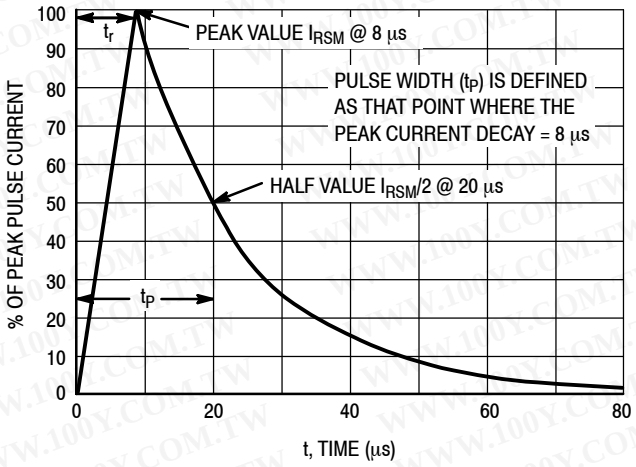


Figure 2. 8 × 20 μs Pulse Waveform

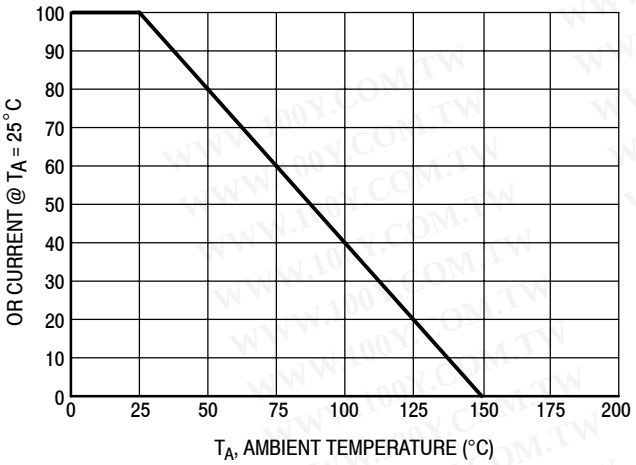


Figure 3. Pulse Derating Curve

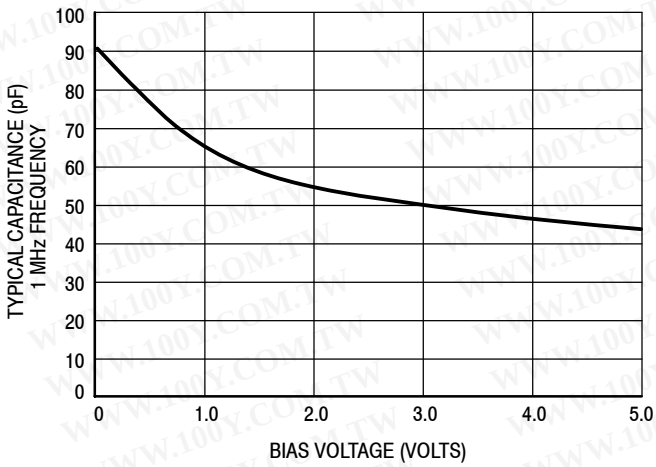


Figure 4. Capacitance

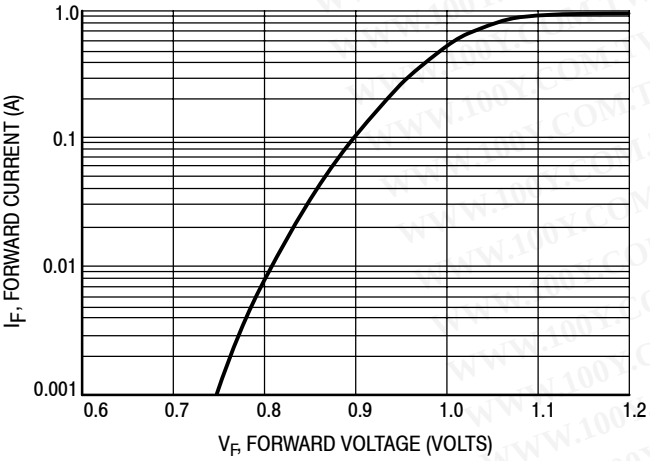


Figure 5. Forward Voltage

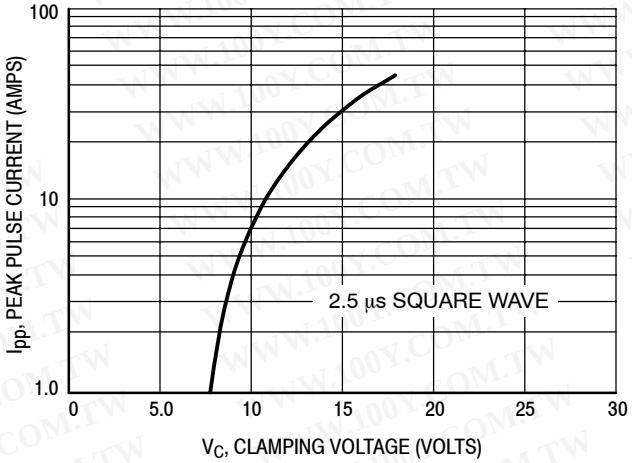


Figure 6. Clamping Voltage versus Peak Pulse Current (Reverse Direction)

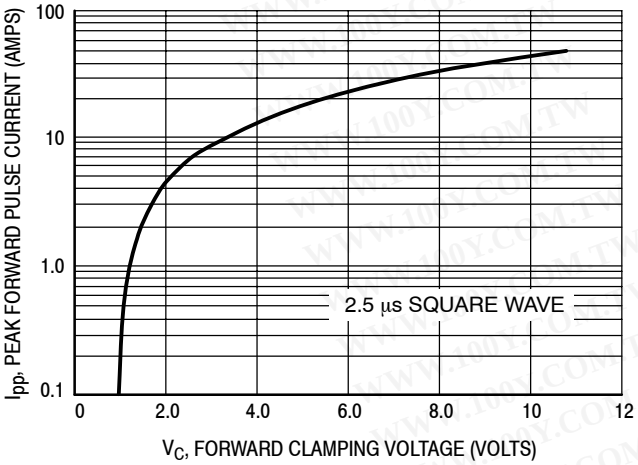
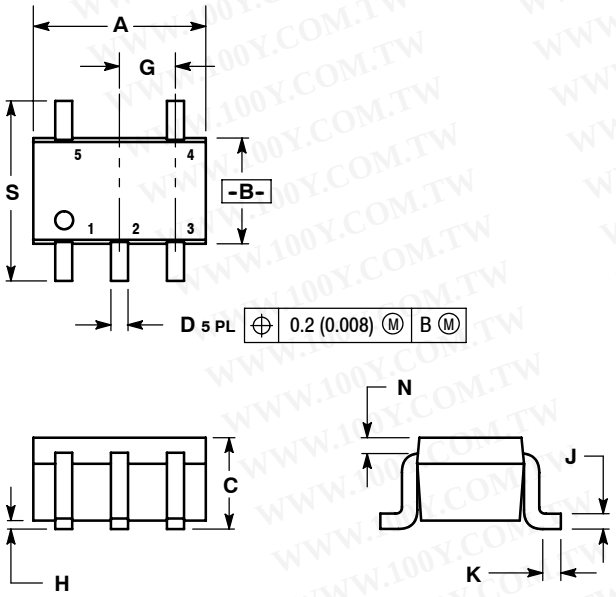


Figure 7. Clamping Voltage versus Peak Pulse Current (Forward Direction)

SMF05T1

PACKAGE DIMENSIONS

SC−88A/SOT−353/SC−70
5−LEAD PACKAGE
CASE 419A−02
ISSUE J



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419A−01 OBSOLETE. NEW STANDARD 419A−02.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	INCHES		MILLIMETERS	
DIM	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

PUBLICATION ORDERING INFORMATION

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