

# MSQA6V1W5T2

## 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 < 1  $\mu$ A @ 3 Volt
- Breakdown Voltage: 6.1 Volt – 7.2 Volt @ 1 mA
- Low Capacitance (90 pF typical)
- ESD Protection Meeting IEC1000–4–2

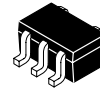
### Mechanical Characteristics

- 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



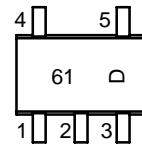
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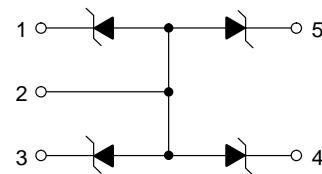


SC-88A/SOT-323  
CASE 419A

### MARKING DIAGRAM



61 = Device Marking  
D = One Digit Date Code



### ORDERING INFORMATION

Device	Package	Shipping
MSQA6V1W5T2	SC-88A	3000/Tape & Reel

NOTE: T2 Suffix Devices are Packaged with Pin 1 Opposing Sprocket Hole.

# MSQA6V1W5T2

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

Characteristic	Symbol	Value	Unit
Peak Power Dissipation @ 20 $\mu\text{s}$ @ $T_A \leq 25^\circ\text{C}$ (Note 1)	$P_{pk}$	150	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	$^\circ\text{C/W}$ mW/ $^\circ\text{C}$
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 IEC1000-4-2, Air Discharge IEC1000-4-2, Contact Discharge	$V_{PP}$	16 16 9	kV
Lead Solder Temperature (10 seconds duration)	$T_L$	260	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS

Device	Breakdown Voltage $V_{BR}$ @ 1 mA (Volts)			Leakage Current $I_{RM}$ @ $V_{RWM} = 3\text{ V}$ ( $\mu\text{A}$ )	Capacitance @ 0 V Bias (pF)	Max $V_F$ @ $I_F = 200\text{ mA}$ (V)
	Min	Nom	Max			
MSQA6V1W5	6.1	6.6	7.2	1.0	90	1.25

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

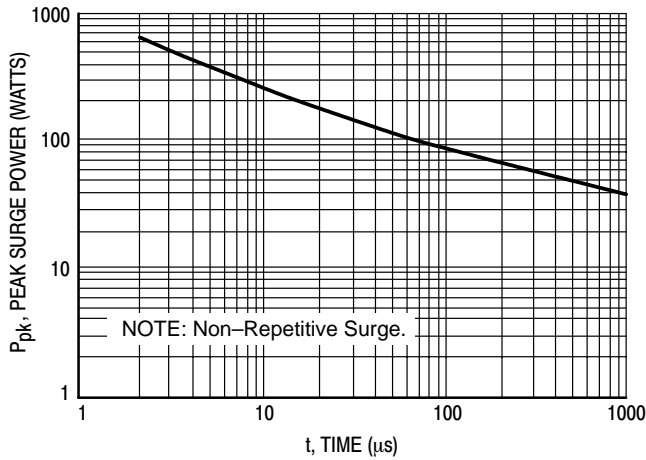


Figure 1. Pulse Width

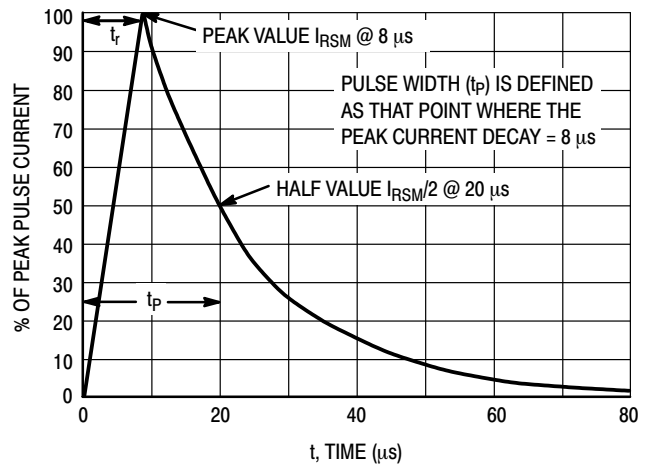


Figure 2.  $8 \times 20\text{ }\mu\text{s}$  Pulse Waveform

# MSQA6V1W5T2

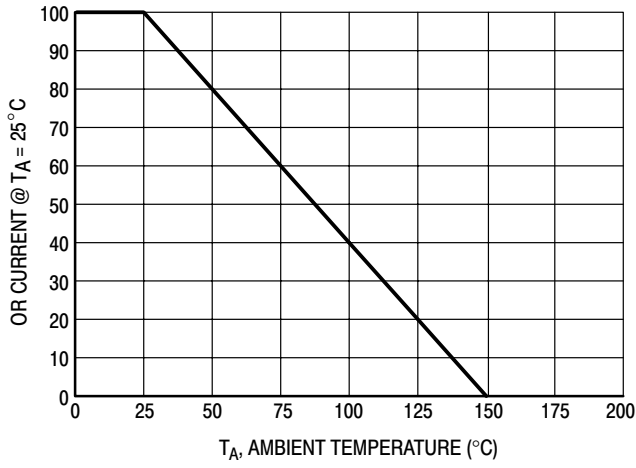


Figure 3. Pulse Derating Curve

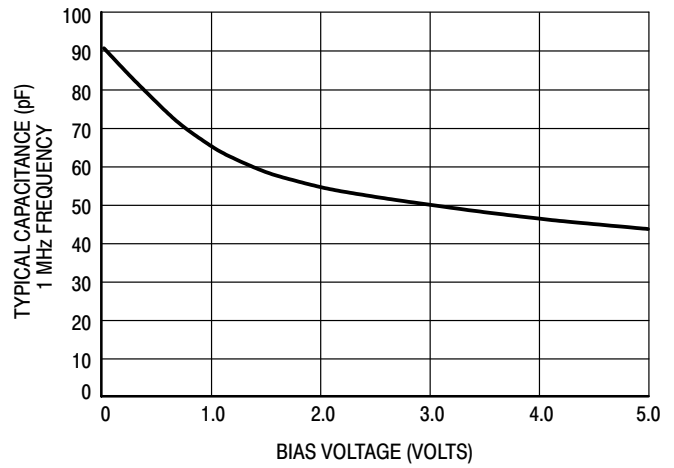


Figure 4. Capacitance

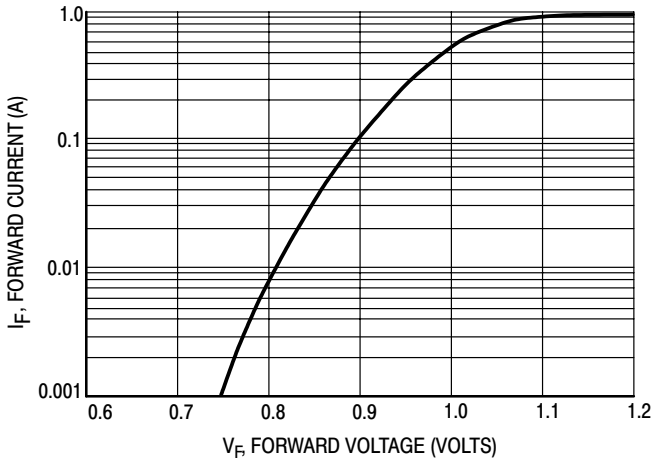


Figure 5. Forward Voltage

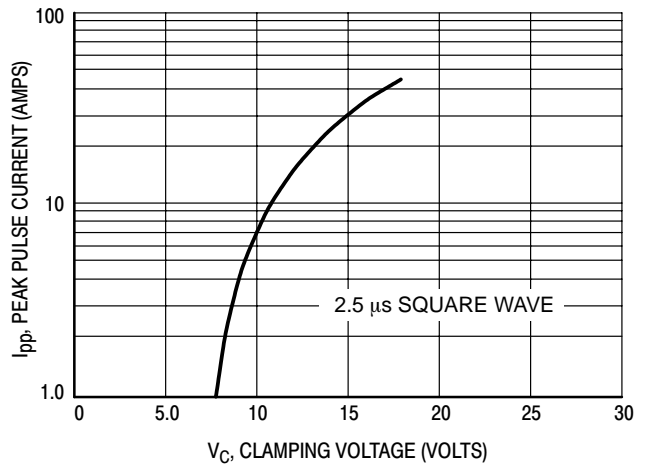


Figure 6. Clamping Voltage versus Peak Pulse Current (Reverse Direction)

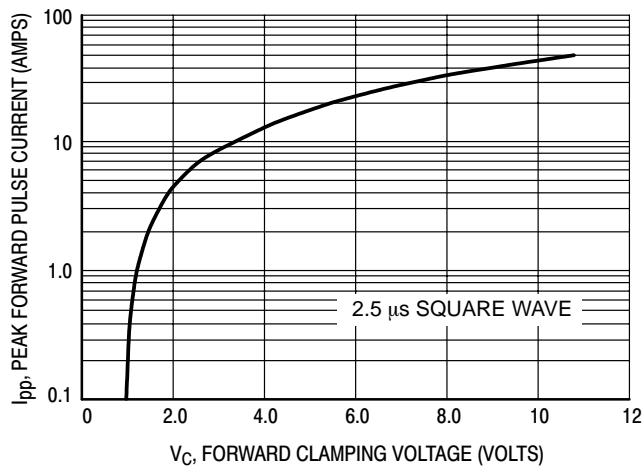
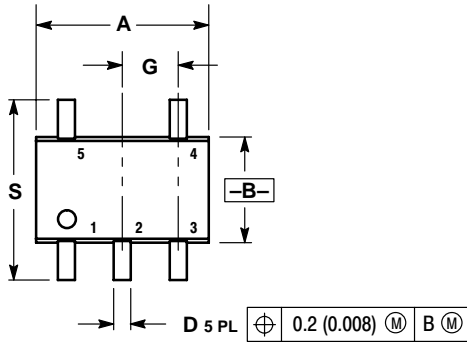


Figure 7. Clamping Voltage versus Peak Pulse Current (Forward Direction)

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## PACKAGE DIMENSIONS

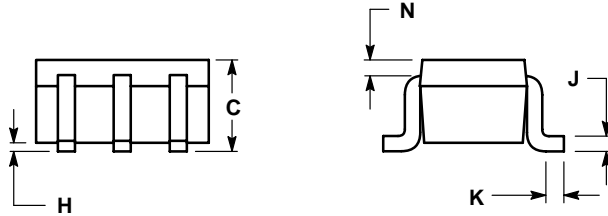
SC-88A/SOT-323  
5-LEAD PACKAGE  
CASE 419A-02  
ISSUE F




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



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