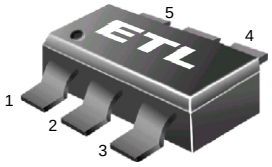
ETL SEMICONDUCTOR

Quad Array for ESD Protection

MSQA6V1W5

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.



SOT–353 /SC–88A
CASE 419A

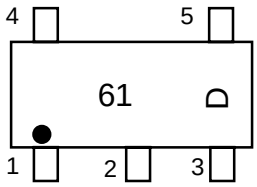
Specification Features

- SC88A Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 1 μA @ 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

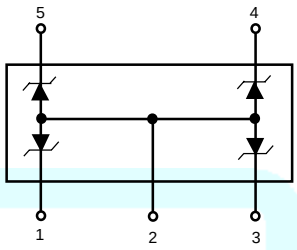
MARKING DIAGRAM



61 = Device Marking
D = One Digit Date Code

ORDERING INFORMATION

Device	Package	Shipping
MSQA6V1W5	SC–88A	3000/Tape & Reel



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

Characteristic		Symbol	Value	Unit
Peak Power Dissipation @ 20 µs @$T_A \leq$ 25°C (Note 1.)		P_{pk}	150	Watts
Steady State Power – 1 Diode (Note 2.)		P_D	385	mW
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	325	°C/W
Above 25°C, Derate			3.1	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	MIL STD 883C – Method 3015–6	V_{PP}	16	kV
	IEC1000–4–2, Air Discharge		16	
	IEC1000–4–2, Contact Discharge		9	
Lead Solder Temperature (10 seconds duration)		T_L	260	°C

ELECTRICAL CHARACTERISTICS

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

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.

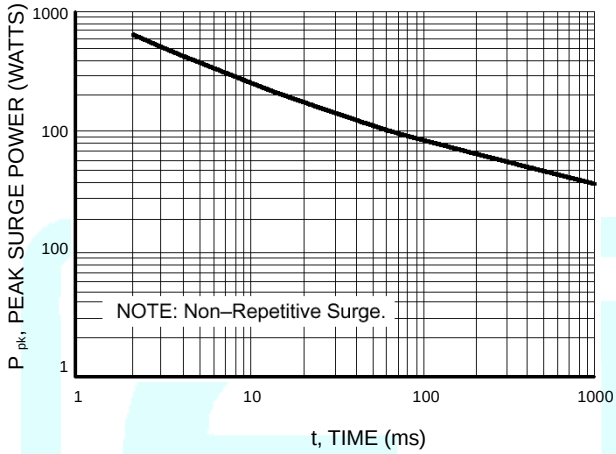

Figure 1. Pulse Width

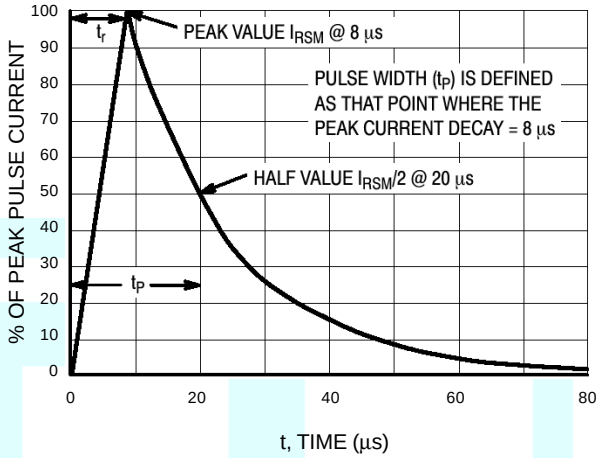

Figure 2. 8 × 20 µs Pulse Waveform

MSQA6V1W5

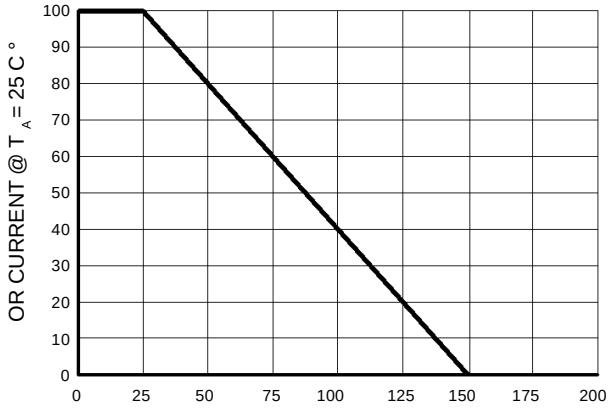

Figure 3. Pulse Derating Curve

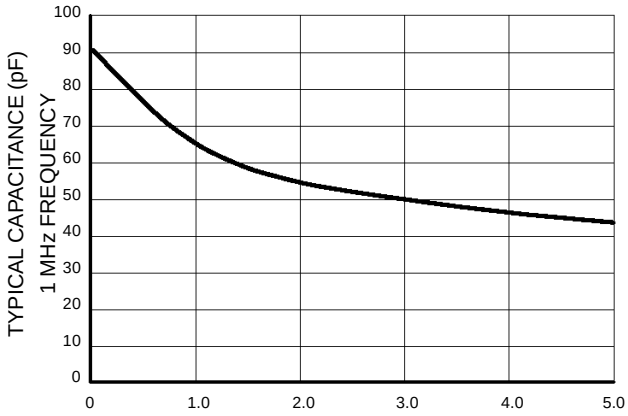

Figure 4. Capacitance

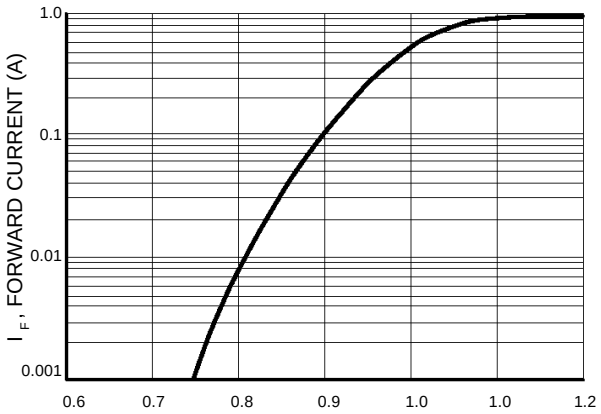

Figure 5. Forward Voltage

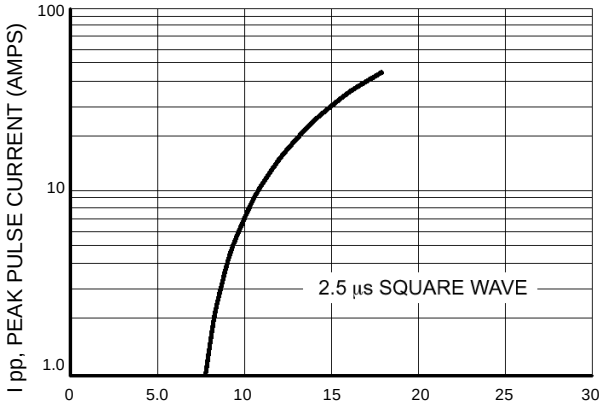

Figure 6. Clamping Voltage versus Peak Pulse Current (Reverse Direction)

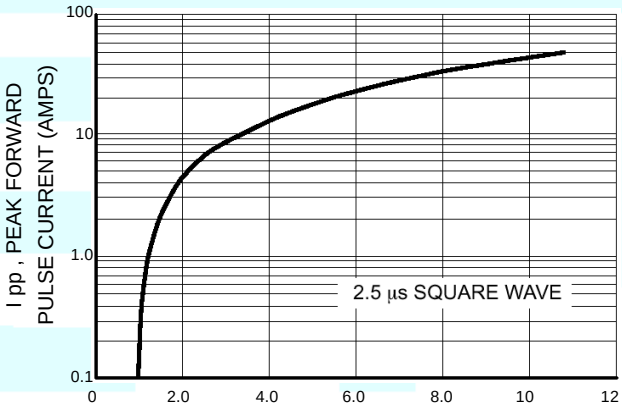

Figure 7. Clamping Voltage versus Peak Pulse Current (Forward Direction)