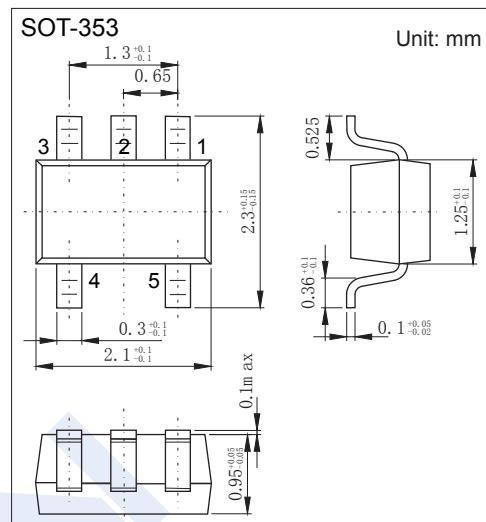
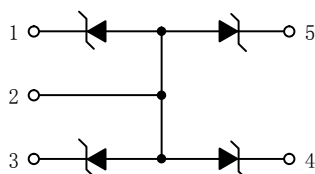


ESD Protection Diodes

MSQA6V1W5T2G

■ Features

- Low Clamping Voltage
- Stand Off Voltage 3 V
- Low Leakage < 1A @ 3 V
- IEC1000-4-2 Level 4 ESD Protection
- Pb-Free Package is Available

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
ESD Discharge @ MIL STD 883C – Method 3015-6 IEC1000-4-2, Air Discharge IEC1000-4-2, Contact Discharge	V_{PP}	16	KV
		16	
		9	
Steady State Power – 1 Diode	P_D	385	mW
Peak Power Dissipation @ 20us	P_{PK}	150	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	325	$^\circ\text{C}/\text{W}$
Above 25°C , Derate		3.1	mW/ $^\circ\text{C}$
Lead Solder Temperature (10 s duration)	T_L	260	$^\circ\text{C}$
Junction Temperature	T_J	150	
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Device*	Breakdown Voltage V_{BR} @ 1 mA (V_o) (Note 1)			Leakage Current I_{RM} @ $V_{RWM} = 3\text{ V}$ (μA)	Capacitance @ 0 V Bias (pF)	Max V_F @ $I_F = 200\text{ mA}$ (V)	V_C
	Min	Nom	Max				Per IEC61000-4-2 (Note 2)
MSQA6V1W5T2G	6.1	6.6	7.2	1.0	90	1.25	Figures 1 and 2 See Below

1. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C .

2. For test procedure see Figures 3 and 4 and Application Note AND8307/D.

*Include SZ-prefix devices where applicable.

■ Marking

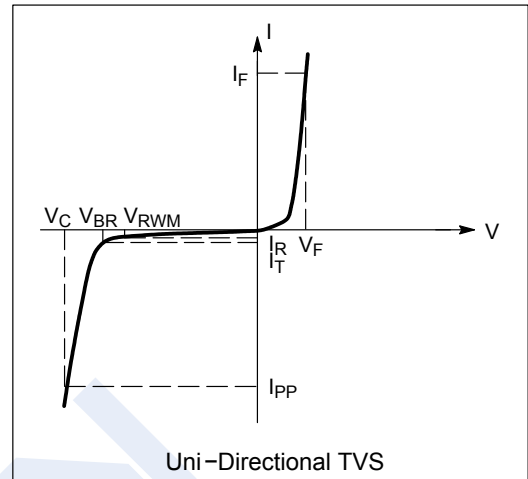
Marking	61M•
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ESD Protection Diodes

MSQA6V1W5T2G

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{pk}	Peak Power Dissipation
C	Capacitance @ $V_R = 0$ and $f = 1.0\text{ MHz}$



■ Typical Characteristics

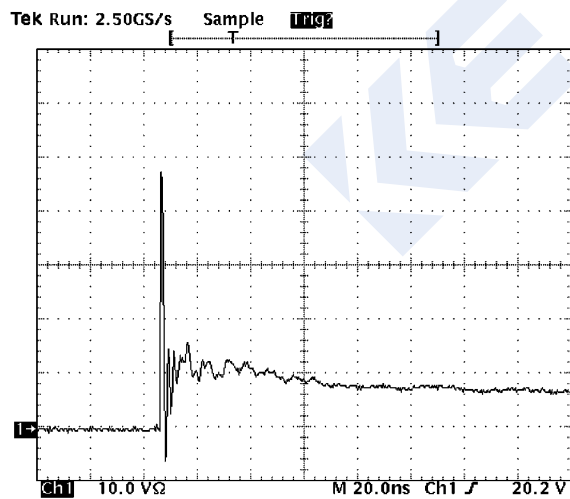


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

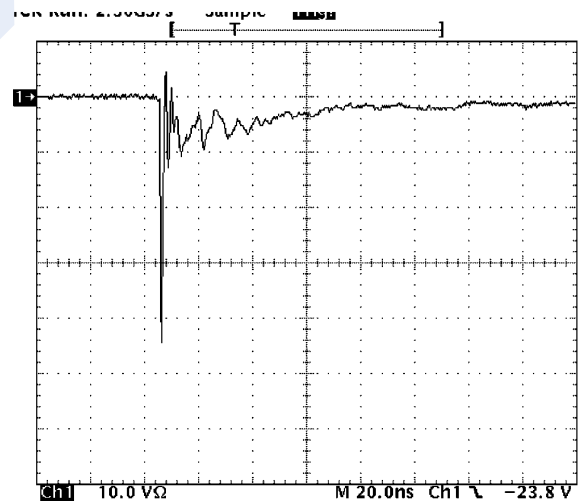


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2

ESD Protection Diodes

MSQA6V1W5T2G

■ Typical Characteristics

IEC 61000-4-2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

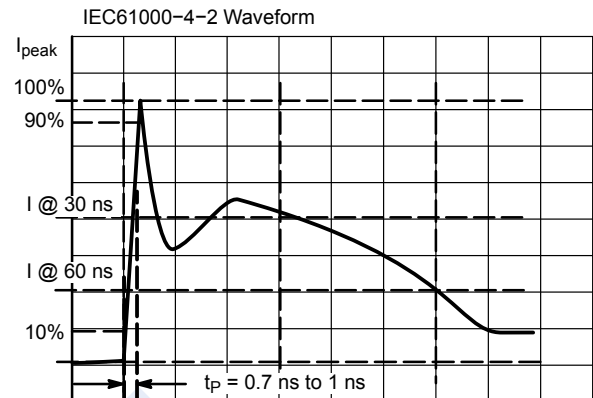


Figure 3. IEC61000-4-2 Spec

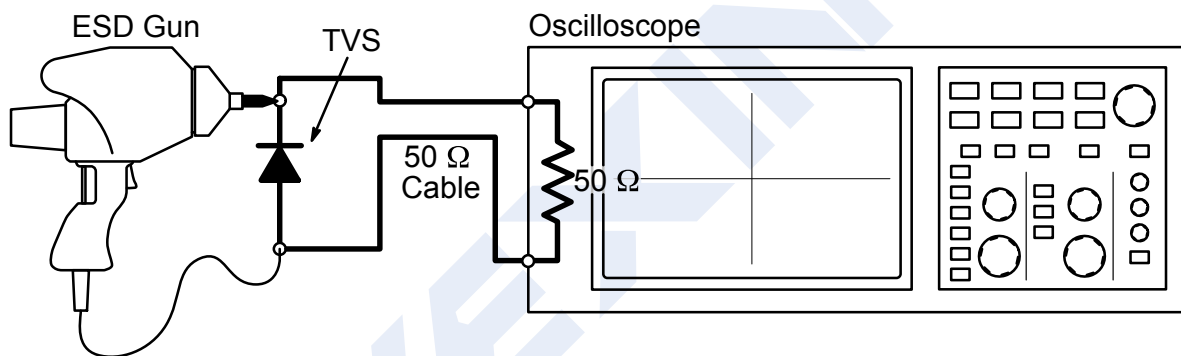
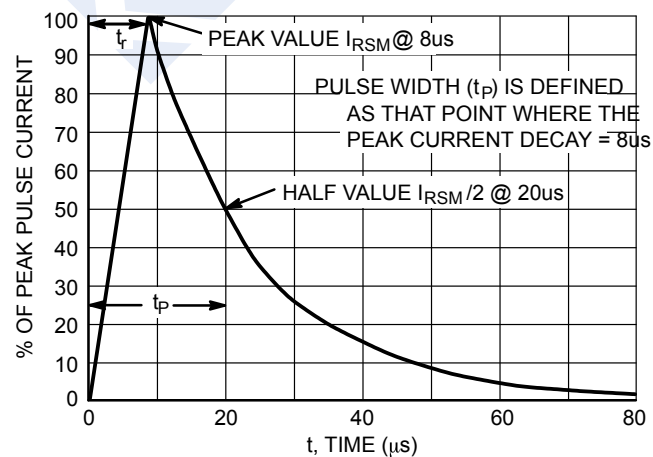


Figure 4. Diagram of ESD Test Setup

Figure 5. 8 X 20 μs Pulse Waveform

ESD Protection Diodes

MSQA6V1W5T2G

■ Typical Characteristics

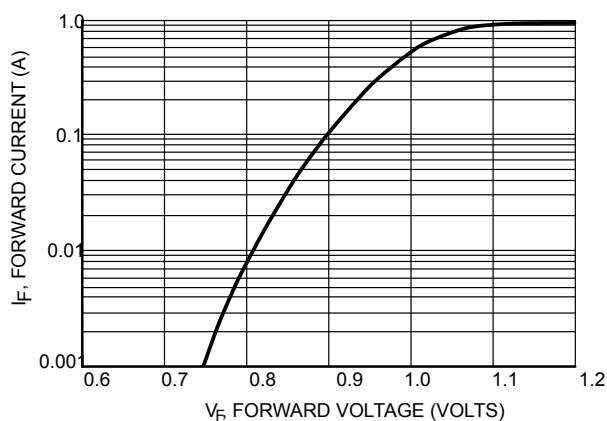


Figure 6. Forward Voltage

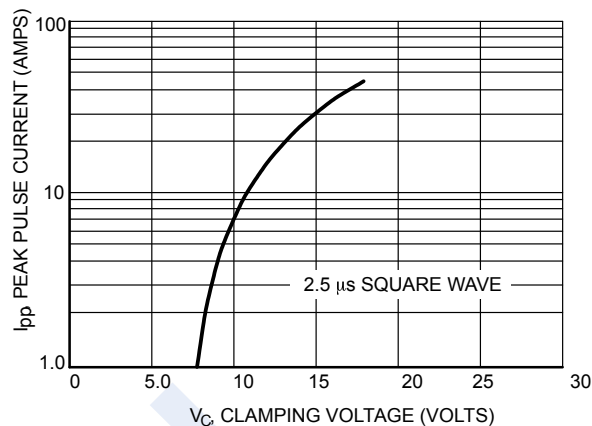


Figure 7. Clamping Voltage versus Peak Pulse Current (Reverse Direction)

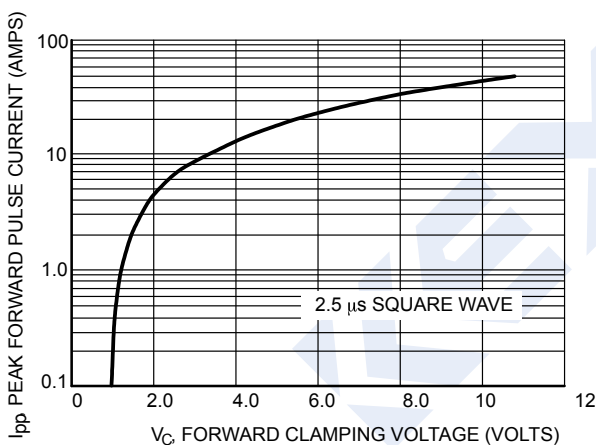


Figure 8. Clamping Voltage versus Peak Pulse Current (Forward Direction)

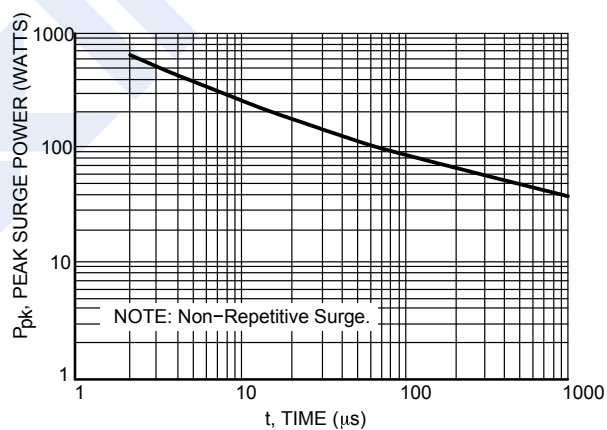


Figure 9. Pulse Width

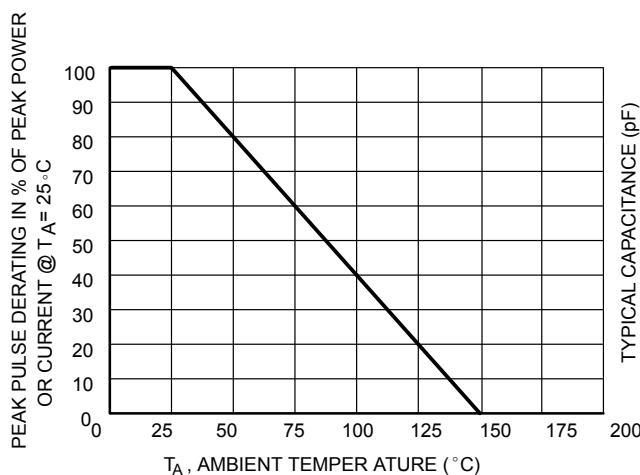


Figure 10. Pulse Derating Curve

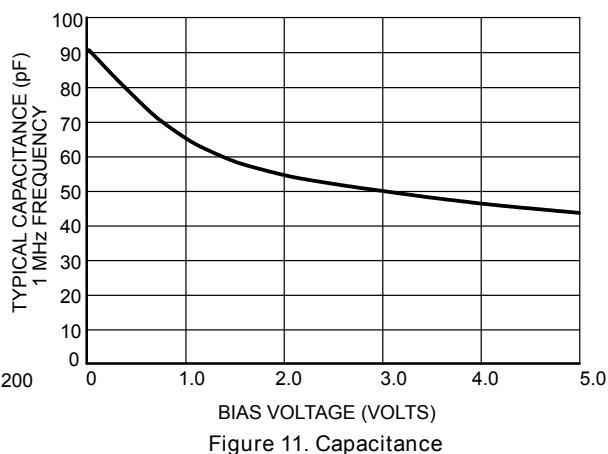


Figure 11. Capacitance