

Low Capacitance Quad Array for ESD Protection

(Pb) Lead(Pb)-Free

General Description:

This integrated transient voltage suppressor device (TVS) is designed for applications requiring transient overvoltage protection. It is intended for use in sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its integrated design provides very effective and reliable protection for four separate lines using only one package. These devices are ideal for situations where board space is at a premium.

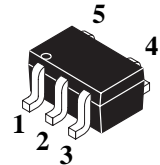
Features:

- * ESD Protection: IEC61000-4-2: Level 4
MILSTD 883C – Method 3015-6: Class 3
- * Four Separate Unidirectional Configurations for Protection
- * Low Leakage Current < 1 μ A
- * Power Dissipation: 380 mW
- * Small SC-88A SMT Package
- * Low Capacitance
- * Provides Protection for ESD Industry Standards: IEC 61000, HBM
- * Protects the Line Against Transient Voltage Conditions in Either

Main Applications:

- * Instrumentation Equipment
- * Serial and Parallel Ports
- * Microprocessor Based Equipment
- * Notebooks, Desktops, Servers
- * Cellular and Portable Equipment

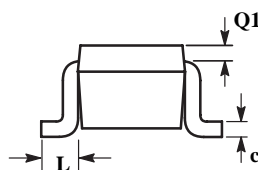
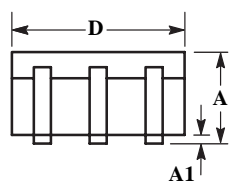
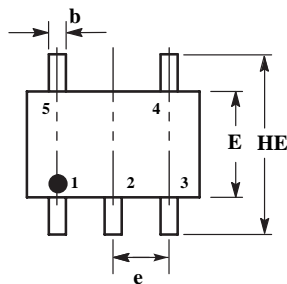
Peak Pulse Power
20 Watts
Breakdown Voltage
6.8 VOLTS



SOT-353

SOT-353 Outline Dimensions

Unit:mm



SOT-353		
Dim	Min	Max
A	0.80	1.10
A1	0.00	0.10
b	0.10	0.30
c	0.10	0.25
D	1.80	2.20
E	1.15	1.35
e	0.65 REF	
HE	1.80	2.40
Q1	0.2 REF	
L	0.10	0.30

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

Rating	Symbol	Value	Unit
Peak Power Dissipation 8 × 20 μsec Double Exponential Waveform (Note 1)	P_{PK}	20	W
Steady State Power – 1 Diode (Note 2)	P_D	380	mW
Thermal Resistance – Junction-to-Ambient Above 25°C, Derate	$R_{\theta JA}$	327 3.05	°C/W mW/°C
Operating Junction Temperature Range	T_J	-40 to +125	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C
Lead Solder Temperature – Maximum 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.

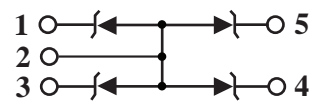
1. Non-repetitive current pulse per Figure 1.
2. Only 1 diode under power. For all 4 diodes under power, P_D will be 25%. Mounted on FR4 board with min pad.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Breakdown Voltage ($I_T = 1\text{ mA}$) (Note 3)	V_{BR}	6.4	6.8	7.1	V
Leakage Current ($V_{RWM} = 5.0\text{ V}$)	I_R	-	-	1.0	μA
Clamping Voltage 1 ($I_{PP} = 1.6\text{ A}$, 8 × 20 μsec Waveform)	V_C	-	-	13	V
Maximum Peak Pulse Current (8 × 20 μsec Waveform)	I_{PP}	-	-	1.6	A
Junction Capacitance – ($V_R = 0\text{ V}$, $f = 1\text{ MHz}$) – ($V_R = 3.0\text{ V}$, $f = 1\text{ MHz}$)	C_J	-	12 6.7	15 9.5	pF

3. V_{BR} is measured at pulse test current I_T .

Device Marking

Item	Marking	Equivalent Circuit diagram
ESDA6V8AW5	6H	

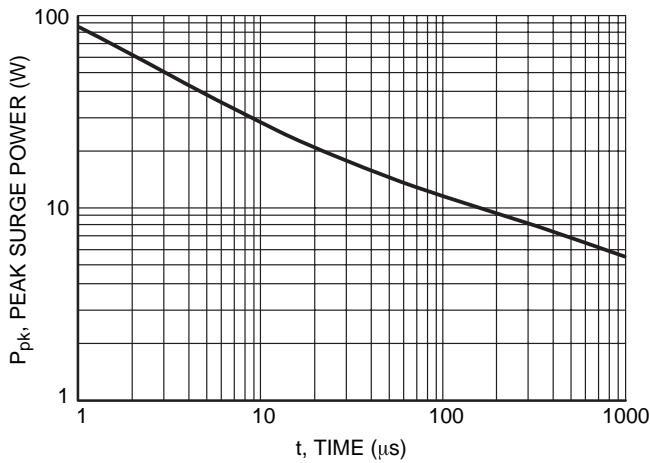


Figure 1. Pulse Width

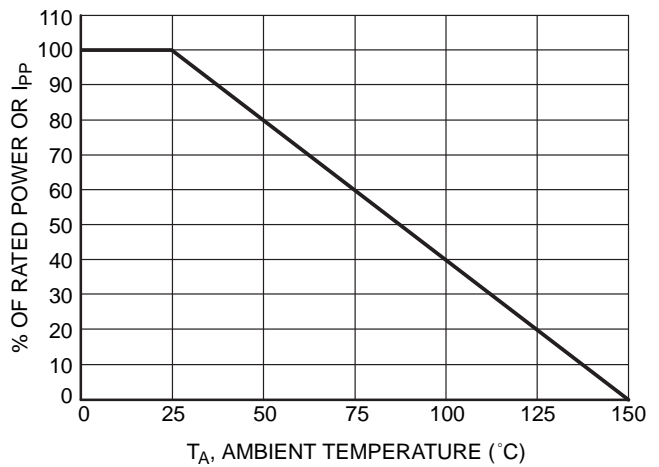


Figure 2. Power Derating Curve

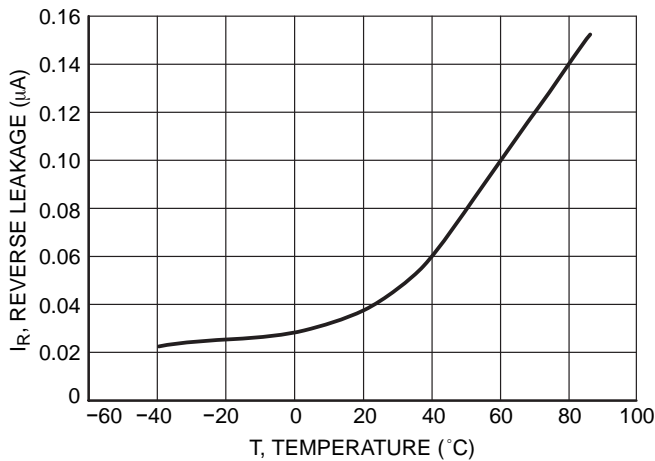


Figure 3. Reverse Leakage versus Temperature

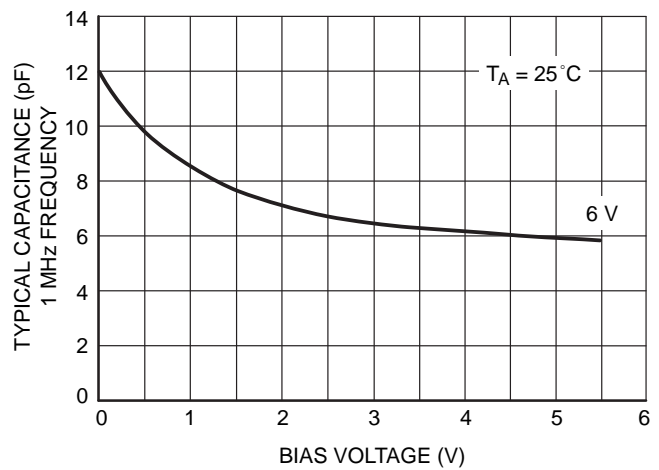


Figure 4. Capacitance

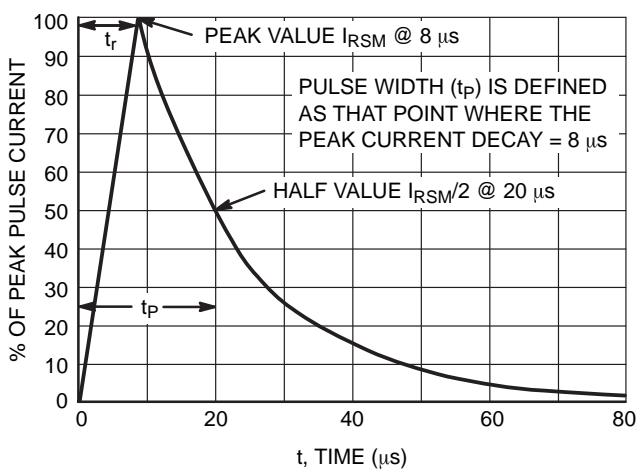


Figure 5. $8 \times 20 \mu s$ Pulse Waveform

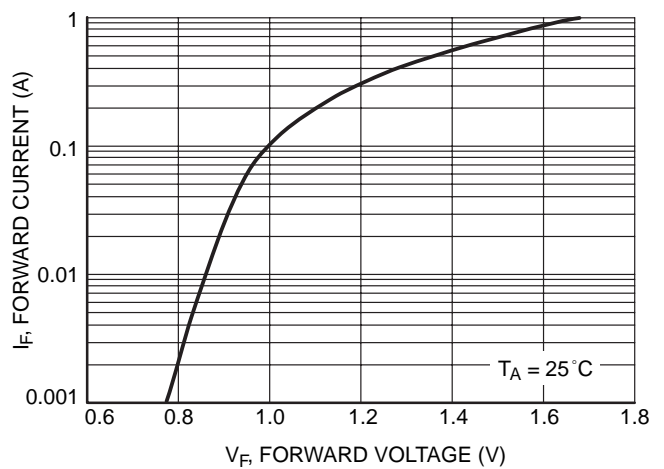


Figure 6. Forward Voltage