

ESDA6V1-5W6

Transient Voltage Suppressors for ESD Protection

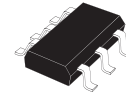
<http://www.willsemi.com>

Description:

The ESDA6V1-5W6 array is 5-Line ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). These devices clamp the voltage just above the logic level supply for positive transient, and to a diode drop below ground for negative transients.

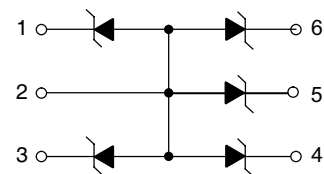
The ESDA6V1-5W6 safely dissipates ESD strikes of $\pm 20\text{kV}$, exceeding the maximum requirement of the IEC 61000-4-2 international standard. Using the MILSTD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than $\pm 20\text{kV}$.

The ESDA6V1-5W6 is available in a SOT-363 package with working voltages of 5 volt.

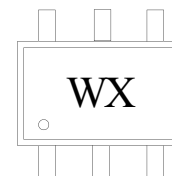


SOT-363

PIN CONFIGURATION



MARKING DIAGRAM



W=Date Code

X=Specific Device Code

Specification Features:

- Working Peak Reverse Voltage: 5 V
- Low Leakage current: $<1\mu\text{A}@3\text{V}$
- High ESD protection Level: $>20\text{kV}$ per HBM
- IEC61000-4-2 Level 4 ESD Protection
- IEC61000-4-4 Level 4 EFT Protection
- Five separate unidirectional configurations

Mechanical Characteristics

- Void Free, Transfer-Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Small Packaging

Order Information

Part Number	Package	Shipping
ESDA6V1-5W6-6/TR	SOT-363	3000 Tape & Reel

Applications

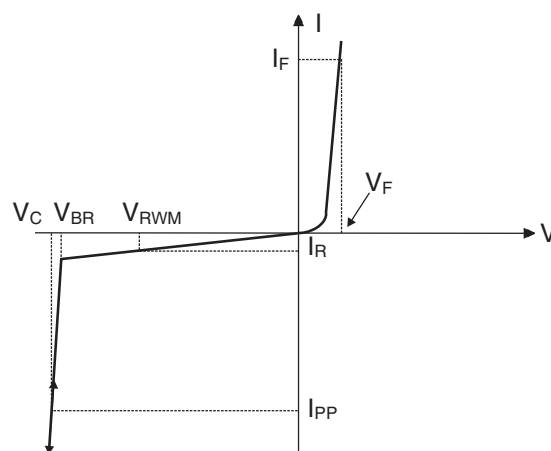
- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power($T_P=8/20\mu s$)	P_{PP}	300	W
Maximum Peak Pulse Current($T_P=8/20\mu s$)	I_{PP}	16	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{PP}	+/-20 +/-20	KV
Maximum lead temperature for soldering during 10s	T_L	260	°C
Storage Temperature Range	T_{STG}	-55 to+150	°C
Operating Temperature Range	T_{OP}	-55 to+150	°C

Electrical Parameter

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}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics
(T=25°C, Device for 5.0V Working Peak Reverse Voltage)

	Conditions	Minimum	Typical	Maximum	Unit
I_R	$V_{RWM}=5V$			0.5	uA
V_F	$I_F=-10mA$	-0.4	-0.8	-1.25	V
V_{BR}	$I_T=1mA$	6.1	6.6	7.2	V
V_C	$I_{PP}=1A, T_p = 8/20\mu s, \text{note 1}$			9.8	V
	$I_{PP}=16 A, T_p = 8/20\mu s, \text{note 1}$			12.5	V
C	Pin1 to 2 $V_R = 0V, f = 1MHz$		50		pF

Note1: Surge current waveform per Figure 1.

Typical Characteristics

Figure 1. Pulse Waveform

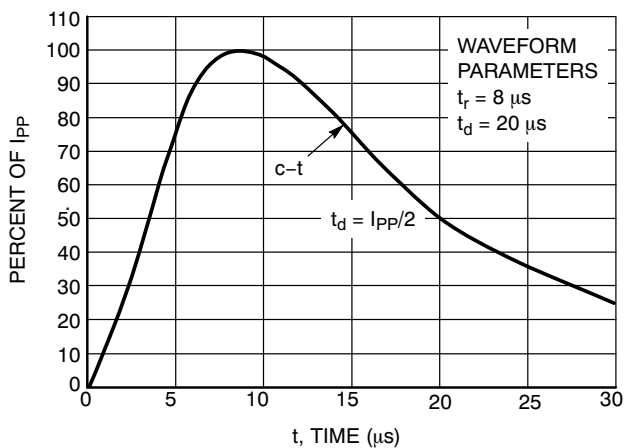


Figure 2. Power Derating Curve

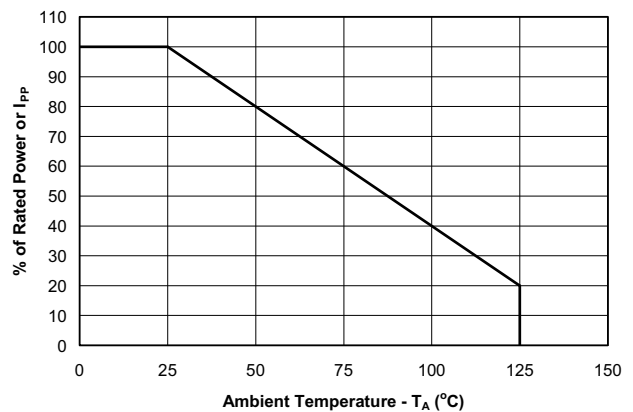


Figure 3. Non-Repetitive Peak Pulse Power vs. Pulse Time

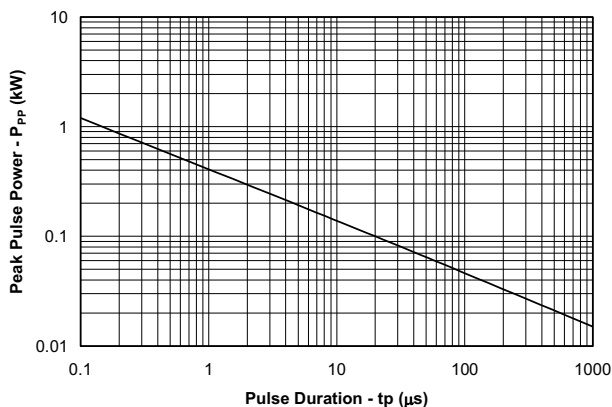
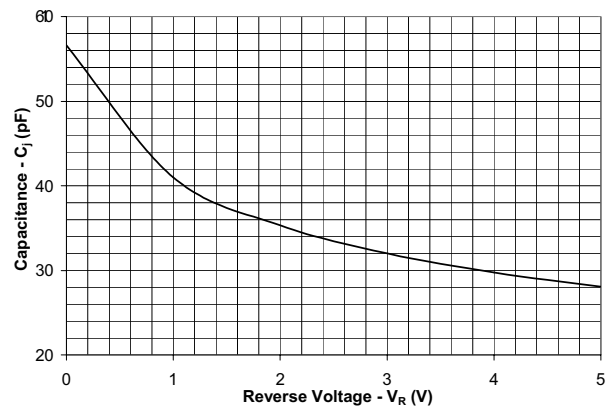
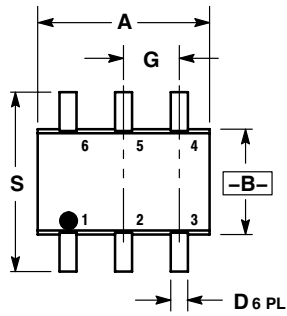
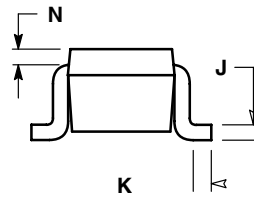
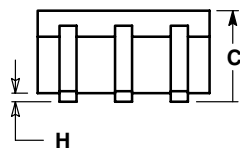


Figure 4. Junction Capacitance vs. Reverse Voltage



Package mechanical data
SOT-363


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



- PIN 1. CATHODE
 2. ANODE
 3. CATHODE
 4. CATHODE
 5. CATHODE
 6. CATHODE