

## ESDA6V8V5

### Transient Voltage Suppressors for ESD Protection

#### Description:

The ESDA6V8V5 array is 4-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 ESDA6V8V5 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 ESDA6V8V5 is available in a SOT-553 SMT package with working voltages of 5 volt.

#### 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
- Four separate unidirectional configurations

#### Mechanical Characteristics

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

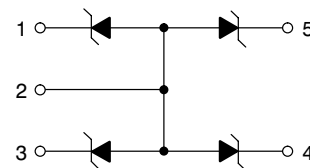
#### Applications

- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

<http://www.willsemi.com>



**SOT-553**



#### MARKING DIAGRAM



TB = Specific Device Code  
M = Date Code

#### Ordering Information

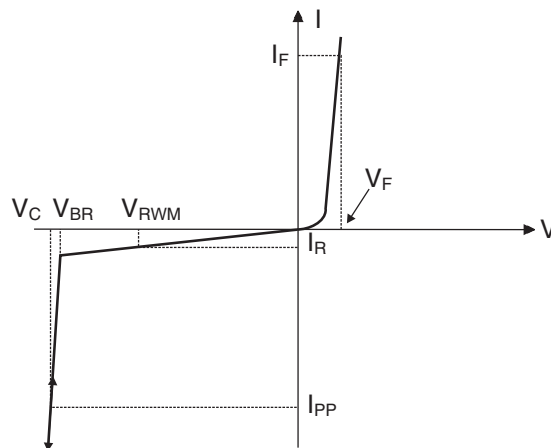
Device	Package	Shipping
ESDA6V8V5 - 5/TR	SOT-553	3000 Tape & Reel

### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power(tp=8/20us)	Ppp	300	W
Maximum Peak Pulse Current(tp=8/20us)	Ipp	16	A
ESD per IEC 61000-4-2 (Air)	Vpp	±20	KV
ESD per IEC 61000-4-2 (Contact)		±20	
Maximum lead temperature for soldering during 10s	TL	260	°C
Storage Temperature Range	Tstg	-55~+150	°C
Operating Temperature Range	Top	-55~+125	°C

### Electrical Parameter

Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>RWM</sub>	Working Peak Reverse Voltage
I <sub>R</sub>	Maximum Reverse Leakage Current @ V <sub>RWM</sub>
I <sub>T</sub>	Test Current
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>



## 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	$\mu A$
$V_F$	$I_F=-10mA$	-0.4	-0.8	-1.25	V
$V_{BR}$	$I_T=1mA$	6.2	6.8	7.2	V
$V_C$	$I_{PP}=1A, t_p = 8/20\mu s, \text{note 1}$			9.8	V
	$I_{PP}=20A, t_p = 8/20\mu s, \text{note 1}$			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

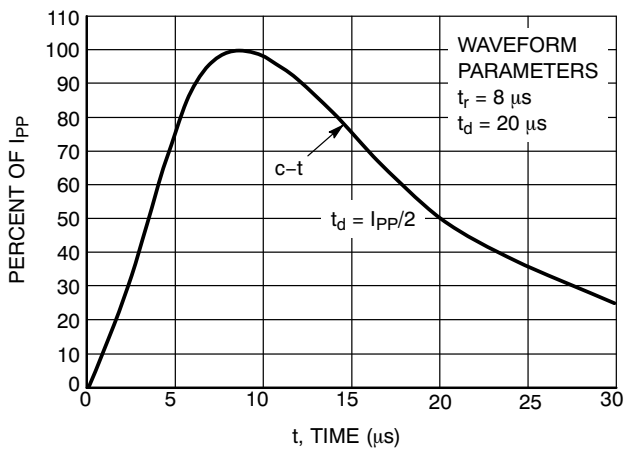


Figure 2. Power Derating Curve

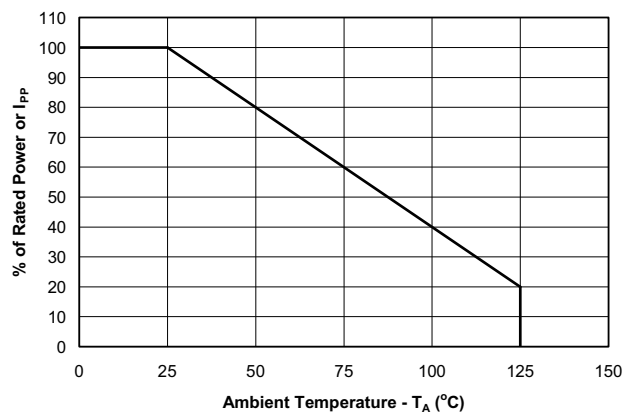


Figure 3. Non-Repetitive Peak Pulse Power vs. Pulse Time

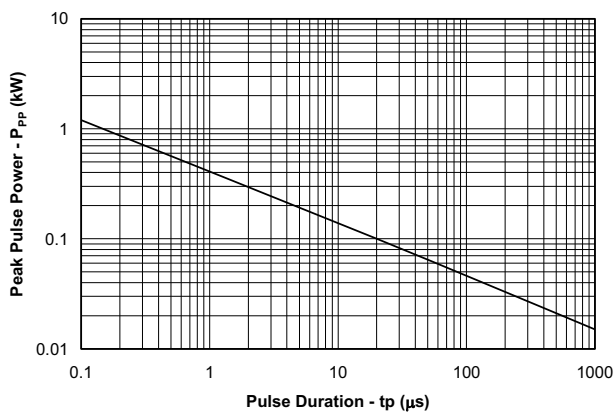
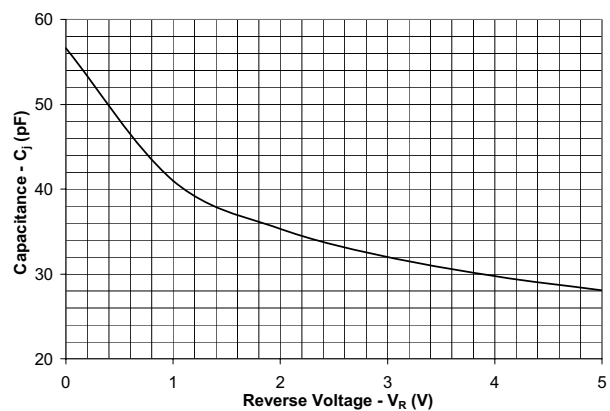
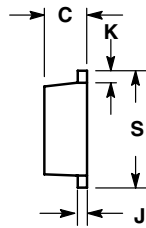
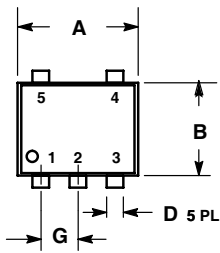


Figure 4. Junction Capacitance vs. Reverse Voltage



Package mechanical data



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	1.10	1.30	0.043	0.051
C	0.50	0.60	0.020	0.024
D	0.17	0.27	0.007	0.011
G	0.50 BSC		0.020 BSC	
J	0.08	0.18	0.003	0.007
K	0.10	0.30	0.004	0.012
S	1.50	1.70	0.059	0.067

STYLE 6:  
 PIN 1. CATHODE  
 2. ANODE  
 3. CATHODE  
 4. CATHODE  
 5. CATHODE

SOLDERING FOOTPRINT

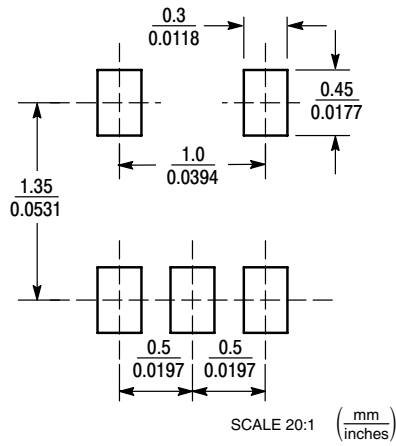


表 回流焊试验条件

回流焊条件	无铅电镀产品	
	塑封体厚度 $\geq 2.5$ mm 或塑封体体积 $\geq 350$ mm <sup>3</sup>	塑封体厚度 $< 2.5$ mm 且塑封体体积 $< 350$ mm <sup>3</sup>
温度上升速率	3 °C/second max.	
预热温度 -低温 (Ts(min)) -高温 m(Ts(ax)) -时间 (低温到高温) (ts)	150 °C 200 °C 60-180 seconds	
从预热温度Ts(max)到维持温度TL - 温升速率	3 °C/second max.	
Time maintained above: - 温度 (TL) - 时间(tL)	217 °C 60-150 seconds	
波峰温度 (Tp)	245+0/-5 °C	260+0/-5 °C
维持在波峰温度的时间 Temperature (tp)	10-30seconds	20-40seconds
降温速率	6 °C/second max.	
从 25 °C到波峰温度的时间	8 minutes max.	

注：所有的温度都是指样品上部塑封体表面的温度。

**Welding temperature curve**

