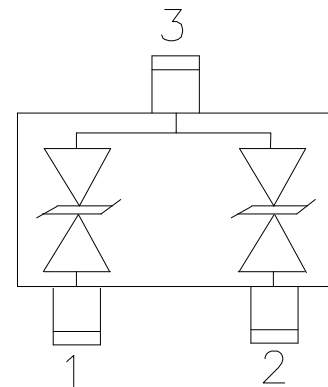
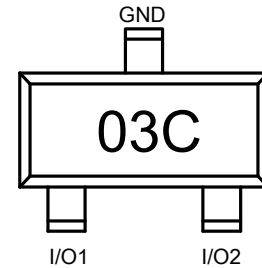


### Descriptions

The ESD3V3R180TA is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge). This is available in SOT-23 package. Standard products are Pb-free and Halogen-free.

SOT-23 (Top View)



### Features

- Stand-off voltage: 3.3VMax
- Transient protection for each line according to IEC61000-4-2 (ESD):  $\pm 30\text{kV}$  (contact and air discharge)  
IEC61000-4-4 (EFT): 40A (5/50ns)  
IEC61000-4-5 (surge): 8.0A(8/20 $\mu\text{s}$ )
- Ultra-low capacitance:  $C_J = 18.0\text{pF}$  typ.
- Ultra-low leakage current:  $I_R < 0.5\mu\text{A}$  typ

### Applications

- RS-232, RS-422 & RS-423 Data Lines
- Audio/Video Inputs
- Wireless Network Systems
- Microprocessor Based Equipment
- Medical Sensors
- Notebook Computers

### Order information

Device	Package	Shipping
ESD3V3R180TA	SOT-23	3000/Tape&Reel

### Absolute maximum ratings

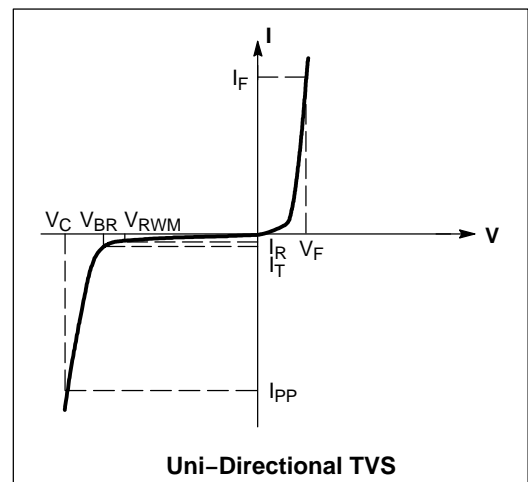
Parameter	Symbol	Rating	Unit
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{PP}$	8.0	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Operation junction temperature	$T_J$	-55~150	$^{\circ}C$
Lead temperature	$T_L$	260	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

### Electrical characteristics (TA=25 oC, unless otherwise noted)

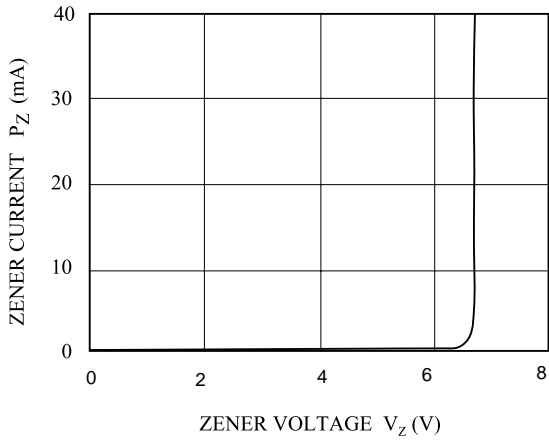
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	$V_{RWM}$				$\pm 3.3$	V
Reverse leakage current	$I_R$	$V_{RWM} = 3.3V$			0.5	$\mu A$
Reveres breakdown voltage	$V_{BR}$	$I_T = 1mA$	4.0		6.0	V
Clamping voltage	$V_C$	$I_{pp} = 1.0A$ $t_p = 8/20\mu s$			6.5	V
		$I_{pp} = 8.0A$ $t_p = 8/20\mu s$			10.0	V
Junction capacitance	$C_J$	$V_R = 0V$ , $f = 1MHz$		18.0		pF

### Electrical performance curve

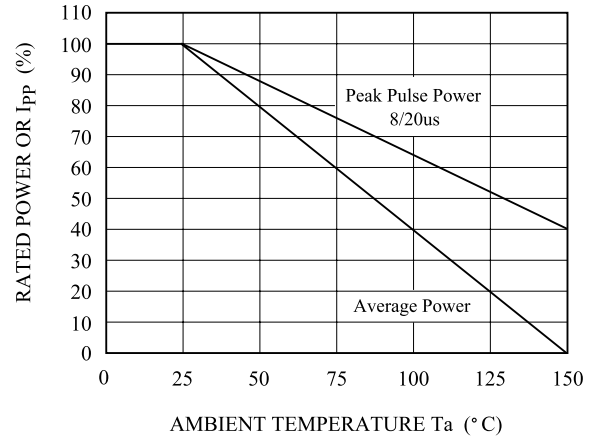
Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



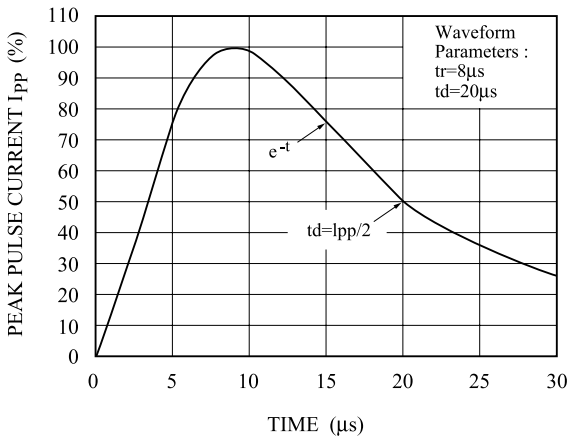
$V_Z - I_Z$



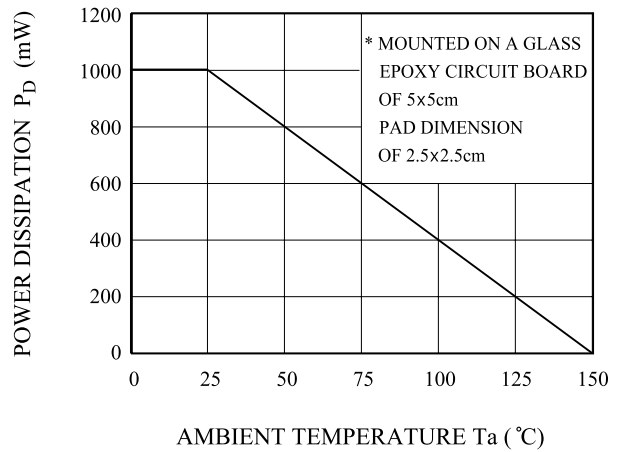
POWER DERATION CURVE

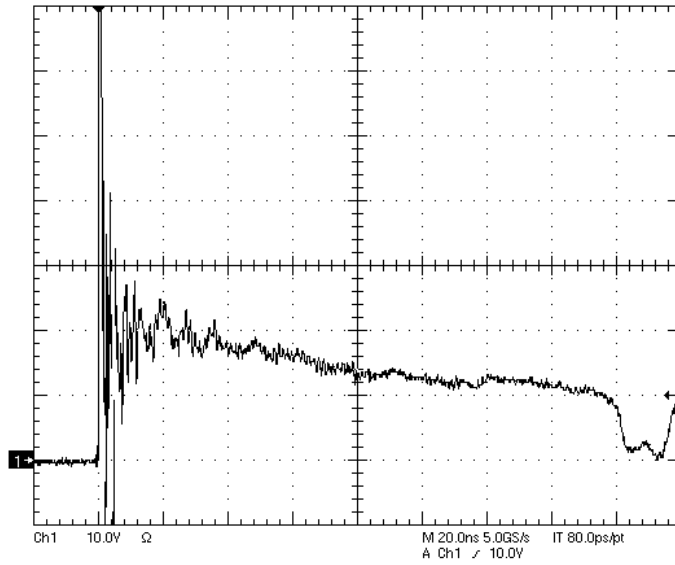


PULSE WAVEFORM

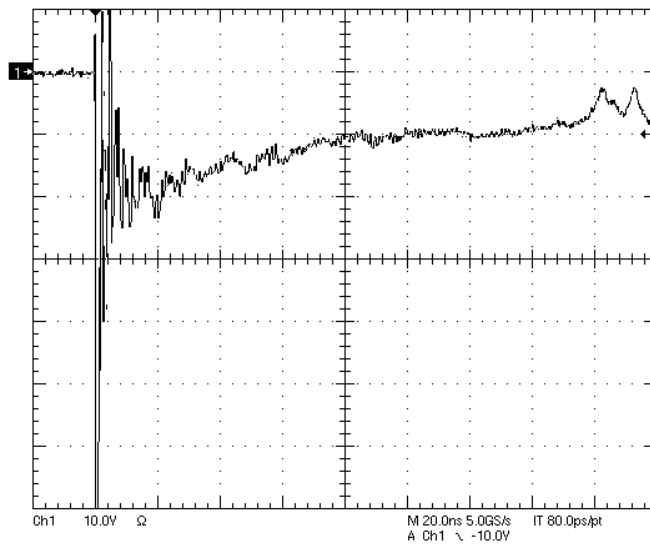


$P_D - T_a$



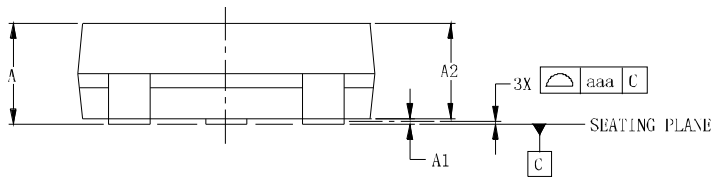
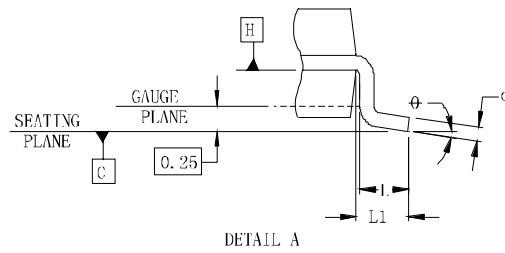
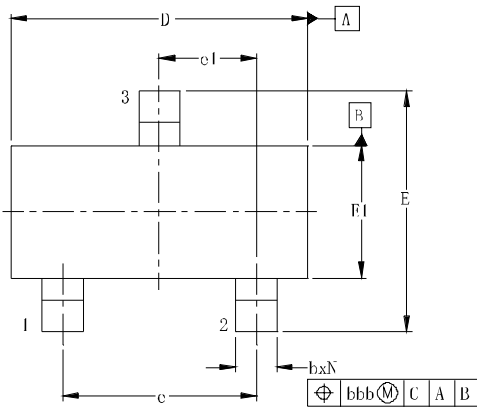


**Figure 1. ESD Clamping Voltage Screenshot  
Positive 8 kV Contact per IEC61000-4-2**

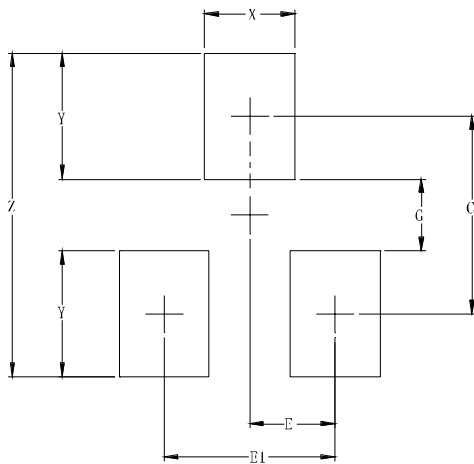


**Figure 2. ESD Clamping Voltage Screenshot  
Negative 8 kV Contact per IEC61000-4-2**

**SOT-23 Package Outline Drawing**



**Suggested Land Pattern**



**Contact Information**

SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.90BSC		
e1	0.037			0.95BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	0.022			0.55		
N	3			3		
ϕ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

SYM	DIMENSIONS	
	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60