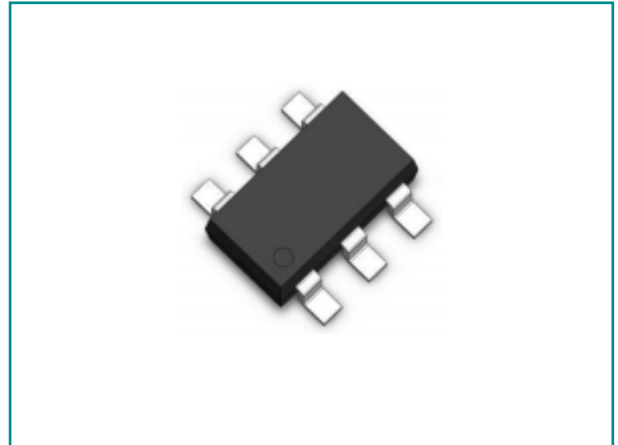


Transient Voltage Suppressors for ESD Protection

SHR33-04A

Description

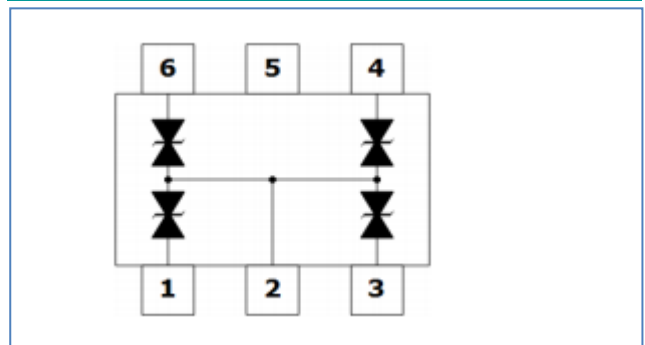
The SHR33-04A is low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).



Feature

- ◆ 150 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- ◆ Protects Four Bidirectional I/O lines
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Working voltages : 3.3V
- ◆ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (LIGHTING) 30A (8/20 μs)

Functional Diagram



Applications

- ◆ Cellular Handsets and Accessories
- ◆ Cordless Phones
- ◆ I²C Bus Protection
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Industrial Controls
- ◆ Personal Digital Assistant (PDA)

Mechanical Data

- ◆ JEDEC SOT-26 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Weight 16.0 Milligrams (Approximate)
- ◆ Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power ($t_p=8/20\mu s$ waveform)	150	Watts
TL	Lead Soldering Temperature	260 (10 sec.)	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _J	Operating Junction Temperature Range	-55 to +150	°C

Transient Voltage Suppressors for ESD Protection

SHR33-04A

Electrical Characteristics(@25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	3.3	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$;	3.8	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=3.3V, T=25^{\circ}C$;	--	--	0.1	μA
Positive Clamping Voltage	V_C	$I_{PP}=1A, T_P=8/20\mu s$;	--	--	6.0	V
Junction capacitance	C_J	$V_R=0V, f=1MHz$;	--	16	--	pF

Characteristics Curves

Fig1: 8/20 μs Pulse Waveform

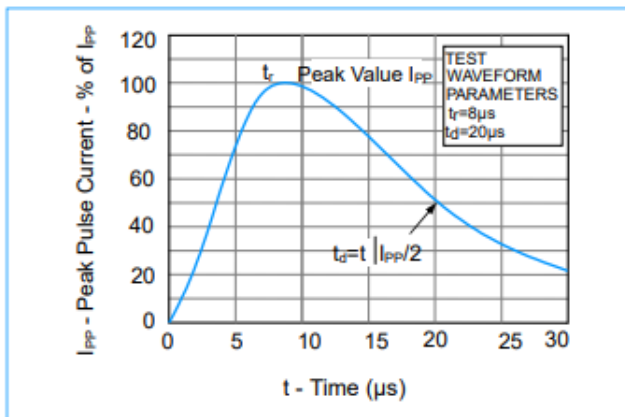


Fig2. Power Rating Derating Curve

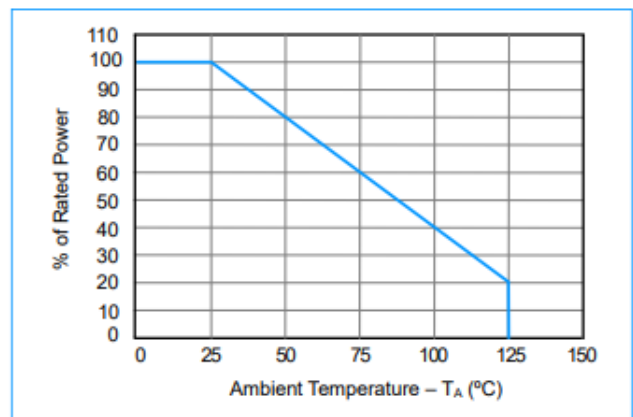


Fig3. Typic Capacitance vs. Reverse Voltage

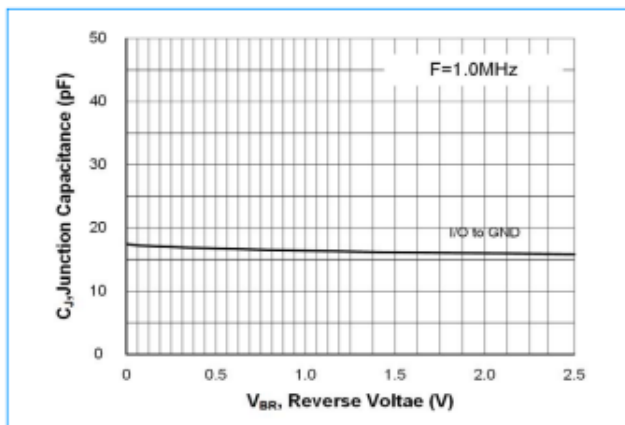
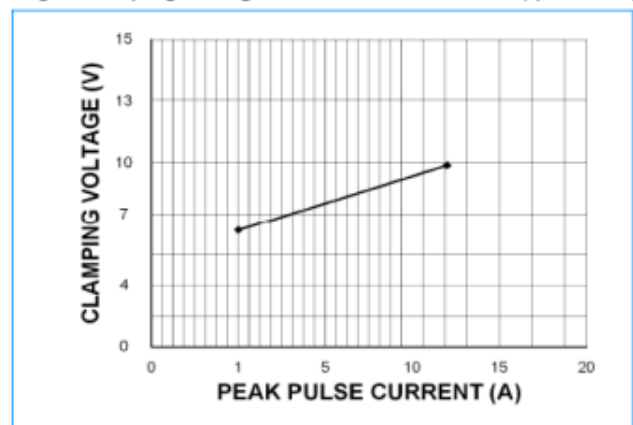


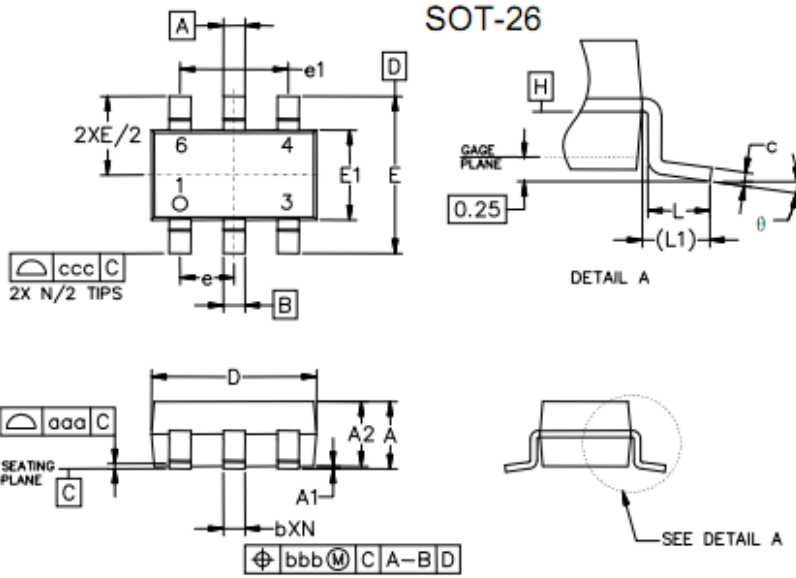
Fig4. Clamping Voltage vs. Peak Pulse Current (tp=8/20us)



Transient Voltage Suppressors for ESD Protection

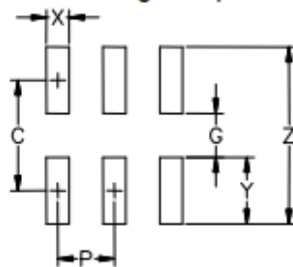
SHR33-04A

SOT-26 Package Outline & Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.035	-	0.057	0.90	-	1.45
A1	0.000	-	0.006	0.00	-	0.15
A2	0.035	0.045	0.051	0.90	1.15	1.30
b	0.010	-	0.020	0.25	-	0.50
c	0.003	-	0.009	0.08	-	0.22
D	0.110	0.114	0.122	2.80	2.	3.10
E1	0.060	0.063	0.069	1.50	1.60	1.75
E	0.110 BSC			2.80 BSC		
e	0.037 BSC			0.95 BSC		
e1	0.075 BSC			1.90 BSC		
L	0.012	0.018	0.024	0.30	0.45	0.60
L1	(0.024)			(0.60)		
theta	0°	-	10°	0°	-	10°
aaa	0.004			0.10		
bbb	0.008			0.20		
ccc	0.008			0.20		

Soldering Footprint



Symbol	Inches	Millimeters
C	(0.098)	(2.50)
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60

Ordering Information

Device	Marking	Package	Quantity	Reel Size
SHR33-04A	LA3	SOT-26	3,000pcs/Reel	7 inch