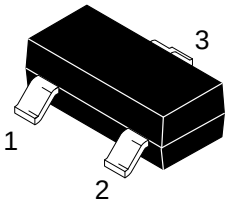
2-Lines , Bi-directional, Transient Voltage Suppressors

Descriptions

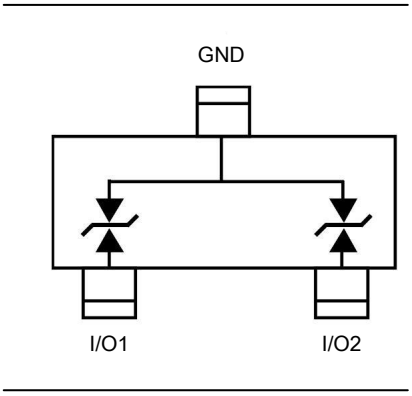
The ESD12R100TA is a TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

The ESD12R100TA incorporates two pairs of ultra- low capacitance steering diodes plus a TVS diode.

The ESD12R100TA may be used to provide ESD protection up to ±30kV (contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 5 A (8/20μs) according to IEC61000-4-5.



SOT-23 (Top View)



Features

- Stand-off voltage: 12.0V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30kV (contact and air discharge)
  IEC61000-4-4 (EFT): 40A (5/50ns)
  IEC61000-4-5 (surge): 5A (8/20μs)
- Ultra-low capacitance: C_J = 10 pF typ.
- Ultra-low leakage current: I_R <1uA typ.
- Solid-state silicon technology

Applications

- Industrial Control Networks
  Smart Distribution Systems
  Device Net
- Automotive Networks
  Low and High-Speed CAN
  Fault Tolerant CAN

Order information

Device	Package	Marking	Shipping
ESD12R100TA	SOT-23	M12C	3000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	100	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	5.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Operation junction temperature	T_J	-55~150	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				±12.0	V
Reverse leakage current	I_R	V_{RWM} =12.0V			1.0	uA
Reveres breakdown voltage	$V_{BR(I/O\sim GND)}$	I_T=1mA	13.0		15.5	V
Clamping voltage	V_C (I/O~GND)	Ipp=1.0A tp=8/20us			16.0	V
		Ipp=5.0A tp=8/20us			20.0	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		10.0	20.0	pF

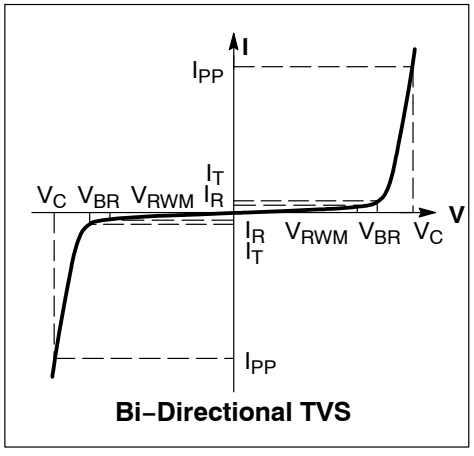
Electrical performance curve

V_C: Maximum clamping voltage

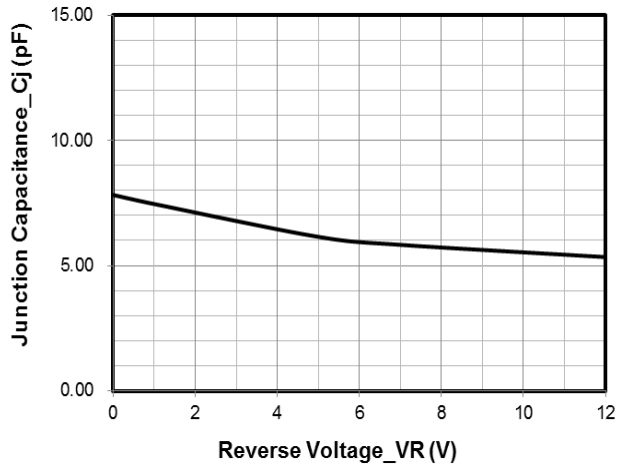
V_{br}: Reverse breakdown voltage

V_{RWM}: Working voltage

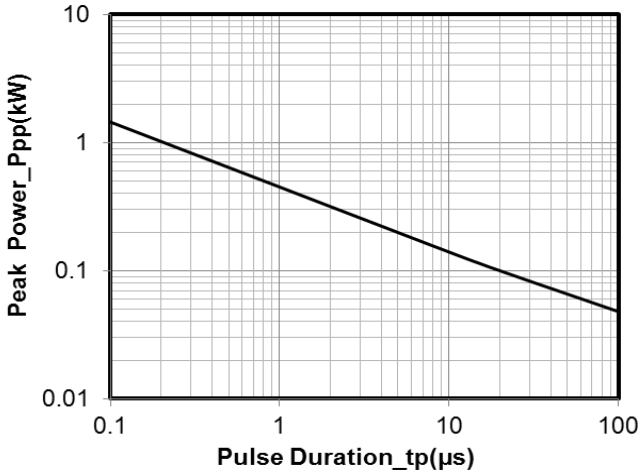
I_{PP}: Maximum peak current



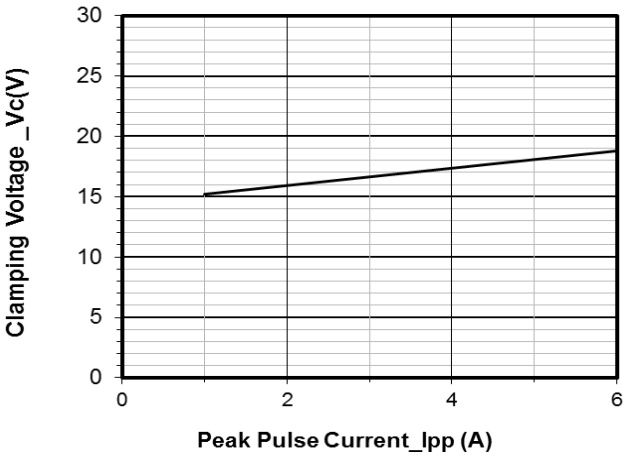
Bi–Directional TVS



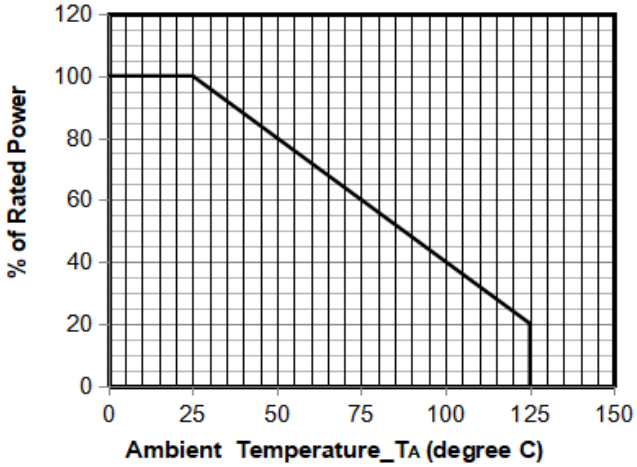
Junction Capacitance vs. Reverse Voltage



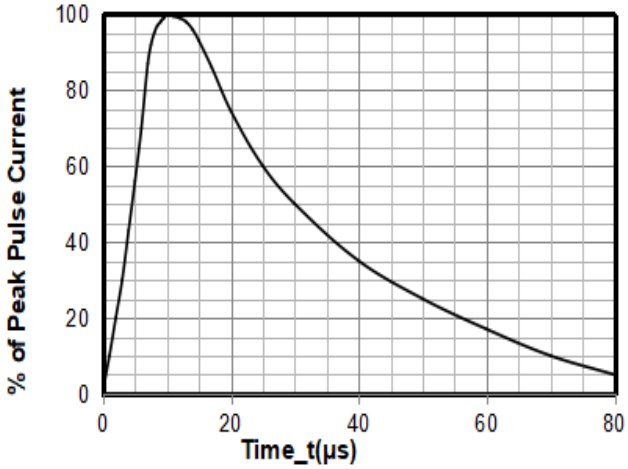
Peak Pulse Power vs. Pulse Time



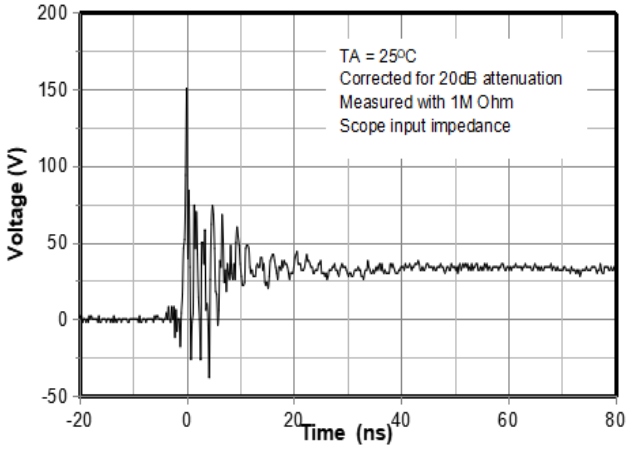
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

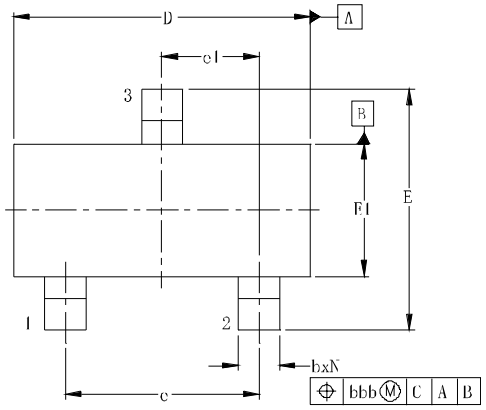


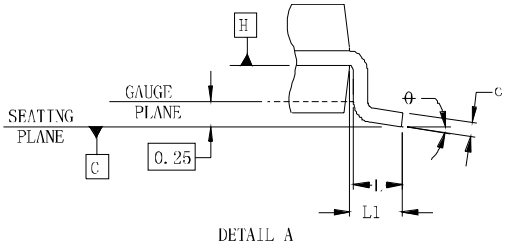
ESD Clamping Voltage

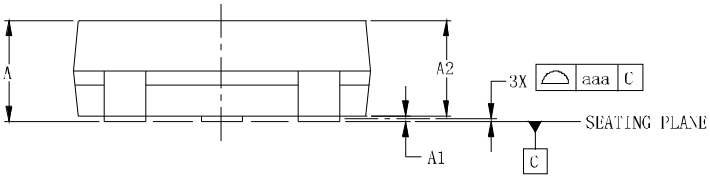
8 kV Contact per IEC61000−4−2

Package outline dimensions

SOT-23

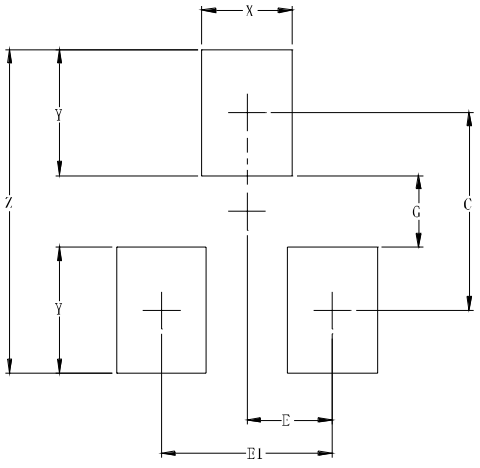






DIMENSIONS						
SYM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	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		
θ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

Suggested Land Pattern

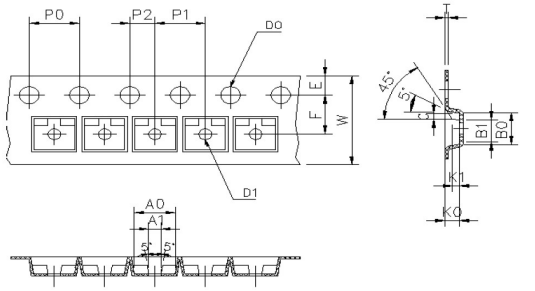


DIMENSIONS		
SYM	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

Contact Information

SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape

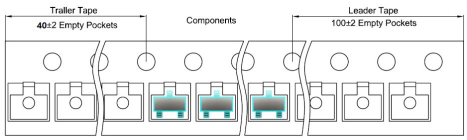


Symbol	Spec	Symbol	Spec
W	8.00±0.10	**A_0**	3.15±0.10
E	1.75±0.10	**A_1**	1.09±0.10
F	3.50±0.10	**B_0**	2.77±0.10
D_O	1.50±0.10	**B_1**	2.15±0.10
D_1	1.00±0.10	**K_0**	1.22±0.10
P_0	4.00±0.10	**$10*P_0$**	40.00±0.20
P_1	4.00±0.10		
P_2	2.00±0.10		
t	0.19-0.22		
$10*P_0$	40.00±0.20		

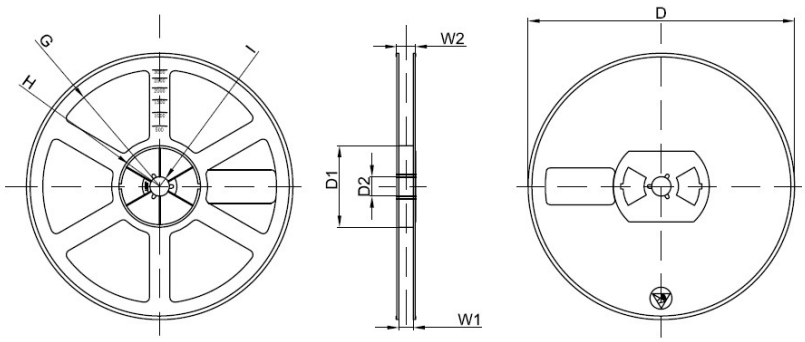
Packaging Description:

SOT-23 partsare shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. The reels are blue in color and made of recyclable plastic.

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Unit: mm

Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Packaging Quantity

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
3,000	7 inch	45,000	210*208*203	180,000	440*440*230