2-Lines, Uni-directional, Ultra-low Capacitance
Transient Voltage Suppressors

Descriptions

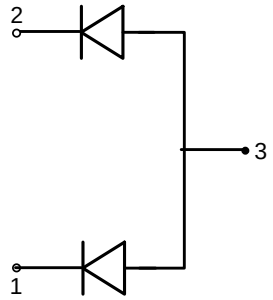
The ESD15R450TR is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

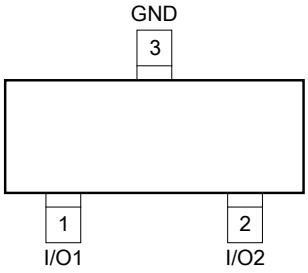
The ESD15R450TR incorporates two pairs of ultra- low capacitance steering diodes plus a TVS diode.

The ESD15R450TR 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 9A (8/20μs) according to IEC61000-4-5.

The ESD15R450TR is available in SOT-23 package. Standard products are Pb-free and Halogen-free.

SOT-23 (Top View)





Features

- Stand-off voltage: 15V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30kV (contact and air discharge)
  IEC61000-4-5 (surge): 20A (8/20μs)
- Ultra-low capacitance: C_J =45 pF typ.
- Ultra-low leakage current: I_R <0.5uA typ

Order information

Device	Marking	Package	Shipping
ESD15R450TR	M15	SOT-23	3000/Tape&Reel

Applications

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

Absolute maximum ratings

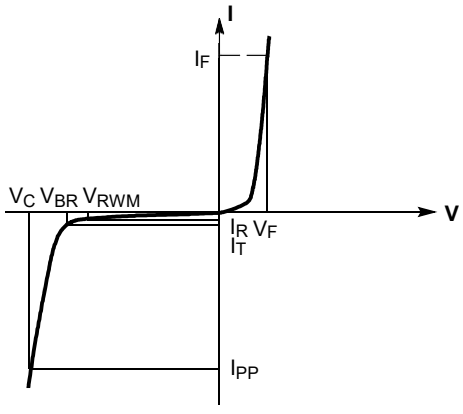
Parameter	Symbol	Rating	Unit
Peak pulse current (t_p = 8/20μs)	I_{PP}	20.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Operation junction temperature	T_J	-55~150	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

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

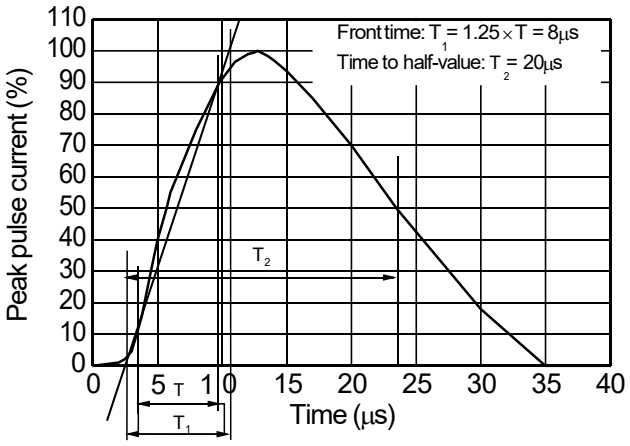
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM} pin1/2 to pin3				15.0	V
Reverse leakage current	I_R pin1/2 to pin3	V_{RWM} = 15V			0.5	uA
Reveres breakdown voltage	V_{BR} pin1/2 to pin3	I_T=1mA	16.0		19.0	V
Clamping voltage	V_C pin1/2 to pin3	Ipp=1.0A tp=8/20us			20.0	V
		Ipp=20.0A tp=8/20us			30.0	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		45.0	70.0	pF

Electrical performance curve

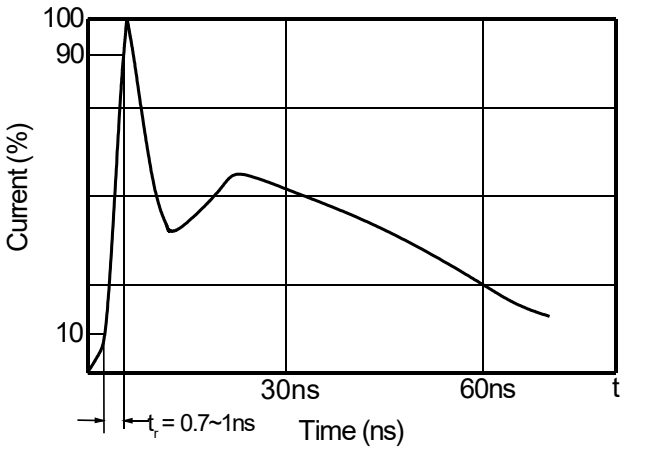
Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F



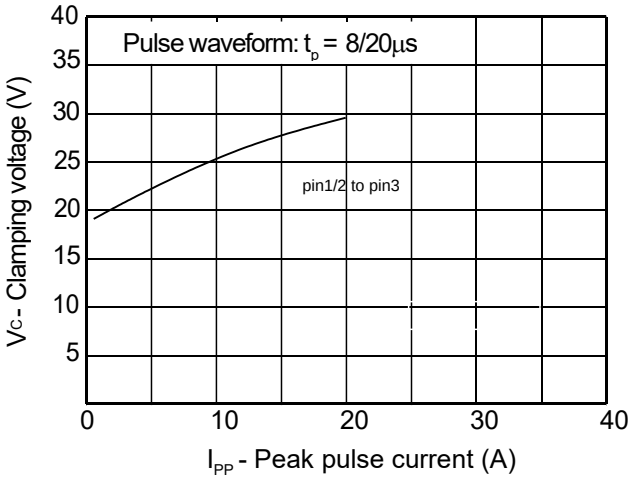
Uni−Directional TVS



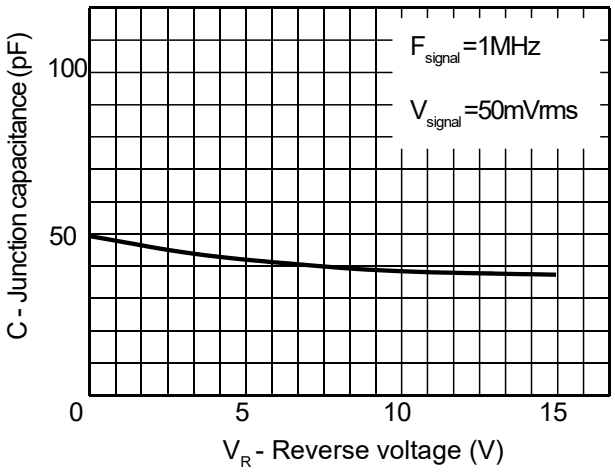
8/20μs waveform per IEC61000-4-5



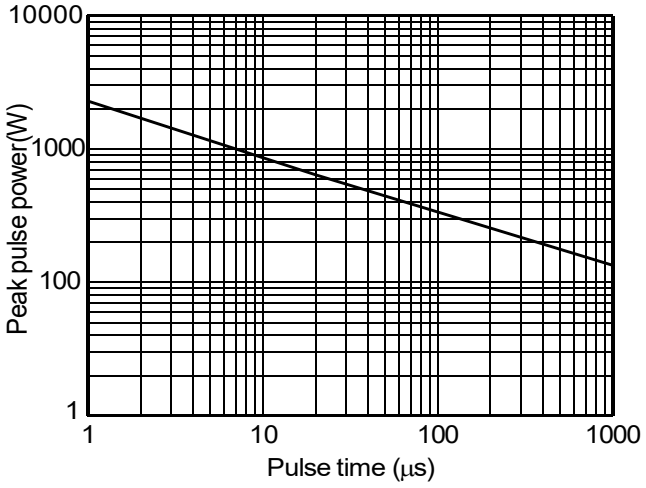
Contact discharge current waveform per IEC61000-4-2



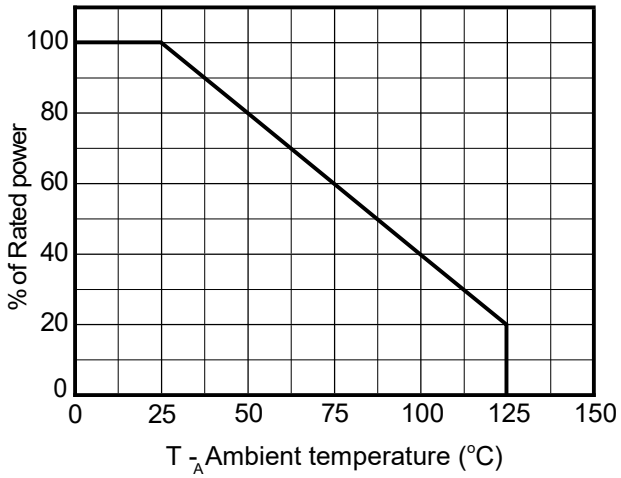
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage



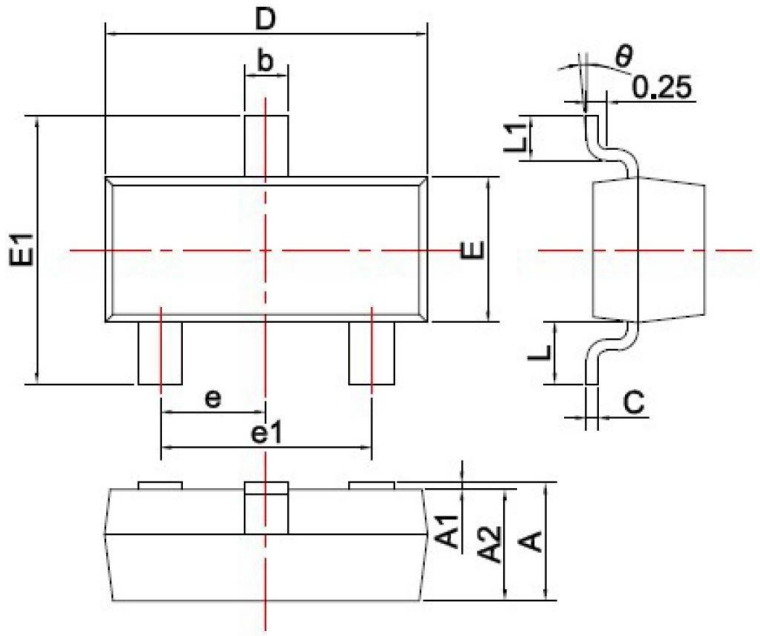
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

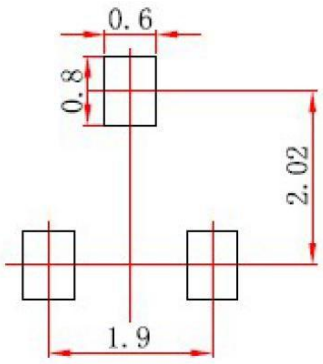
Package outline dimensions

SOT-23



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm



Note:
1.Controlling dimension:In millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.