ESD56241D07-3/TR

Single Line Uni-directional Transient Voltage Suppressor

Description

The ESD56241D07-3/TR TVS diode is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebooks, and PDA's. It offers superior electrical characteristics such as low clamping voltage, low leakage current and high surge capability. It is designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge),EFT (Electrical Fast Transients) and Lighting.

The ESD56241D07-3/TR is in a DFN2X2-3L package and will protect one unidirectional line. It 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 180A (8/20μs) according to IEC61000-4-5.

Features

- Transient protection for high-speed data lines
  IEC 61000-4-2 (ESD) ±30kV (Air)
  ±30kV (Contact)
- Peak power dissipation: 6000W (8/20μs)
- Working voltages : 7.5V
- Low leakage current
- Low clamping voltage
- Ultra-small package (2.0mmx2.0mmx0.5mm)
- Solid-state silicon-avalanche technology

Machanical Data

- DFN2X2-3L package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranteed: 260℃/10s
- Reel size: 7 inch

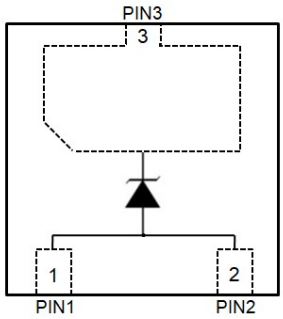
Ordering Information

- Device: ESD56241D07-3/TR
- Package: DFN2X2-3L
- Material: Halogen free and RoHS compliant
- Packing: Tape & Reel
- Quantity per reel: 3,000pcs

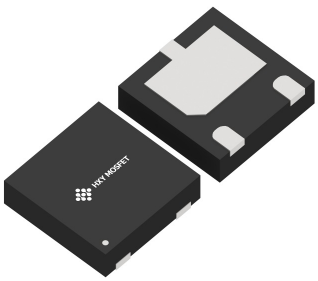
Applications

- Power lines
- Personal digital assistants (PDA's)
- Microprocessors based equipment
- Notebooks, Desktops, and Servers
- Cell phone Handsets and Accessories
- Portable Electronics
- Peripherals

Pin Configuration



Package Outline



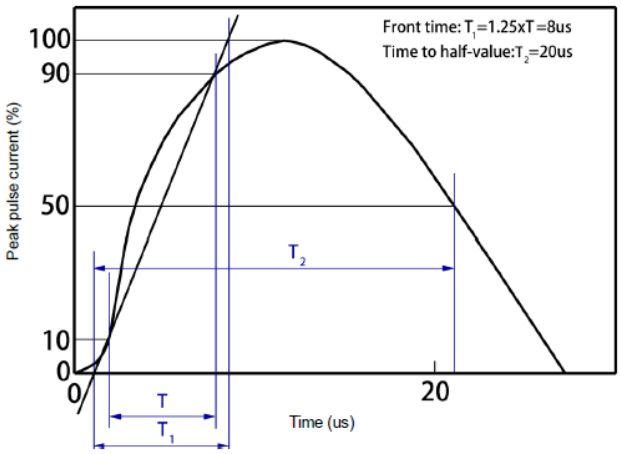
Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
P_{PP}	Peak Pulse Power (8/20μs)	6000	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C
T_L	Lead Soldering Temperature	260(10sec)	°C

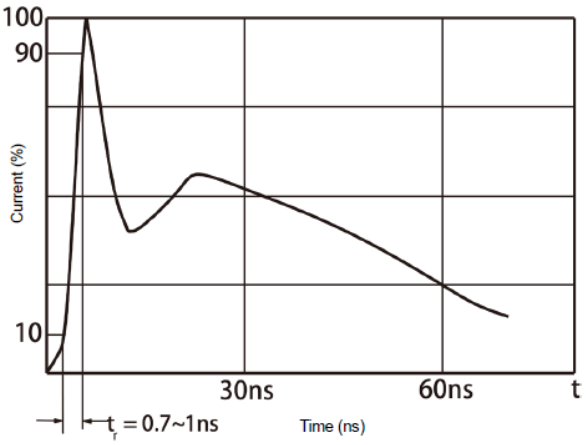
Electrical Characteristics (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				7.5	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	8.0	9.0	10.0	V
I_R	Reverse Leakage Current	V_{RWM} = 7.5V			1	uA
I_{pp}	Peak Pulse Current	t_p = 8/20μs			240	A
V_C	Clamping Voltage	I_{PP} = 50A, t_p = 8/20μs		13	15.5	V
		I_{PP} = 100A, t_p = 8/20μs		15.5	18.5	V
		I_{PP} = 180A, t_p = 8/20μs		21	25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz	1600	1700	2000	pF

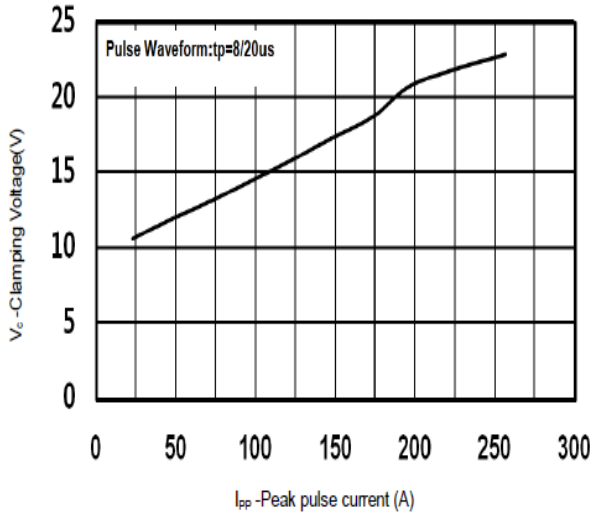
Electrical Characteristics Curve



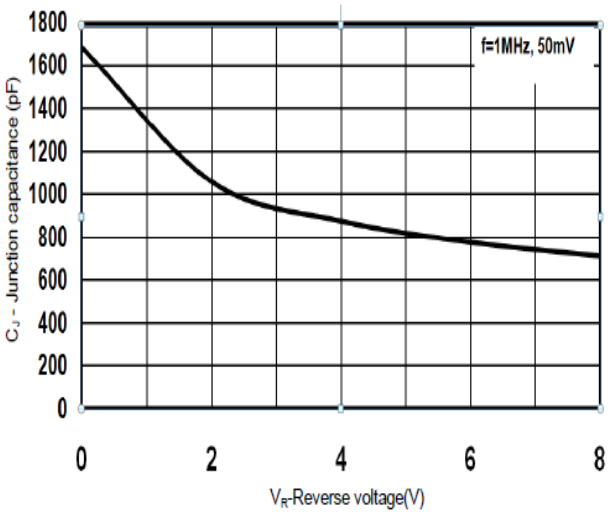
8/20 us waveform per IEC61000-4-5



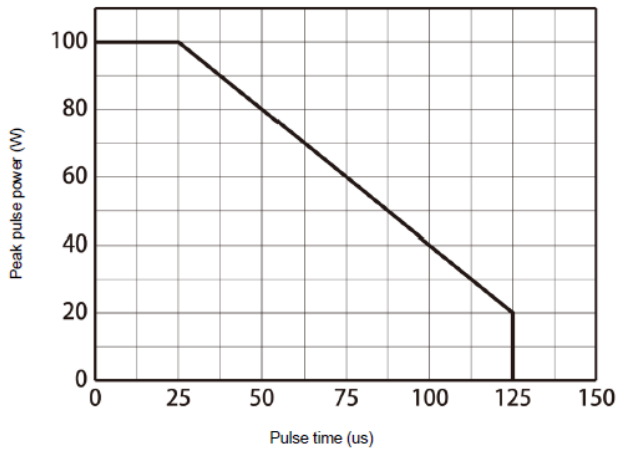
Contact discharge current waveform per IEC61000-4-2



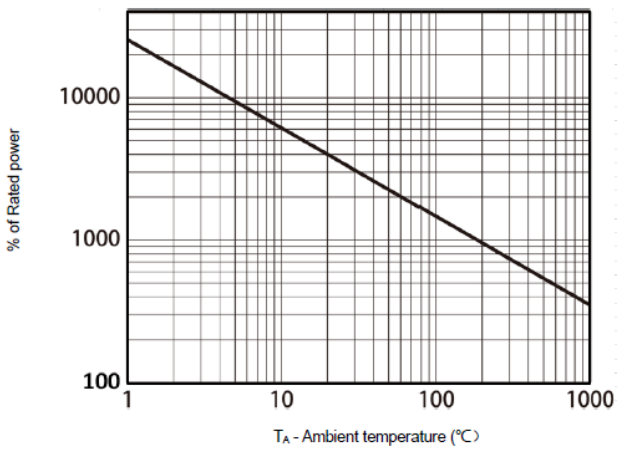
Clamping Voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

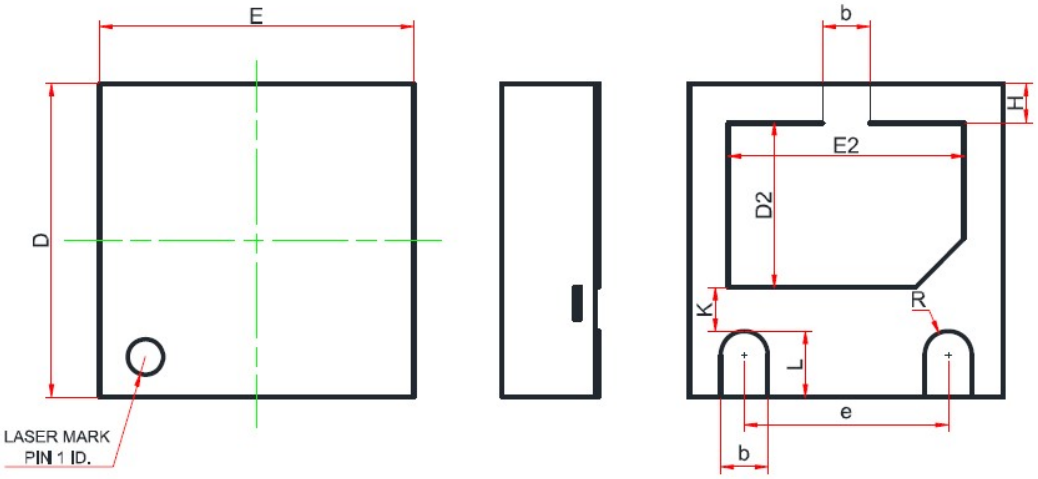


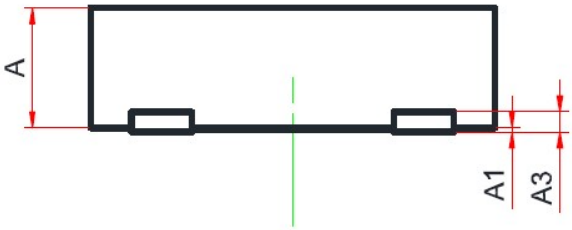
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

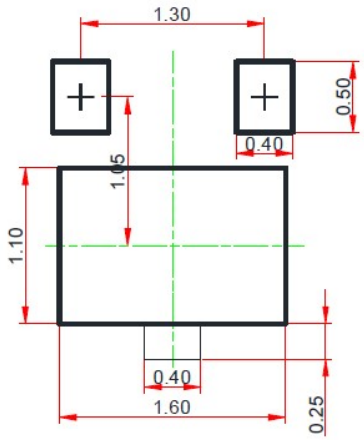
Outline And Dimensions





Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.51	0.55	0.60
A1	0.00	0.02	0.05
A3	0.15 REF.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.85	1.00	1.10
E2	1.35	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R	0.15	-	-

Recommend Land Pattern (Unit: mm)



Note:
This recommended land pattern is for reference purpose only.

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