

Single Line Uni-directional Transient Voltage Suppressor

DESCRIPTION

The GSD7V5HHU 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 GSD7V5HHU is in a DFN2020-3L package and will protect one unidirectional line. It may be used to provide ESD protection up to $\pm 30\text{kV}$ (Contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 240A (8/20 μs) according to IEC61000-4-5.

FEATURES

- ✧ Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Contact)
 $\pm 30\text{kV}$ (Air)
- ✧ Peak power dissipation: 6000W (8/20 μs)
- ✧ Working voltages : 7.5V
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Ultra-small package (2.0mm \times 2.0mm \times 0.5mm)
- ✧ Solid-state silicon-avalanche technology

MACHANICAL DATA

- ✧ DFN2020-3L package
- ✧ Flammability Rating: UL 94V-0
- ✧ High temperature soldering guaranteed:
260 $^{\circ}\text{C}$ /10s
- ✧ Packaging: Tape and Reel
- ✧ Reel size: 7 inch

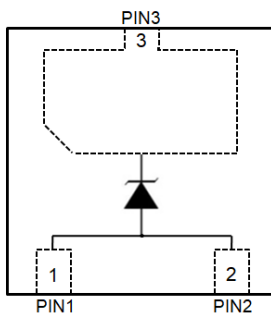
ORDERING INFORMATION

- ✧ Device: GSD7V5HHU
- ✧ Package: DFN2020-3L
- ✧ Marking: T07 003
- ✧ Material: Halogen free and RoHS compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

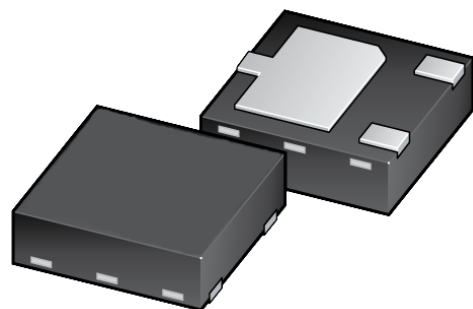
APPLICATIONS

- ✧ 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



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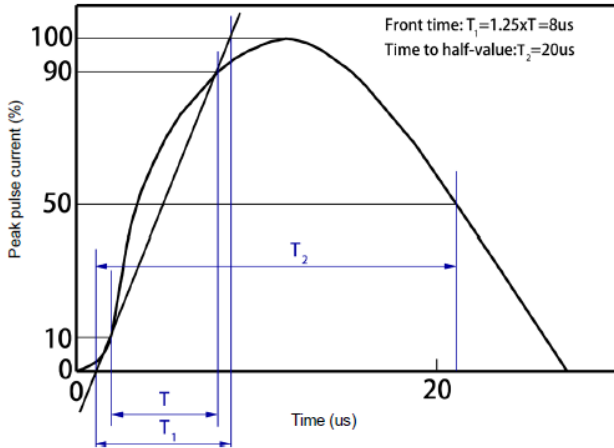
ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V _{ESD}	ESD per IEC 61000-4-2 (Contact)	±30	kV
	ESD per IEC 61000-4-2 (Air)	±30	
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

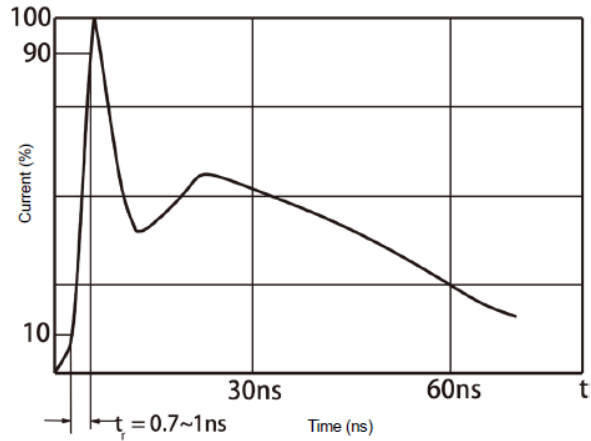
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

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	9	10	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} = 240A, t _p = 8/20μs		21	25	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz	1600	1700	2000	pF

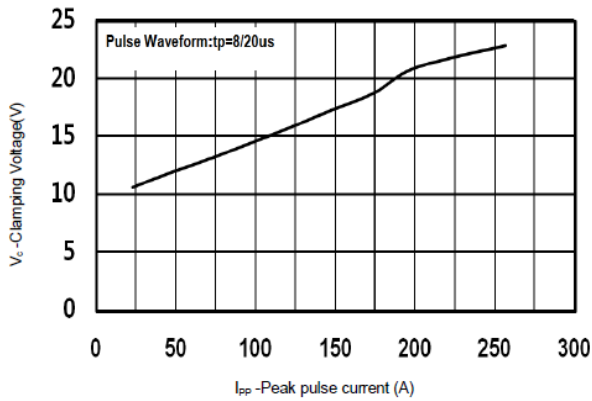
ELECTRICAL CHARACTERISTICS CURVE



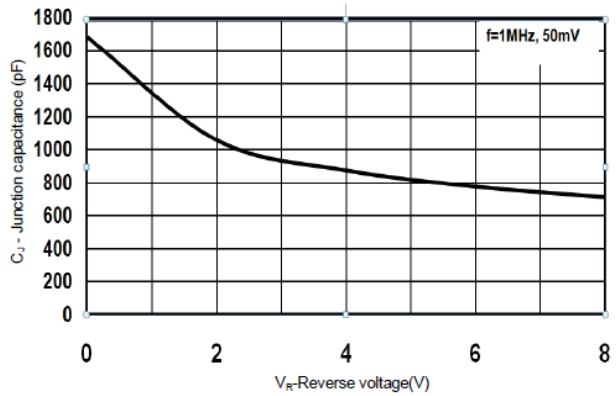
8/20 us waveform per IEC61000-4-5



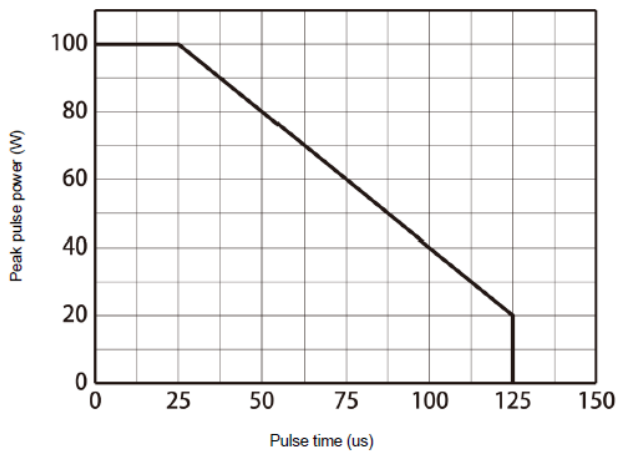
Contact discharge current waveform per IEC61000-4-2



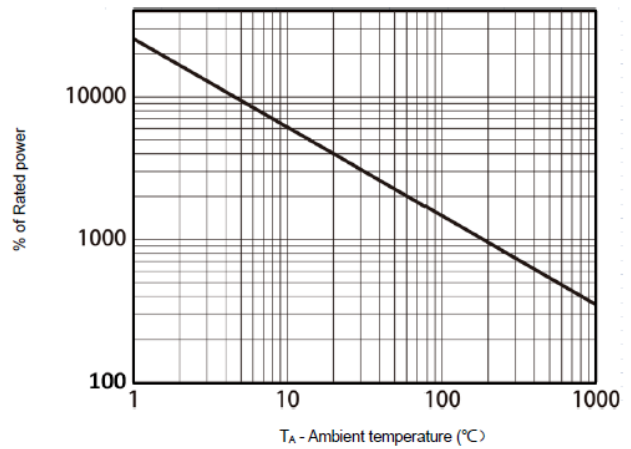
Clamping Voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

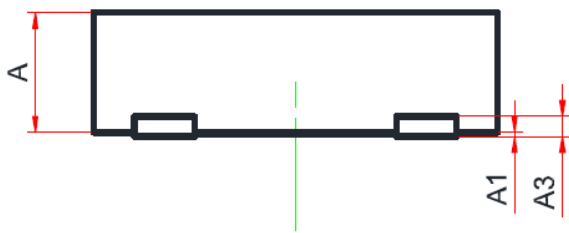
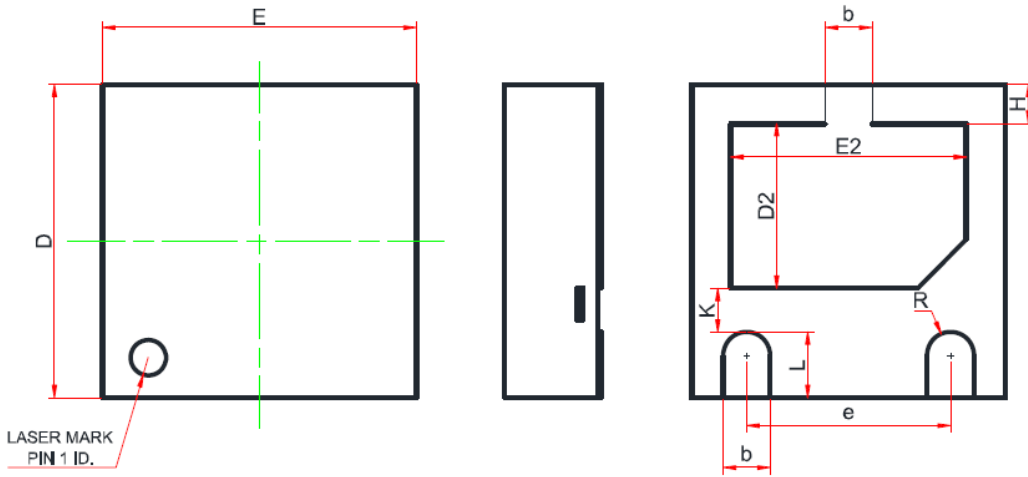


Non-repetitive peak pulse power vs. Pulse time

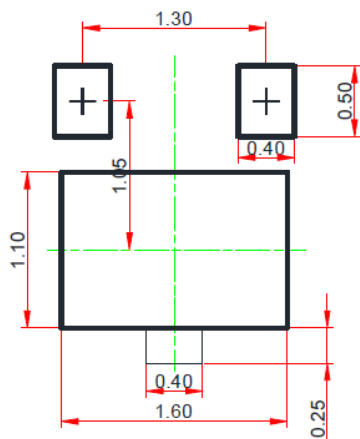


Power derating vs. Ambient temperature

DFN2020-3L PACKAGE OUTLINE DIMENSIONS



Recommend Land Pattern (Unit: mm)



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	-	-

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