

## Single Line Bi-directional Transient Voltage Suppressor

### DESCRIPTION

The SD4V5HHNC 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 SD4V5HHNC is in a DFN2020-3L package and will protect one bi-directional line. Standard products are Pb-free and Halogen-free.

### 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: 4800W (8/20 $\mu\text{s}$ )
- ✧ Working voltages : 4.5V
- ✧ 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

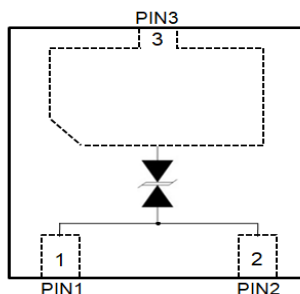
### ORDERING INFORMATION

- ✧ Device: SD4V5HHNC
- ✧ Package: DFN2020-3L
- ✧ Marking: T45 008
- ✧ Material: Halogen free and RoHS compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

### APPLICATIONS

- ✧ Power supply protection
- ✧ Personal digital assistants (PDA's)
- ✧ Microprocessors based equipment
- ✧ Power Management
- ✧ Cell phone Handsets and Accessories
- ✧ Portable Electronics
- ✧ Peripherals

### PIN CONFIGURATION



### PACKAGE OUTLINE



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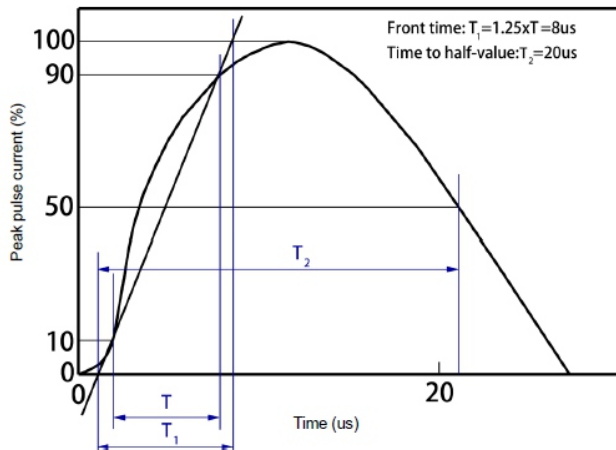
### ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Contact)	±30	kV
	ESD per IEC 61000-4-2 (Air)	±30	
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	4800	W
T <sub>OPT</sub>	Operating Temperature	-55~125	°C
T <sub>STG</sub>	Storage Temperature	-55~150	°C
T <sub>L</sub>	Lead Soldering Temperature	260(10sec)	°C

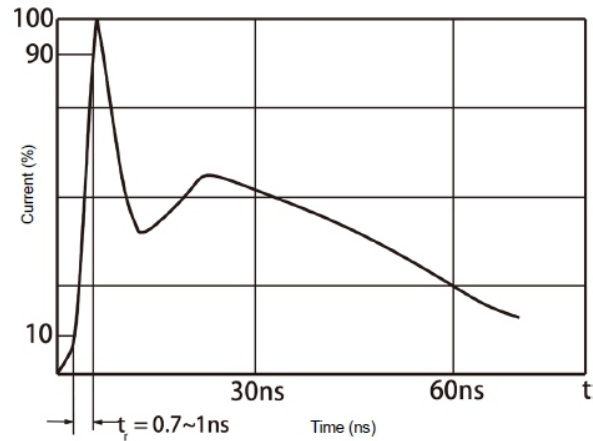
### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage				4.5	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	4.6	5.2	6.1	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 4.5V			1	uA
I <sub>PP</sub>	Peak Pulse Current	t <sub>p</sub> = 8/20μs			240	A
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 150A, t <sub>p</sub> = 8/20μs			16	V
		I <sub>PP</sub> = 200A, t <sub>p</sub> = 8/20μs			18	V
		I <sub>PP</sub> = 240A, t <sub>p</sub> = 8/20μs			20	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz	200	400	600	pF

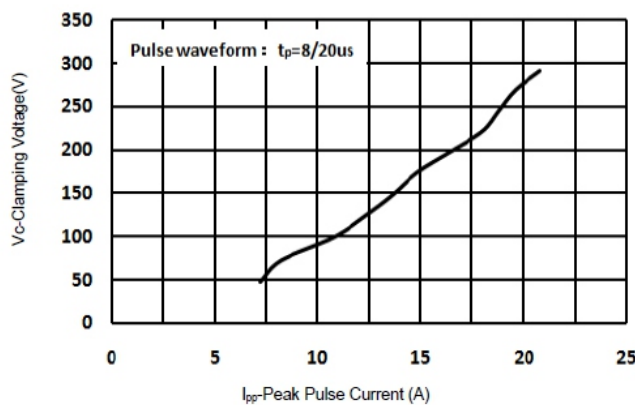
### ELECTRICAL CHARACTERISTICS CURVE



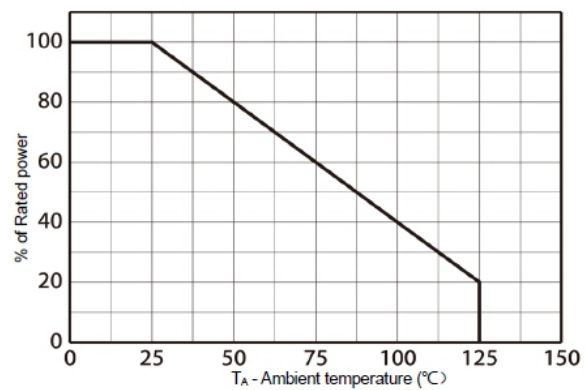
8/20 us waveform per IEC61000-4-5



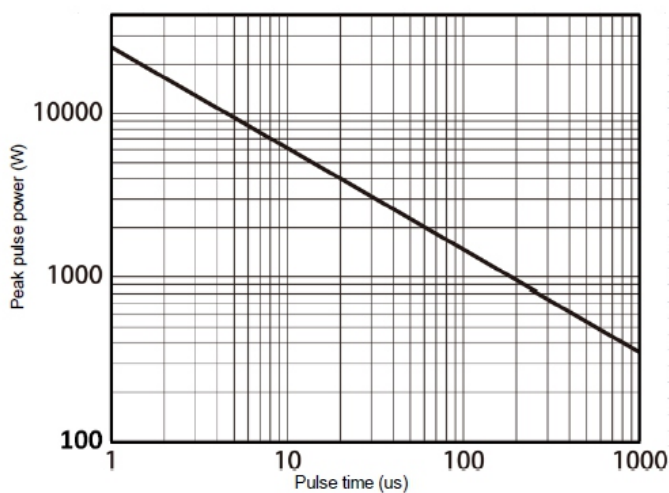
Contact discharge current waveform per IEC61000-4-2



Clamping Voltage vs. Peak pulse current

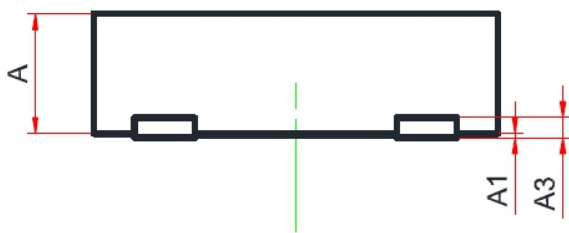
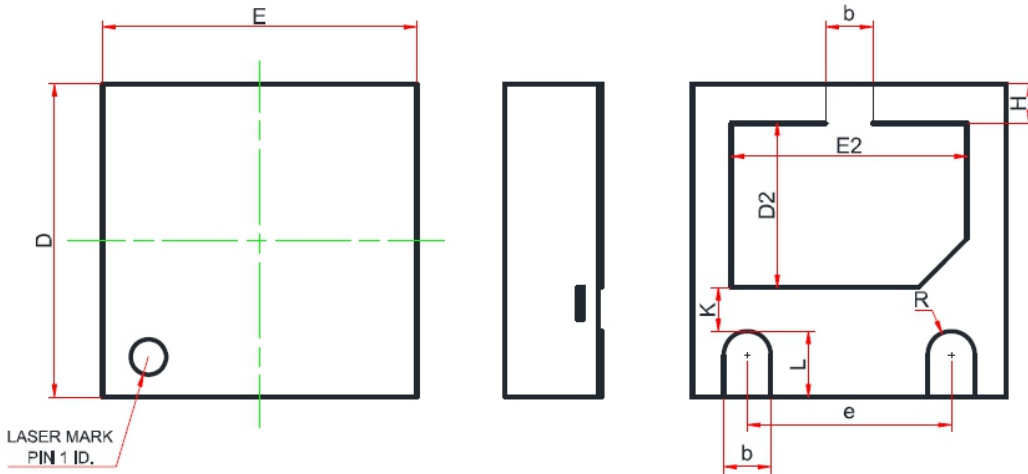


Power derating vs. Ambient temperature

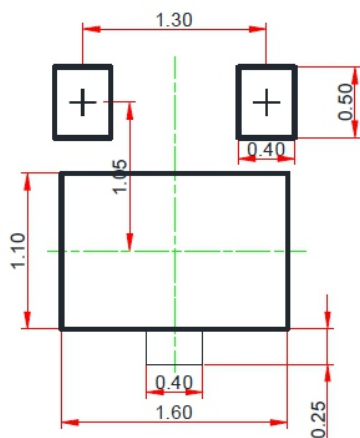


Non-repetitive peak pulse power vs. Pulse time

### 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.