

### 1-Line Bi-directional TVS Diode

#### Features

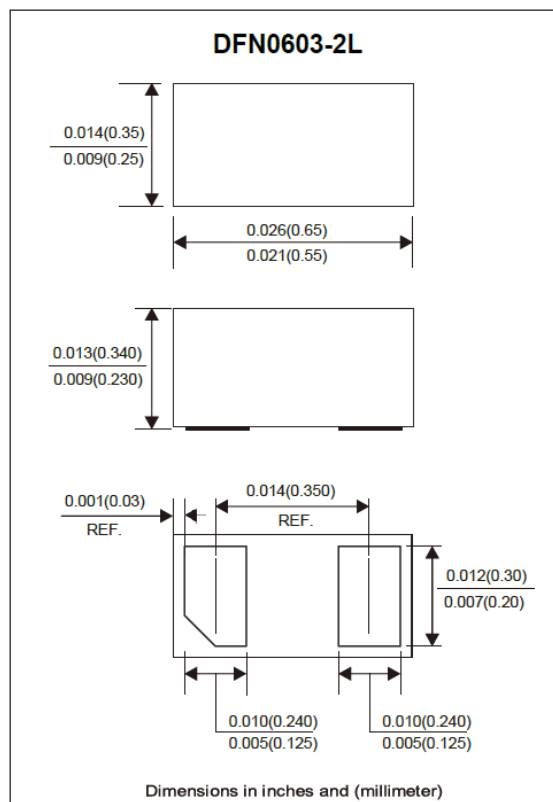
- IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50 ns)
- IEC 61000-4-5 (Lightning) 11A (8/20 $\mu\text{s}$ )
- Ultra small package: 0.6x0.3x0.3mm
- Low capacitance
- Low leakage current
- Operating voltage: 5.5V
- Low clamping voltage
- Protects one data or power line

#### Applications

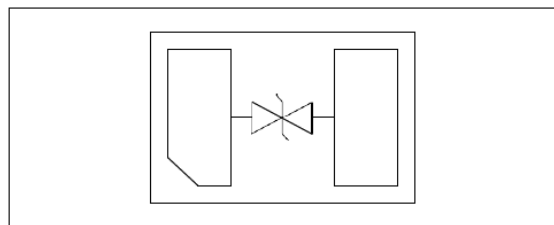
- Cellular Handsets and Accessories
- Computers and Peripherals
- Communication Systems
- Digital Cameras
- Audio Players

#### Mechanical Characteristics

- Package: DFN0603-2L (0.6x0.3x0.3mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Material : Halogen free , RoHS compliant



#### Circuit Diagram



#### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	165	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )	$I_{PP}$	11	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 30$	KV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	KV
Operating Temperature Range	$T_J$	-55 to + 125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to + 150	$^\circ\text{C}$

### Electrical Parameters ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

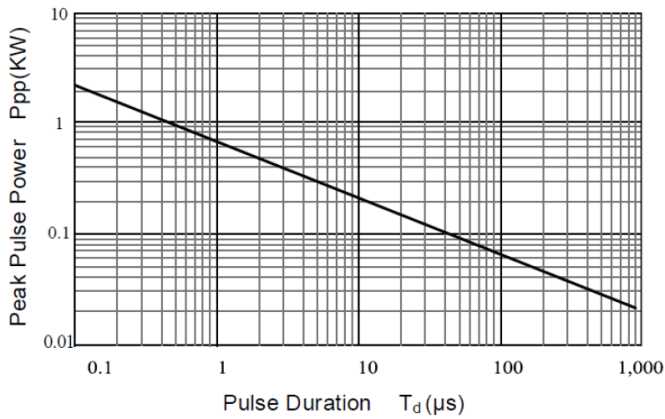
Symbol	Parameter
$I_{PP}$	Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Reverse Stand-Off Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current

The graph shows the relationship between Reverse Current (I) and Reverse Voltage (V). The curve starts at a low current level for low voltages, remains relatively flat until the reverse working voltage ( $V_{RWM}$ ), then rises sharply towards the breakdown voltage ( $V_{BR}$ ). Key points on the graph include:  $I_{PP}$  (Reverse Peak Pulse Current) at the top of the curve;  $V_C$  (Clamping Voltage) at the point where the current is  $I_{PP}$ ;  $V_{RWM}$  (Reverse Stand-Off Voltage) at the end of the flat region;  $V_{BR}$  (Breakdown Voltage) at the point where the current begins to rise sharply;  $I_T$  (Test Current) at the point where the current is  $I_T$ ; and  $I_R$  (Reverse Leakage Current) at the point where the voltage is  $V_{RWM}$ .

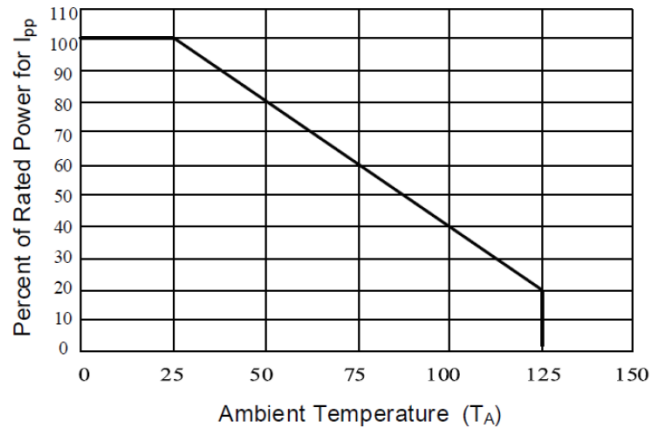
### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				5.5	V
Reverse breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6			V
Reverse leakage current	$I_R$	$V_{RWM} = 5.5\text{V}$			50	nA
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$		8	10	V
Clamping Voltage	$V_C$	$I_{PP} = 11\text{A}, t_p = 8/20\mu\text{s}$		13	15	V
Junction capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		10	15	pF

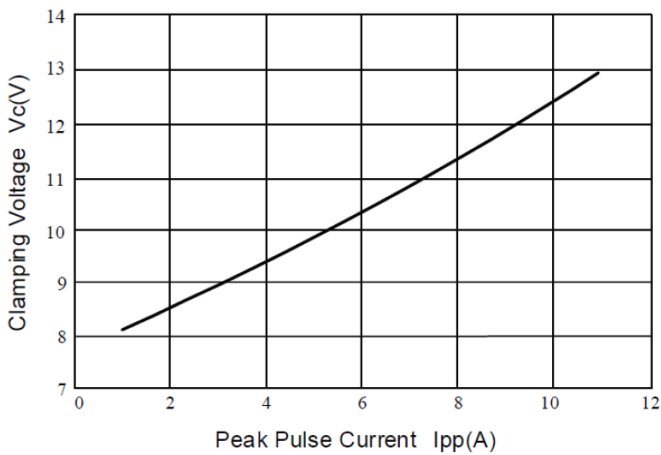
### Typical Performance Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)



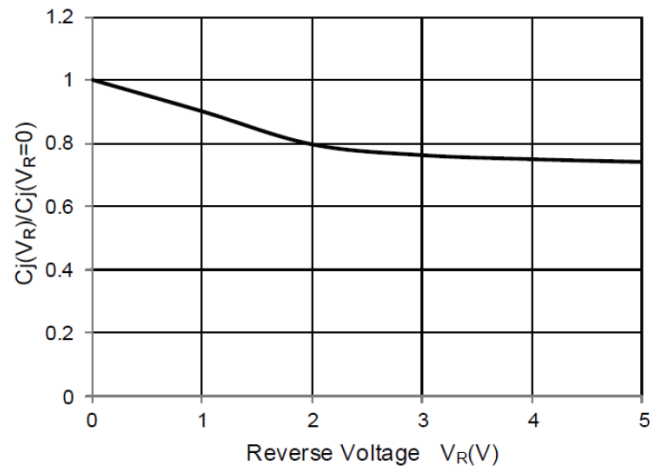
**Fig 1. Peak Pulse Power vs. Pulse Time**



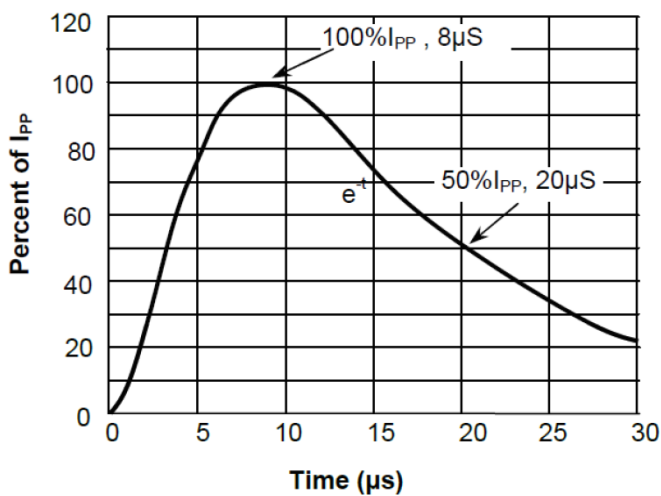
**Fig 2. Power Derating Curve**



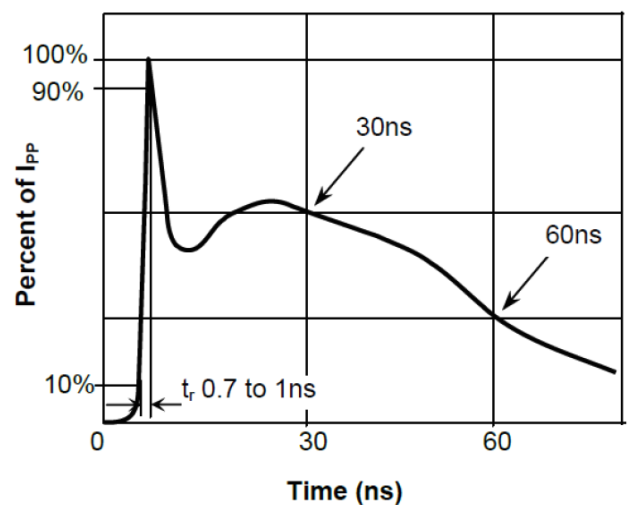
**Fig 3. Clamping Voltage vs. Peak Pulse Current**



**Fig 4. Junction Capacitance vs. Reverse Voltage**



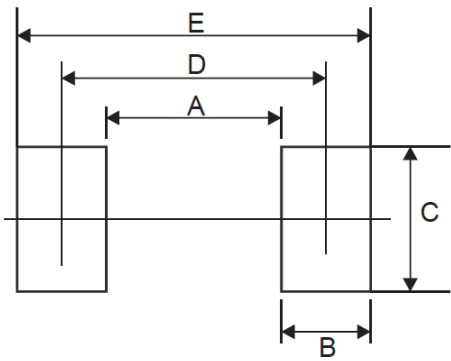
**Fig 5. 8 X 20μs Pulse Waveform**



**Fig 6. ESD(IEC61000-4-2) Pulse Waveform**

### Suggested PAD Layout

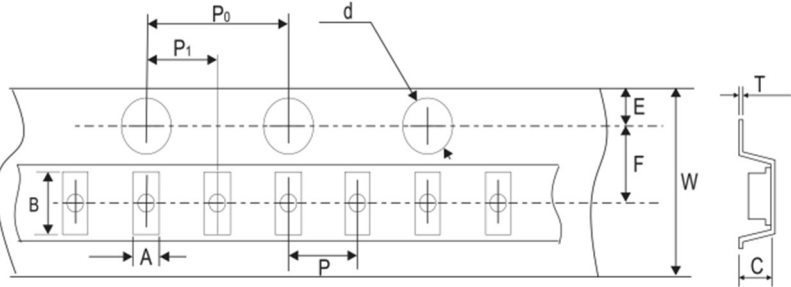
Symbol	DFN0603-2L	
	(mm)	(inch)
A	0.16	0.006
B	0.24	0.009
C	0.34	0.013
D	0.40	0.016
E	0.64	0.025



### Marking Code

Part Number	Marking Code	
SLN050B1FS-D6	Z4	

### Tape and Reel Specification

	Symbol	Millimeters
		A
B		0.67±0.03
C		0.35±0.03
d		1.50+0.10/-0.00
E		1.75±0.10
F		3.50±0.05
P		2.00±0.05
P0		4.00±0.10
P1		2.00±0.05
T		0.20±0.02
W		8.00+0.30/-0.10

### Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SLN050B1FS-D6	DFN0603-2L	10,000	7	Tape and reel