1-Line Ultra Low Capacitance Bi-directional TVS Diode

Features

- IEC 61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 9A (8/20μs)
- Ultra low capacitance: 0.14pF typical
- Ultra small package: 0.6x0.3x0.3mm
- Operating voltage: 5V
- Low clamping voltage

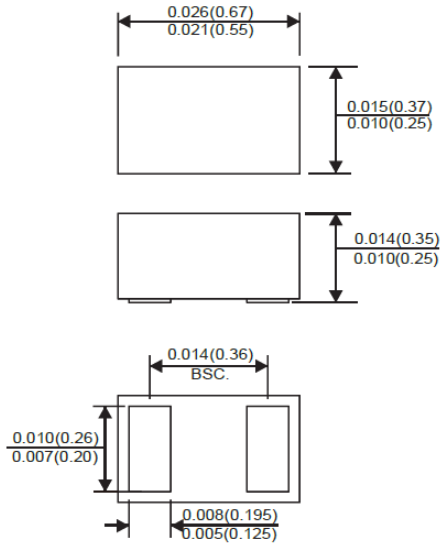
Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Mechanical Characteristics

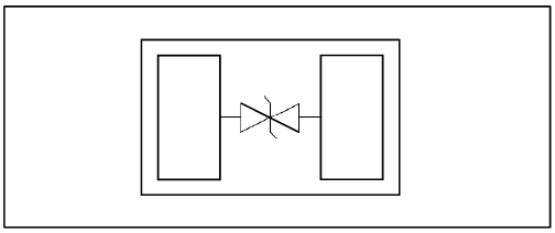
- Package: DFN0603-2L (0.6×0.3×0.3mm)
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Material: RoHS compliant

DFN0603-2L



Dimensions in inches and (millimeter)

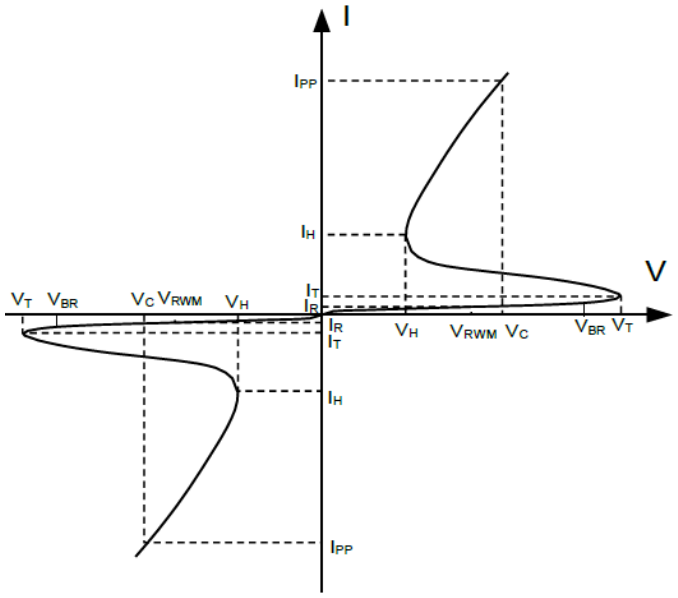
Circuit diagram



Absolute Maximum Ratings (T_A = 25℃ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PP}	50	W
Peak Pulse Current (tp = 8/20μs)	I_{PP}	9	A
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±20	KV
ESD per IEC 61000−4−2 (Contact)		±20	KV
Operating Temperature Range	T_J	-55 to + 125	℃
Storage Temperature Range	T_{STG}	-55 to + 150	℃

Electrical Parameters (T_A = 25℃ 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
V_T	Trigger Voltage
I_T	Test Current
V_H	Holding Voltage
I_H	Holding Current



Electrical Characteristics (T_A = 25℃ Unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Reverse Working Voltage	V_{RWM}			5.0	5.5	V
Reverse breakdown Voltage	V_{BR}	I_T = 1mA	6.0			V
Reverse leakage current	I_R	V_{RWM} = 5.5V			0.01	μA
Clamping Voltage	V_C	I_{PP} = 1A,t_P = 8/20μs		3.2	4.0	V
Clamping Voltage	V_C	I_{PP} = 9A,t_P = 8/20μs		5.5	8.0	V
ESD Clamping Voltage	V_C	I_{PP} = 8A ，(TLP=0.2/100ns)		4.5		V
ESD Clamping Voltage	V_C	I_{PP} = 16A ，(TLP=0.2/100ns)		6.5		V
Dynamic Resistance	R_{DYN}	TLP=0.2/100ns		0.23		Ω
Junction capacitance	C_J	V_R = 1.0V, f = 1MHz		0.14	0.18	pF
Junction capacitance	C_J	V_R = 1.0V, f = 1GHz		0.13		pF

Typical Performance Characteristics (T_A = 25℃ Unless otherwise noted)

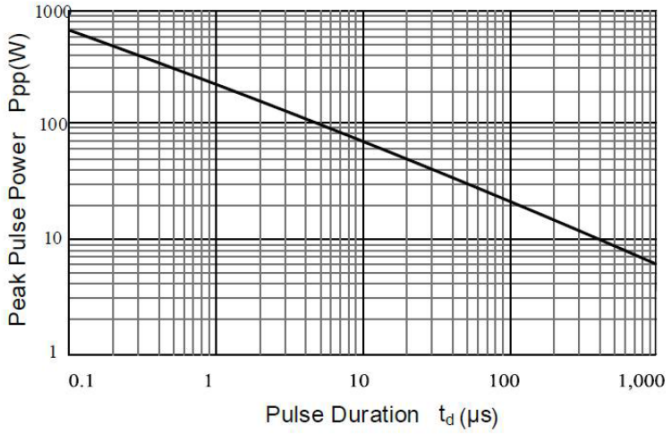


Fig 1. Peak Pulse Power vs. Pulse Time

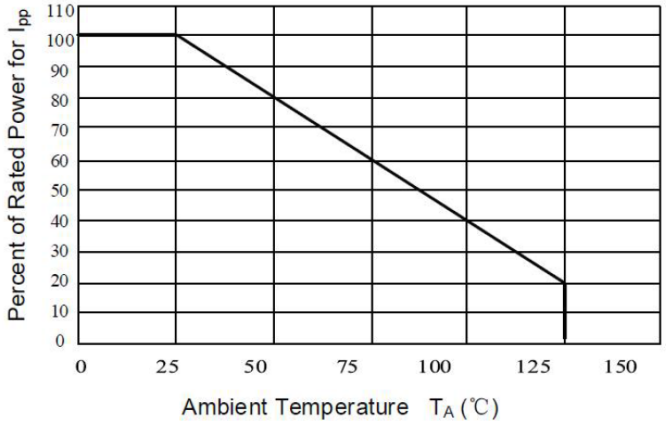


Fig 2. Power Derating Curve

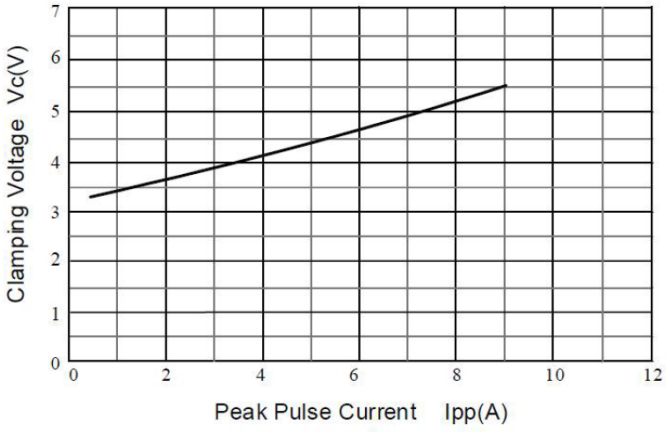


Fig 3. Clamping Voltage vs. Peak Pulse Current

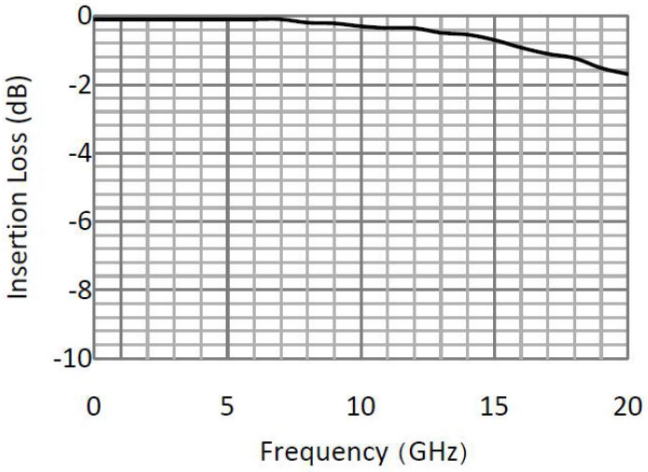


Fig 4. Insertion Loss S21

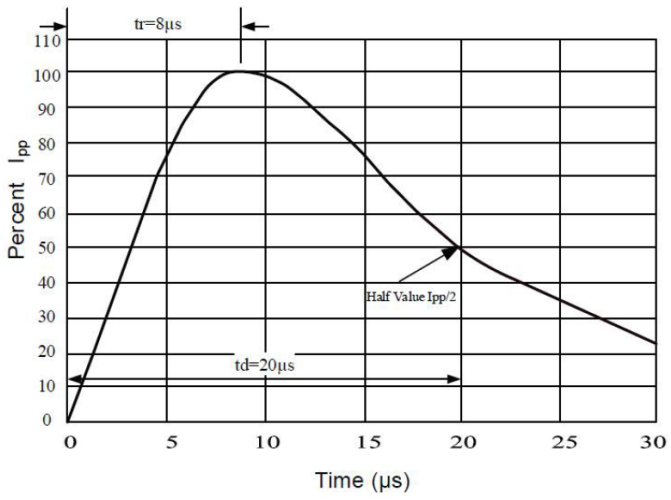


Fig 5. 8/20μs Pulse Waveform

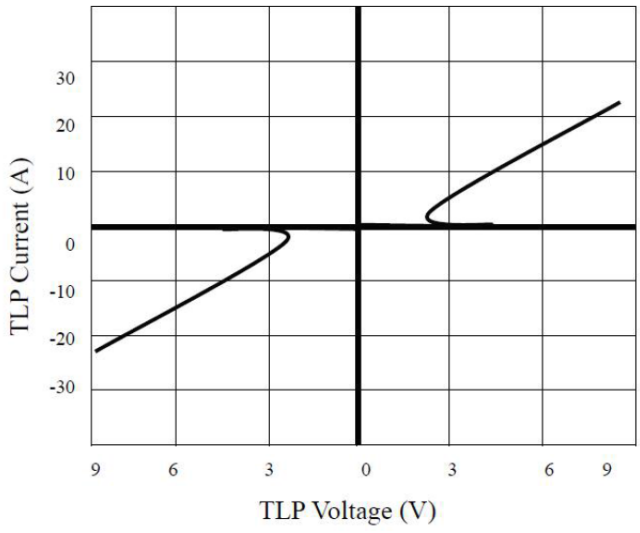
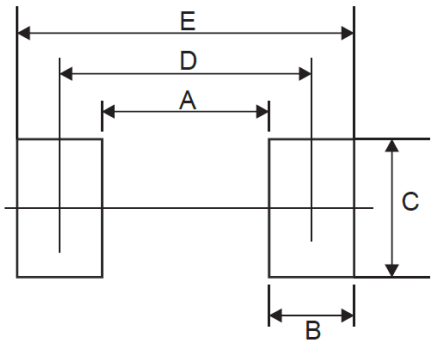


Fig 6. TLP I-V Curve

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
STCD6050BSL	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCD6050BSL	DFN0603-2L	9,000	7	Tape and reel