1-Line Ultra Low Capacitance Bi-directional TVS Diode

Features

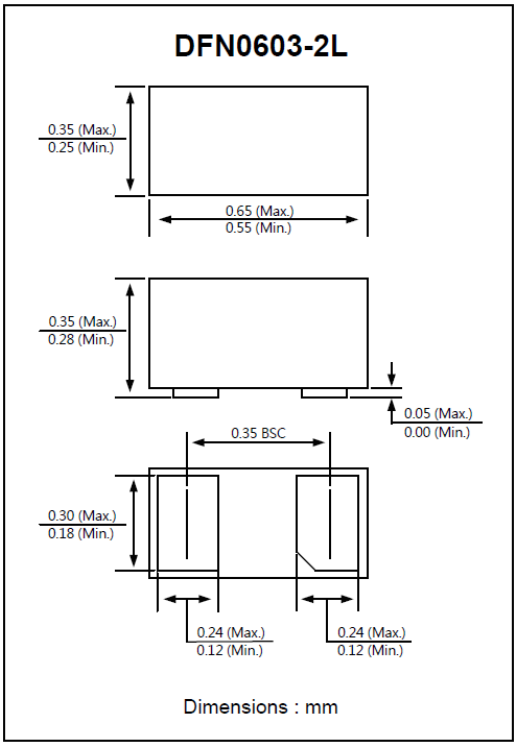
- IEC 61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- IEC 61000-4-5 (Lightning) 3A (8/20μs)
- Ultra small package: 0.6x0.3x0.3mm
- Ultra low capacitance: 0.15pF typical
- Response time is typically <1ns
- Low clamping voltage
- 2-pin leadless package

Applications

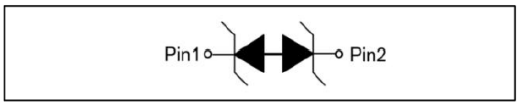
- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Mechanical Characteristics

- Package: DFN0603-2L (0.6×0.3×0.3mm)
- Moisture Sensitivity: Level 1 per J-STD-020
- Qualified max reflow temperature 260℃
- Material: RoHS compliant

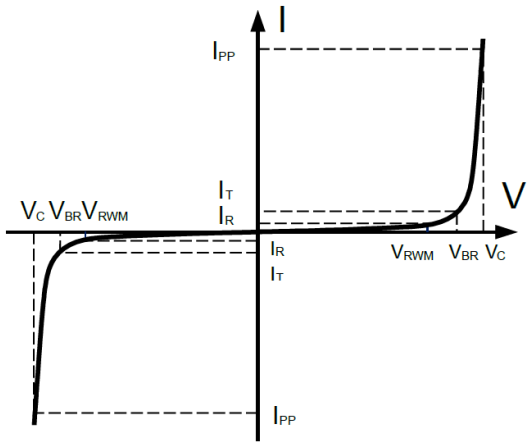


Circuit diagram



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}	3	A
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±20	KV
ESD per IEC 61000−4−2 (Contact)		±20	KV
Lead Soldering Temperature	T_L	260 (10 sec)	℃
Junction and Storage Temperature Range	T_J,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
I_T	Test Current



Electrical Characteristics (T_A = 25℃ Unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Reverse Standoff Voltage	V_{RWM}				5	V
Reverse breakdown Voltage	V_{BR}	I_T = 1mA	6			V
Reverse leakage current	I_R	V_{RWM} = 5V			1.0	μA
Clamping Voltage	V_C	I_{PP} = 1A,tp =8/20μs			13	V
Clamping Voltage	V_C	I_{PP} = 3A,tp =8/20μs			17	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		0.15	0.23	pF

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

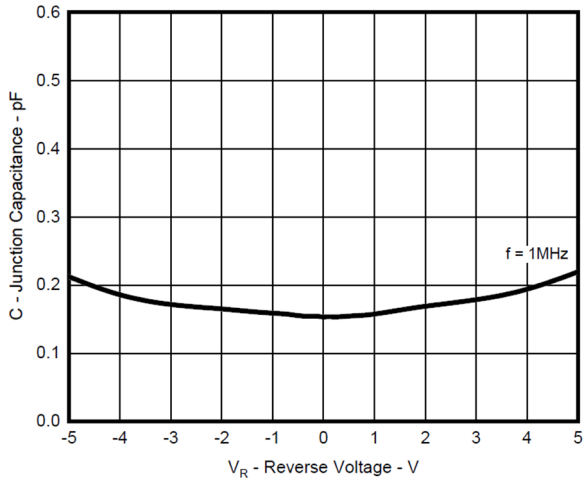


Fig 1. Junction Capacitance vs. Reverse Voltage

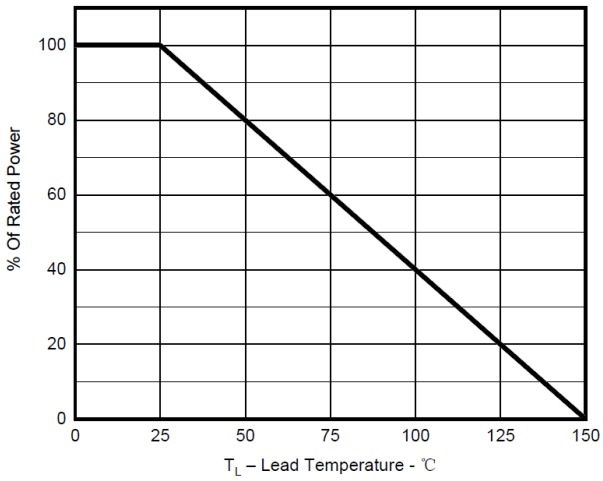


Fig 2. Power Derating Curve

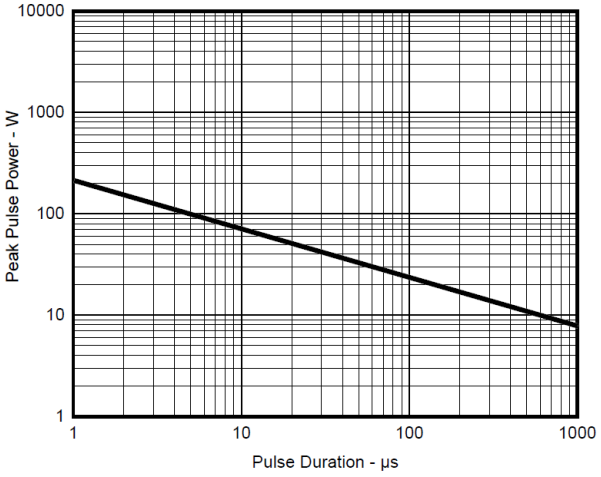


Fig 3. Peak Pulse Power Vs Pulse Time

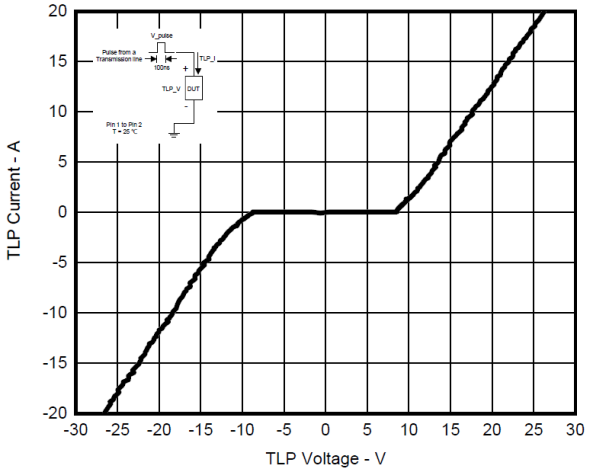


Fig 4. TLP Measurement

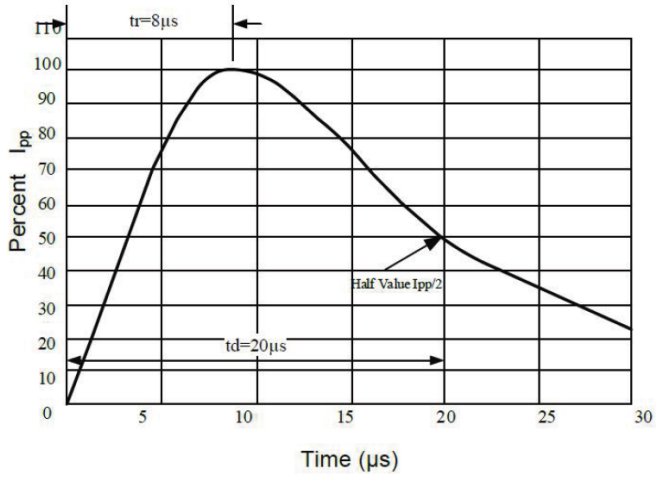
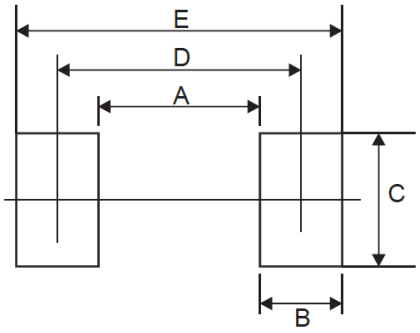


Fig 5. 8 X 20μs Pulse Waveform

Suggested PAD Layout

Symbol	DFN0603-2L	
	(mm)	(inch)
A	0.15	0.006
B	0.25	0.010
C	0.32	0.013
D	0.40	0.016
E	0.65	0.026



Marking Code

Part Number	Marking Code
STED6050LP	UB

UB

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STED6050LP	DFN0603-2L	12,000	7	Tape and reel