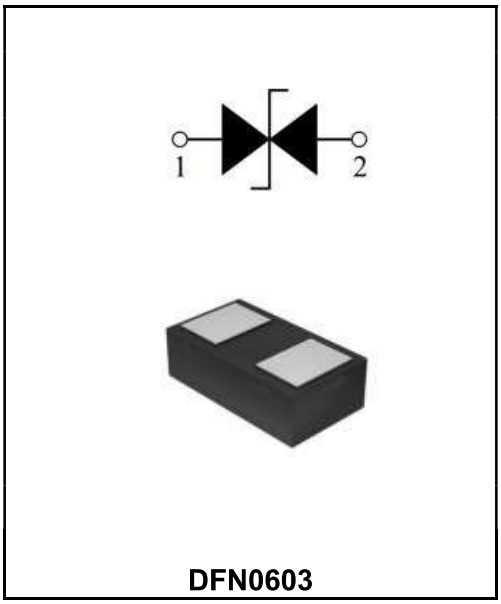
Bi-directional ESD Protection Diode

Features

- Capacitance: 0.25pF(typ.)
- Reverse Working Voltage: 5.0V
- IEC 61000-4-2 (ESD Air): ±15KV
- IEC 61000-4-2 (ESD Contact): ±12KV
- IEC 61000-4-5 (Lightning 8/20μs): 4.5A



DFN0603

Application

- Smart Phone and Tablet PC
- TV and Set Top Box
- Wearable Devices
- PDA

Order Information

Part Number	Package	Marking	Size (mm)	Delivery Form	Delivery Quantity
ESD0603B5V0A	DFN0603	05	0.62x0.32x0.31	7" T&R	15000PCS/Tape

Limiting Values(TA = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	±12	kV
		IEC 61000-4-2; Air Discharge	-	±15	kV
P_{PP}	Peak Pulse Power	tP = 8/20 μs	-	30	W
I_{PPM}	Rated Peak Pulse Current	tP = 8/20 μs	-	4.5	A
T_A	Operating Temperature Range	-	-55	125	℃
Tstg	Storage Temperature Range	-	-55	150	℃

Electrical Characteristics(TA = 25 °C unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	TA = 25 °C	-	-	5.0	V
V_{BR}	Breakdown Voltage	IR = 1mA; TA = 25 °C	5.5	6.8	12	V
I_R	Reverse Leakage Current	VRWM = 5 V; TA = 25 °C	-	-	1	μA
V_C	Clamping Voltage	IPP=4.5A, tP =8/20μs	-	6.5	-	V
		IPP=16A, tP =10/100ns(TLP)	-	10.5	-	V
CJ	Junction Capacitance	VR = 0V, f = 1 MHz	-	0.25	0.35	pF

Typical Characteristics

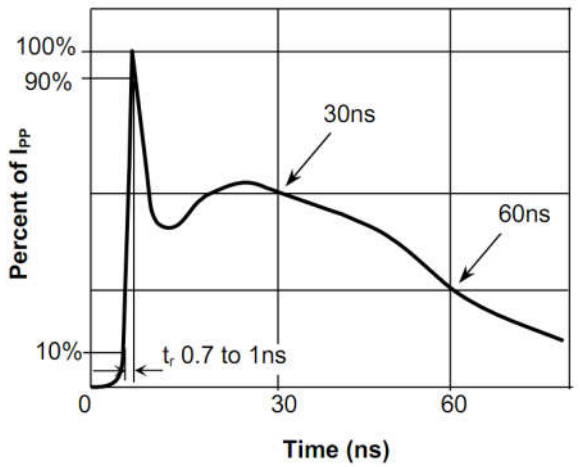


Fig.1 Pulse Waveform-ESD (IEC61000-4-2)

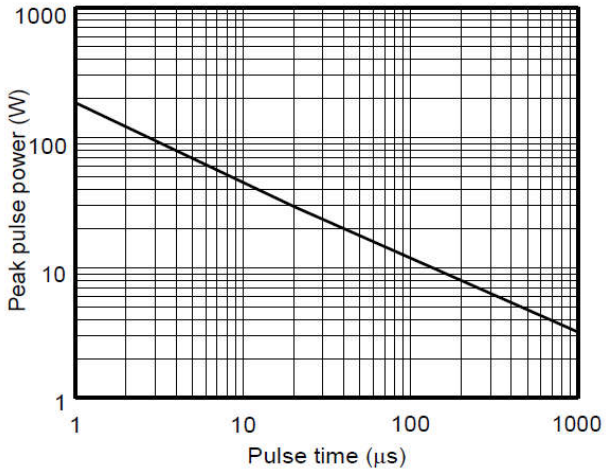


Fig.2 Non-repetitive peak pulse power Vs.Pulse time

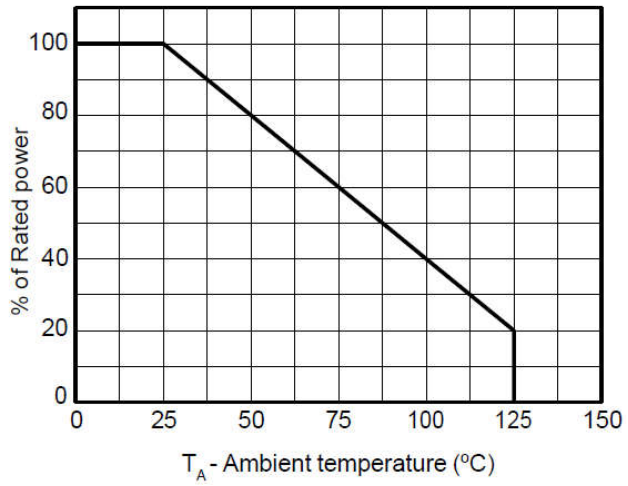


Fig.3 Power derating Vs. Ambient temperature

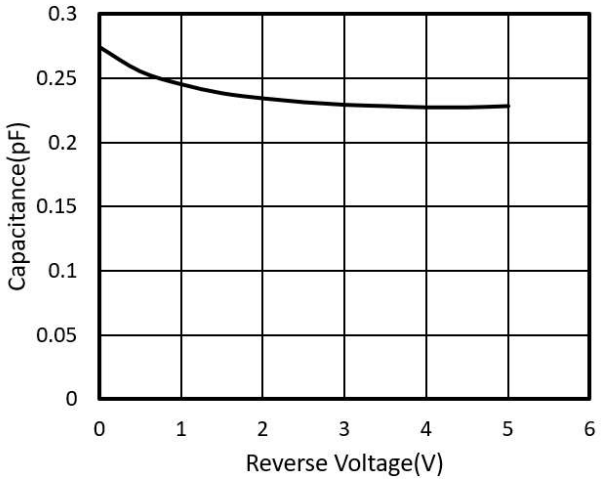


Fig.4 Reverse Voltage Vs.Capacitance

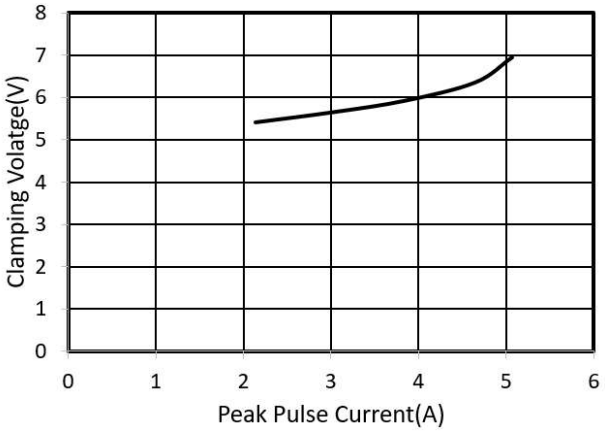


Fig.5 Peak Pulse Current Vs. Clamping Voltage

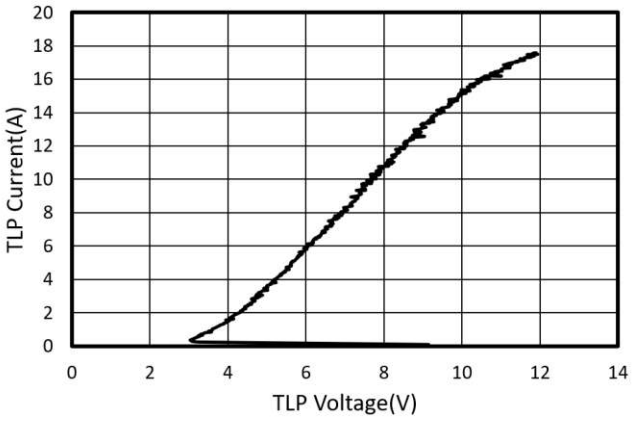
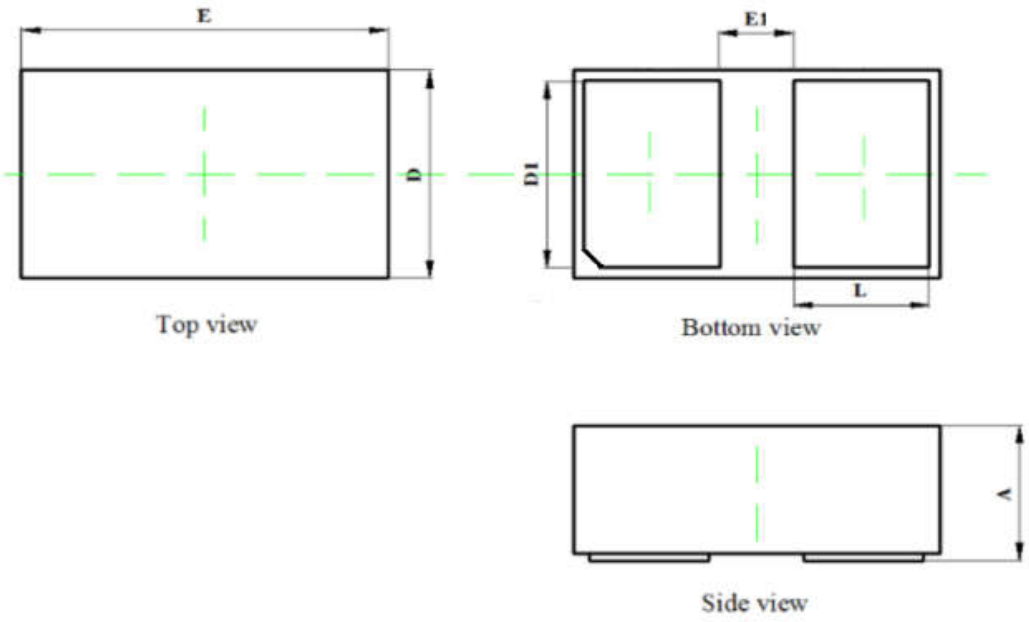


Fig.6 Transmission Line Pulse (TLP)

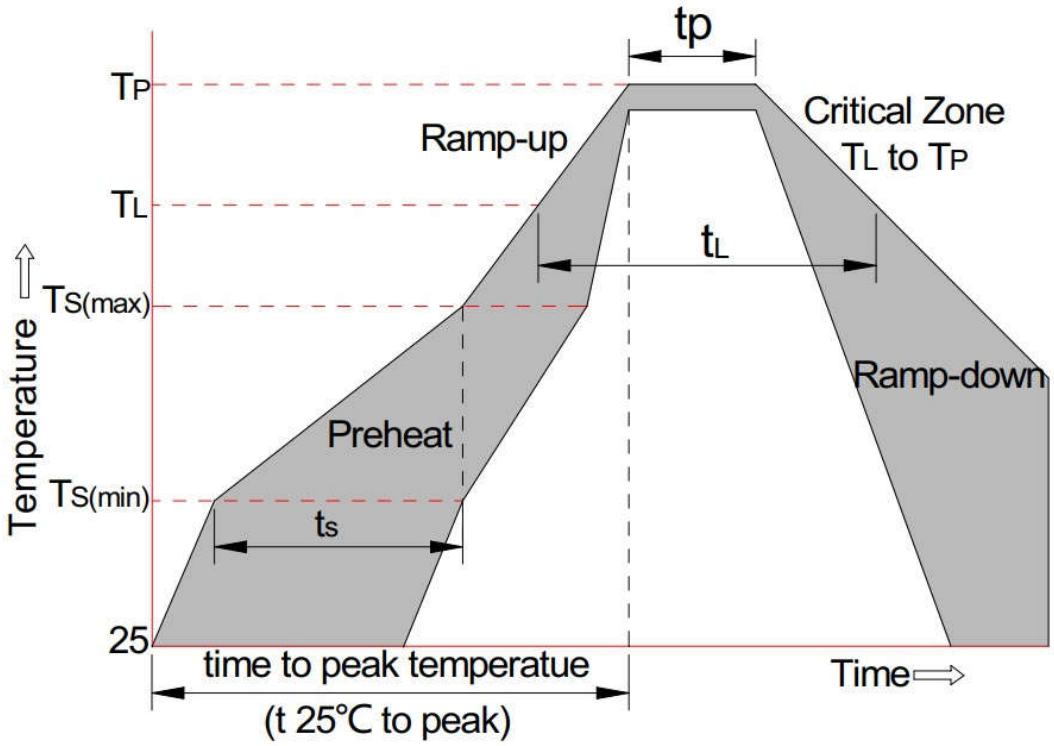
Package Dimension

DFN0603 Package Outline



Symbol	Dimensions In Millimeters		
	Min	Typical	Max
A	0.28	0.31	0.34
D	0.29	0.32	0.35
E	0.59	0.62	0.65
D1	0.23	0.26	0.29
E1	0.12	0.15	0.18
L	0.16	0.19	0.22

Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min (Ts(min))	+150°C
	-Temperature Max(Ts(max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (TL) to peak)		3°C/sec. Max
Ts(max) to TL - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(TL)(Liquid us)	+217°C
	-Temperature(tL)	60-150 secs.
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C