



1-Line Bidirectional ESD Protection Diode

General description

Femtofarad bidirectional ElectroStatic Discharge (ESD) protection diode in a leadless ultra small DFN0603 Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients. The combination of extremely low capacitance, high ESD maximum rating and ultra small package makes the device ideal for high-speed data line protection and antenna protection applications.

Features and benefits

- . Ultra small SMD package
- . Bidirectional ESD protection of one line
- . Femtofarad capacitance: $C_j = 0.25\text{pF}$ (Typ)
- . Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
- Air discharge: $\pm 20\text{KV}$, Contact discharge: $\pm 15\text{KV}$
- . RoHS Compliant

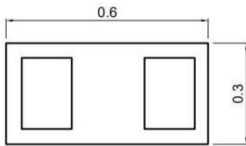
Application information

- . ultra high-speed datalines
 - . very sensitive interface lines
 - . generic interface lines
- in portable electronics, communication, consumer and computing devices.

Ordering information

Device	Package	Marking	Packaging
ESD11LL5.0C	DFN0603-2L	Q	10000/Tape & Reel

Schematic & Pin configuration

Mimensions	Circuit Diagram
 <p>(mm)</p>	

Maximum Ratings ($T_A = 25 \text{ }^\circ\text{C}$, unless otherwise specified)

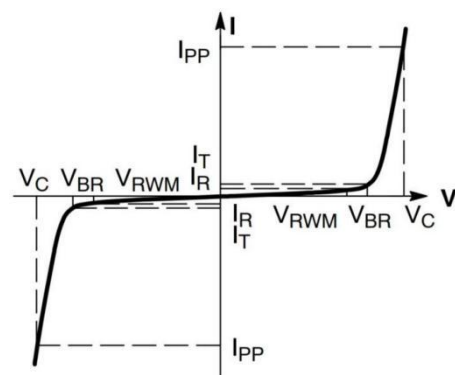
Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_p = 8/20 \mu\text{s}$)	P_{PK}	80	W
Rated Peak Pulse Current ($T_p = 8/20 \mu\text{s}$)	I_{PP}	4.5	A
Maximum lead temperature for soldering during 10s	T_L	260	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature Range	T_{OP}	-40 to +125	$^\circ\text{C}$
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	kV

Electrical Characteristics ($T_A = 25 \text{ }^\circ\text{C}$, unless otherwise specified)

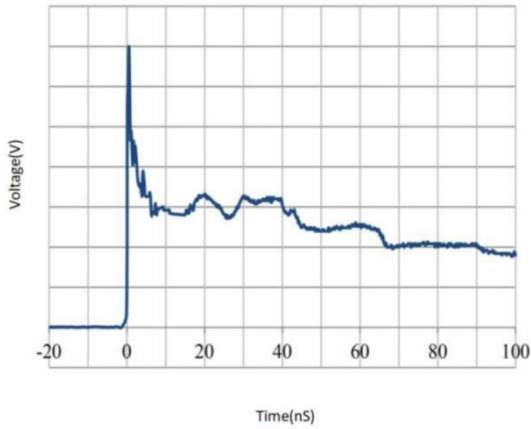
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.0	7.5	8.5	V	$I_r=1\text{mA}$
Leakage Current I_{Leak}	I_R	--	--	0.1	μA	$V_{RWM}=5\text{V}$
Clamping Voltage	V_C	--	10	--	V	$I_{PP}=1\text{A}, T_p=8/20\mu\text{s}$
Clamping Voltage	V_C	--	18	21.0	V	$I_{PP}=4.5\text{A}, T_p=8/20\mu\text{s}$
Junction Capacitance	C_J	--	0.25	0.35	pF	$V_R=0\text{V}, f=1\text{MHz}$

Portion Electronics Parameter

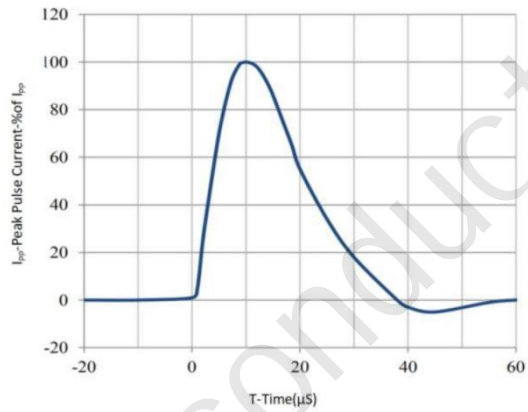
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	VBR Breakdown Voltage @ I_T



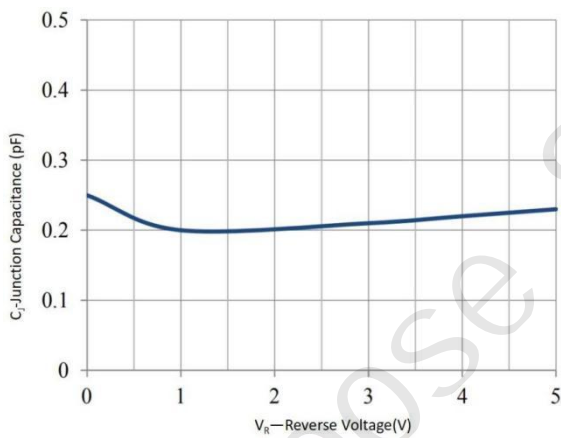
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



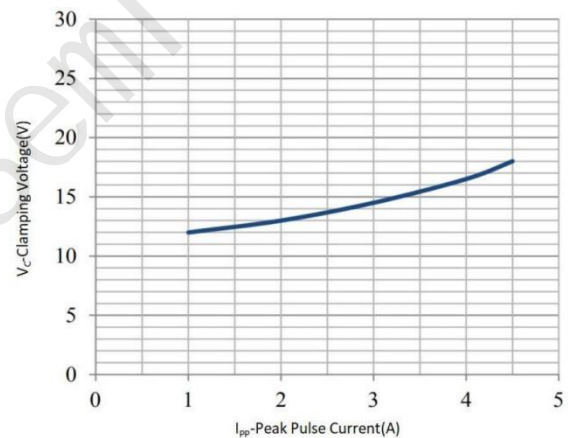
IEC61000-4-2 Pulse Waveform



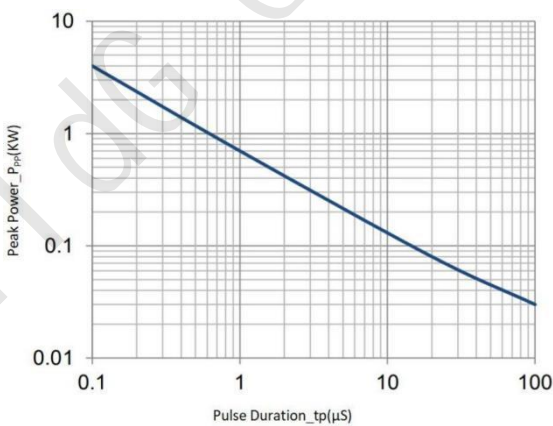
IEC61000-4-5 Waveform (8/20 μs pulse)



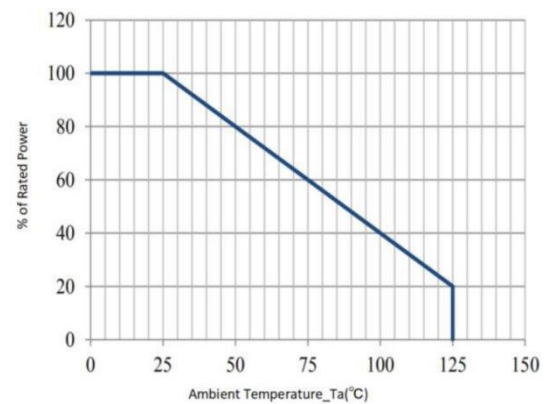
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



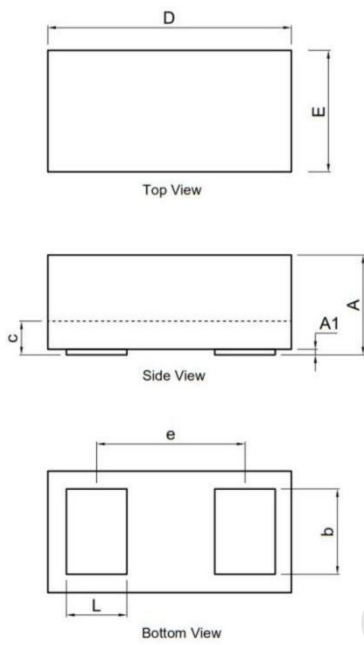
Peak Pulse Power vs. Pulse Time



Power Derating Curve

Package Outline Dimensions

DFN0603-2L



SYMBOL	Dimensions In Millimet	
	MIN	MAX
A	0.23	0.33
A1	0	0.05
b	0.21	0.28
c	0.05	0.18
D	0.55	0.65
E	0.25	0.35
L	0.15	0.23