



1-Line Bidirectional ESD Protection Diode

General description

The ESD11D5.0C is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The ESD11D5.0C complies with the IEC 61000-4-2 (ESD) standard with ± 30 KV air and ± 30 KV contact discharge. It is assembled into an ultra-small 0.6x0.3x0.3mm lead-free 0201 package. The small size and high ESD surge protection make ESD11D5.0C an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features and benefits

- . Ultra small SMD package
- . Bidirectional ESD protection of one line
- . Femtofarad capacitance: $C_j = 15\text{pF}$ (Typ)
- . Complies with following standards: IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{KV}$, Contact discharge: $\pm 30\text{KV}$
- . RoHS Compliant

Application information

- . Cellular Handsets and Accessories
- . Personal Digital Assistants
- . Notebooks and Handhelds
- . Keypads, Side Keys, LCD Displays

Ordering information

Device	Package	Marking	Packaging
ESD11D5.0C	DFN0603-2L	A	10000/Tape & Reel

Schematic & Pin configuration

Dimensions	Circuit Diagram
 (mm)	

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

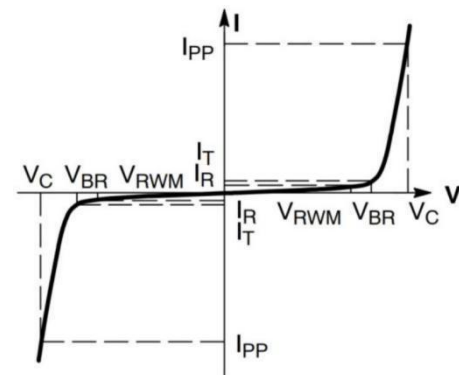
Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_p = 8/20 \mu\text{s}$)	P_{PK}	90	W
Rated Peak Pulse Current ($T_p = 8/20 \mu\text{s}$)	I_{PP}	9.0	A
Maximum lead temperature for soldering during 10s	T_L	260	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature Range	T_{OP}	-40 to +125	$^\circ\text{C}$
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	30	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	kV

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

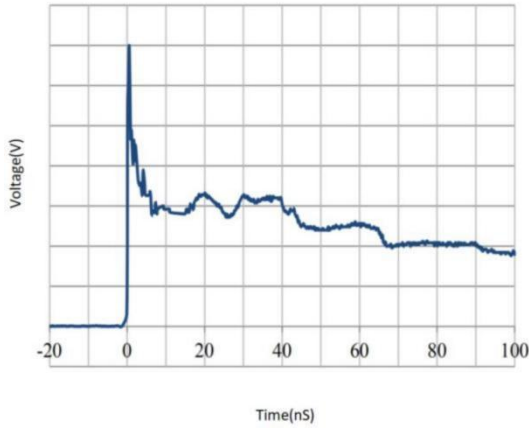
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.0	6.5	8.5	V	$I_r=1\text{mA}$
Leakage Current I_{Leak}	I_r	--	--	0.1	μA	$V_{RWM}=5\text{V}$
Clamping Voltage	V_C	--	7.0	8.5	V	$I_{pp}=1.0\text{A}, T_p=8/20\mu\text{s}$
Clamping Voltage	V_C	--	8.5	10.0	V	$I_{pp}=9.0\text{A}, T_p=8/20\mu\text{s}$
Dynamic Resistance	R_{DYN}	--	0.2	--	Ω	$TLP=0.2/100\text{ns}$
Junction Capacitance	C_j	--	15.0	20.0	pF	$V_R=0\text{V}, f=1\text{MHz}$

Portion Electronics Parameter

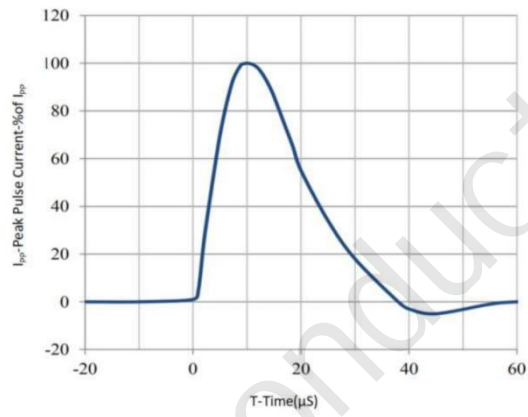
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_r	Maximum Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	VBR Breakdown Voltage @ I_T



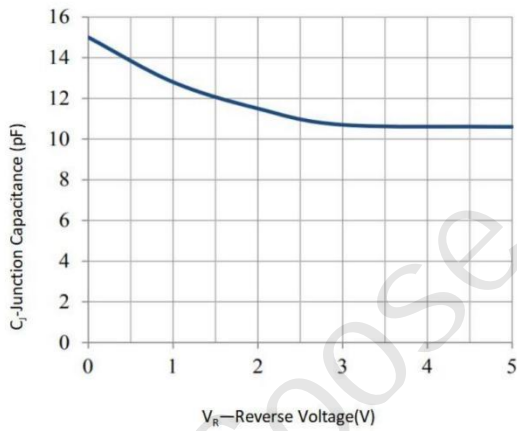
Typical Performance Characteristics ($T_A=25\text{ }^\circ\text{C}$ unless otherwise Specified)



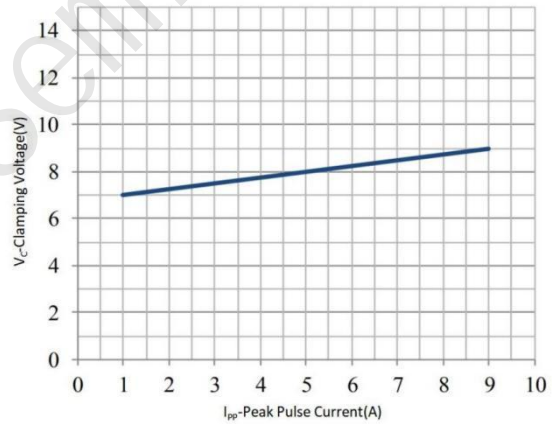
IEC61000-4-2 Pulse Waveform



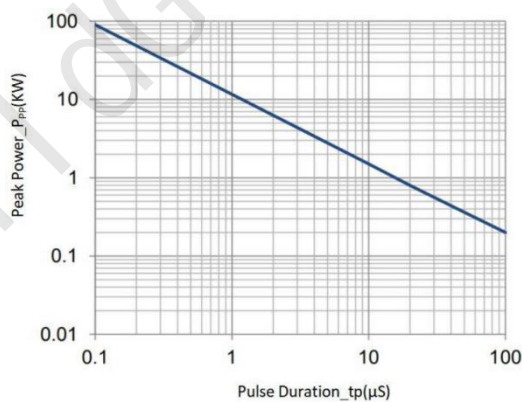
IEC61000-4-5 Waveform(8/20µs pulse)



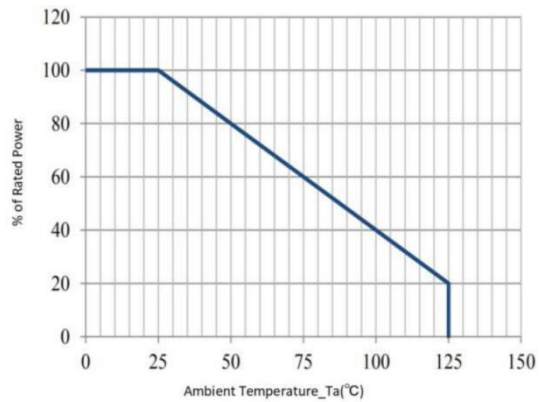
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



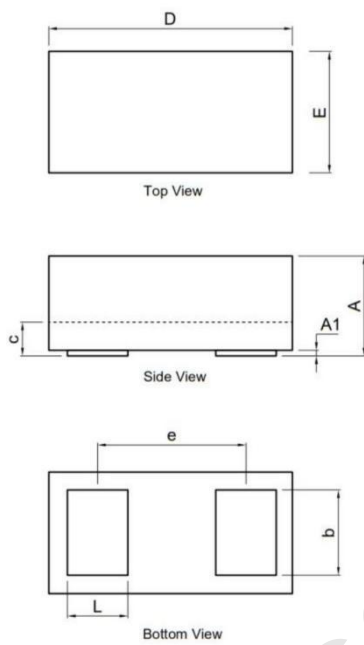
Peak Pulse Power vs. Pulse Time



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