

General description

The ESD8L5.0 is an uni-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 ESD8L5.0 complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD surge protection make ESD8L5.0 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features and benefits

- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 4.5A (8/20 μs)
- Low clamping voltage
- Ultra small package: 1.0x0.6x0.5mm
- RoHS Compliant



DFN1006-2L

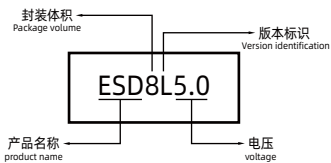
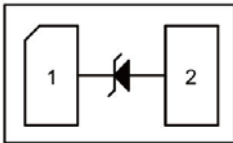
Application information

- Hand Held Portable Applications
- Vbat pin for Mobile Devices
- Battery Protection
- Power Line Protection
- Mobile Phones
- Portable electronics

Ordering information

Device	Package	Reel Size	Qty(PCS)
ESD8L5.0	DFN1006-2L	7 Inch	10000

Ordering information

Marking	Naming rule	Graphic symbol
RS		

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

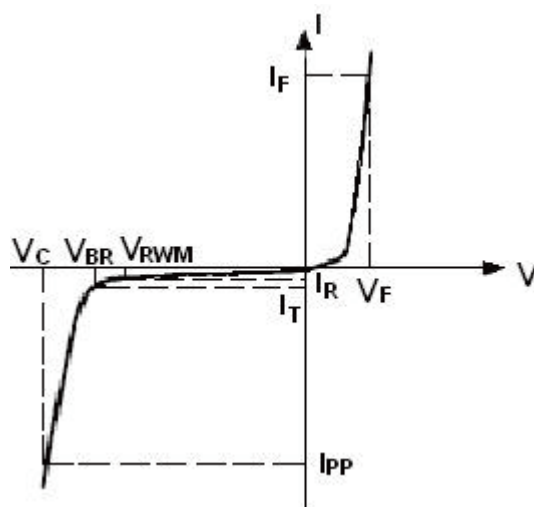
Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PPM}	80	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PPM}	4.5	A
Maximum lead temperature for soldering during 10s	T_L	260	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature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

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

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.0	7.0	8.5	V	$I_T = 1\text{mA}$
Leakage Current I_{Leak}	I_R	--	--	200	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C	--	--	9.0	V	$I_{PP} = 1.0\text{A}, t_p = 8/20\mu\text{s}$
Clamping Voltage	V_C	--	--	16.0	V	$I_{PP} = 4.5\text{A}, t_p = 8/20\mu\text{s}$
Junction Capacitance	C_J	--	0.5	0.6	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

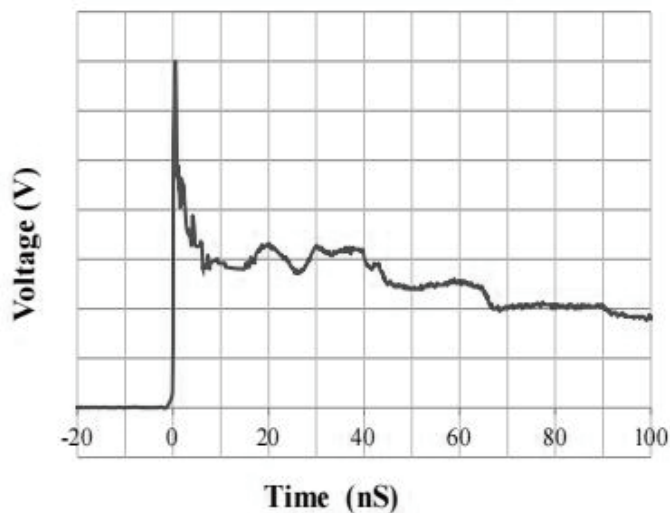
Portion Electronics Parameter

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

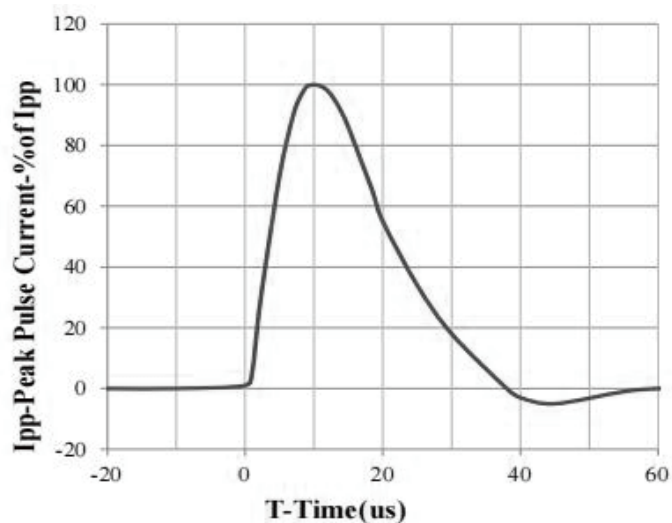




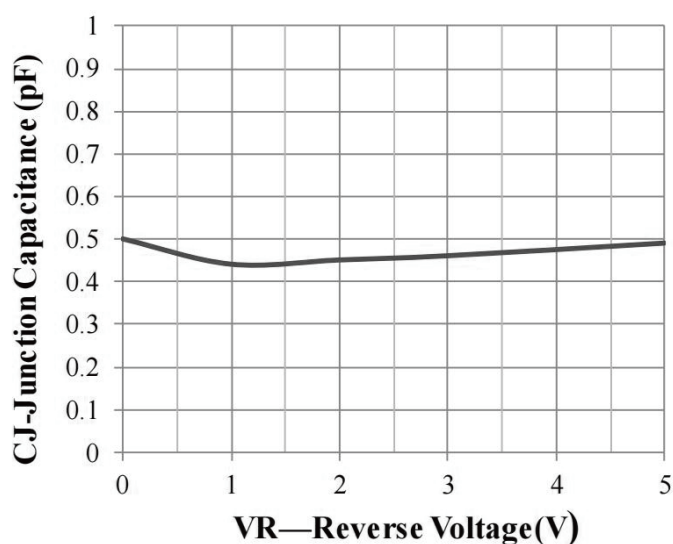
Typical Characteristics



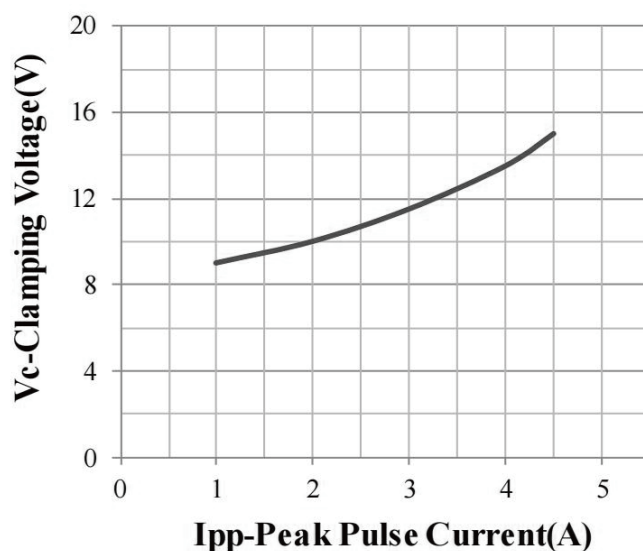
IEC61000-4-2 Pulse Waveform



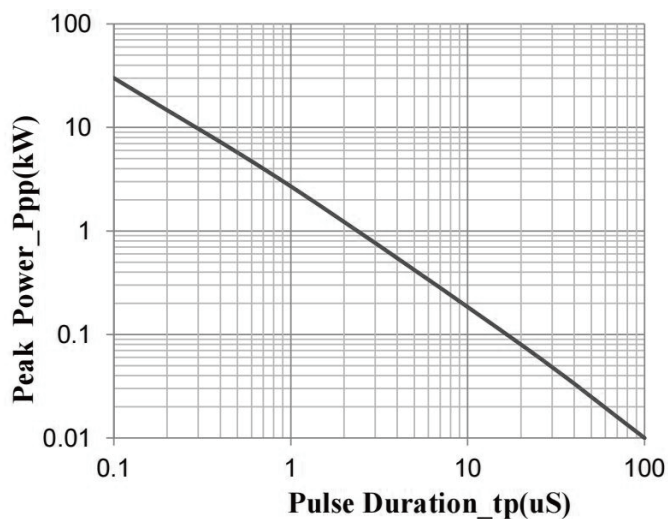
8 X 20us Pulse Waveform



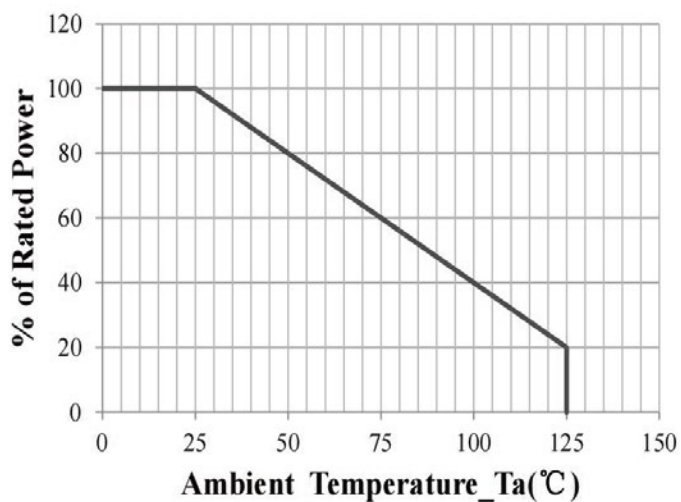
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



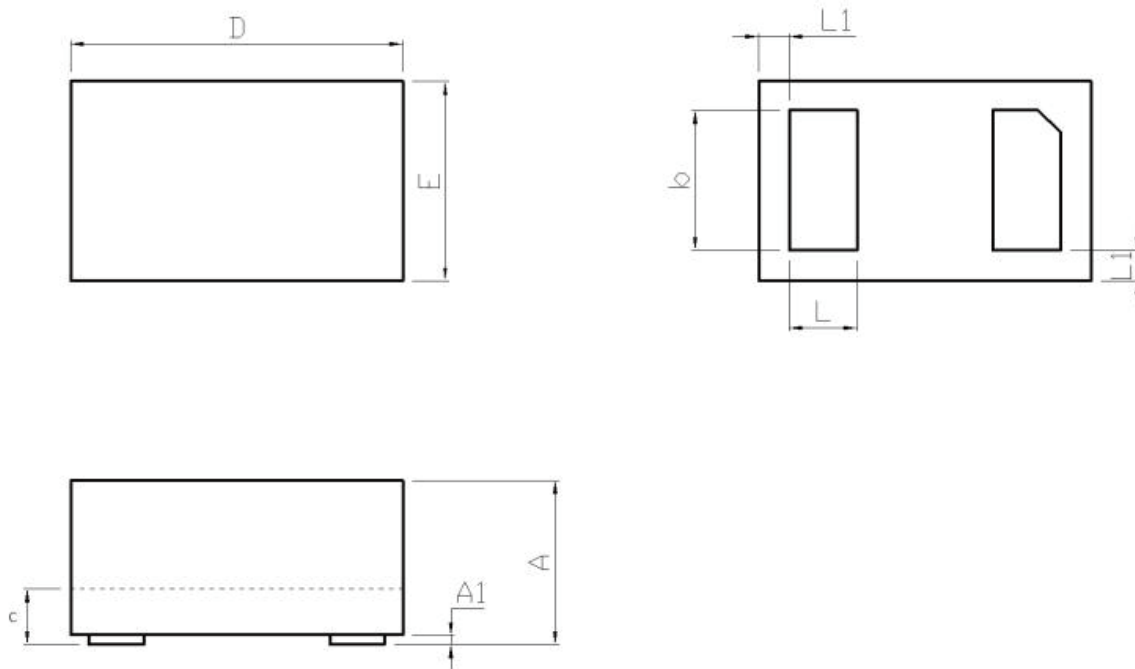
Peak Pulse Power vs. Pulse Time



Power Derating Curve



DFN1006-2L Package Outline Dimensions



DFN1006-2L (mm)			
DIM	MIN	TYP.	MAX
A	0.40	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.5	0.55
c	0.1	0.15	0.18
D	0.95	1.00	1.05
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.035	0.05	0.065