ES06D1HA10
Bi-direction ESD Protection Diode

Features

Bi-directional ESD protection of one line
Reverse stand−off voltage: 6V
Low reverse clamping voltage
Low leakage current
Fast response time
IEC 61000-4-2 (ESD) immunity test：
Air discharge: ±30kV
Contact discharge: ±30kV

D47

DFN1006-2L(Pb-Free)

Schematic Diagram

Applications

Computers and peripherals
High speed data lines
Audio and video equipment
Cellular handsets and accessories
Subscriber identity module(SIM) card protection
Portable electronics
FireWire
Other electronics equipments communi- cation systems

Absolute Maximum Rating

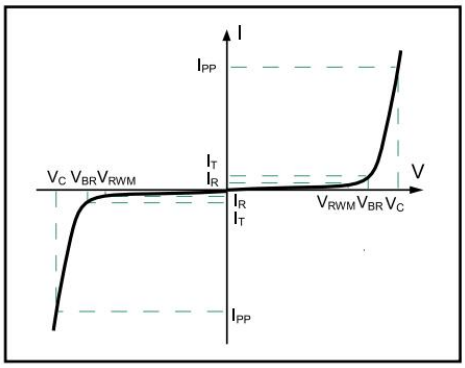
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	350	W
Peak Pulse Current (8/20μs)	IPP	25	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

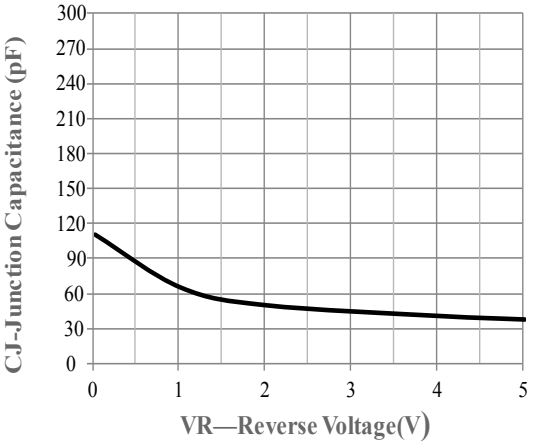
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	VR_{WM}				6	V
Breakdown Voltage	VBR	I_T = 1mA	6.5		8	V
Reverse Leakage Current	IR	VR_{WM} = ±6V			0.1	uA
Clamping Voltage	Vc	I_{PP} = 25A (8 x 20μs pulse)			13	V
Junction Capacitance	Cj	VR = 0V, f = 1MHz			110	pF

Electrical Parameters (TA = 25°C unless otherwise noted)

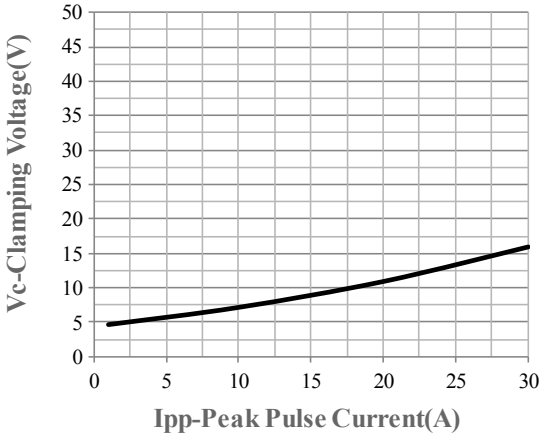
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @Ic
V_{BR}	Breakdown Voltage @ IT
I_R	Reverse Leakage Current @ VRWM
V_{RWM}	Reverse Standoff Voltage



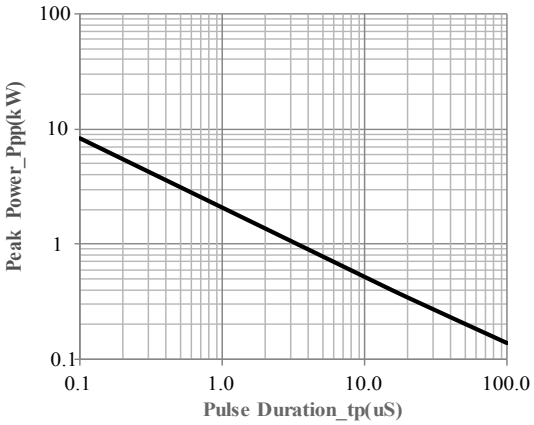
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



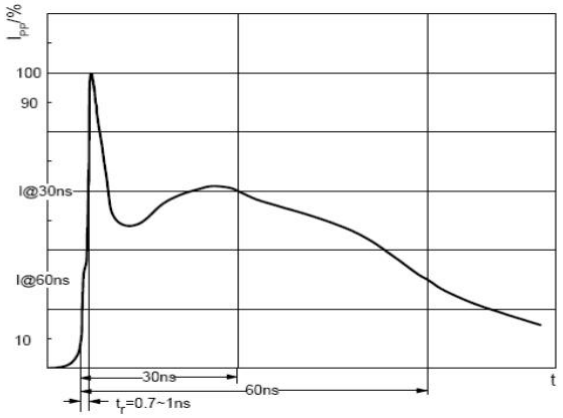
Junction Capacitance vs. Reverse Voltage



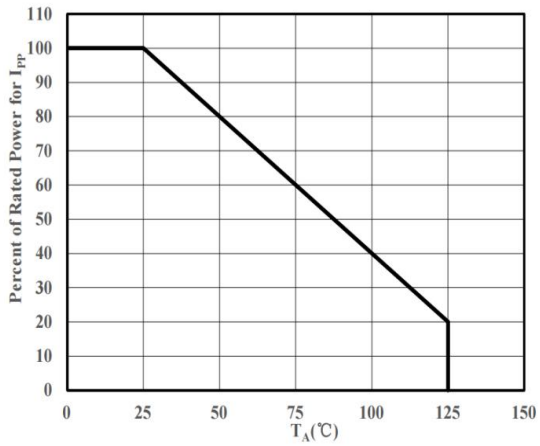
Clamping Voltage vs. Peak Pulse Current



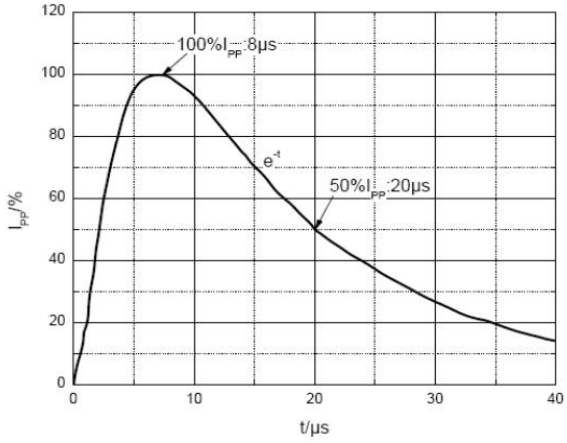
Peak Pulse Power vs. Pulse Time



ESD pulse waveform according to IEC61000-4-2



Power Derating Curve

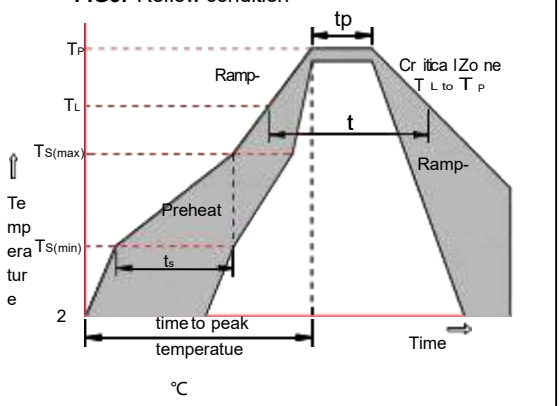


8/20μs pulse waveform according to IEC 61000-4-5

Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

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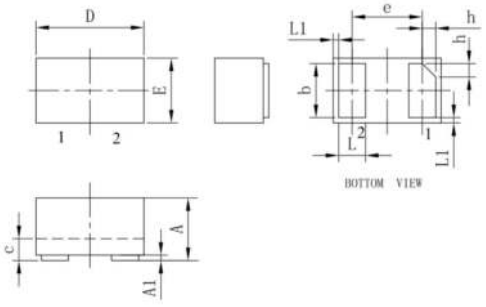
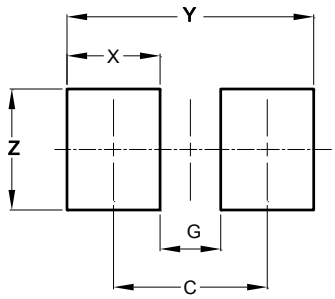


DFN1006-2L

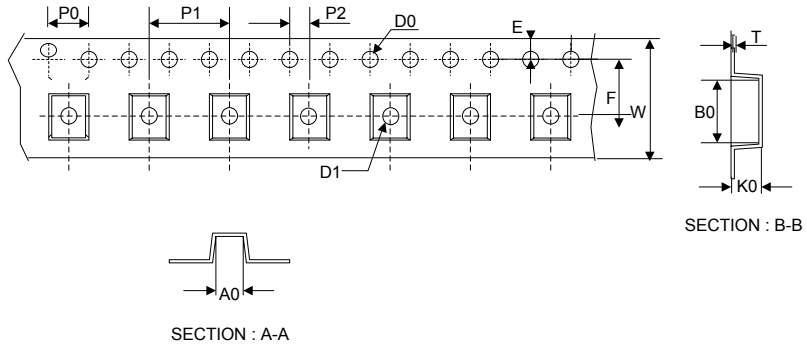
	Millimeters			Inches		
	Min. (mm)	Typ. (mm)	Max. (mm)	Min. (mm)	Typ. (mm)	Max. (mm)
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.59BSC			0.026BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.25	0.30	0.35	0.010	0.012	0.013
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
Y	1.10
Z	0.65

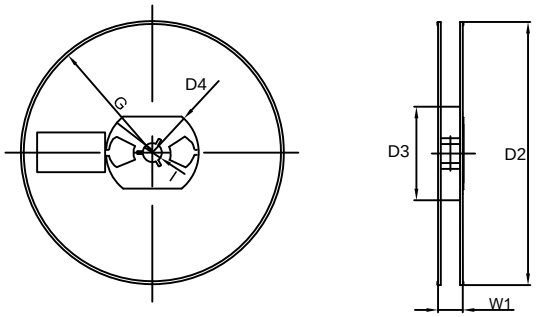
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	2.00±0.20
P2	1.55±0.20
D0	1.55±0.20
D1	0.40±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	1.00±0.20
B0	1.40±0.20
K0	0.75±0.20
T	0.20±0.20

7” Reel



D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0
Quantity: 3000PCS	