ES05D1MC06
Bi-direction ESD Protection Diode

Features

Bi-directional ESD protection of one line
Reverse stand−off voltage: 5V
Low reverse clamping voltage
Low leakage current
Fast response time
IEC 61000-4-2 (ESD) immunity test：
Air discharge: ±30kV
Contact discharge: ±30kV

A5

Application

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



DFN0603-2L



Schematic Diagram

Absolute Maximum Rating

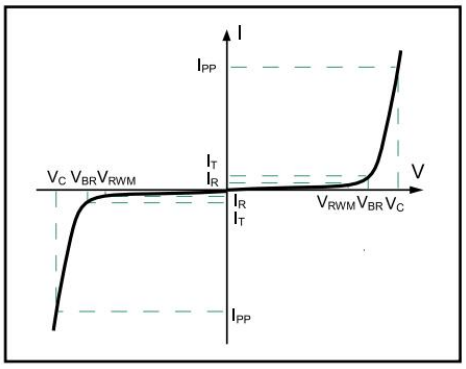
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	90	W
Peak Pulse Current (8/20μs)	IPP	8	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

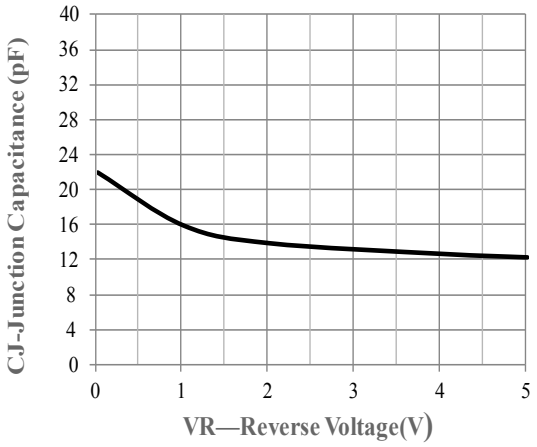
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	VR_{WM}				5	V
Breakdown Voltage	VBR	I_T = 1mA	5.6		8	V
Reverse Leakage Current	IR	VR_{WM} = ±5V			0.1	uA
Clamping Voltage	Vc	I_{PP} = 8A (8 x 20μs pulse)			11	V
Junction Capacitance	Cj	VR = 0V, f = 1MHz			22	pF

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

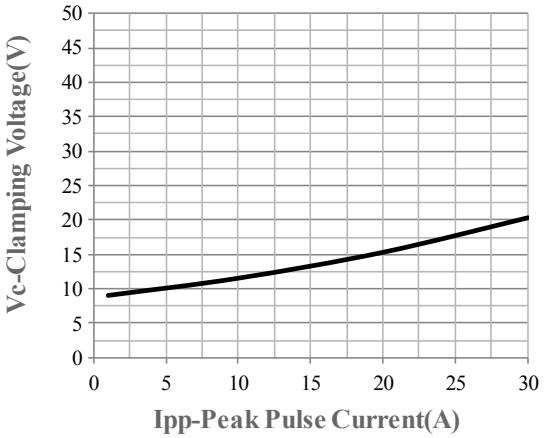
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @Ic
V_{BR}	Breakdown Voltage @ IT
I_R	Reverse Leakage Current @ VRWM
V_{RWM}	Reverse Standoff Voltage



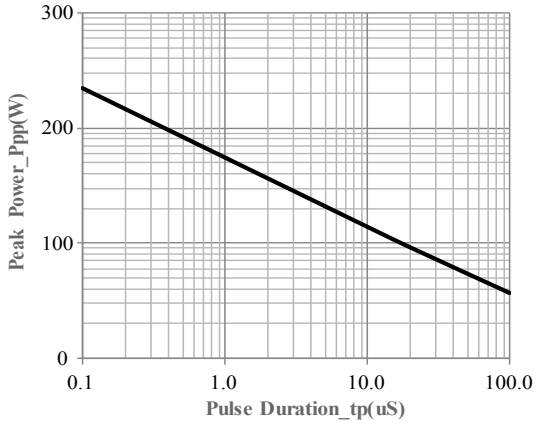
RATING AND CHARACTERISTIC CURVES



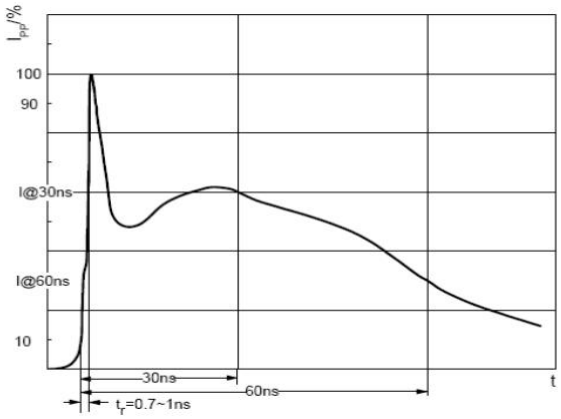
Junction Capacitance vs. Reverse Voltage



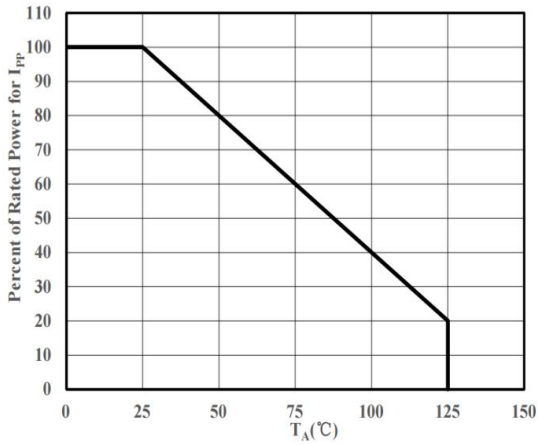
Clamping Voltage vs. Peak Pulse Current



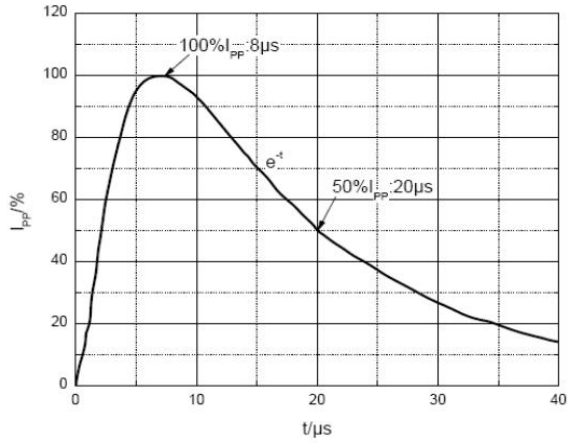
Peak Pulse Power vs. Pulse Time



ESD pulse waveform according to IEC61000-4-2



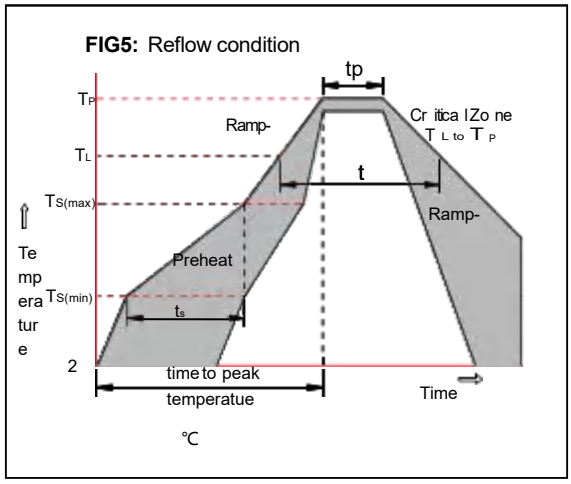
Power Derating Curve



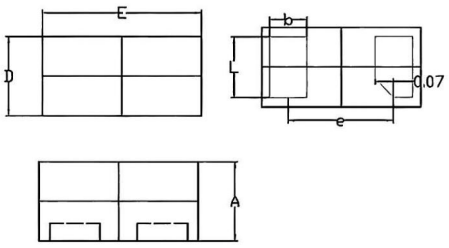
8/20μs pulse waveform according to IEC 61000-4-5

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℃

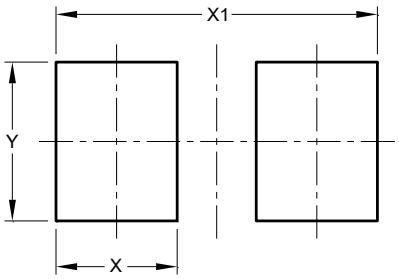


Package Dimensions & Suggested Pad Layout



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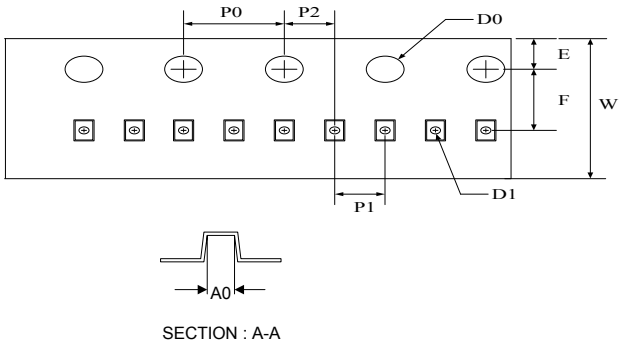
	Millimeters			Inches		
	Min. (mm)	Typ. (mm)	Max. (mm)	Min. (mm)	Typ. (mm)	Max. (mm)
A	0.28	0.30	0.32	0.0110	0.0118	0.0126
b	0.165	0.19	0.215	0.0065	0.0075	0.0085
D	0.25	0.30	0.35	0.0098	0.0118	0.0138
E	0.55	0.60	0.65	0.0216	0.0236	0.0256
e	0.34BSC			0.0134BSC		
L	0.205	0.23	0.255	0.0081	0.0091	0.0100



Dimensions	Value (in mm)
X	0.230
X1	0.650
Y	0.340

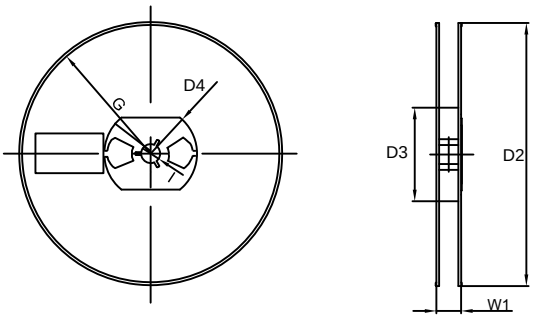
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	2.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	0.20±0.20
E	1.55±0.25
F	5.50±0.20
W	8.00±0.20
A0	0.67±0.20
B0	0.96±0.20
K0	0.60±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: 10000PCS