OM SENI

ESD5311X

Low Capactionce 1-Line Bi-directional TVS Diode

Features

* Ultra small package: 1.0x0.6x0.5mm
* Ultra low capacitance: 0.3pF typical
* Ultra low leakage: nA level
* Low operating voltage: ±5V
* Low clamping voltage
* 2-pin leadless package
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±20kV
  Contact discharge: ±15kV
  – IEC61000-4-5 (Lightning) 4A (8/20μs)
* RoHS Compliant
* Lead Finish: NiPdAu

Mechanical Characteristics

* Package: DFN1006-2 (0402)
* Lead Finish: Matte Tin
* Case Material: "Green" Molding Compound.
* Moisture Sensitivity: Level 3 per J-STD-020
* Terminal Connections: See Diagram Below

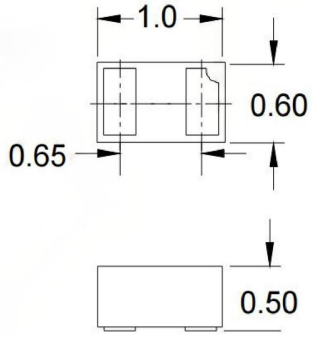
Applications

* Smart phones
* Display Ports
* MDDI Ports
* USB Ports
* Digital Video Interface (DVI)
* PCI Express and Serial SATA Ports

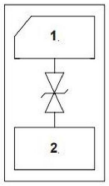
Ordering Information

Part Number	Qty per Reel	Reel Size
EESD5311X	10000	7″

Dimensions and Pin Configuration



Marking:88



OM SENI

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	80	W
Peak Pulse Current (8/20μs)	Ipp	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±20 ±15	kV
Operating Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	5.8	7.5	9	V	I_T = 1mA
Reverse Leakage Current	I_R			0.08	μA	V_{RWM} = 5V
Clamping Voltage	Vc			12	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	Vc			21	V	I_{PP} = 4A (8 x 20us pulse)
Junction Capacitance	C_J		0.3		pF	VR = 0V, f = 1MHz IO to IO

OM SENI

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

Fig1. 8/20μs Pulse Waveform

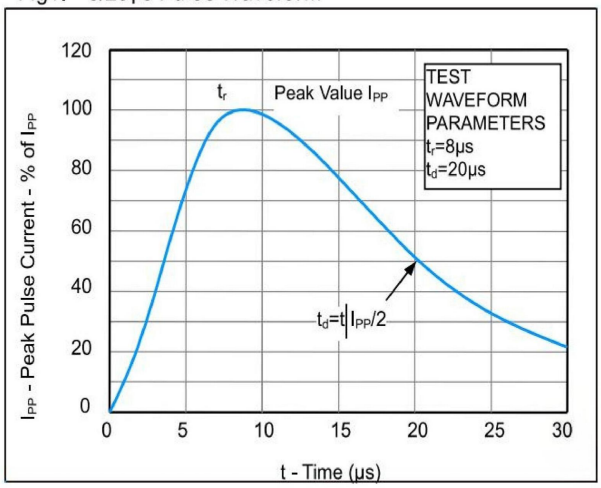


Fig2. ESD Pulse Waveform (acco rding to IEC 61000-4-2)

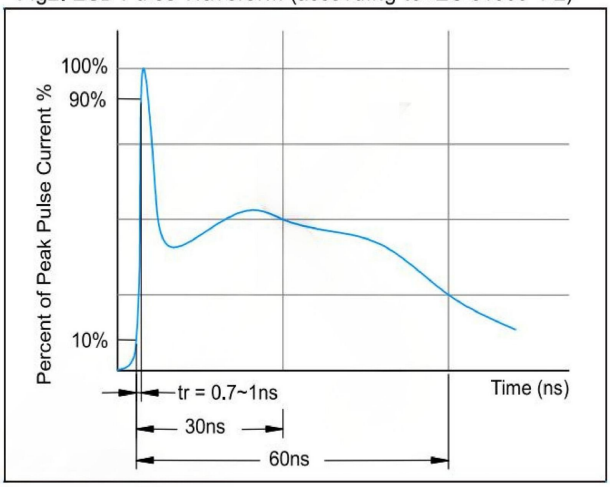
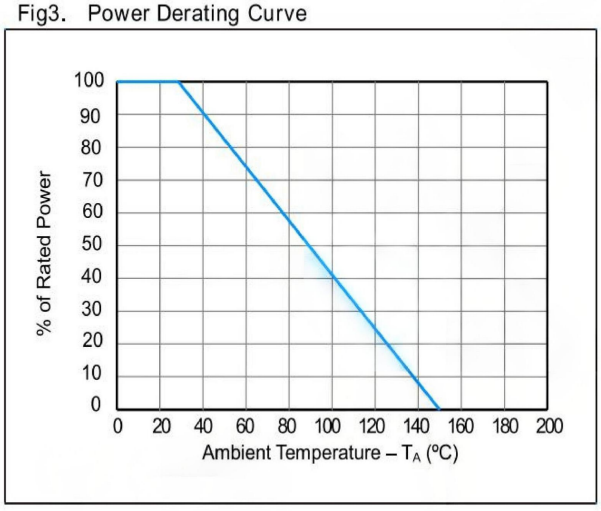


Fig3. Power Derating Curve

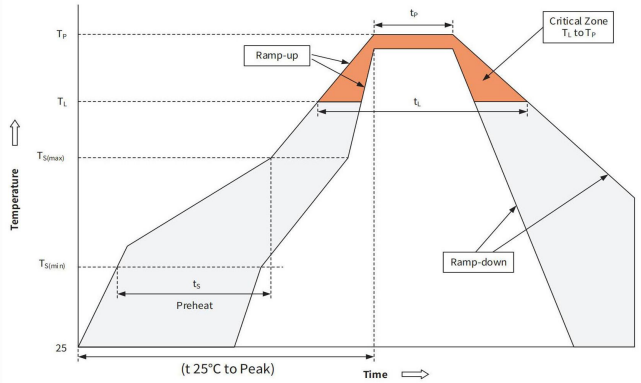


OM SENI

Ordering Information

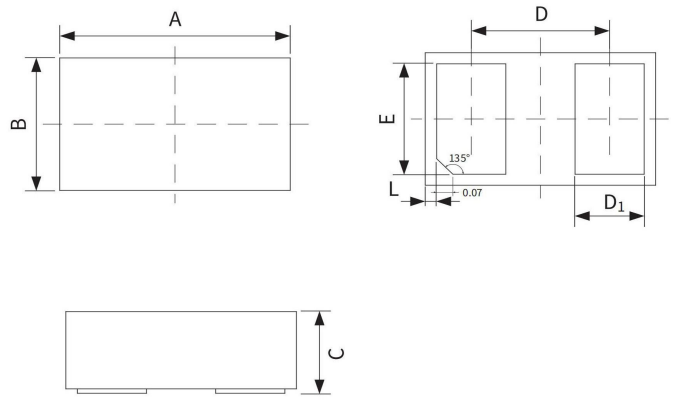
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	DFN1006-2L	1.00×0.60×0.37	7'' REEL	10,000

Recommended Soldering Conditions



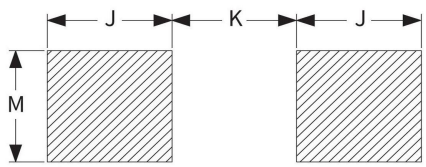
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (DFN1006-2L)



Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.950	1.050	0.037	0.041
B	0.550	0.650	0.022	0.026
C	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
D_1	0.280	0.380	0.011	0.015
E	0.450	0.550	0.018	0.022
L	0.000	0.100	0.000	0.004

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
J	0.50	0.60	0.020	0.024
K	0.25	0.35	0.010	0.014
M	0.55	0.65	0.022	0.026