

## SuperESD – ESD5451Z-2

### 1. Description

The ESD5451Z-2 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 60W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional lines
- Junction capacitance: 12pF Typ.

### 3. Applications

- USB 2.0/3.0
- 10/100/1000 Ethernet
- Monitors and Flat Panel Displays
- Notebook Computers
- SIM ports
- ATM interface

### 4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
ESD5451Z-2	DFN0603-2L	C5	Halogen free	Tape & Reel	10,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

## 5. Pin Configuration and Functions


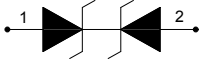
Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to IO		
2	IO2	Connect to IO		

Table-2 Pin configuration

## 6. Specification

### 6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P <sub>pk</sub>	-	60	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>		5.5	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
Junction temperature	T <sub>J</sub>	-	150	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Table-3 Absolute Maximum rating

## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	5.6		8	V
Reverse Leakage Current	$I_R$	$V_{RWM}=5V$			1	$\mu A$
Clamping Voltage	$V_C$	$I_{PP}=1A$ ; $t_p=8/20\mu s$			9.8	V
Clamping Voltage	$V_C$	$I_{PP}=5.5A$ ; $t_p=8/20\mu s$		9.8	12.5	V
Junction Capacitance	$C_J$	I/O to GND; $V_R=0V$ ; $f=1MHz$		12	15	pF

Table-4 Electrical Characteristics

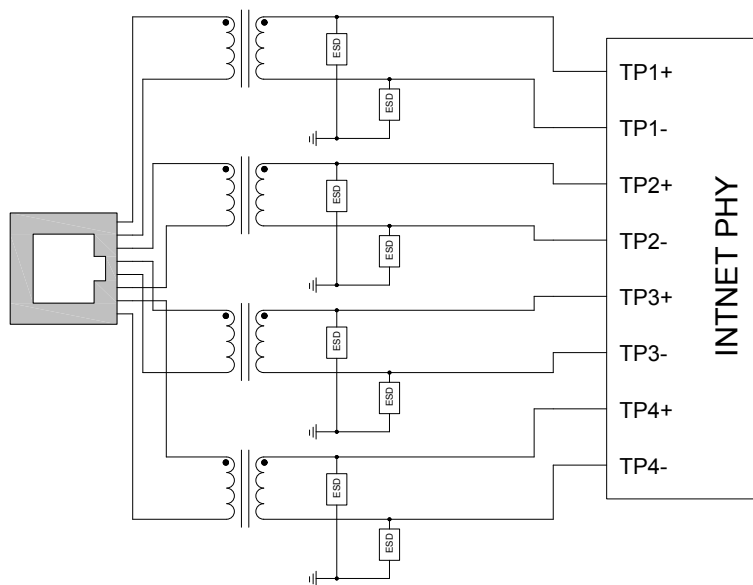
Symbol	Parameters
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$



### 7. Typical Characteristic

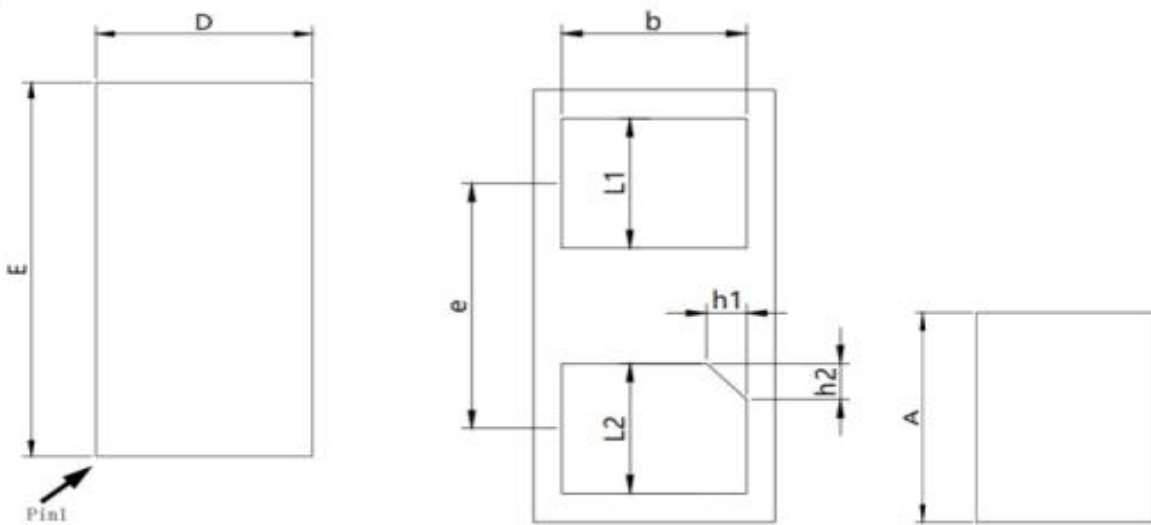


### 8. Typical Application



Typical Interface Application

9. Dimension



	min(mm)	typ(mm)	max(mm)
D	0.25	0.30	0.35
E	0.55	0.60	0.65
L1	0.155	0.18	0.205
L2	0.155	0.18	0.205
b	0.205	0.23	0.255
e	0.205	0.34	0.365
h1	0.025	0.05	0.075
h2	0.025	0.05	0.075
A	-	0.30	0.35

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