

## Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 10pF max
- Ultra low leakage: nA level
- Low operating voltage:  $\pm 5V$
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30kV$
    - Contact discharge:  $\pm 30kV$
  - – IEC61000-4-5 (Lightning) 7A (8/20  $\mu s$ )
- RoHS Compliant

## 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

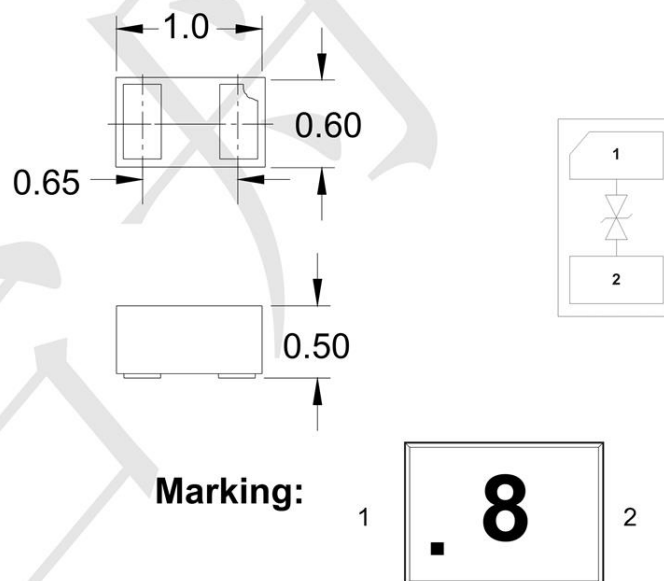
## Applications

- Smart Phone and Tablet PC
- TV and Set Top Box
- Wearable Devices
- PDA

## Ordering Information

Part Number	Qty per Reel	Reel Size
ESD5471X-TP	12000 Or 10000	7"

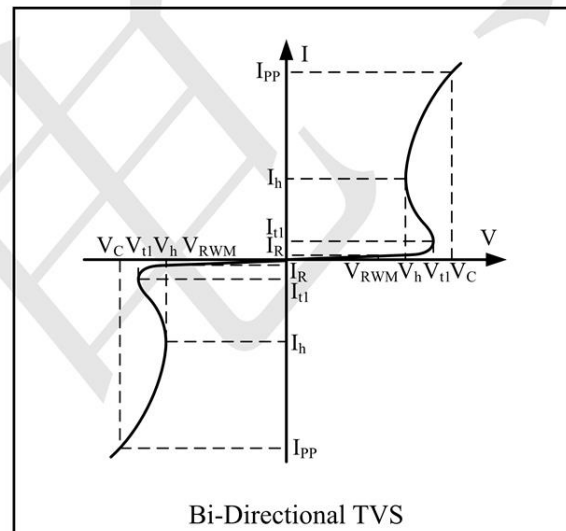
## Dimensions and Pin Configuration



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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	75	W
Peak Pulse Current (8/20μs)	Ipp	7	A
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Symbol	Parameter
$V_{RWM}$	Nominal Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{tl}$	Trigger Voltage
$I_{tl}$	Trigger Current @ $V_{tl}$
$V_h$	Holding Voltage
$I_h$	Holding Current @ $V_h$
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Maximum Peak Pulse Current
$V_F$	Forward Voltage @ $I_F$
$C_{ESD}$	Parasitic Capacitance



**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	$V_{BR}$	5.6			V	$I_T = 1\text{mA}$
Reverse Holding Voltage	$V_H$	5.5			V	$I_H = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.2	μA	$V_{RWM} = 5\text{V}$
Clamping Voltage	$V_C$			9	V	$I_{pp}=1\text{A}(8 \times 20\mu\text{s pulse})$
Clamping Voltage	$V_C$		15	17	V	$I_{pp}=7\text{A}(8 \times 20\mu\text{s pulse})$
Junction Capacitance	$C_J$		12	15	pF	$V_R = 0\text{V}, f = 1\text{MHz}$



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ESD5471X-TP

1-Line Bi-directional TVS Diode

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Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)

Fig1. 8/20 $\mu\text{s}$  Pulse Waveform

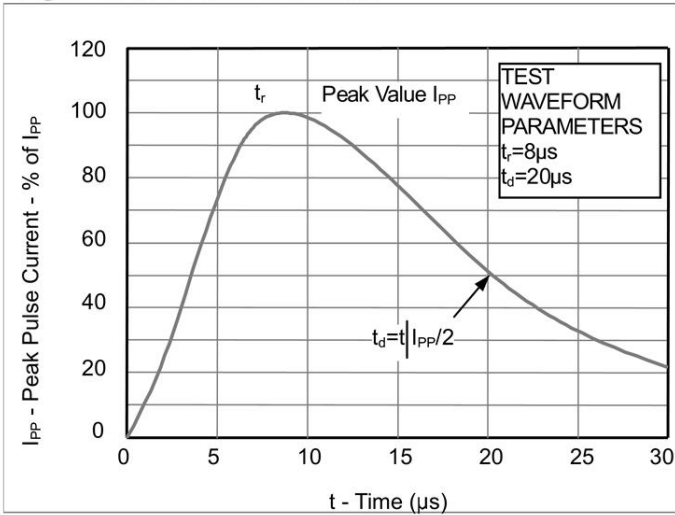


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

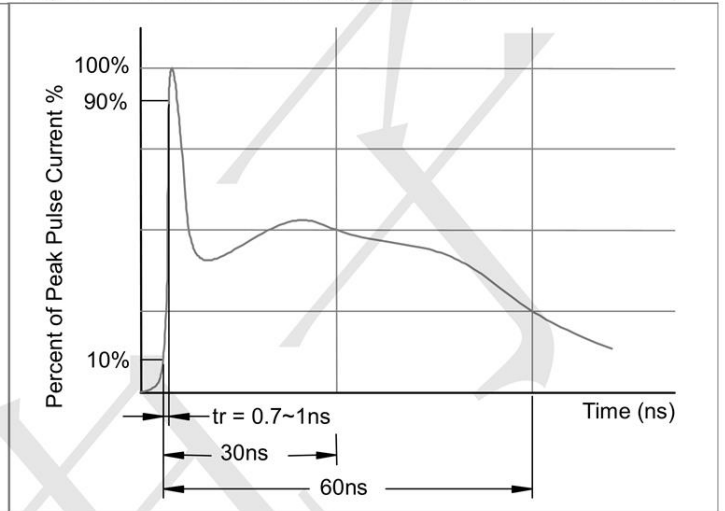
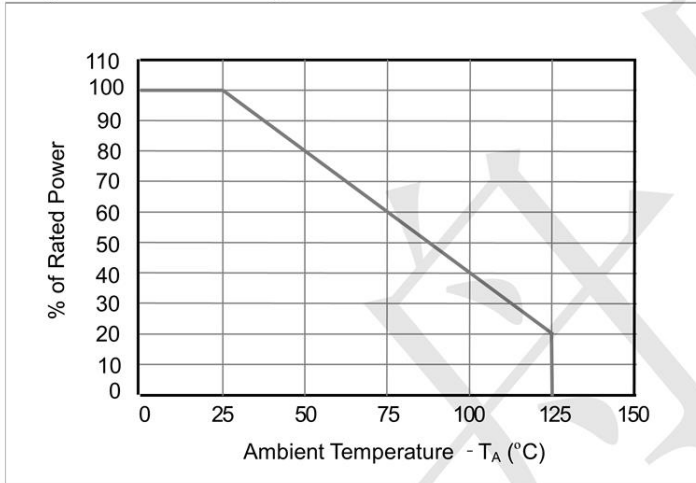


Fig3. Power Derating Curve





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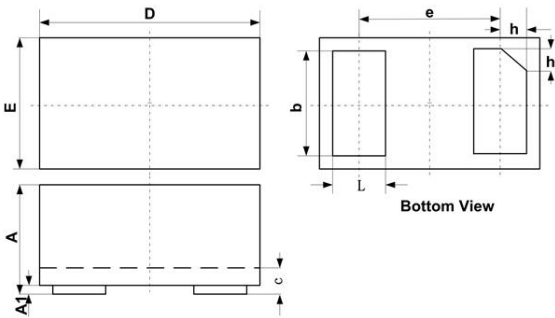
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**ESD5471X-TP**

1-Line Bi-directional TVS Diode

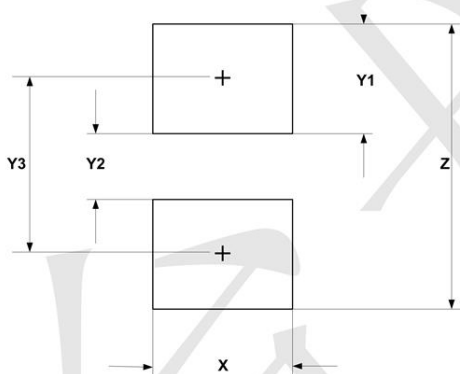
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**DFN1006-2 Package Outline Drawing (0402)**



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
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	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
h	0.07	0.12	0.17	0.003	0.005	0.007

**Suggested Land Pattern**



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

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