

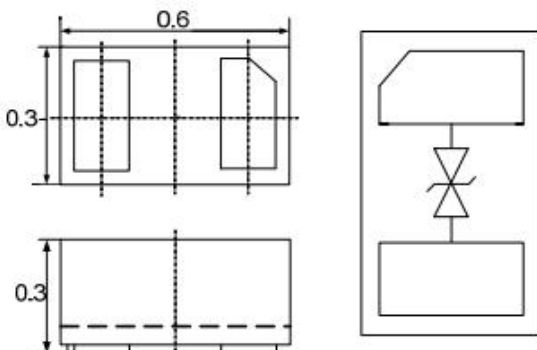
## Description

The E065T5P2 is designed with Salltech Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0/3.0 high speed, VGA, DVI, HDMI, eSATA and other high speed line applications. It has been specifically designed to protect sensitive components which are connected to data and transmission lines from over voltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

## Features

- Ultra small package: 0.6X0.3mm
- Ultra low capacitance: 0.15pF typical
- Working voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 15\text{kV}$   
Contact discharge:  $\pm 15\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 3A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Dimensions & Symbol (Unit: mm Max)



## Mechanical Characteristics

- Package: DFN0603-2 (0.6X0.3mm)
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- High Speed Line :USB1.0/2.0/3.0, VGA, DVI,SDI
- High Definition Multi-Media Interface(HDMI1.3/1.4/2.0)
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Peripherals
- Cellular handsets and accessories
- Portable instrumentation

## Ordering information

Part Number	Packaging	Reel Size
E065T5P2	15000/Tape & Reel	7 inch

Absolute maximum ratings ( $T_A=25^{\circ}\text{C}$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20 $\mu\text{s}$ waveform)	$P_{\text{ppp}}$	75	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{\text{pp}}$	3	A
ESD per IEC 61000-4-2 (Air)	$V_{\text{ESD}}$	$\pm 15$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 15$	
Operating Temperature Range	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{\text{stg}}$	-55 to +150	$^{\circ}\text{C}$

Electrical characteristics ( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	$V_{\text{RWM}}$			5	V	
Breakdown Voltage	$V_{\text{BR}}$	6			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_{\text{R}}$			0.2	$\mu\text{A}$	$V_{\text{RWM}} = 5.0\text{V}$
Clamping Voltage	$V_{\text{C}}$		10	13	V	$I_{\text{PP}} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_{\text{C}}$		20	25	V	$I_{\text{PP}} = 3\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$		0.15	0.23	pF	$V_{\text{R}} = 0\text{V}$ , $f = 1\text{MHz}$

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

Figure 1: Peak Pulse Power Vs Pulse Time

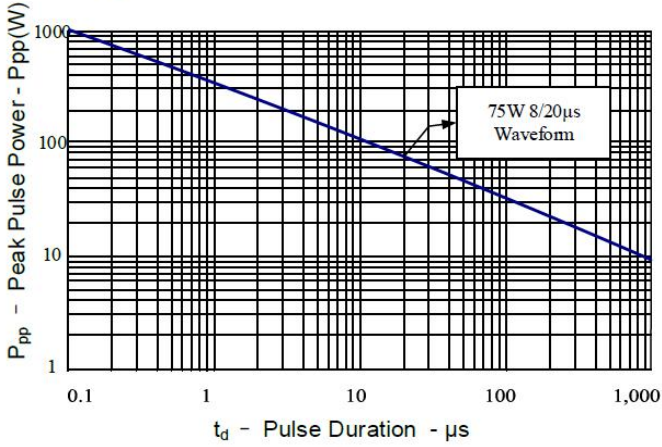


Figure 2: Power Derating Curve

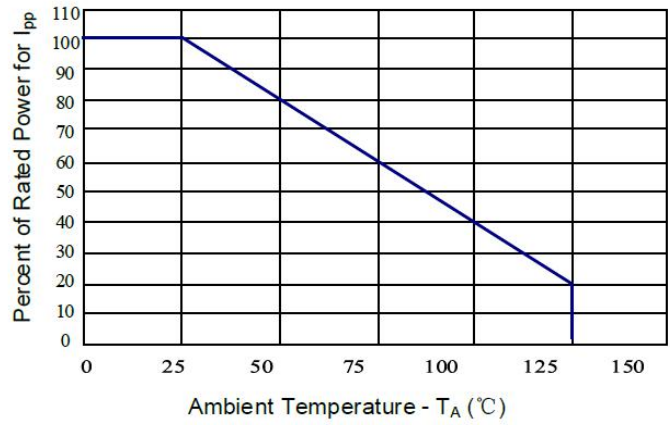


Figure 3: 8/20μs Pulse Waveform

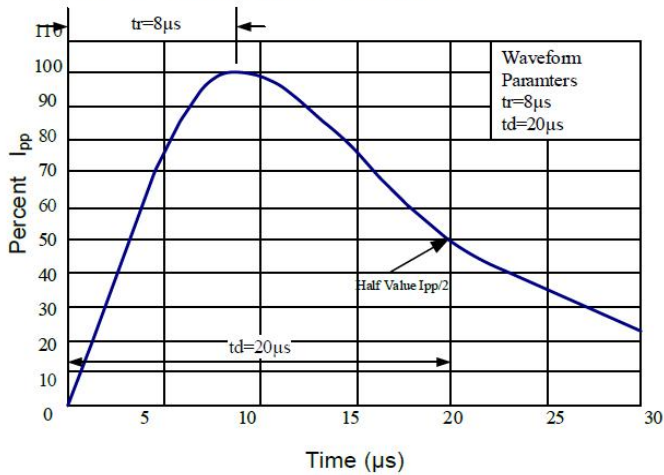


Figure 4: Clamping Voltage vs. Peak Pulse Current

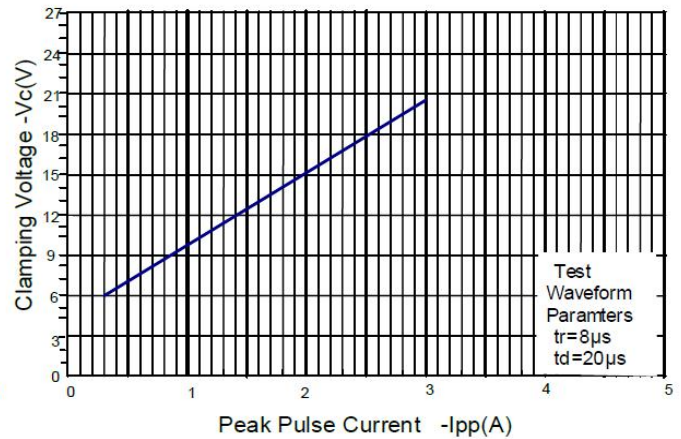


Figure 5: Capacitance vs. Reverse Voltage

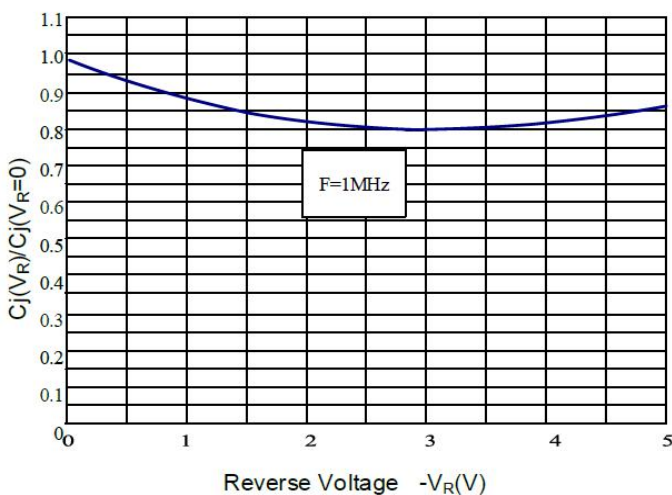
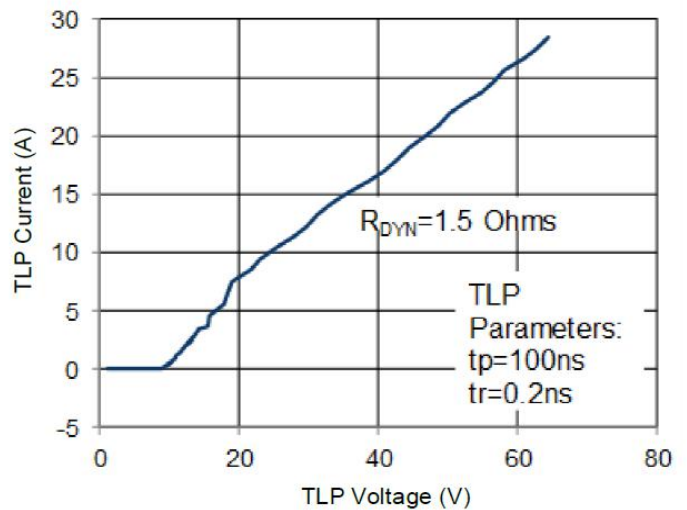
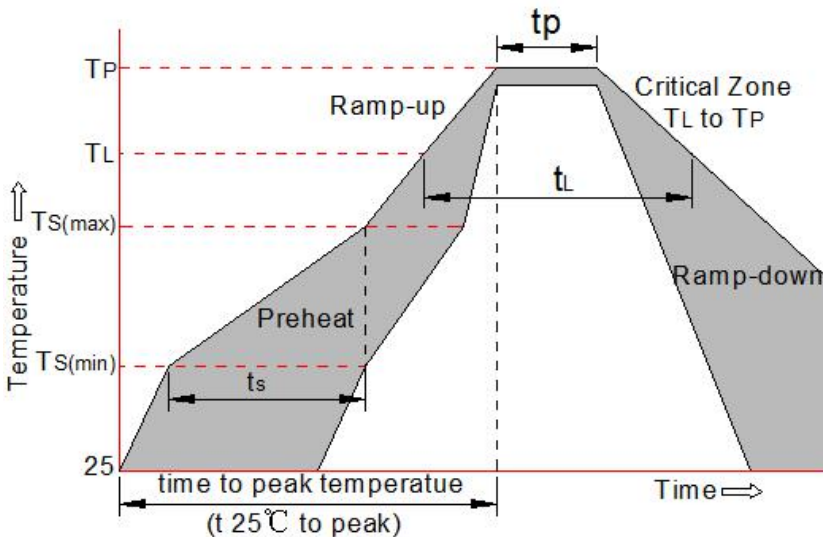


Figure 6: TLP I-V Curve

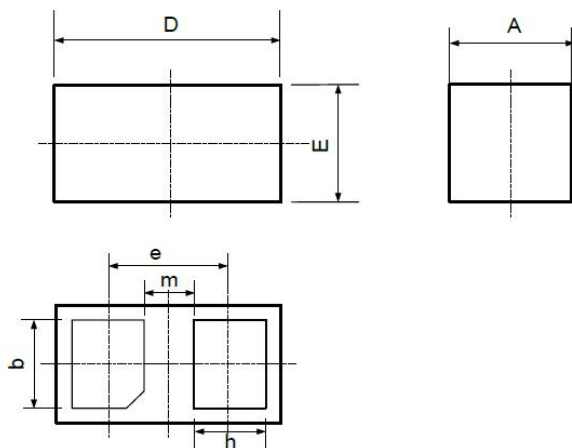


## Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	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 ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C



## Package Mechanical Data



SYM	DIMENSIONS	
	MILLIMETERS	
	MIN	MAX
A	0.28	0.32
D	0.55	0.65
E	0.25	0.35
b	0.20	0.30
e	0.350	
m	0.165	
h	0.07	0.17

## Suggested Land Pattern

