

### Features

- Ultra low diode capacitance ( < 1.2 pF max)
- Two data lines (D+ and D-) protected against 15 kV ESD
- Breakdown voltage  $V_{BR} = 6.0 \text{ V min}$
- Flip Chip 400  $\mu\text{m}$  pitch, lead-free
- Very low leakage current
- Very small PCB area
- RoHS compliant

### Mechanical Characteristics

- Package: CSP-4
- Lead Finish: Matte Tin
- UL Flammability Classification Rating 94V-0



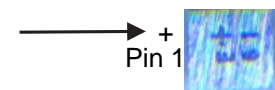
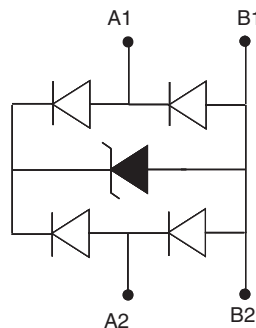
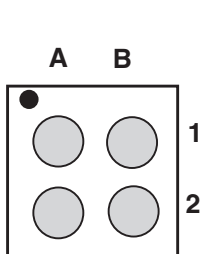
### Applications

- High speed USB port in wireless handsets (up to 480 Mb/s according to USB 2.0 high speed specification)

### Ordering Information

Part Number	Qty per Reel	Reel Size
TP4369CX4	3000	7"

### Pin Configuration and Circuit Diagram

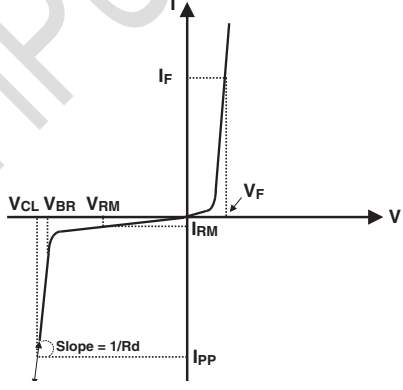


Marking E

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

Symbol	Parameter	Value	Unit
V <sub>PP</sub>	ESD discharge IEC 61000-4-2, air discharge	15	kV
	ESD discharge IEC 61000-4-2, contact discharge	8	
P <sub>PP</sub>	Peak pulse power dissipation (8/20 μs)	60	W
T <sub>j</sub>	Maximum junction temperature	125	°C
T <sub>op</sub>	Operating temperature range	-30 to +85	°C
T <sub>stg</sub>	Storage temperature range	-55 to +150	°C

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

Symbol	Parameter				
V <sub>BR</sub>	Breakdown voltage				
I <sub>RM</sub>	Leakage current @ V <sub>RM</sub>				
V <sub>RM</sub>	Stand-off voltage				
V <sub>CL</sub>	Clamping voltage				
R <sub>d</sub>	Dynamic impedance				
I <sub>PP</sub>	Peak pulse current				
αT	Voltage temperature coefficient				
V <sub>F</sub>	Forward voltage drop				
Symbol	Test conditions	Min.	Typ.	Max.	Unit
V <sub>BR</sub>	I <sub>R</sub> = 1 mA	6		9	V
I <sub>RM</sub>	V <sub>RM</sub> = 3 V			1	uA
R <sub>d</sub>	Exponential wave form 8/20 μs, I <sub>pp</sub> = 1 to 5 A		1.6		Ω
αT	I <sub>R</sub> = 1 mA			5	10 <sup>-4</sup> /°C
C <sub>line</sub>	V <sub>LINE</sub> = 0 V, V <sub>OSC</sub> = 30 mV, F = 1 MHz			1.2	pF

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

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

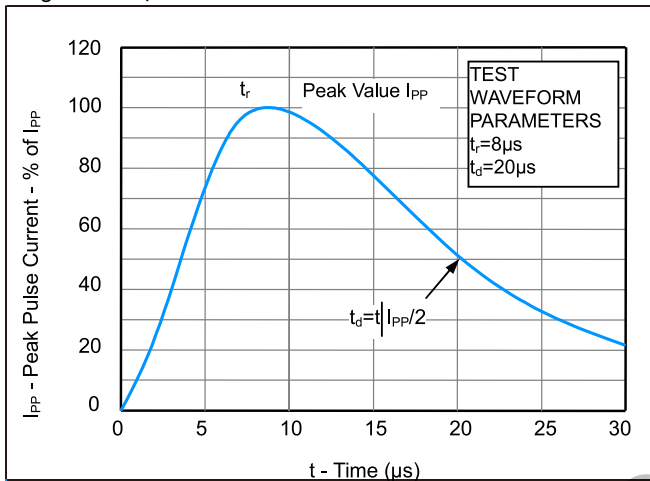


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

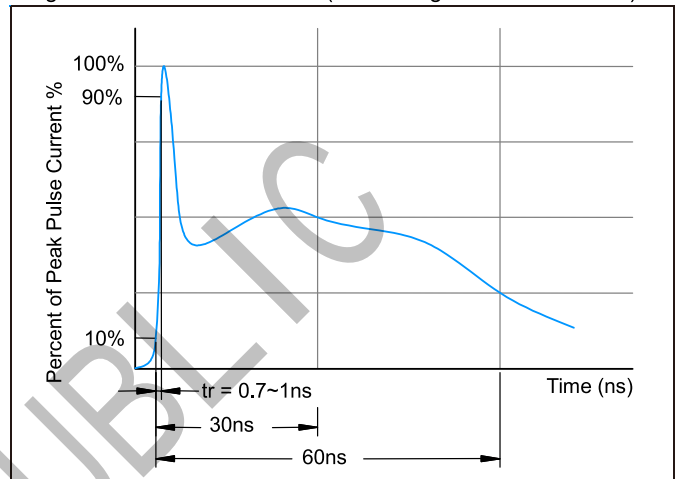


Fig3. Power Derating Curve

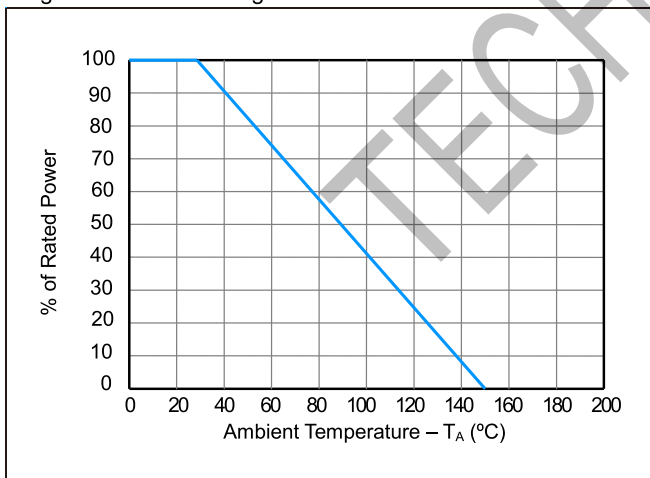
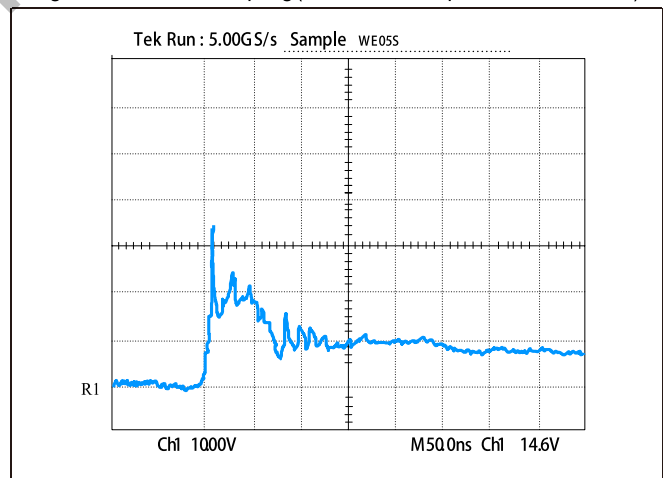
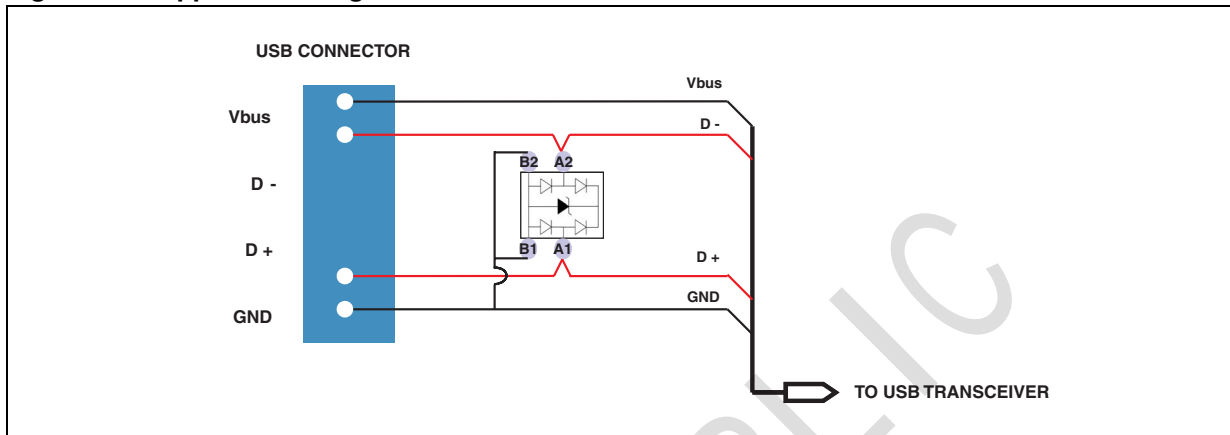


Figure 4: ESD Clamping (8kV Contact per IEC 61000-4-2)



## Application information

Figure 15. Application diagram



**Outline Drawing - CSP-4**

