

## 1-Line Bi-directional TVS Diode

### Description

The FTV0721D5 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The FTV0721D5 complies with the IEC 61000-4-2(ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into an ultra-small SOD-523 lead-free package. The small size and high ESD surge protection make FTV0721D5 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

### Features

- ◆ Protects one data or power line
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 7V
- ◆ Low clamping voltage
- ◆ 2-pin leadless package
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 30\text{kV}$   
Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 6A (8/20 $\mu\text{s}$ )
- ◆ ROHS Compliant

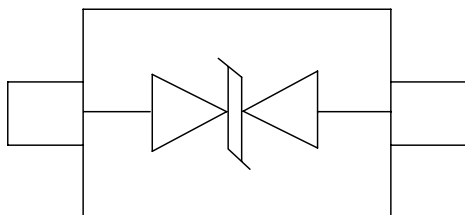
### Mechanical Characteristics

- ◆ Package: SOD-523
- ◆ Case Material: “Green” Molding Compound.
- ◆ Moisture Sensitivity: Level 1 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

### Applications

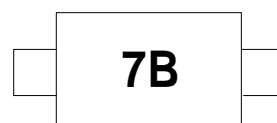
- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players
- ◆ Keypads, Side Keys, LCD Displays

### Dimensions and Pin Configuration



Circuit and Pin Schematic

### Marking Information



7B= Device Marking Code

### Ordering Information

Part Number	Marking	Packaging	Reel Size
FTV0721D5	7B	3000/Tape & Reel	7 inch



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### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	80	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	I <sub>PP</sub>	6	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	$^{\circ}\text{C}$

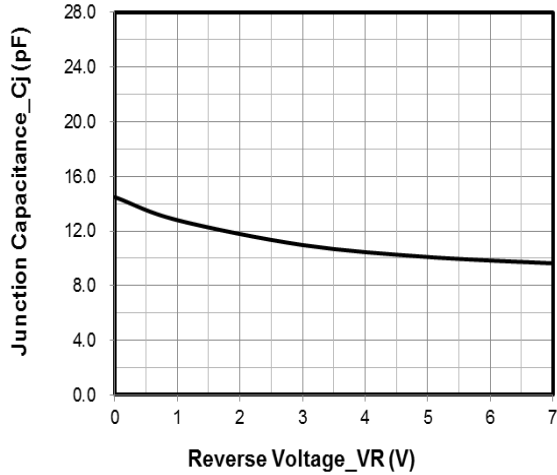
### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			7	V	
Breakdown Voltage	V <sub>BR</sub>	7.5			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.2	$\mu\text{A}$	V <sub>RWM</sub> = 7V
Clamping Voltage	V <sub>C</sub>			9	V	I <sub>PP</sub> = 1A
Clamping Voltage	V <sub>C</sub>			14	V	I <sub>PP</sub> = 6A
Junction Capacitance	C <sub>J</sub>		15		pF	V <sub>R</sub> = 0V, f = 1MHz

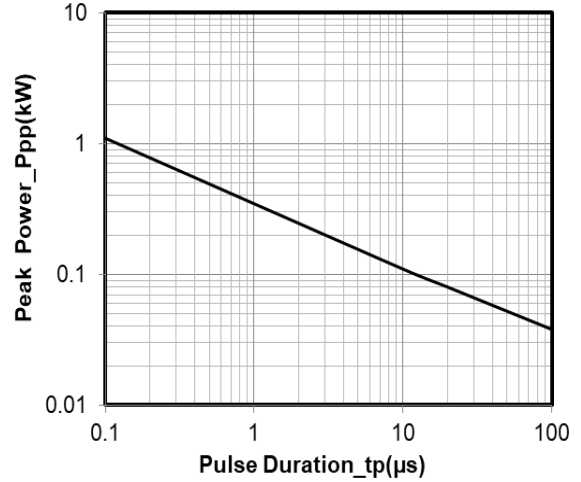


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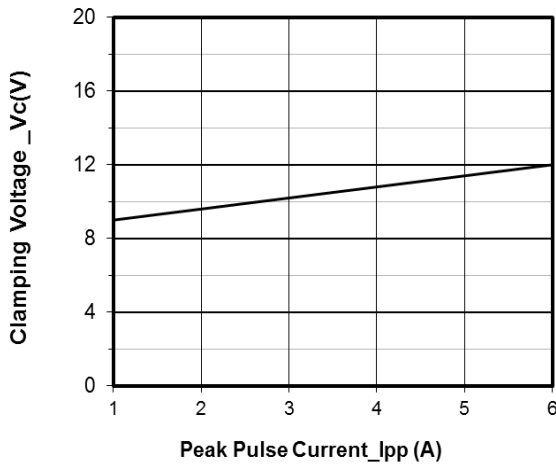
## Typical Performance Characteristics (TA=25°C unless otherwise Specified)



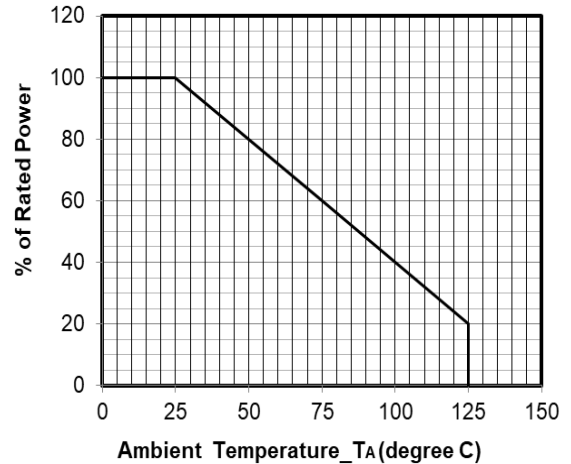
Junction Capacitance vs. Reverse Voltage



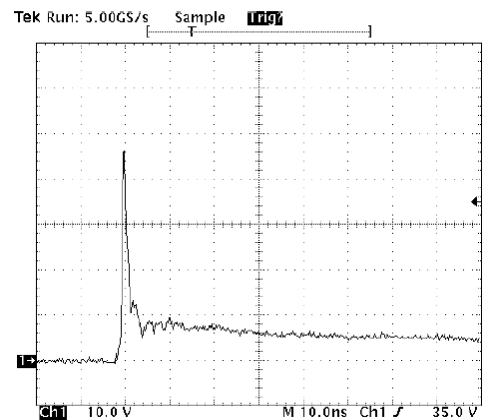
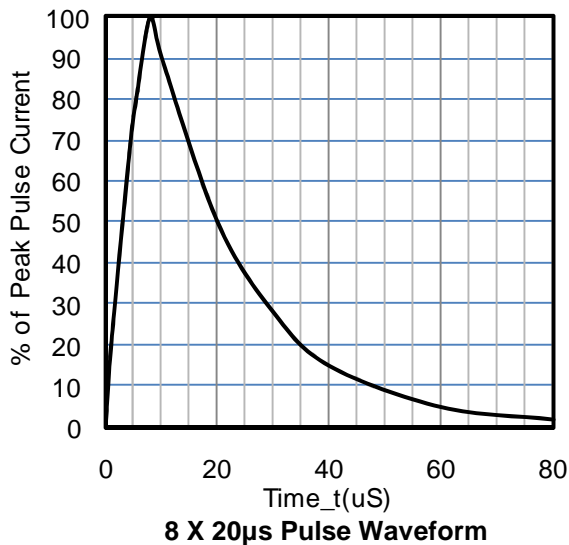
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



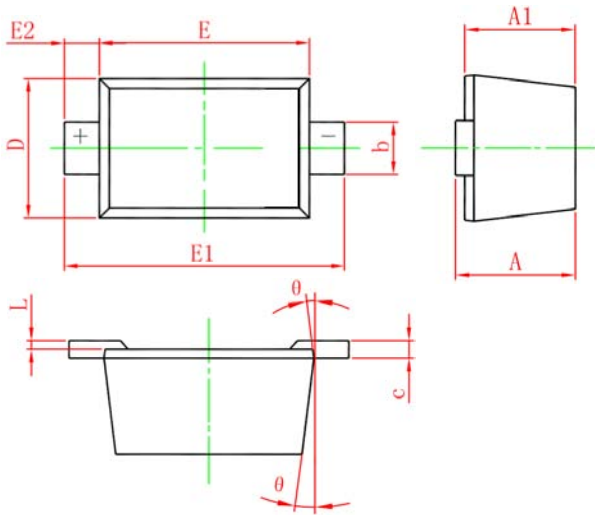
Power Derating Curve



Note : Data is taken with a 10x attenuator  
ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2

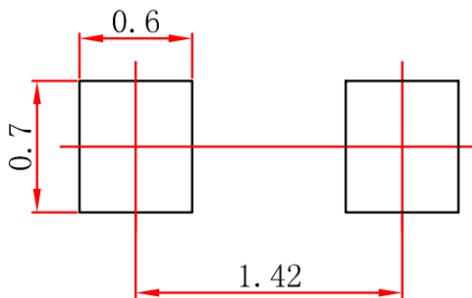
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## SOD-523 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	--	0.77	0.020	--	0.031
A1	0.50	--	0.70	0.020	--	0.028
b	0.25	--	0.35	0.010	--	0.014
c	0.08	--	0.15	0.003	--	0.006
D	0.75	--	0.85	0.030	--	0.033
E	1.10	--	1.30	0.043	--	0.051
E1	1.50	--	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	--	0.07	0.001	--	0.003
Θ	7° REF			7° REF		

## Suggested Land Pattern



Unit : mm