

## Description

The DC0731D5 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensi-tive data and power line. The DC0731D5 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 DC0731D5 an ideal choice to pro-tect cell phone, digital cameras, audio players and many other portable applications.

## Mechanical Characteristics

- ◆ Package: SOD-523
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

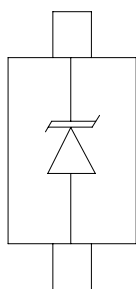
## Features

- ◆ Ultra small package: SOD-523
- ◆ 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) 14A (8/20 $\mu\text{s}$ )
- ◆ ROHS Compliant

## Applications

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

## Dimensions and Pin Configuration



Circuit and Pin Schematic

## Marking Information



E7 = Device Marking Code  
Bar denotes Pin1

## Ordering Information

Part Number	Marking	Packaging	Reel Size
DC0731D5	E7	3000/Tape & Reel	7 inch

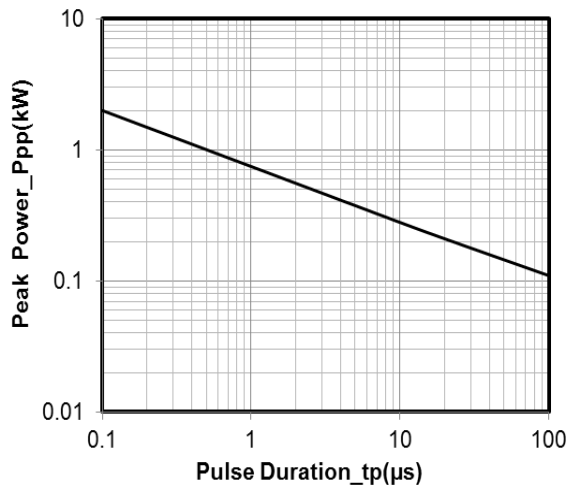
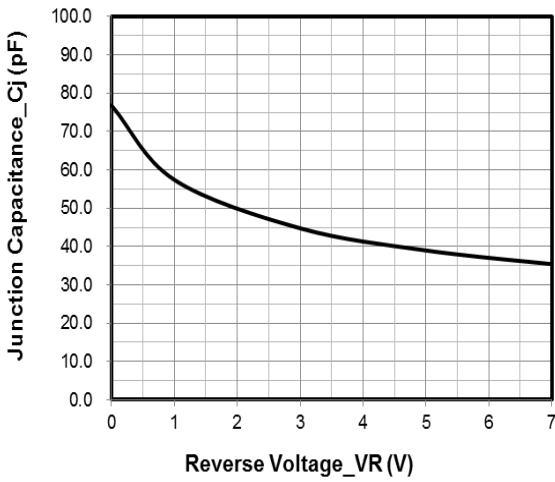
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	210	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	I <sub>PP</sub>	14	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)**

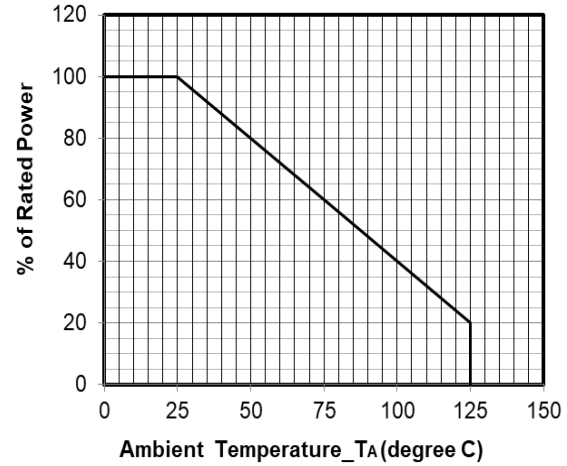
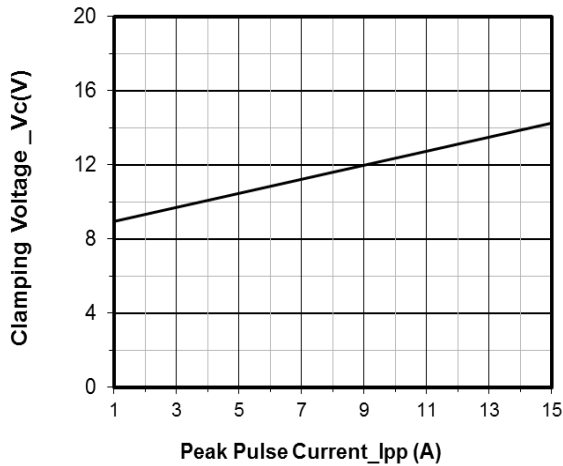
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			7	V	
Breakdown Voltage	V <sub>BR</sub>	7.5			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.2	$\mu\text{A}$	V <sub>RWM</sub> = 7V
Clamping Voltage	V <sub>C</sub>			10	V	I <sub>PP</sub> = 1A
Clamping Voltage	V <sub>C</sub>			15	V	I <sub>PP</sub> = 14A
Junction Capacitance	C <sub>J</sub>			100	pF	V <sub>R</sub> = 0V, f = 1MHz

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



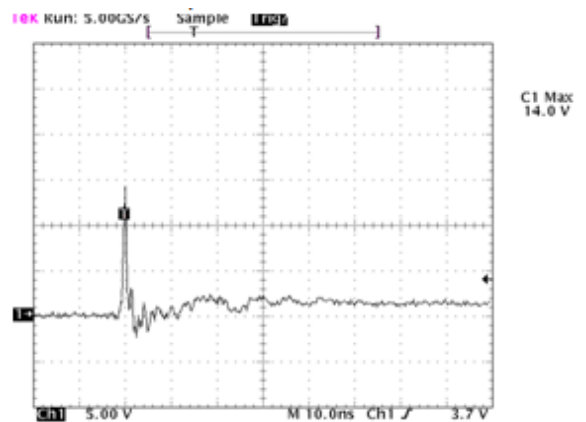
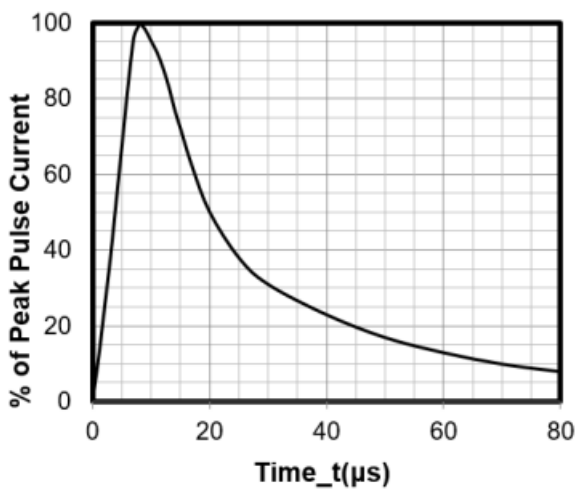
**Junction Capacitance vs. Reverse Voltage**

**Peak Pulse Power vs. Pulse Time**



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

**Power Derating Curve**



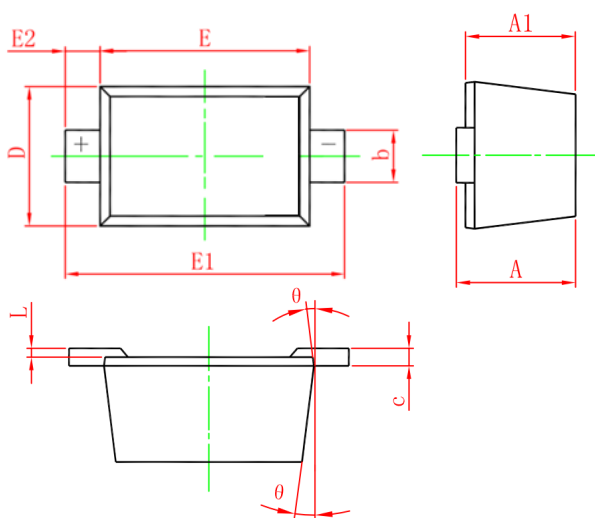
**8 X 20μs Pulse Waveform**

**Note: Data is taken with a 10x attenuator**

**ESD Clamping Voltage**

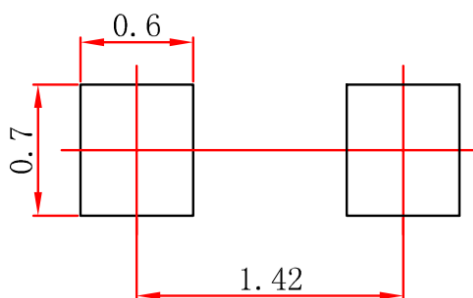
**8 kV Contact per IEC61000-4-2**

## 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

## Contact Information

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