

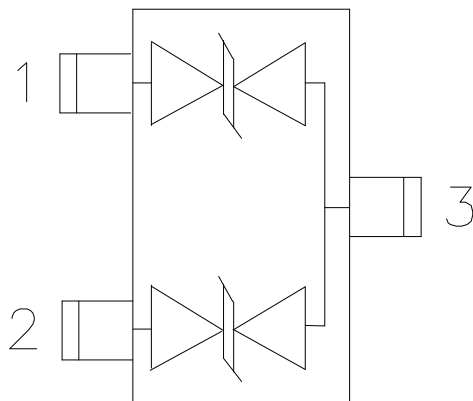
## Description

The DC0561S2 is a 2-line bi-directional low capacitance TVS diode array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The DL0522S2 has a very low capacitance with a typical value at 2pF, and complies with the IEC 61000-4-2 (ESD) standard with  $\pm 15\text{kV}$  air and  $\pm 8\text{kV}$  contact discharge. It is assembled into a lead-free SOT-23 package. The small size, very low capacitance and high ESD surge protection make DC0561S2 an ideal choice to protect cell phone, digital video interfaces, high speed data ports, and many other portable applications.

## Mechanical Characteristics

- ◆ Package: SOT-23
- ◆ Lead Finish: Matte Tin
- ◆ 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

## Dimensions and Pin Configuration



Circuit and Pin Schematic

## Ordering Information

Part Number	Marking	Packaging	Reel Size
DC0561S2	L3B	3000/Tape & Reel	7 inch

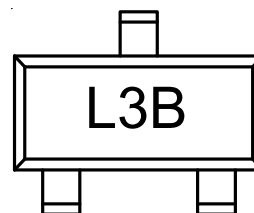
## Features

- ◆ Very low capacitance: 2.5pF typical
- ◆ Ultra low leakage: nA level
- ◆ Low operating voltage: 5V
- ◆ Low clamping voltage
- ◆ Small SOT-23 package
- ◆ Up to 2-line protects
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test Air discharge:  $\pm 15\text{kV}$   
Contact discharge:  $\pm 8\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ RoHS Compliant

## Applications

- ◆ Cellular Handsets and Accessories
- ◆ Notebooks and Handhelds
- ◆ Personal Digital Assistants
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players, Keypads, Side Keys, LCD
- ◆ USB 2.0

## Marking Information



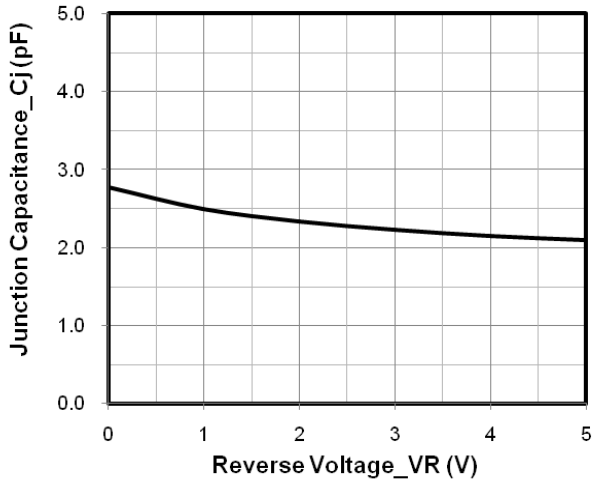
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	VESD	±15	kV
ESD per IEC 61000-4-2 (Contact)		±8	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

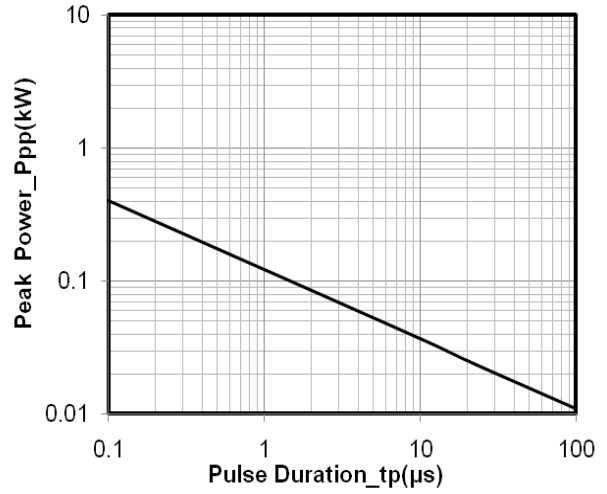
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.2	µA	VRWM = 5V
Clamping Voltage	VC			10	V	$I_{PP} = 1\text{A}$ (8 x 20µs pulse),
Junction Capacitance	CJ		2.5	3	pF	VR = 0V, f = 1MHz

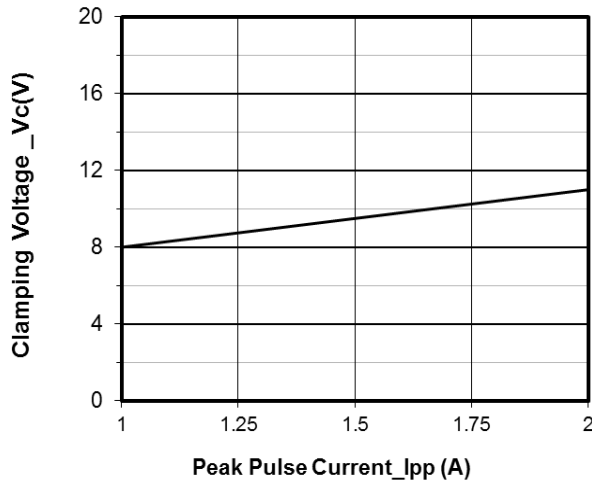
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



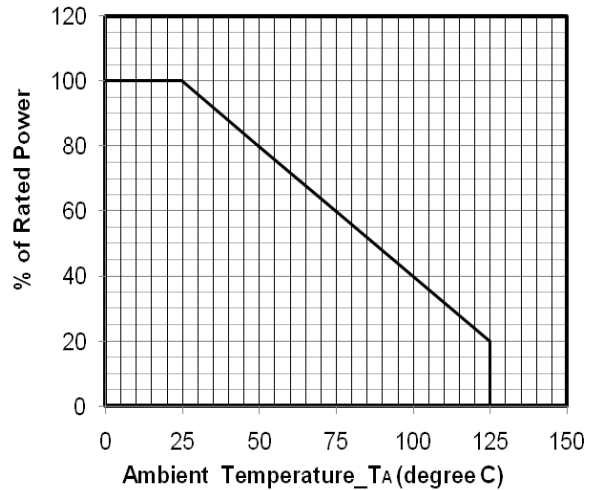
**Junction Capacitance vs. Reverse Voltage**



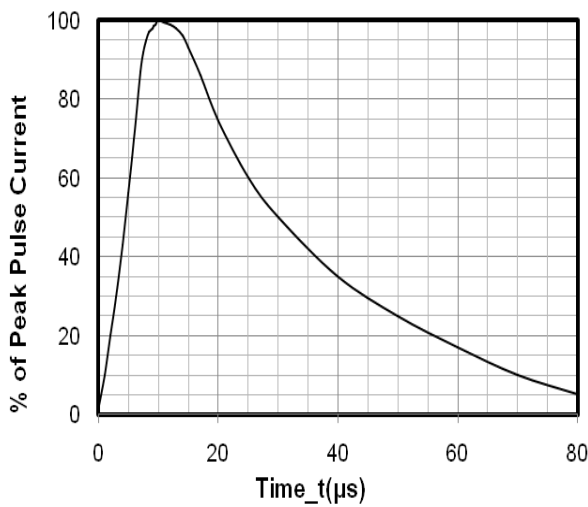
**Peak Pulse Power vs. Pulse Time**



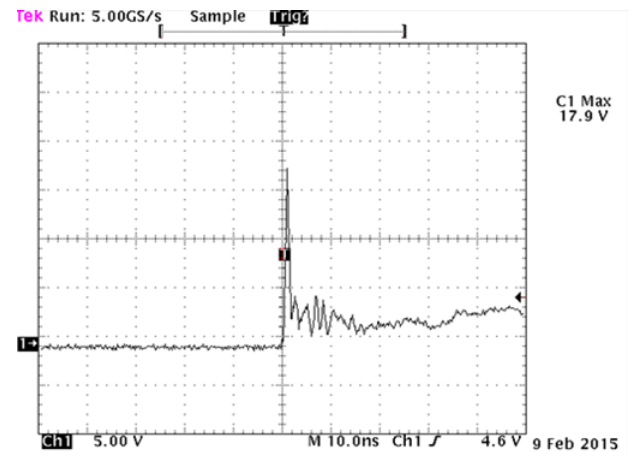
**Clamping Voltage vs. Peak Pulse Current (tp = 8/20us)**



**Power Derating Curve**



**8 X 20μs Pulse Waveform**

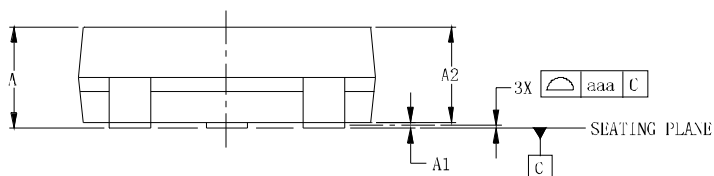
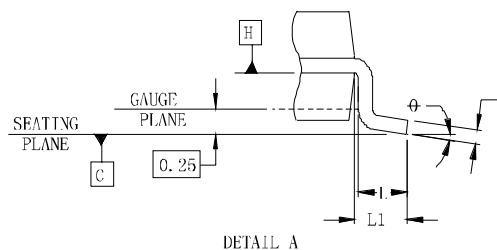
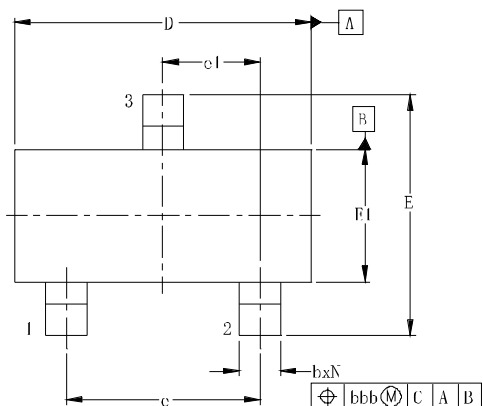


**Note: Data is taken with a 10x attenuator**

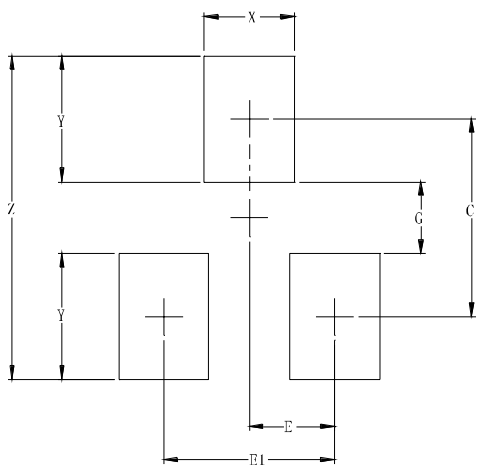
**ESD Clamping Voltage**

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

### SOT-23 Package Outline Drawing



### Suggested Land Pattern



DIMENSIONS						
SYM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.90BSC		
e1	0.037			0.95BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	0.022			0.55		
N	3			3		
ϕ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

DIMENSIONS		
SYM	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

### Contact Information

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