

Description

The DC2561P6 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The DC2561P6 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 1.6x1.0x0.5mm lead-free DFN package. The small size and high ESD surge protection make DC2561P6 an ideal choice to protect cell phone, digital cameras, audio play-ers and many other portable applications.

Features

- ◆ Small package: 1.6 x1.0 x0.5mm
- ◆ Protects one data or power line
- ◆ Ultra low leakage: nA level
- ◆ 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) 100A (8/20 μs)
- ◆ RoHS Compliant

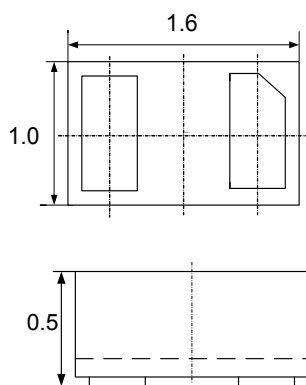
Mechanical Characteristics

- ◆ Package: DFN1610-2
- ◆ Case Material: “Green” Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

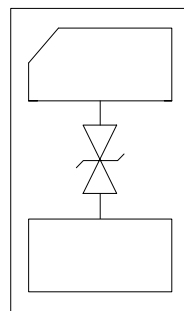
Applications

- ◆ Mobile Phones
- ◆ Battery Protection
- ◆ Power Line Protection
- ◆ Vbat pin for Mobile Devices
- ◆ Hand Held Portable Applications

Dimensions and Pin Configuration

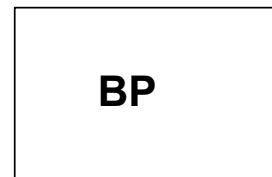


Package Dimensions



Circuit and Pin Schematic

Marking Information



BP = Device Marking Code

Ordering Information

Part Number	Marking	Packaging	Reel Size
DC2561P6	BP	3000/Tape & Reel	7 inch

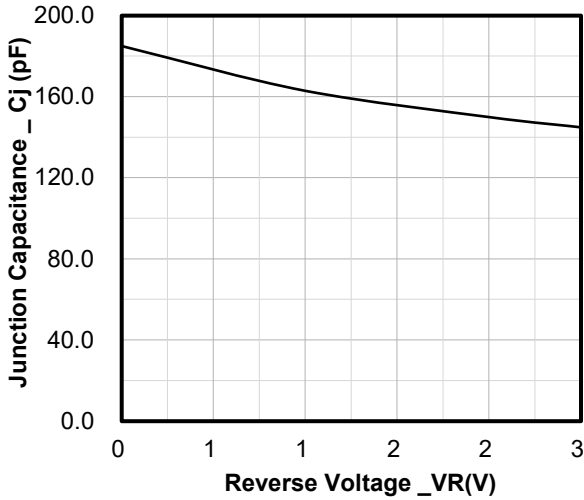
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	900	W
Peak Pulse Current (8/20 μs)	Ipp	100	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

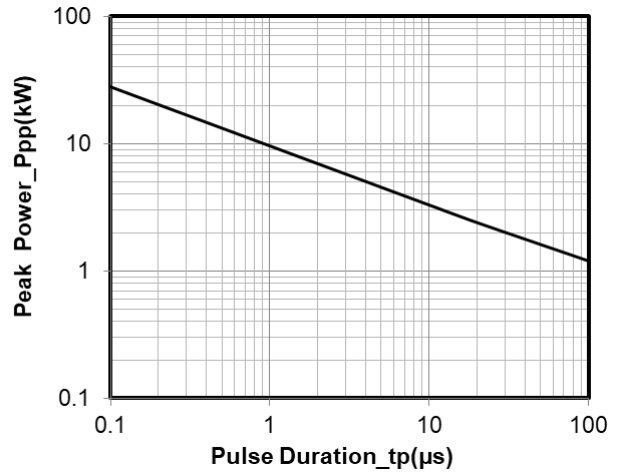
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			2.5	V	
Breakdown Voltage	VBR	3.0	4.0		V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			1.0	μA	$V_{RWM} = 2.5\text{V}$
Clamping Voltage	VC		5.5		V	$I_{PP} = 20\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	VC		9.0		V	$I_{PP} = 100\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	CJ		185	230	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

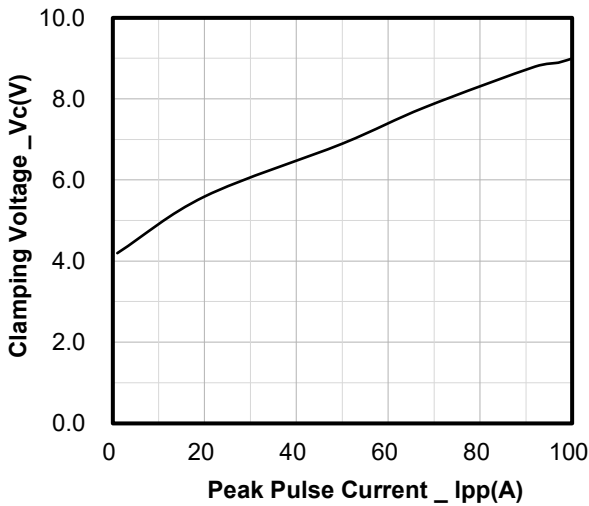
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



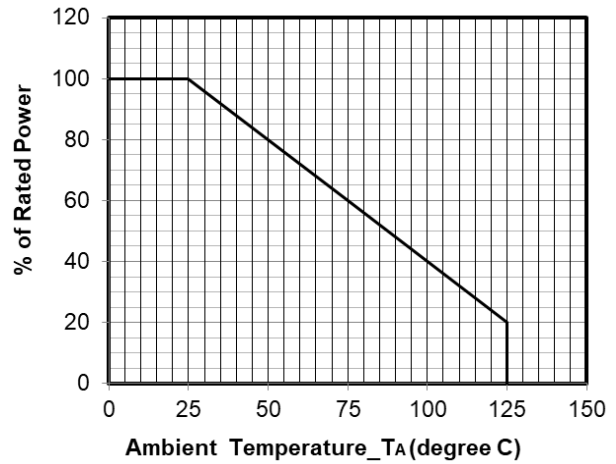
Junction Capacitance vs. Reverse Voltage



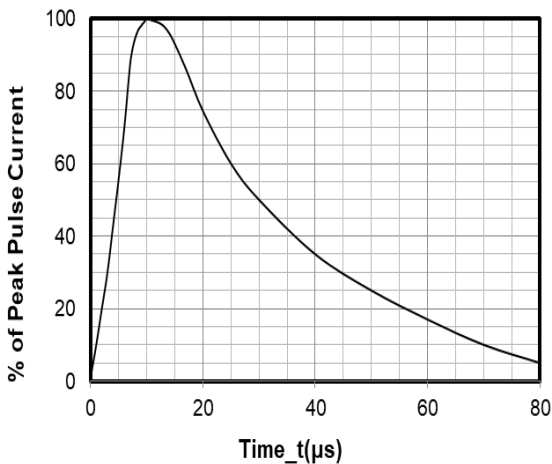
Peak Pulse Power vs. Pulse Time



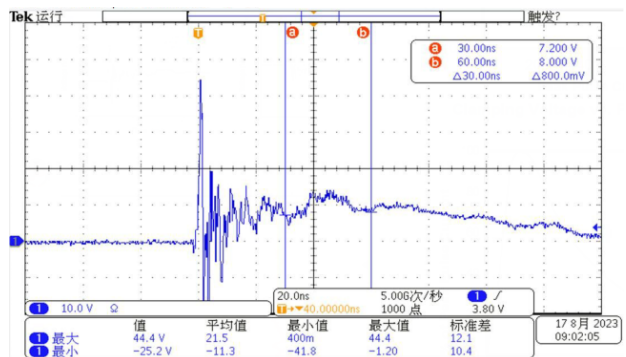
Clamping Voltage vs. Peak Pulse Current



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

