

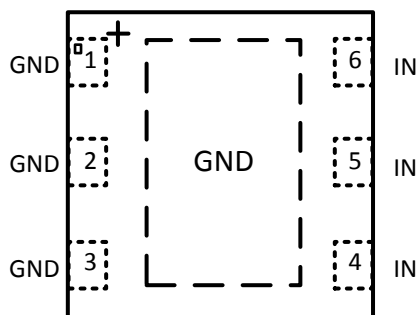
## Description

The DFC2401P4-6 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 sensitive data and power line. The DFC2401P4-6 complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  con-tact discharge. It is assembled into an ultra-small DFN2020-6 lead-free package. The small size and high ESD surge protection make DFC2401P4-6 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

## Mechanical Characteristics

- ◆ Package: DFN2020-6
- ◆ 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

## Dimensions and Pin Configuration



Pin Schematic

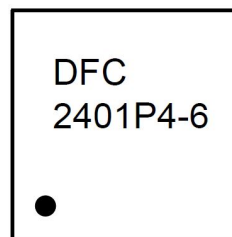
## Features

- ◆ 1350W peak pulse power (8/20 $\mu\text{s}$ )
- ◆ Protects one data line
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 24V
- ◆ Ultra low clamping voltage
- ◆ 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) 30A (8/20 $\mu\text{s}$ )
- ◆ RoHS Compliant

## Applications

- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks, Desktops, Servers
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Analog Inputs
- ◆ Audio Players
- ◆ Keypads, Side Keys, LCD Displays
- ◆ Laser Diode Protection

## Marking Information



Dot denotes Pin1

## Ordering Information

Part Number	Marking	Packaging	Reel Size
DC2471P4	DFC2401P4-6	3000/Tape & Reel	7 inch

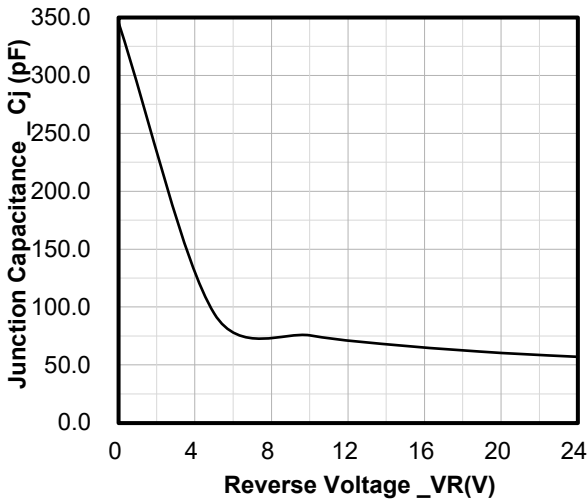
### **Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	1350	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	Ipp	30	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

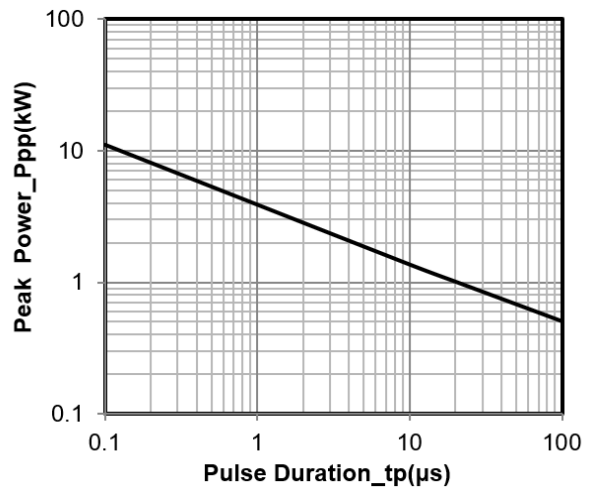
### **Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			24	V	
Breakdown Voltage	VBR	26			V	IT = 1mA
Reverse Leakage Current	IR			0.2	$\mu\text{A}$	VRWM = 24V
Forward Voltage	VF			1.2	V	IF = 10mA
Clamping Voltage	VC			35	V	I <sub>PP</sub> = 10A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC			45	V	I <sub>PP</sub> = 30A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ		350		pF	VR = 0V, f = 1MHz

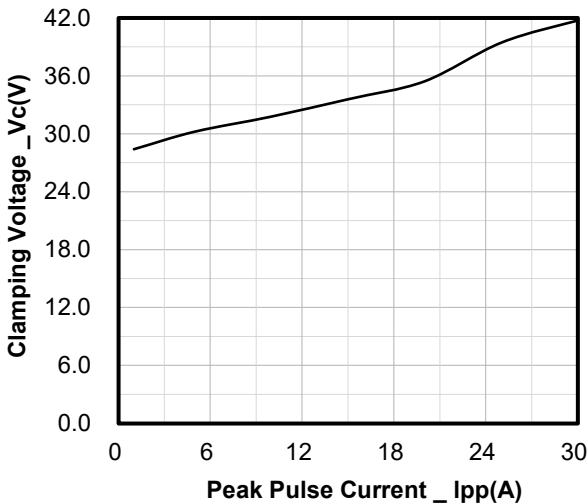
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



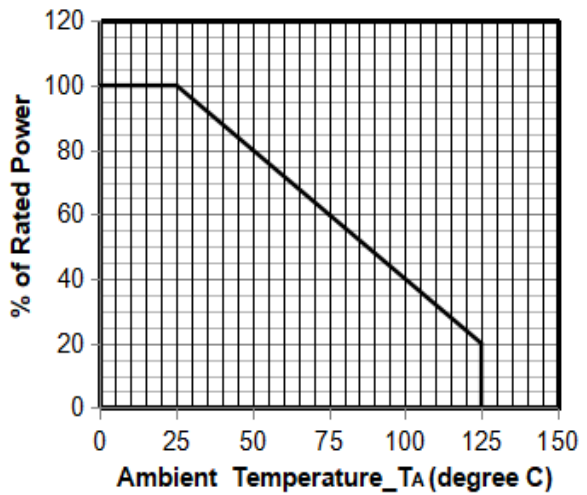
**Junction Capacitance vs. Reverse Voltage**



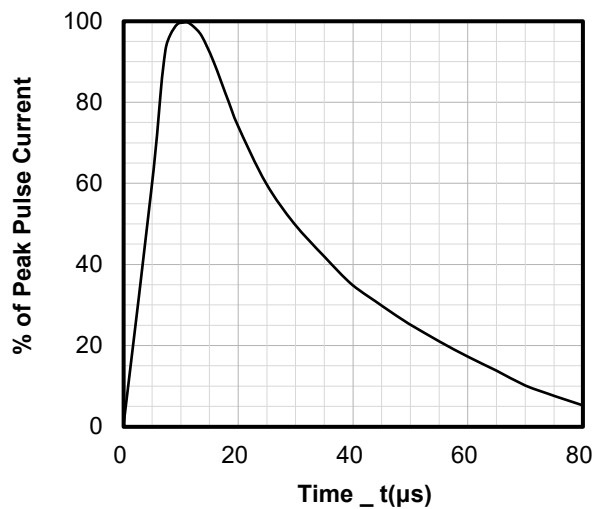
**Peak Pulse Power vs. Pulse Time**



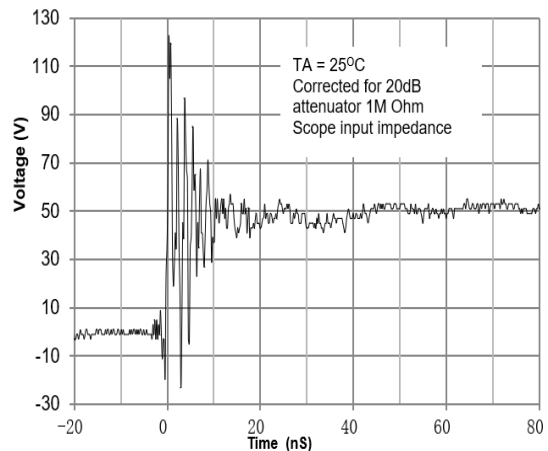
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**



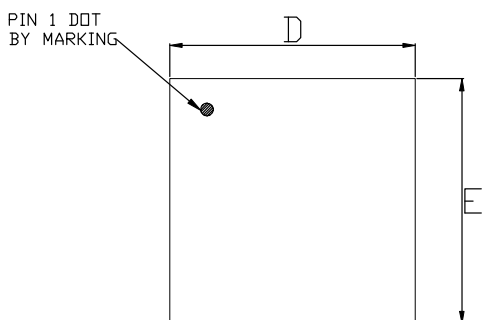
**8 X 20µs Pulse Waveform**



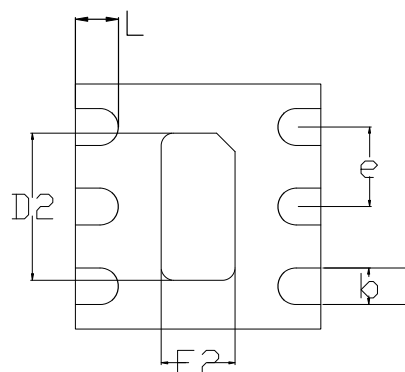
**ESD Clamping Voltage**

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

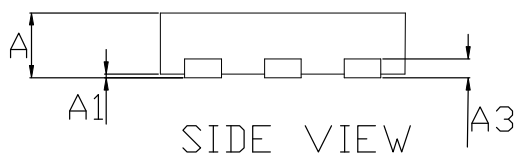
### DFN2020-6 Package Outline Drawing



TOP VIEW



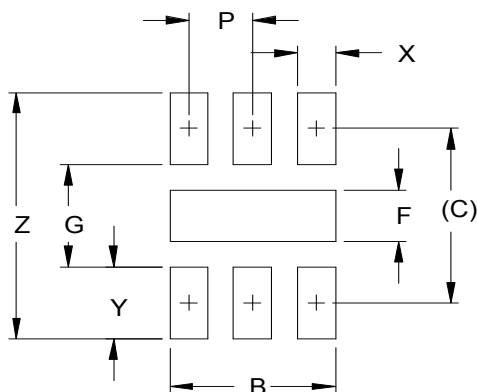
BOTTOM VIEW



SIDE VIEW

COMMON DIMENSIONS(MM)			
PKG.	W:very very THIN		
REF.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D2	1.05	1.20	1.30
E2	0.45	0.60	0.70
b	0.25	0.30	0.35
L	0.25	0.35	0.45
e	0.65 BSC		

### Suggested Land Pattern



DIMENSIONS		
DIM	INCHES	MILLIMETERS
B	0.065	1.65
C	0.070	1.95
P	0.026	0.65
F	0.034	0.86
G	0.049	1.25
X	0.014	0.35
Y	0.026	0.65
Z	0.100	2.55

### Contact Information

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