

ESD4V5D8BP5

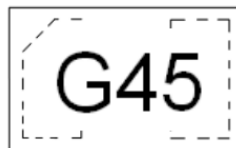
Description

The ESD4V5D8BP5 is a bi-directional TVS diode, 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 data and power line. The ESD4V5D8BP5 complies with the IEC 61000-4-2 (ESD) with ± 15 kV air and ± 8 kV contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD surge protection make ESD4V5D8BP5 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 100pF typical
- Ultra low leakage: nA level
- Low operating voltage: 4.5V
- Low clamping voltage
- 2-Pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 50A (8/20 μ s)
- RoHS Compliant

Package Outline



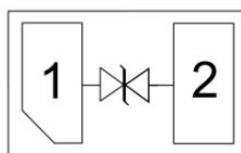
Transparent top view

G45:Device Marking Code

Applications

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

Circuit Diagram



Absolute Maximum Ratings (TA=25°C unless otherwise specified)

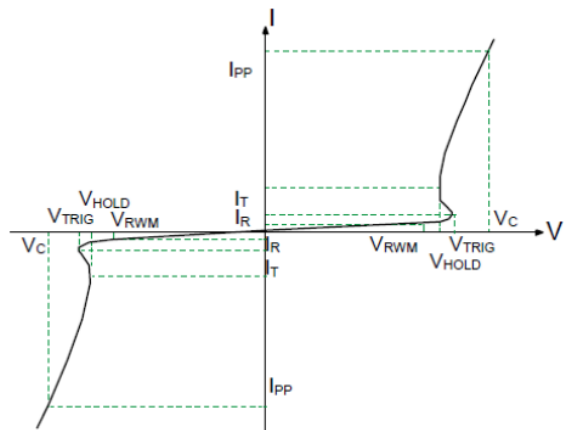
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μ s)	P_{pk}	500	W
Peak Pulse Current (8/20 μ s)	I_{pp}	50	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

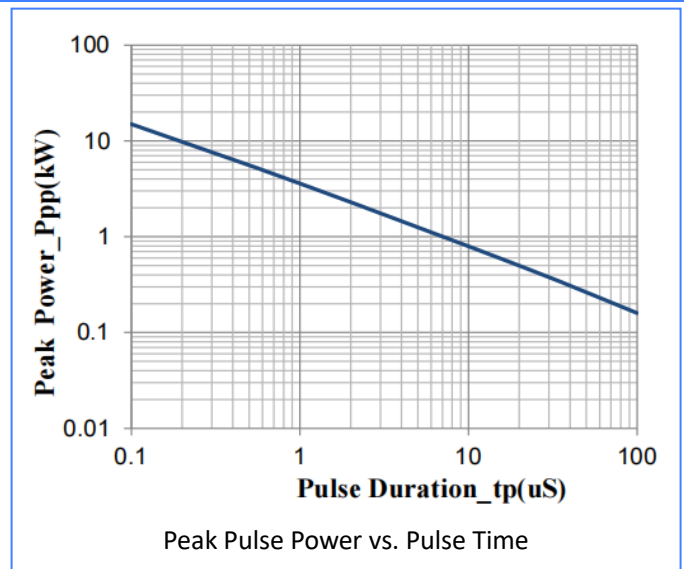
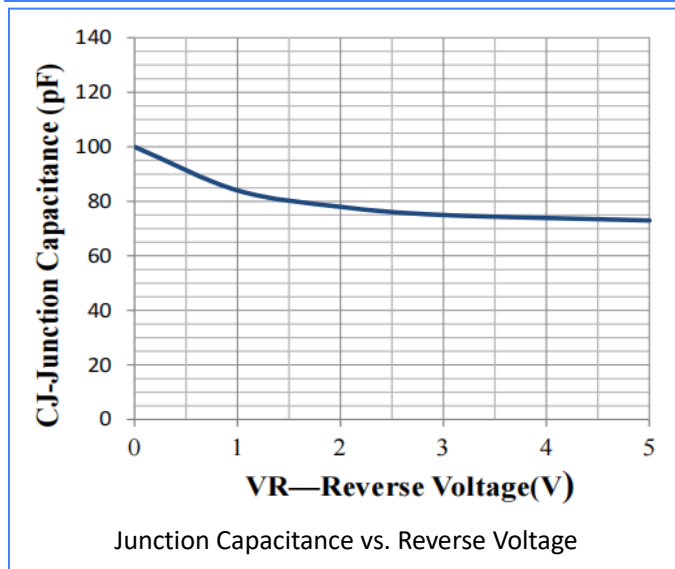
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			4.5	V	
Breakdown Voltage	V_{BR}	4.9	5.3		V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.5	μA	$V_{RWM} = 4.5\text{V}$
Clamping Voltage	V_C		6.0	8.0	V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	V_C		9.5	13	V	$I_{PP} = 50\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	C_J		100	150	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

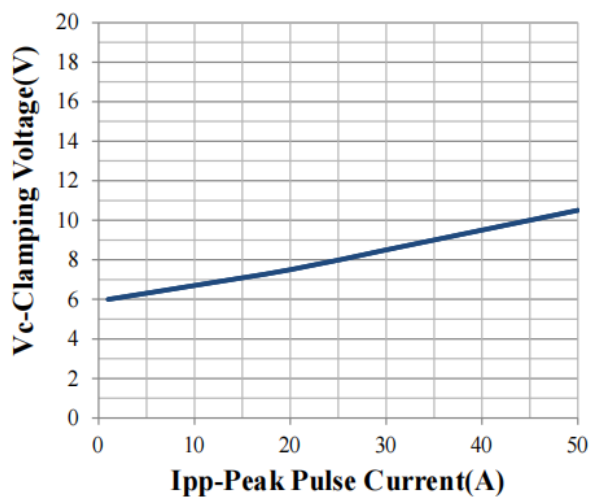
Portion Electronics Parameter

Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_C

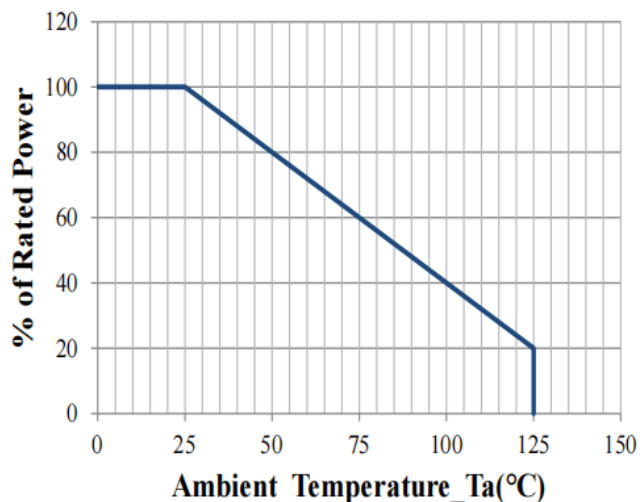
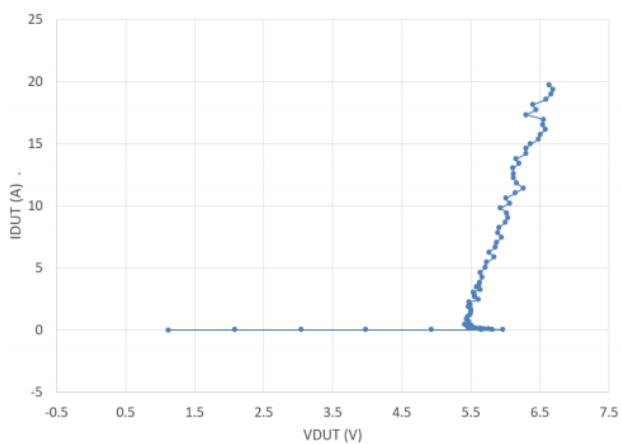


Typical Characteristics

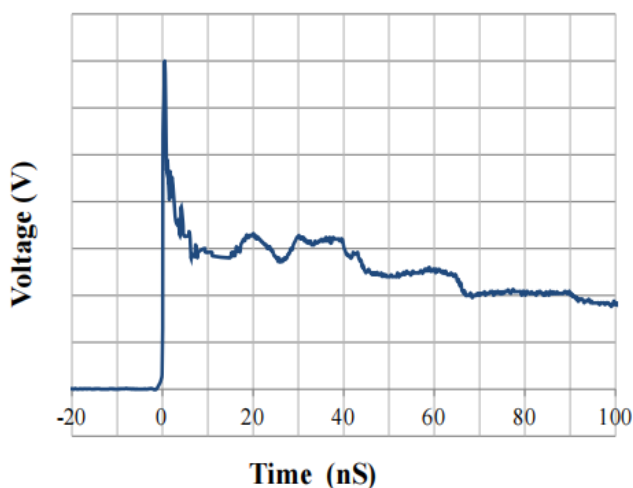




Clamping Voltage vs. Peak Pulse Current

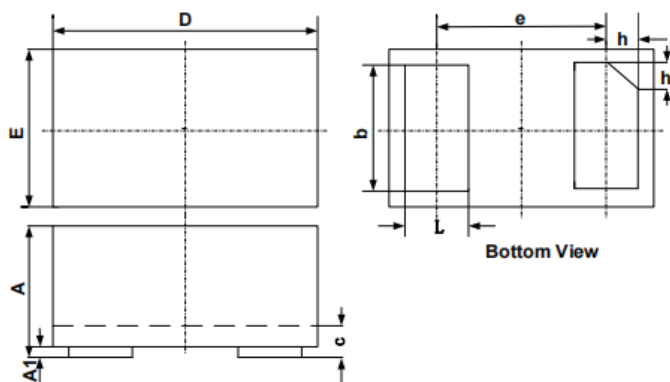

Ambient Temperature T_a (°C)


Transmission Line Pulsing (TLP) Voltage (V)



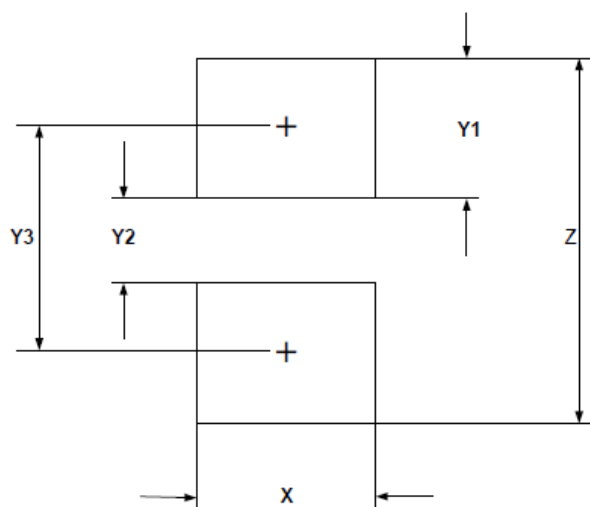
IEC61000-4-2 Pulse Waveform

DFN1006-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052