

# JS05U1GD60-2B

## 1-Line Uni-directional TVS Diode



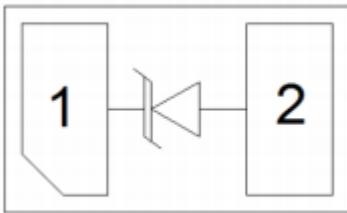
### Description

The JS05U1GD60-2B is an uni-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 JS05U1GD60-2B complies with the IEC 61000-4-2 (ESD) standard 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 JS05U1GD60-2B an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

### Features

- \* 2200W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage:  $\mu\text{A}$  level
- \* Operating voltage: 5V
- \* Low clamping voltage
- \* One power line protects
- \* 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) 150A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: DFN1610-2

### Circuit Diagram

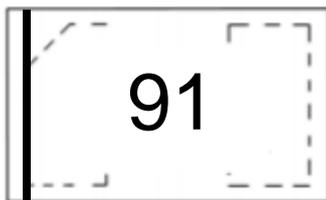


Circuit and Pin Schematic

### Applications

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

### Marking Diagram



Transparent top view

91:Device Marking Code

### Ordering Information

Part Number	Packaging	Reel Size
JS05U1GD60-2B	3000/Tape & Reel	7 inch

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

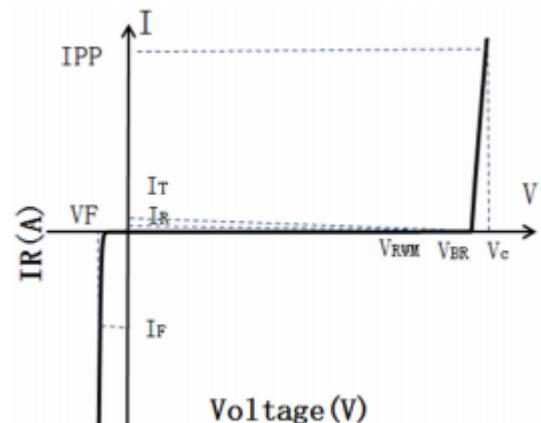
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	2200	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	150	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

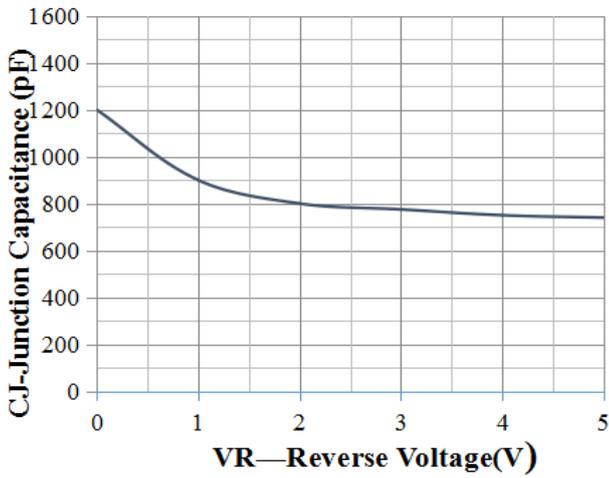
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$			15	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 10\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			7	V
Clamping Voltage	$V_C$	$I_{PP} = 150\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			15	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$			1200	pF

**Portion Electronics Parameter**

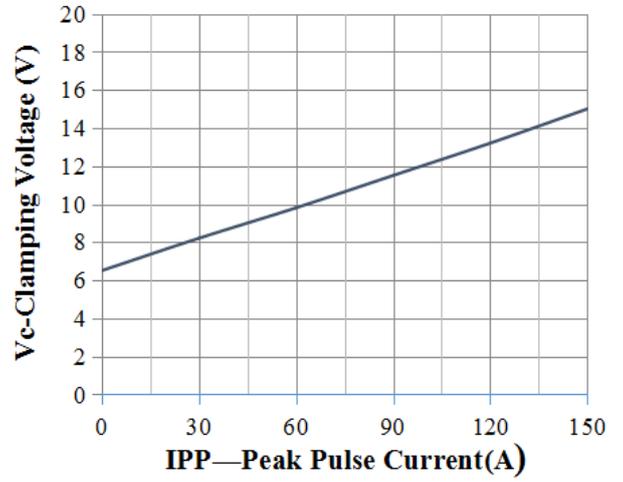
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @Ic



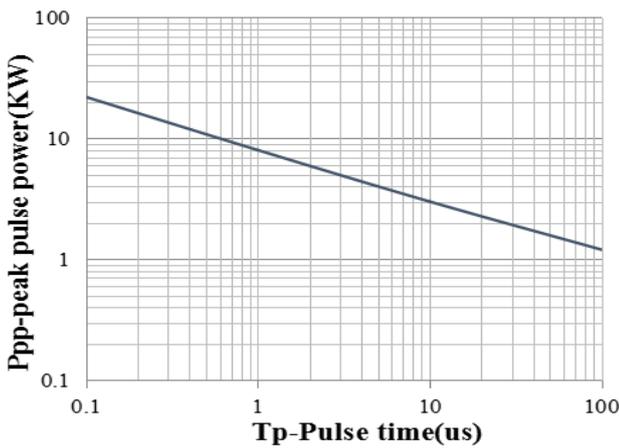
Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)



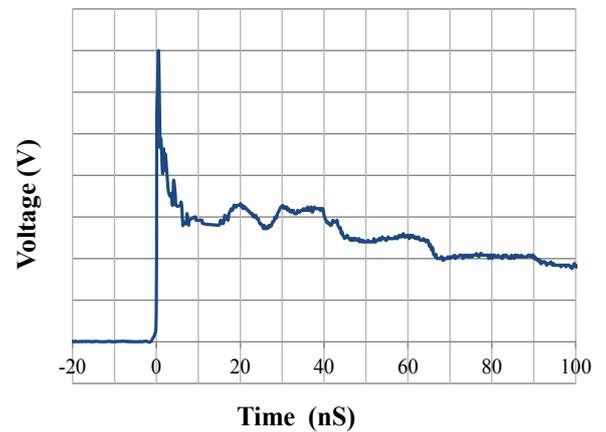
Junction Capacitance vs. Reverse Voltage



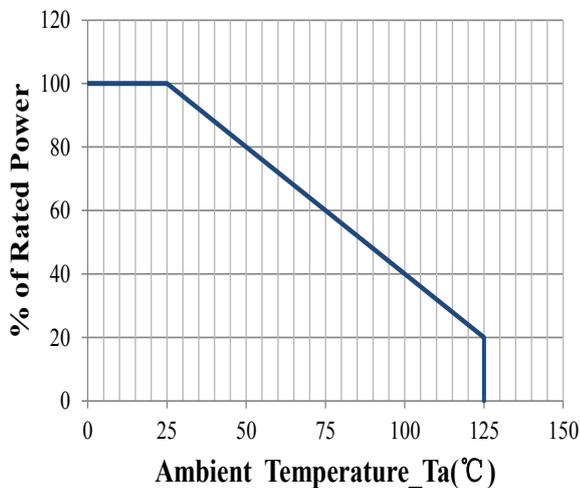
Clamping Voltage vs. Peak Pulse Current



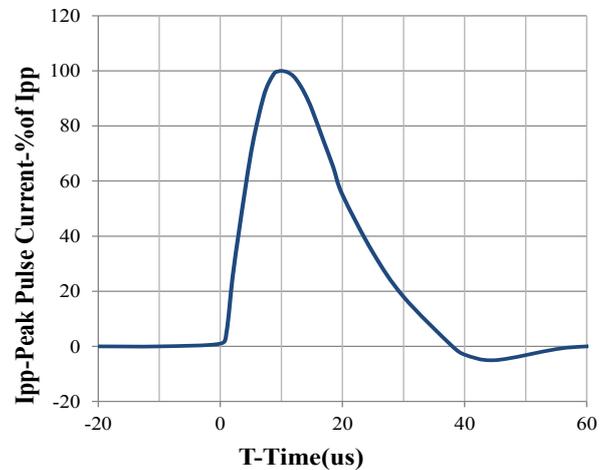
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

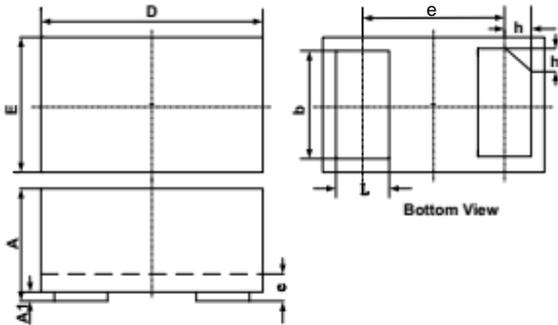


Power Derating Curve



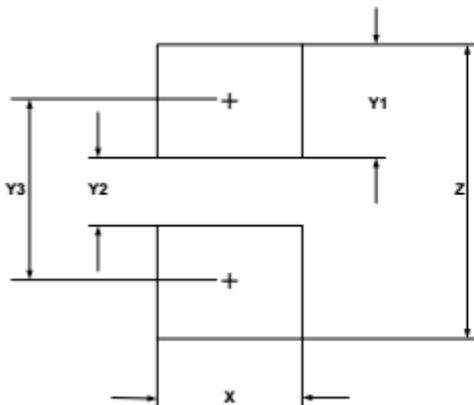
8 X 20us Pulse Waveform

**DFN1610-2 Package Outline Drawing** (Dimensions in millimeters)



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	0.75	0.80	0.85	0.030	0.032	0.034
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.55	1.60	1.65	0.062	0.064	0.066
e	1.10 BSC			0.044 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
h	0.15	0.20	0.25	0.006	0.008	0.010

**Suggested Land Pattern**



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074

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