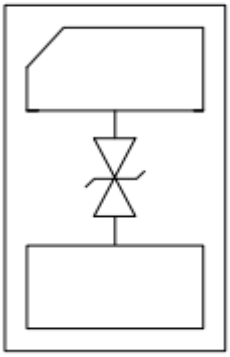
# JE05B1LD10-2C

**1-Line Bi-directional High Power TVS Diode**

## Description

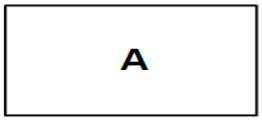
The JE05B1LD10-2C is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The JE05B1LD10-2C complies with the IEC 61000-4-2 (ESD) standard with ±25kV air and ±22kV contact discharge. It is assembled into an ultra-small 0.6x0.3x0.3mm lead-free DFN package. The ultra small size and high ESD surge protection make JE05B1LD10-2C an ideal choice to replace 0201 size multilayer varistors (MLVs) and protect cell phone, digital cameras, audio players and many other portable applications.

## Circuit Diagram



Circuit and Pin Schematic

## Marking Diagram




**Transparent top view**

A:Device Marking Code

## Features

* 40W peak pulse power (8/20μs)
* Low leakage：nA
* Low operating voltage: 5V
* Ultra low clamping voltage
* One power line protects
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±25kV
    Contact discharge: ±22kV
  – IEC61000-4-5 (Lightning) 3.5A (8/20μs)
* RoHS Compliant

Package: DFN0603-2

## Applications

* Fast-charge battery chargers
* Power management system
* Cellular Handsets and Accessories
* Personal Digital Assistants
* Notebooks and Handhelds
* Portable Instrumentation
* Digital Cameras

## Ordering Information

| Part Number | Packaging | Reel Size |
|---|---|---|
| JE05B1LD10-2C | 10000/Tape & Reel | 7 inch |

## Absolute Maximum Ratings ($T_A$=25°C unless otherwise specified)

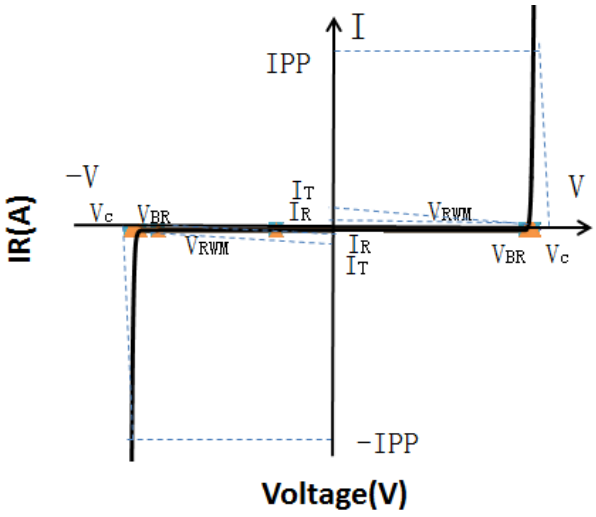
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power (8/20μs) | Ppk | 40 | W |
| Peak Pulse Current (8/20μs) | IPP | 3.5 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | VESD | ±25<br>±22 | kV |
| Operating Temperature Range | TJ | −55to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

## Electrical Characteristics ($T_A$=25°C unless otherwise specified)

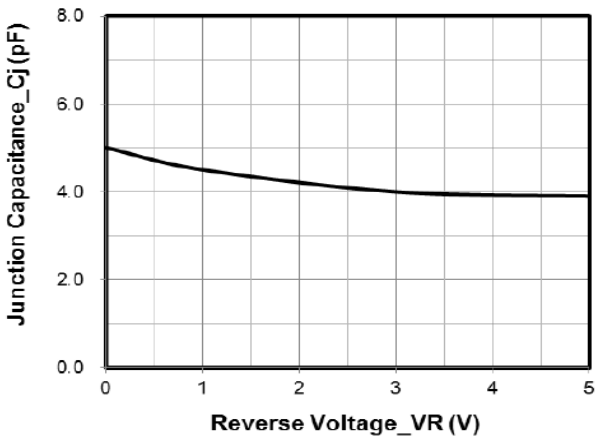
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | | | 5 | V |
| Breakdown Voltage | $V_{BR}$ | $I_T$ = 1mA | 6 | | 8 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$ = 5V | | | 200 | nA |
| Clamping Voltage | $V_C$ | $I_{PP}$ = 1A (8 x 20μs pulse) | | | 8 | V |
| Clamping Voltage | $V_C$ | $I_{PP}$ = 3.5A (8 x 20μs pulse) | | | 12 | V |
| Junction Capacitance | $C_J$ | VR = 0V, f = 1MHz | | 5 | | pF |

## Portion Electronics Parameter

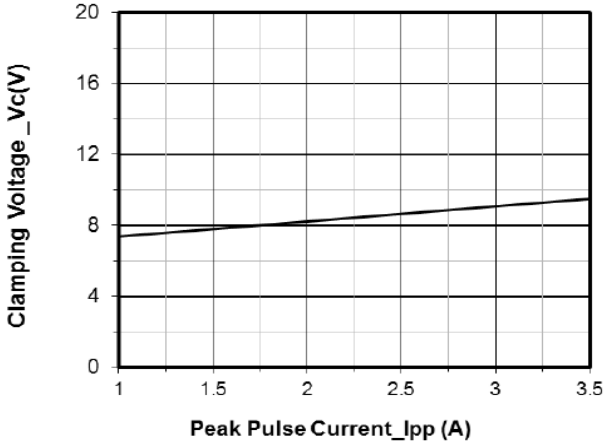
| Symbol | Parameter |
|---|---|
| $I_T$ | Test Current |
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| Vc | Clamping Voltage @Ic |



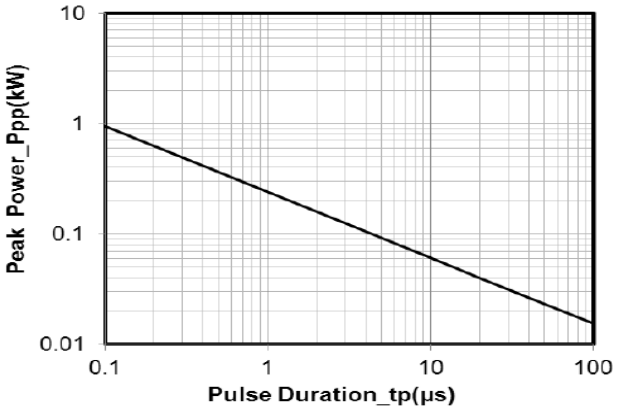
## Typical Performance Characteristics ($T_A$=25°C unless otherwise Specified)



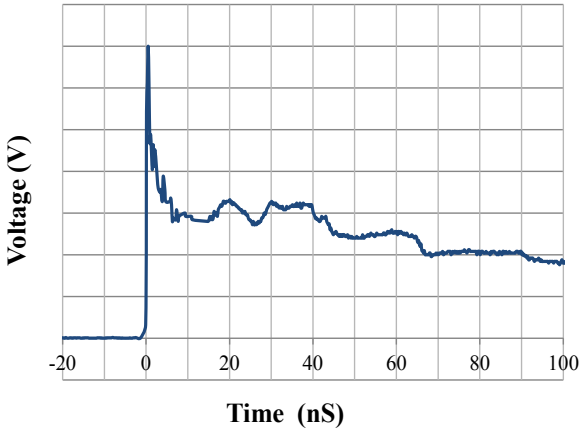

**Junction Capacitance vs. Reverse Voltage**



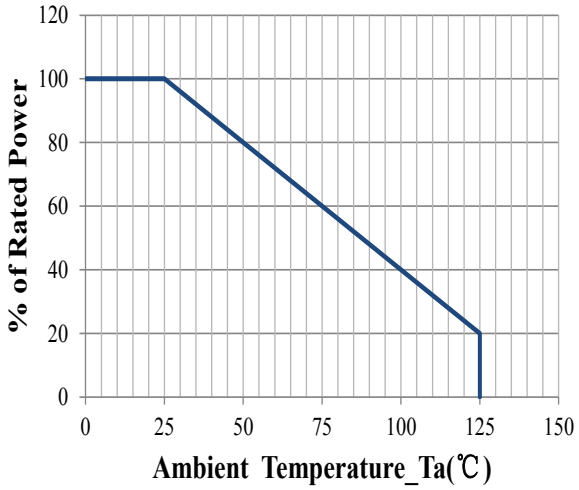

**Clamping Voltage vs. Peak Pulse Current**



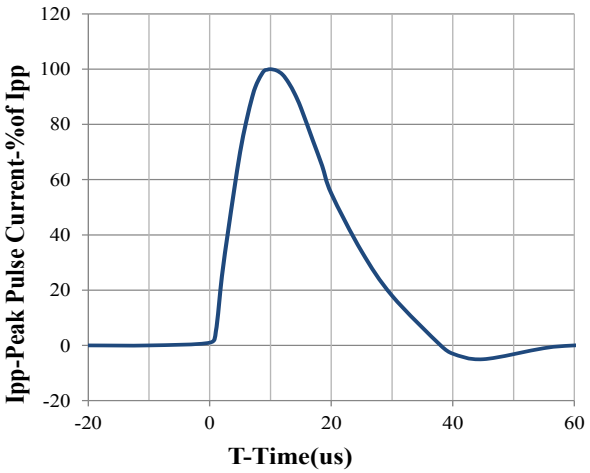

**Peak Pulse Power vs. Pulse Time**




**IEC61000−4−2 Pulse Waveform**

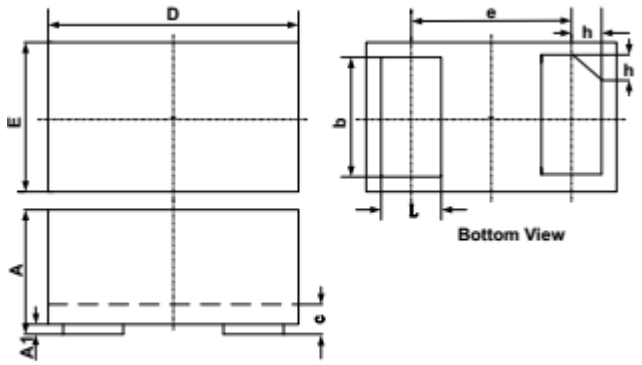



**Power Derating Curve**



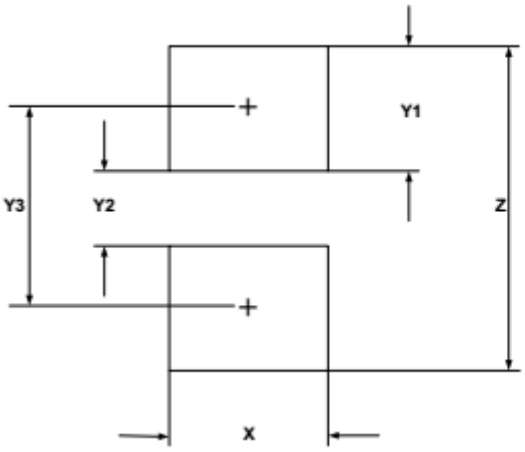

**8 X 20us Pulse Waveform**

## DFN0603-2 Package Outline Drawing (Dimensions in millimeters)




| SYM | DIMENSIONS | | |
|---|---|---|---|
| | MILLIMETERS | | |
| | MIN | NOM | MAX |
| A | 0.230 | | 0.330 |
| A1 | 0.000 | 0.020 | 0.050 |
| b | 0.215 | 0.245 | 0.275 |
| c | 0.120 | 0.150 | 0.180 |
| D | 0.550 | 0.600 | 0.650 |
| e | 0.355 BSC | | |
| E | 0.250 | 0.300 | 0.350 |
| L | 0.160 | 0.190 | 0.220 |
| h | 0.079 BSC | | |

## Suggested Land Pattern




| SYM | DIMENSIONS | |
|---|---|---|
| | MILLIMETERS | INCHES |
| X | 0.30 | 0.012 |
| Y1 | 0.25 | 0.010 |
| Y2 | 0.15 | 0.006 |
| Y3 | 0.40 | 0.016 |
| Z | 0.65 | 0.026 |

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