

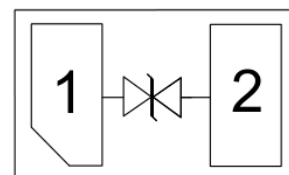
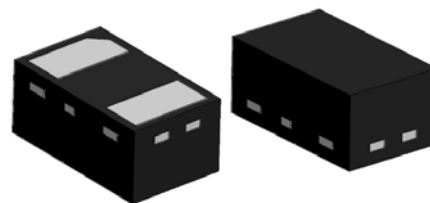
# RESD9B3V3U

## 1-Line Bi-directional TVS Diode

### Features

- ◇ 50W (8/20μs) Peak Pulse Power
- ◇ Ultra-Low Capacitance ESD Protection
- ◇ DFN1006-2 Package
- ◇ RoHS Compliant
- ◇ Matte Tin Lead finish (Pb-Free)
- ◇ Protect One High Speed Data Line
- ◇ Meet IEC61000-4-2 Level 4:  
     Contact Discharge > 8kV  
     Air Discharge > 15kV

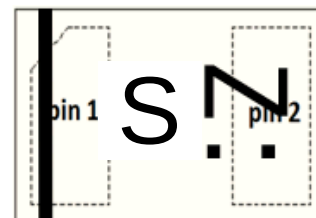
### Circuit Diagram



### Applications

- ◇ Serial ATA
- ◇ USB Ports
- ◇ MDDI Ports
- ◇ Display Port
- ◇ PCI Express
- ◇ Digital Visual Interface (DVI)
- ◇ Cellular Handsets and Accessories

### Package Outline



S = Device Code  
 Z = Date Code\*

### Ordering information

| Device     | Package   | Reel Size | Qty / Reel |
|------------|-----------|-----------|------------|
| RESD9B3V3U | DFN1006-2 | 7 inch    | 10000      |

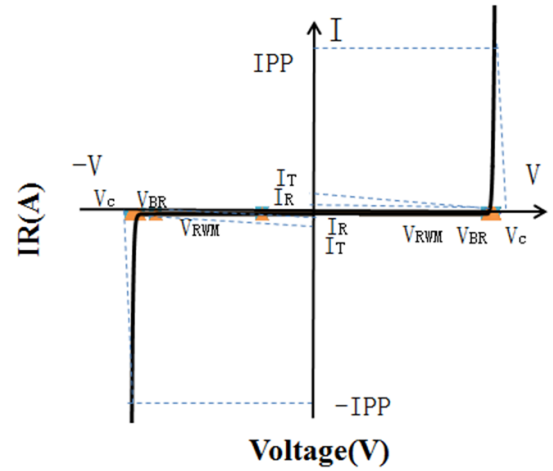
### Maximum Ratings (Ta = 25°C)

| Symbol         | Parameter                            | Value       | Unit |
|----------------|--------------------------------------|-------------|------|
| PPK            | Peak Pulse Power                     | 50          | W    |
| IPP            | Peak Pulse Current                   | 2           | A    |
| VESD (Contact) | Contact ESD Voltage per IEC61000-4-2 | 8           | kV   |
| VESD (Air)     | Air ESD Voltage per IEC61000-4-2     | 15          | kV   |
| TJ             | Junction Temperature                 | -55 to +125 | °C   |
| TSTG           | Storage Temperature                  | -55 to +150 | °C   |

## RES9B3V3U

### Portion Electronics Parameter

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

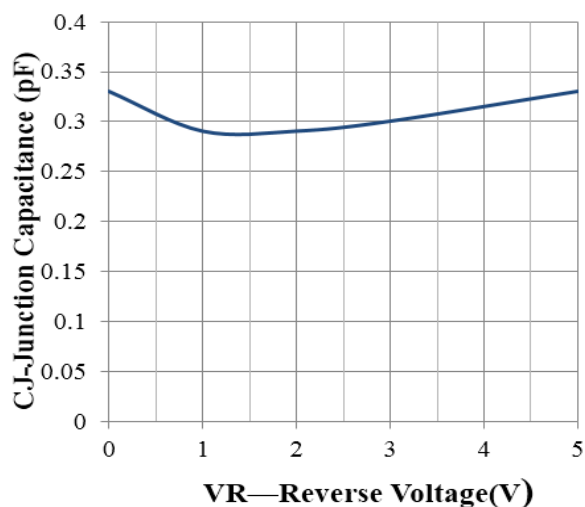


### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

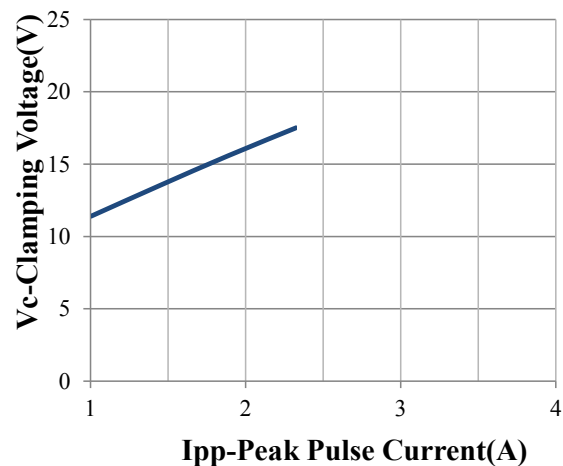
| Symbol | Parameter                    | Conditions                          | Min | Typ | Max | Unit          |
|--------|------------------------------|-------------------------------------|-----|-----|-----|---------------|
| VRWM   | Reverse Working Peak Voltage |                                     |     |     | 3.3 | V             |
| VBR    | Reverse Breakdown Voltage    | $I_T = 1\text{mA}$                  | 4.2 |     |     | V             |
| IR     | Reverse Leakage Current      | $VRWM = 3.3\text{V}$                |     |     | 0.1 | $\mu\text{A}$ |
| VC     | Clamping Voltage             | $IPP = 1\text{A} (8/20\mu\text{s})$ |     |     | 15  | V             |
| VC     | Clamping Voltage             | $IPP = 2\text{A} (8/20\mu\text{s})$ |     | 17  | 25  | V             |
| CJ     | Capacitance                  | $VR = 0\text{V}, f = 1\text{MHz}$   |     | 0.4 | 0.9 | pF            |

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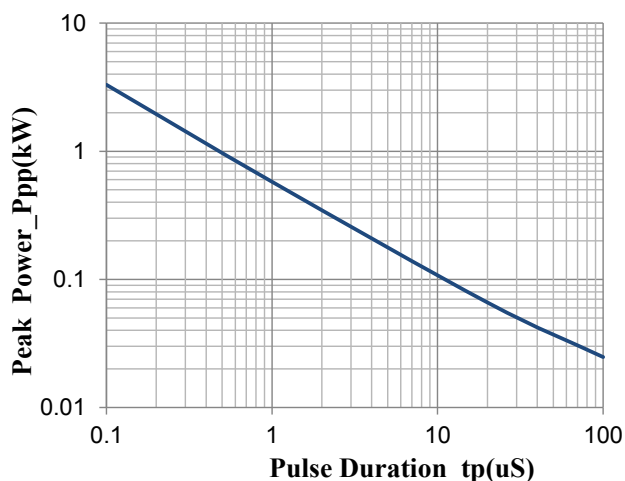
## Typical Performance Curves



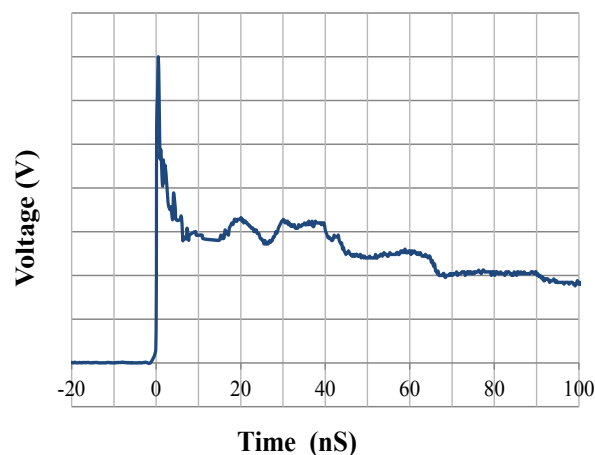
Junction Capacitance vs. Reverse Voltage



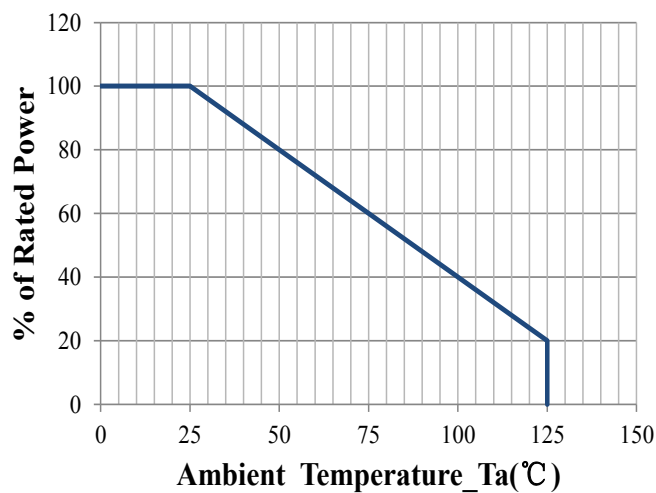
Clamping Voltage vs. Peak Pulse Current



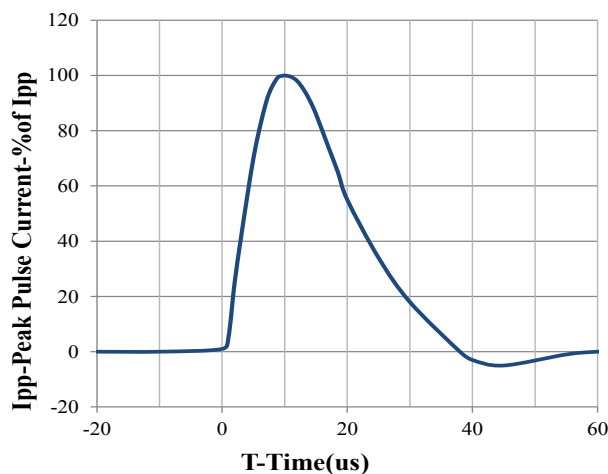
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



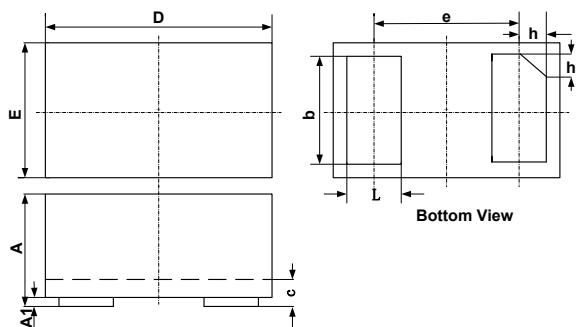
Power Derating Curve



8 X 20us Pulse Waveform

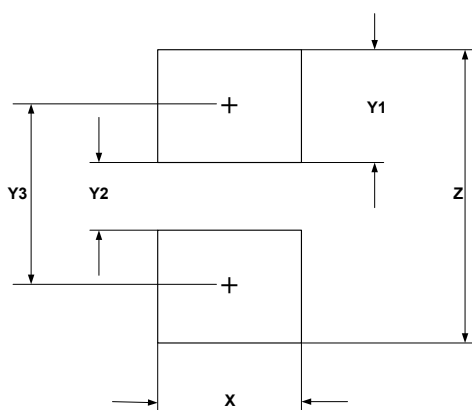
# RESD9B3V3U

## DFN1006-2(0402)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 |
| 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  |