

**DESCRIPTION**

The SESD05A25BD 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 SESD05A25BD complies with the IEC 61000-4-2 (ESD) standard with  $\pm 30\text{kV}$  air and  $\pm 25\text{kV}$  contact discharge. It is assembled into an ultra-small  $1.0 \times 0.6 \times 0.5\text{mm}$  lead-free DFN package. The small size and high ESD surge protection make SESD05A25BD an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

**FEATURES**

- Protects one data or power line
- Ultra low leakage : nA level
- Operating voltage : 5V
- Low clamping voltage
- 2-pin leadless package

**APPLICATIONS**

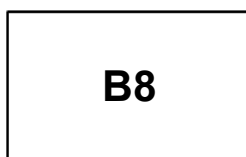
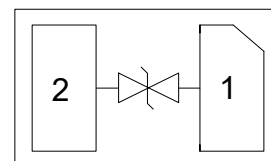
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

**MECHANICAL DATA**

- Case : Molded, plastic  
DFN1006-2L
- Polarity : Shown follows
- Epoxy : UL94-V0 rated flame retardant

**IEC COMPATIBILITY**

- IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  
 $\pm 25\text{kV}$  (contact)
- IEC 61000-4-5 (Lightning) 25A (8/20 $\mu\text{s}$ )

**DFN1006-2L PACKAGE****SCHEMATIC & PIN CONFIGURATION**



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

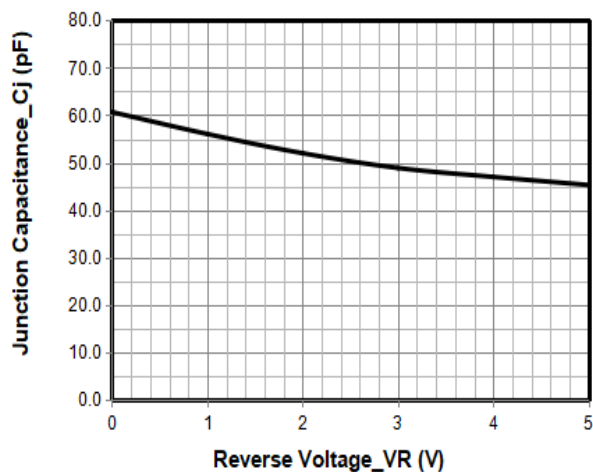
| Parameter                                                      | Symbol | Value                | Unit               |
|----------------------------------------------------------------|--------|----------------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                         | Ppk    | 300                  | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | Ipp    | 25                   | A                  |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | VESD   | $\pm 30$<br>$\pm 25$ | kV                 |
| 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)

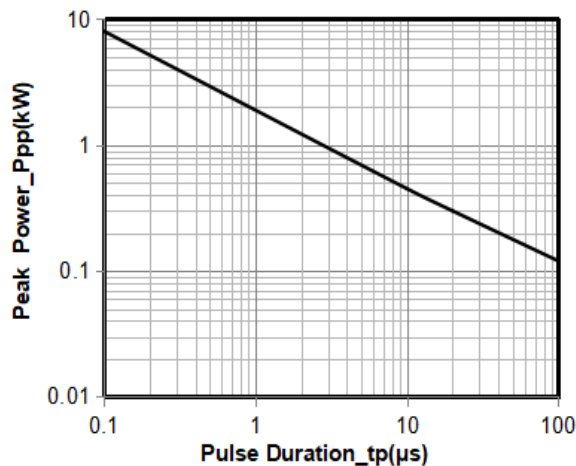
| Parameter               | Symbol | Min | Typ | Max | Unit          | Test Condition                         |
|-------------------------|--------|-----|-----|-----|---------------|----------------------------------------|
| Reverse Working Voltage | VRWM   |     |     | 5   | V             |                                        |
| Breakdown Voltage       | VBR    | 6   | 7   | 9   | V             | IT = 1mA                               |
| Reverse Leakage Current | IR     |     |     | 0.2 | $\mu\text{A}$ | VRWM = 5V                              |
| Clamping Voltage        | VC     |     |     | 7   | V             | Ipp = 1A (8 x 20 $\mu\text{s}$ pulse)  |
| Clamping Voltage        | VC     |     |     | 12  | V             | Ipp = 25A (8 x 20 $\mu\text{s}$ pulse) |
| Junction Capacitance    | CJ     |     | 60  |     | pF            | VR = 0V, f = 1MHz                      |



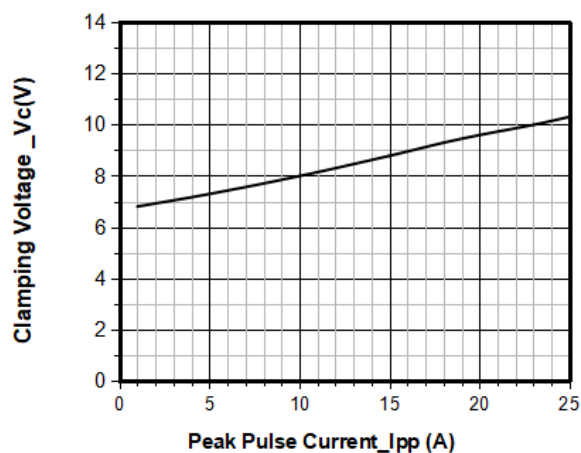
## Typical Performance Characteristics (TA=25°C unless otherwise Specified)



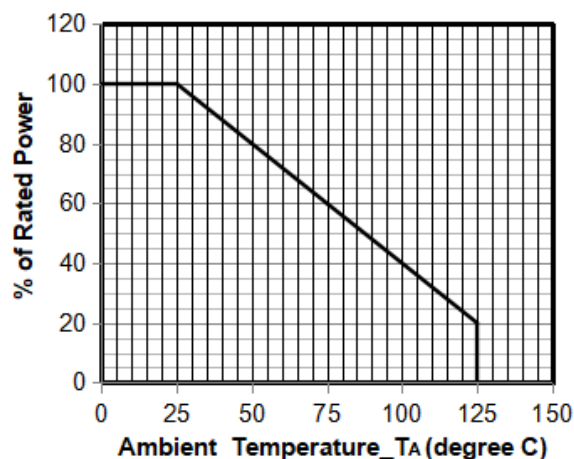
Junction Capacitance vs. Reverse Voltage



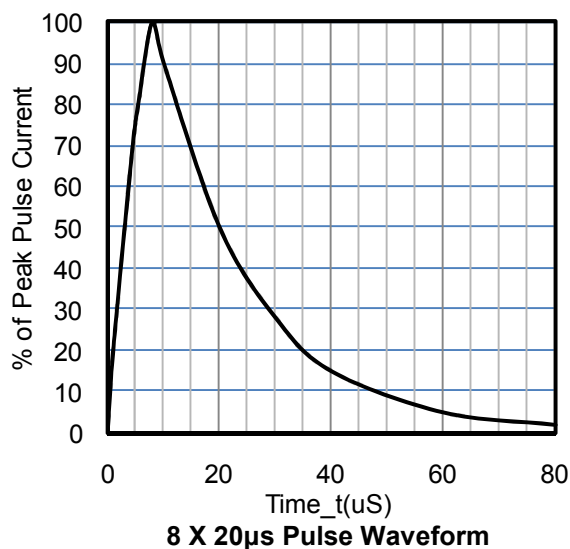
Peak Pulse Power vs. Pulse Time



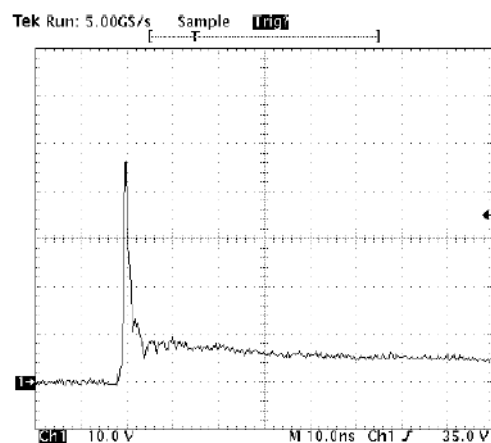
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note: Data is taken with a 10x attenuator

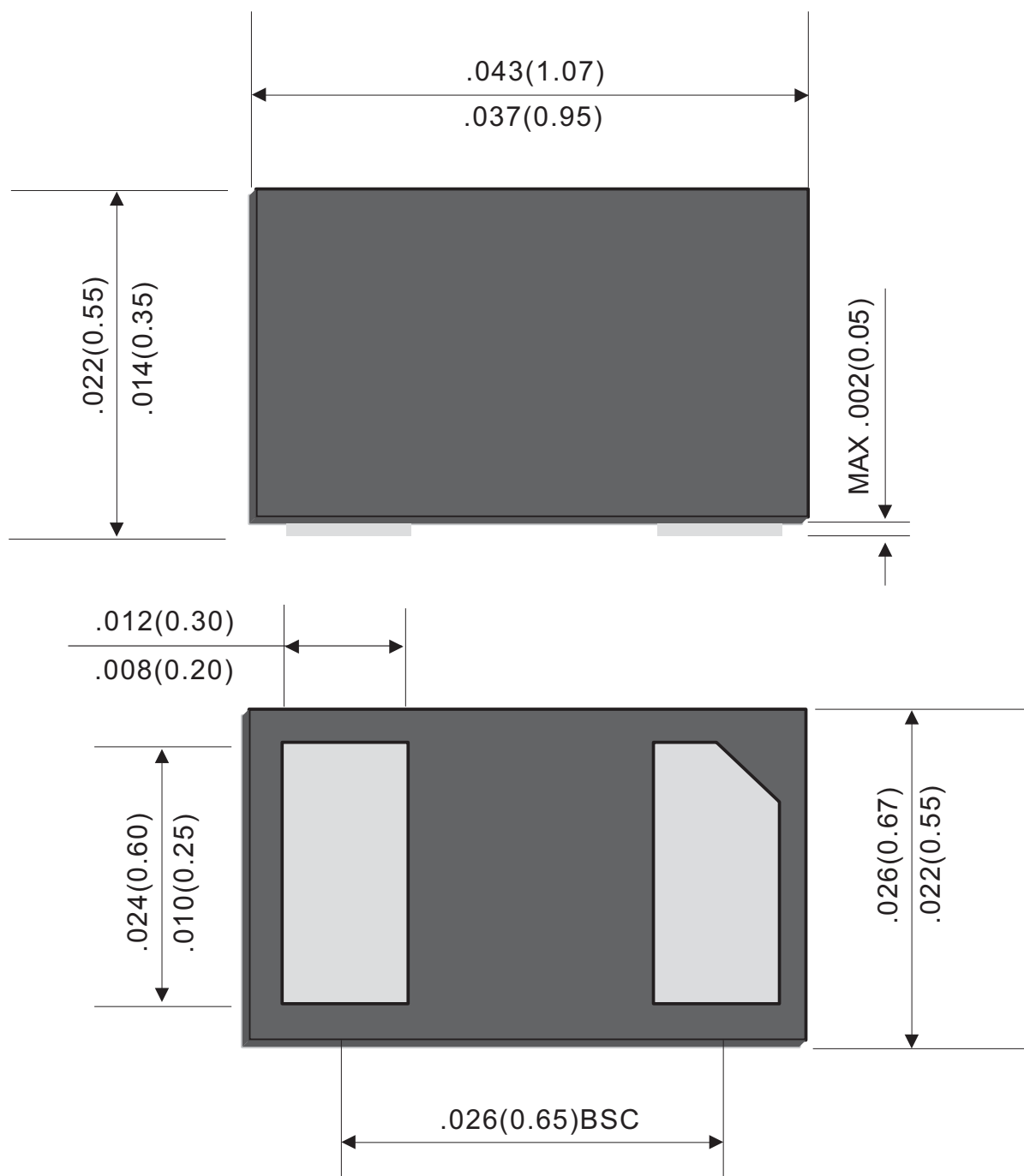
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2



## Outline Drawing

DFN1006-2L



Dimensions in inches and (millimeters)

Rev.B-1

**Ordering Information:**

| Device PN                                                         | Packing                 |
|-------------------------------------------------------------------|-------------------------|
| SESD05A25BD -T <sup>(1)</sup> H <sup>(2)</sup> -WS <sup>(3)</sup> | Tape&Reel: 10 Kpcs/Reel |

Note: (1) Packing code, Tape & Reel

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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