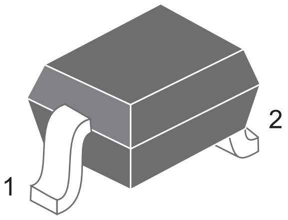
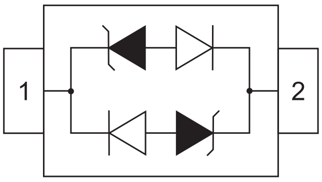
# Electro-Static Discharge
# TUSD03FBX
# Low Capacitance TVS Diode

## SOD-323



## Pin Configuration



## Features

- 350 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects one bidirectional I/O line
- Low clamping voltage
- Working voltages: 3. 3V
- Low leakage current

## IEC Compatibility

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ηs)
- IEC61000-4-5(Lightning) 8A(8/20μs)

## Applications

- Ethernet - 10/100/1000 Base T
- Cellular Phones
- $I^2C$ Bus Protection
- Parallel & Serial Port Protection
- Personal Digital Assistant (PDA)
- Microcontroller Input Protection
- ISDN S/T Interface
- WAN/LAN Equipment

## Mechanical Characteristics

- JEDEC SOD-323 Package
- Molding Compound Flammability Rating:UL 94V-O
- Weight 5 Millgrams(Approximate)
- Quantity Per Reel:3000pcs
- Reel Size:7 inch
- Lead Finish:Lead Free

## Maximum Ratings(TA=25℃ unless otherwise noted )

**Maximum Ratings(@25℃ Unless Otherwise Specified)**

| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power(tp=8/20μs waveform) | $P_{PP}$ | 350 | Watts |
| Lead Soldering Temperature | $T_L$ | 260(10 sec.) | ℃ |
| Operating Temperature Range | $T_J$ | -55~150 | ℃ |
| Storage Temperature Range | $T_{STG}$ | -55~150 | ℃ |

## Electrical Characteristics(Ta=25℃ unless otherwise specified)

**TUSD03FBX(Marking:CA1)**

| Parameter | Symbol | Conditions | Min. | Max. | Units |
|---|---|---|---|---|---|
| Reverse Stand-off Voltage | $V_{RWM}$ | Pin 2-1 / Pin1-2 | | 3.3 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 4 | | V |
| Reverse Leakage Current | $I_R$ | @$V_{RWM}$,$T_A$=25℃ | | 0.5 | μA |
| | | @$V_{RWM}$,$T_A$=125℃ | | 1 | μA |
| Clamping Voltage | $V_C$ | $I_{PP}$=8A,$t_P$=8/20μs | | 13.9 | V |
| Junction Capacitance | $C_{I/O}$ | Pin capacitance to GND,<br>$V_{DC}$=0V, f=1MHZ | | 1.5 | pF |

## Ratings and Characteristic Curves

Fig.1 Peak Pulse Power vs. Pulse Time

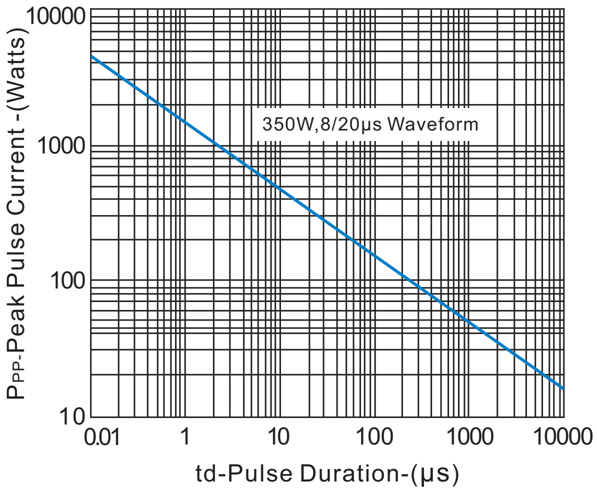
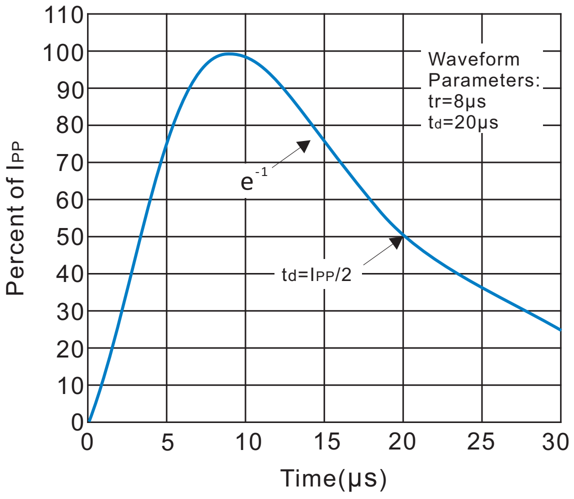
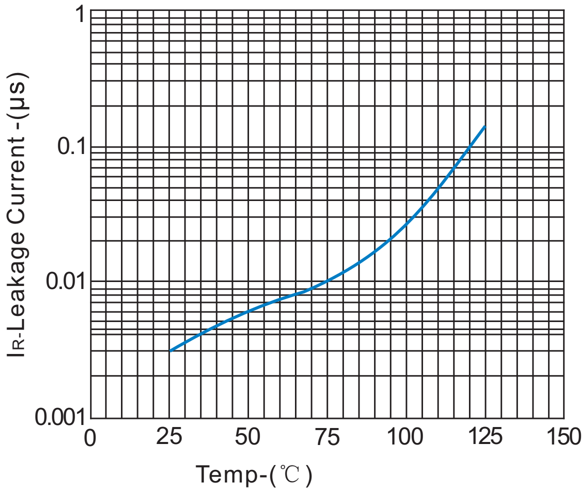


Fig.2 Pulse Waveform



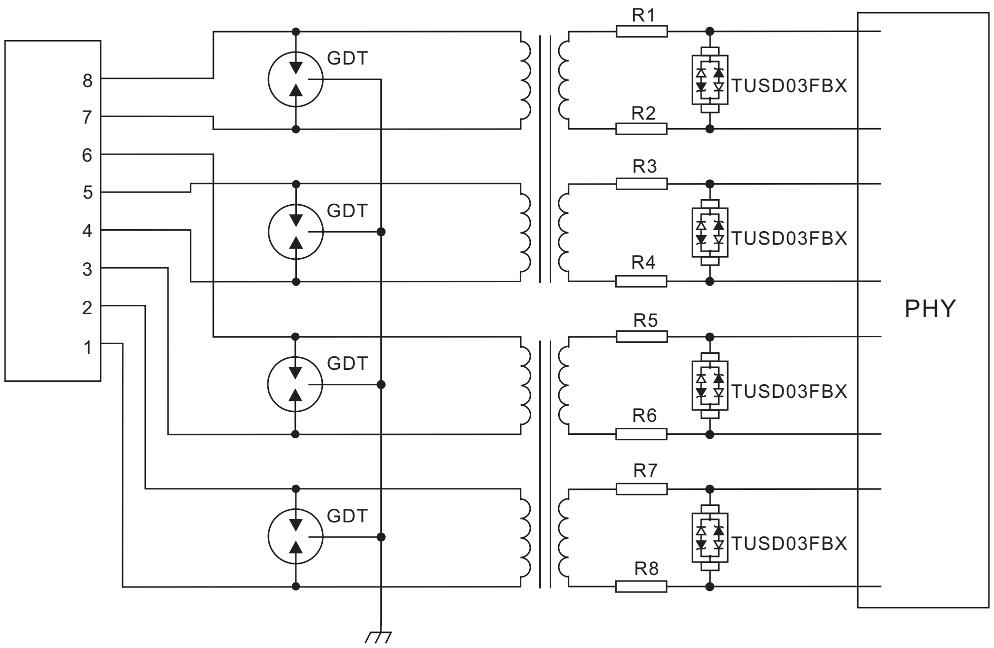
# Ratings and Characteristic Curves

## Fig.3 Hi Temperature vs. Leakage



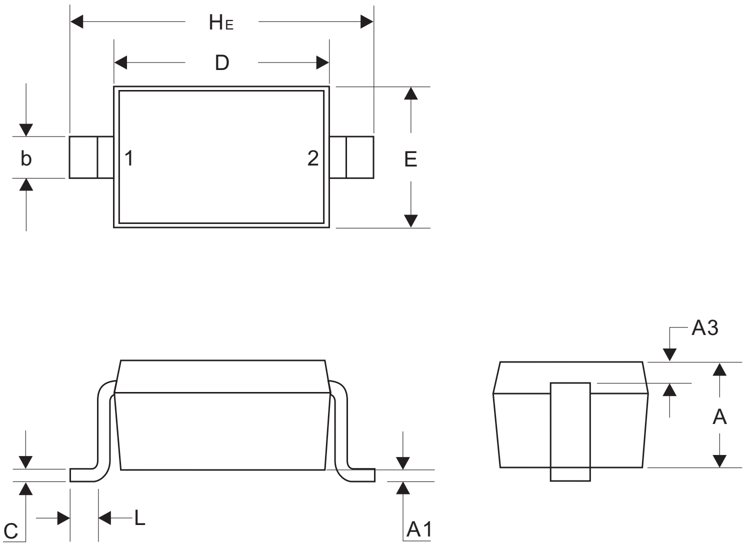
# Application

## RJ45 Protection



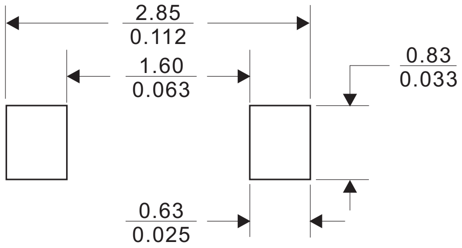
## Dimensions(SOD-323)

**SOD-323**



| DIM | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.80 | 1.00 | 0.031 | 0.040 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A3 | 0.15REF | | 0.006REF | |
| b | 0.25 | 0.40 | 0.010 | 0.016 |
| C | 0.089 | 0.177 | 0.003 | 0.007 |
| D | 1.60 | 1.80 | 0.062 | 0.070 |
| E | 1.15 | 1.35 | 0.045 | 0.053 |
| L | 0.08 | | 0.003 | |
| HE | 2.30 | 2.70 | 0.090 | 0.105 |

**Recommended Mounting Pad Layout**



Dimensions in ( millimeters / inches )