



## Transient Voltage Suppressors for ESD Protection

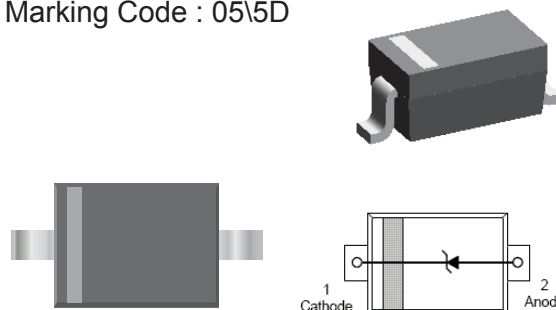
| PRIMARY CHARACTERISTICS |       |
|-------------------------|-------|
| $P_{PK}$                | 250W  |
| $V_{RWM}$               | 5.0V  |
| $I_{PP}$                | 24A   |
| $V_C$                   | 10.5V |
| $T_{J,Max}$             | 125°C |

### FEATURES

- Small Body Outline Dimensions
- 250 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Transient protection for data lines to IEC 61000-4-2 (ESD)  $\pm 15kV$  (air),  $\pm 8kV$  (contact)  
IEC 61000-4-4 (EFT) 40A (5/50ns)  
IEC 61000-4-5 (Lightning) 24A (8/20 $\mu s$ )
- Small package for use in portable electronics
- Suitable replacement for MLV's in ESD protection applications
- Protects one I/O or power line
- Low clamping voltage
- Working voltages: 5V
- Low leakage current
- Solid-state silicon-avalanche technology
- Moisture Sensitivity Level 1

### SOD-323 PACKAGE

Marking Code : 05\5D



### General Description

The SESD3Z5.0T1 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

### Applications

Cellular Phone Handsets and Accessories  
Microprocessor based equipment  
Personal Digital Assistants(PDA'S)  
Notebooks, Desktops, and Servers  
Portable Instrumentation  
Pagers  
Peripherals

### MECHANICAL DATA

- Case : Molded plastic, SOD-323
- Polarity : Indicated by cathode band
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant



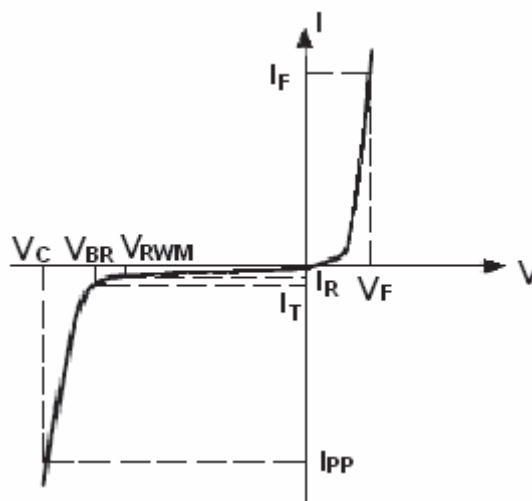
## Transient Voltage Suppressors for ESD Protection

### Absolute Ratings ( $T_{amb}=25^{\circ}\text{C}$ )

| Symbol    | Parameter                                         | Value       | Units              |
|-----------|---------------------------------------------------|-------------|--------------------|
| $P_{PK}$  | Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )      | 250         | W                  |
| $V_{ESD}$ | ESD Voltage(HBM Waveform per IEC 61000-4-2)       | 30          | kV                 |
| $T_L$     | Maximum lead temperature for soldering during 10s | 260         | $^{\circ}\text{C}$ |
| $T_{STG}$ | Storage Temperature Range                         | -55 to +150 | $^{\circ}\text{C}$ |
| $T_J$     | Maximum junction temperature                      | -55 to +125 | $^{\circ}\text{C}$ |

### Electrical Parameter

| Symbol    | Parameter                                   |
|-----------|---------------------------------------------|
| $I_{PP}$  | Maximum Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$                 |
| $V_{RWM}$ | Working Peak Reverse Voltage                |
| $I_R$     | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $I_T$     | Test Current                                |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_F$     | Forward Current                             |
| $V_F$     | Forward Voltage @ $I_F$                     |



### Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.  $V_F = 0.9\text{V}$  at  $I_F = 10\text{mA}$ 

| Device      | $V_{RWM}$ (V) | $I_R(\mu\text{A})$<br>@<br>$V_{RWM}=5\text{V}$ | $V_{BR}$ (V)@<br>$I_T=1\text{mA}$ | $V_C$ (V)<br>@ $I_{PP}=5\text{A}$<br>$t_p=8/20\mu\text{s}$ | $V_C$ (V)<br>@ $I_{PP}=24\text{A}$<br>$t_p=8/20\mu\text{s}$ | $I_{PP}$ (A)<br>$t_p=8/20\mu\text{s}$ | C (pF) |
|-------------|---------------|------------------------------------------------|-----------------------------------|------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------|--------|
|             | Max           | Max                                            | Min                               | Typ                                                        | Max                                                         | Max                                   | Typ    |
| SESD3Z5.0T1 | 5.0           | 10                                             | 6.0                               | 9.8                                                        | 10.5                                                        | 24                                    | 350    |

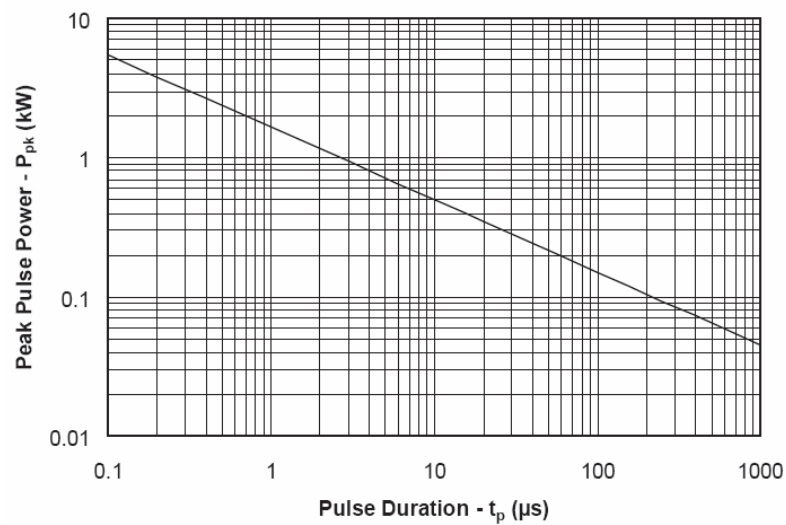


Fig.1 Non-Repetitive Peak Pulse Power vs. Pulse Time

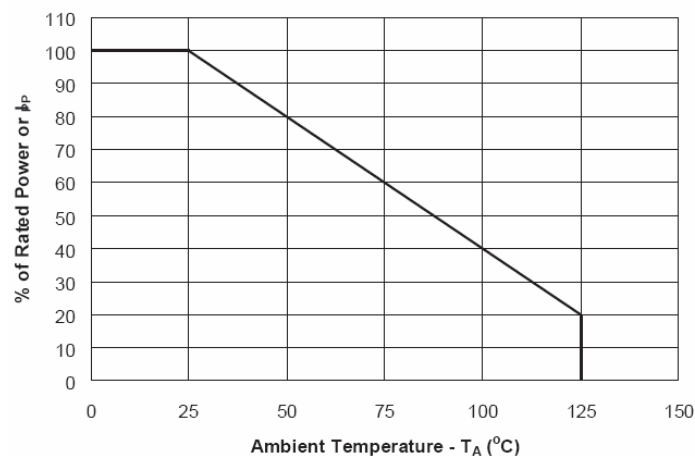


Fig.2 Power Derating Curve

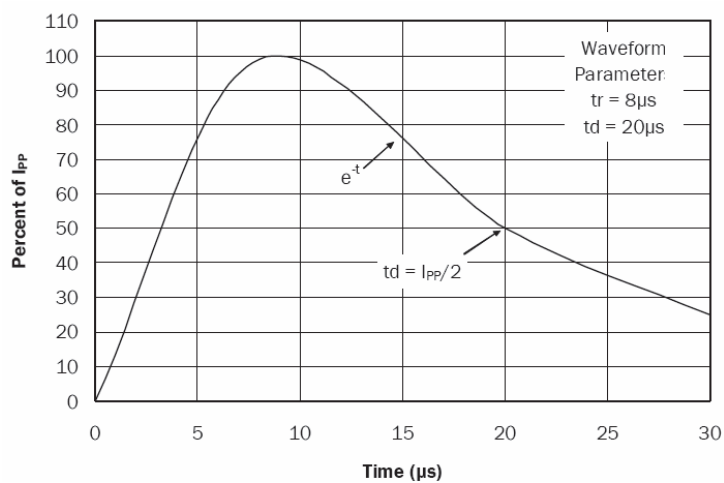


Fig.3 Waveform

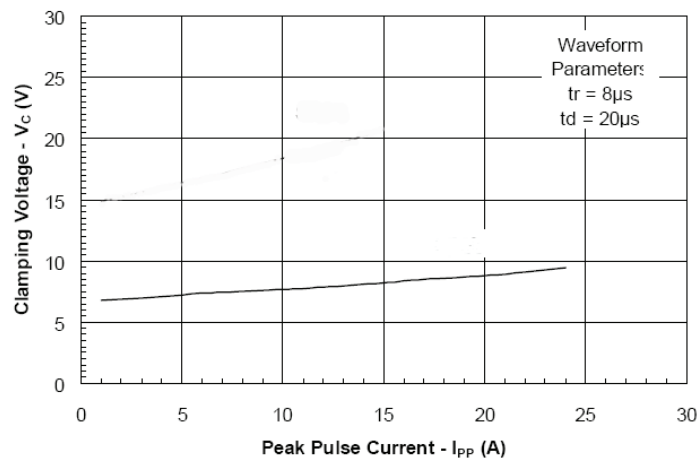


Fig.4 Clamping Voltage vs. Peak Pulse Current

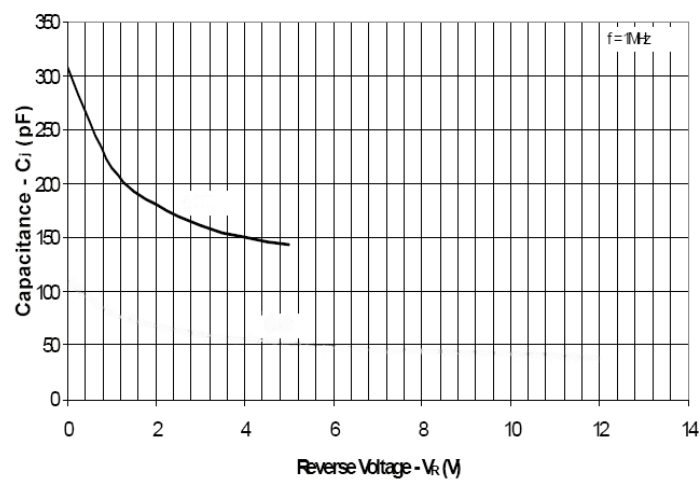


Fig.5 Capacitance vs. Reverse Voltage

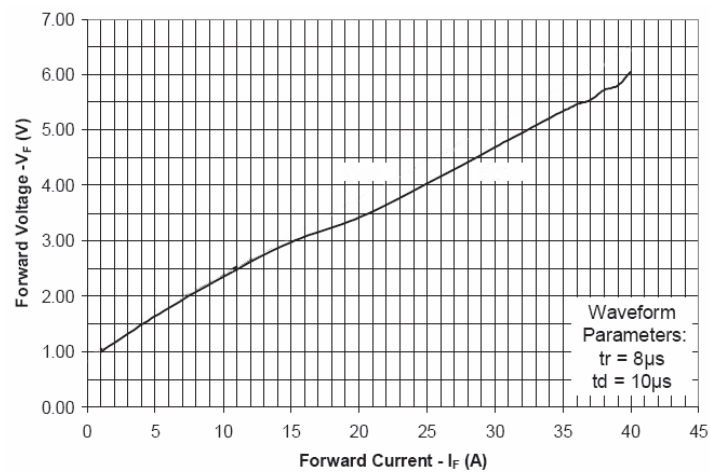
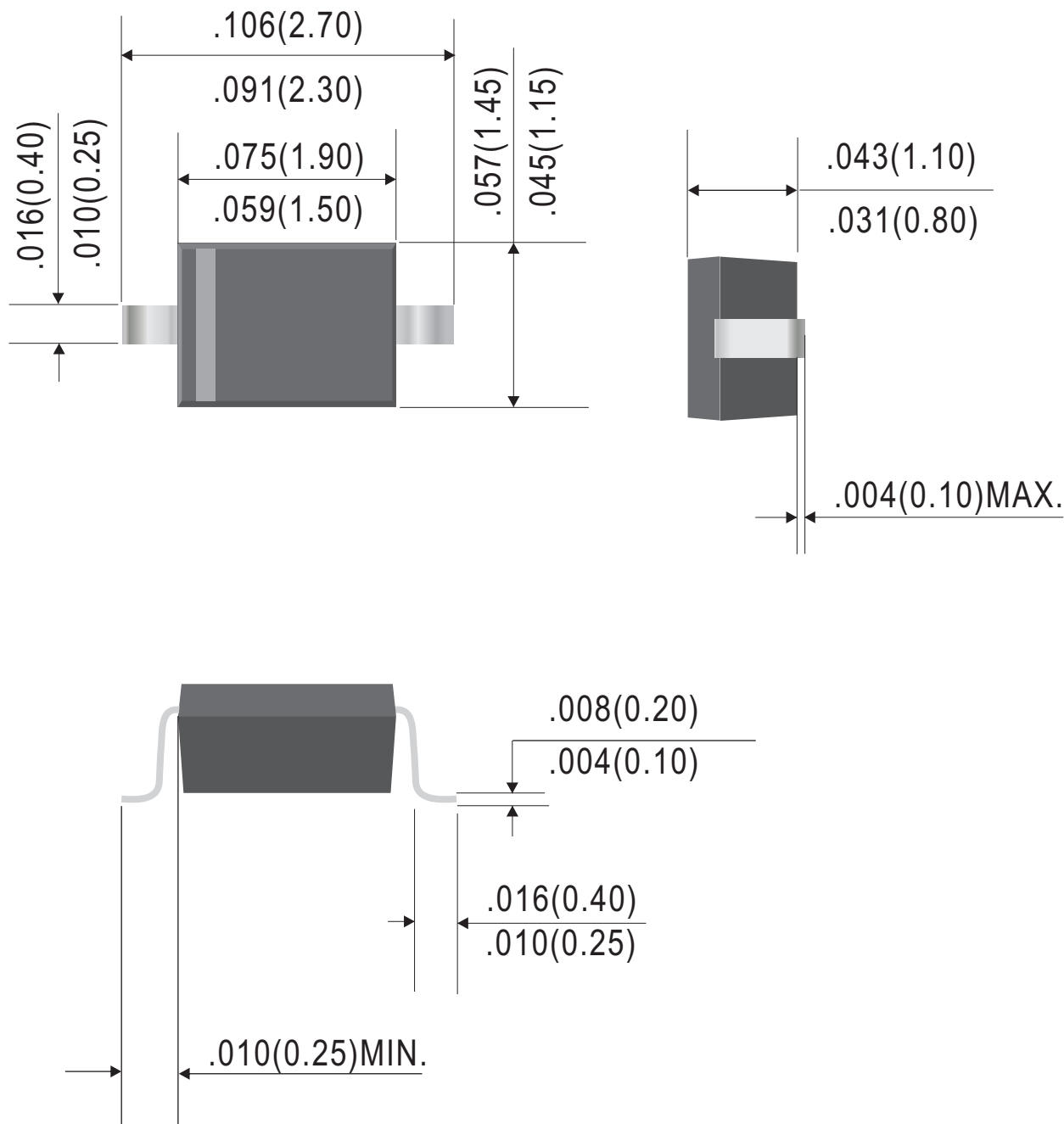


Fig.6 Forward Voltage vs. Forward Current



## Outline Drawing

## SOD-323



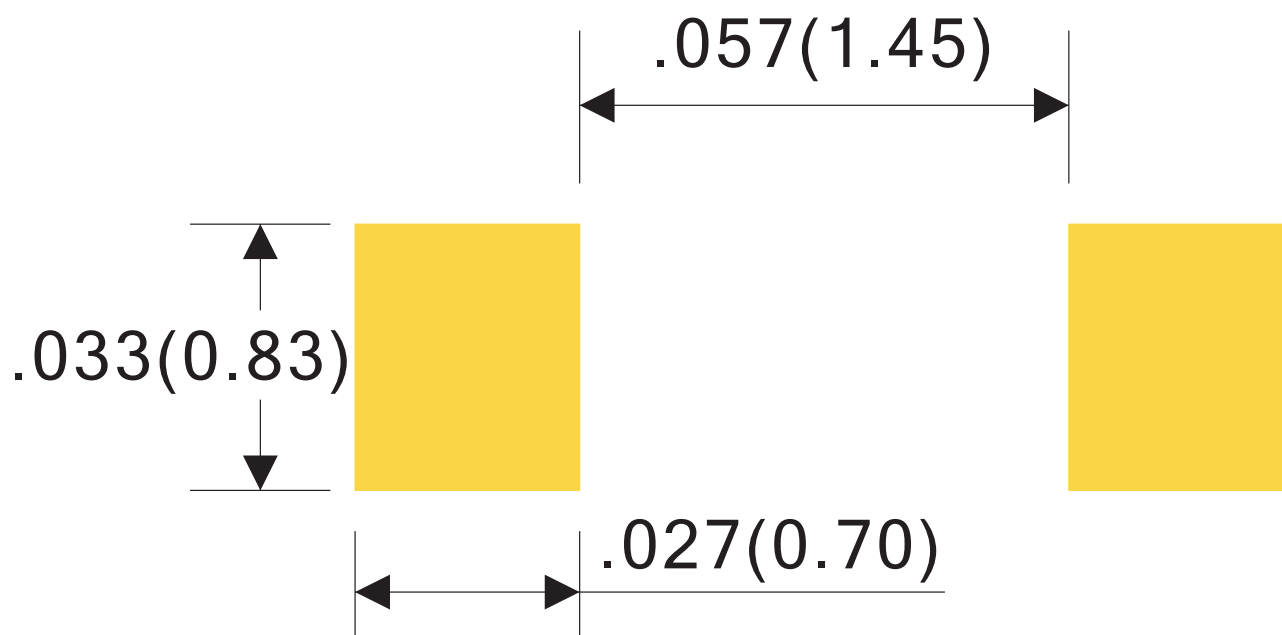
Dimensions in inches and (millimeters)

Rev.C



## Suggested Soldering Pad Layout

SOD-323



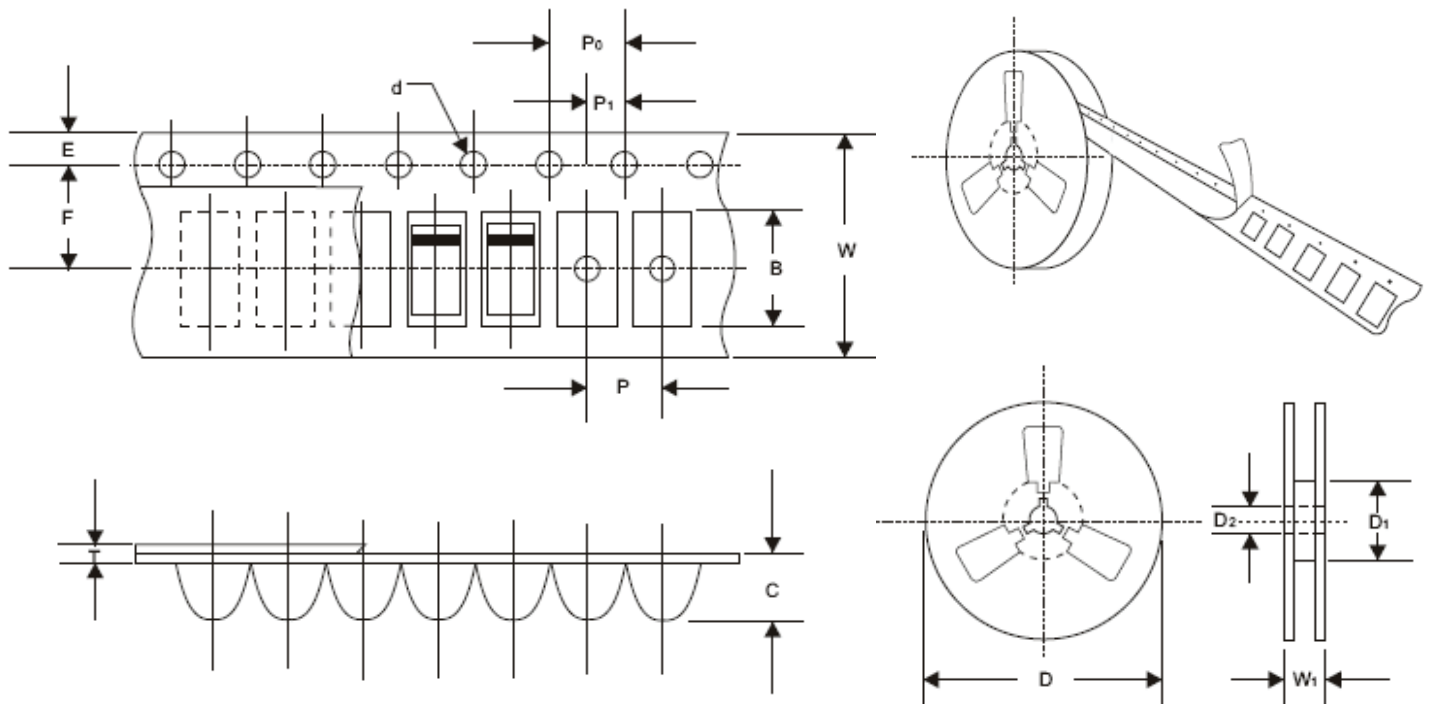
Dimensions in inches and (millimeters)

RevA



## Reel Taping Specification - Surface Mount Device/SOD-323

| PACKAGE | PER REEL EA | REEL DIA (m/m) | PER BOX EA | PER CARTION EA |
|---------|-------------|----------------|------------|----------------|
| SOD-323 | 3000        | 178            | 30000      | 240,000        |



| ITEM                   | SYMBOL | SPECIFICATIONS(mm) |  | SPECIFICATIONS(inch) |  |
|------------------------|--------|--------------------|--|----------------------|--|
|                        |        | SOD-323            |  | SOD-323              |  |
| Carrier length         | B      | 4.5max.            |  | 0.177max.            |  |
| Carrier depth          | C      | 2.4max.            |  | 0.094max.            |  |
| Sprocket hole          | d      | 1.55±0.1           |  | 0.061±0.004          |  |
| Reel outside diameter  | D      | 178max.            |  | 7max.                |  |
| Reel inner diameter    | D1     | 50min.             |  | 1.969min.            |  |
| Feed hole diameter     | D2     | 13.0±0.2           |  | 0.512±0.008          |  |
| Sprocket hole position | E      | 1.75±0.1           |  | 0.069±0.004          |  |
| Punch hole position    | F      | 3.5±0.05           |  | 0.1378±0.002         |  |
| Punch hole pitch       | P      | 4.0±0.1            |  | 0.157±0.004          |  |
| Sprocket hole pitch    | P0     | 4.0±0.1            |  | 0.157±0.004          |  |
| Embossment center      | P1     | 2.0±0.05           |  | 0.079±0.002          |  |
| Overall tape thickness | T      | 0.4max.            |  | 0.016max.            |  |
| Tape width             | W      | 8.0±0.3            |  | 0.315±0.012          |  |
| Reel width             | W1     | 14.4max.           |  | 0.567max.            |  |

**Ordering Information:**

| Device PN                                          | Packing                |
|----------------------------------------------------|------------------------|
| SESD3Z5.0T1 -T <sup>(1)</sup> H <sup>(2)</sup> -WS | Tape&Reel: 3 Kpcs/Reel |

Note: (1) Packing code, Tape & Reel Packing

((2)Packing code Suffix"H" for halogen free product. All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals.

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