



**THE DATASHEET OF  
ESD12VD3-TP**





Micro Commercial Components



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# ESD5V0D3 Thru ESD12VD3

## Features

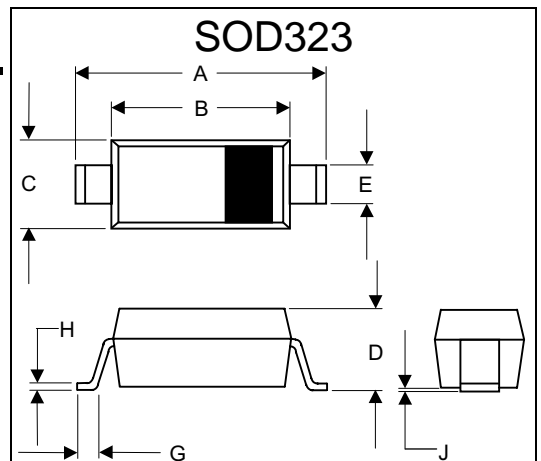
- Halogen free available upon request by adding suffix "-HF"
- For sensitive ESD protection
- Excellent clamping capability
- Low leakage
- ESD rating of class 3(>16KV)per Human Body Mode
- For space saving application
- Fast response ,response time less than 1ns.
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

## Maximum Ratings

- Operating Junction & Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance: 625°C/W Junction To Ambient

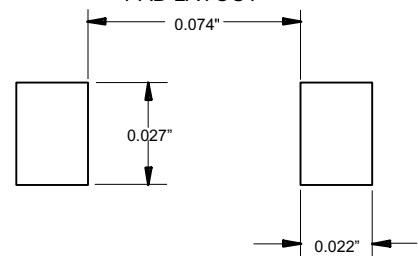
| Parameter                        | Symbol | Limits    | unit |
|----------------------------------|--------|-----------|------|
| IEC61000-4-2(ESD)<br>Air Contact |        | ±15<br>±8 | KV   |
| ESD Voltage per human body mode  |        | 30        | KV   |
| Power Dissipation                | Pd     | 200       | mw   |

## 5V~12Volts ESD Protection Devices



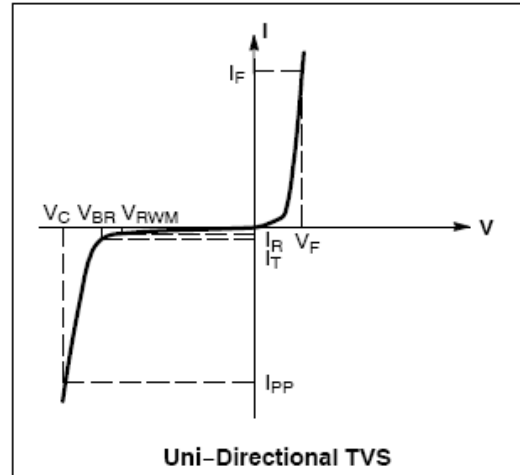
| DIM | INCHES |      | MM    |      | NOTE |
|-----|--------|------|-------|------|------|
|     | MIN    | MAX  | MIN   | MAX  |      |
| A   | .090   | .107 | 2.30  | 2.70 |      |
| B   | .063   | .071 | 1.60  | 1.80 |      |
| C   | .045   | .053 | 1.15  | 1.35 |      |
| D   | .031   | .045 | 0.80  | 1.15 |      |
| E   | .010   | .016 | 0.25  | 0.40 |      |
| G   | .004   | .018 | 0.10  | 0.45 |      |
| H   | .004   | .010 | 0.10  | 0.25 |      |
| J   | -----  | .006 | ----- | 0.15 |      |

### SUGGESTED SOLDER PAD LAYOUT



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| 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 @ $V_{RWM}$    |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                      |
| $I_T$     | Test Current                                   |
| $I_F$     | Forward Current                                |
| $V_F$     | Forward Voltage @ $I_F$                        |
| $P_{pk}$  | Peak Power Dissipation                         |
| C         | Max. Capacitance @ $V_R=0$ and $f=1\text{MHz}$ |



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.9\text{ V Max.}$  @  $I_F = 10\text{mA}$  for all types)

| Device   | Device Marking | $V_{RWM}$ | $I_R (\mu\text{A})$ | $V_{BR} (\text{V})$    |       | $I_T$ | $V_C$ | $I_{PP}(\text{A})^+$ | $V_C (\text{V})$        | $P_{pk}^+$ | C   |
|----------|----------------|-----------|---------------------|------------------------|-------|-------|-------|----------------------|-------------------------|------------|-----|
|          |                | (V)       | @ $V_{RWM}$         | @ $I_T(\text{Note 2})$ | Min   |       | Max   |                      | @ $I_{PP} = 5\text{ A}$ |            |     |
|          |                | Max       | Max                 | Min                    | Max   | mA    | V     | Max                  | Max                     | Max        | Typ |
| ESD5V0D3 | ZA             | 5.0       | 1.0                 | 6.2                    | 7.3   | 1.0   | 9.8   | 15                   | 15.5                    | 350        | 350 |
| ESD12VD3 | ZC             | 12        | 1.0                 | 13.3                   | 15.75 | 1.0   | 22    | 12                   | 33                      | 350        | 150 |

+Surge current waveform per Figure 6.

2.  $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^\circ\text{C}$ .

TYPICAL CHARACTERISTICS

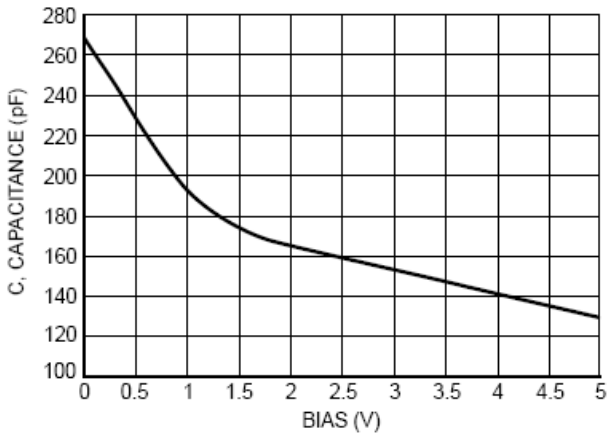


Figure 1. SD05 Typical Capacitance versus Bias Voltage

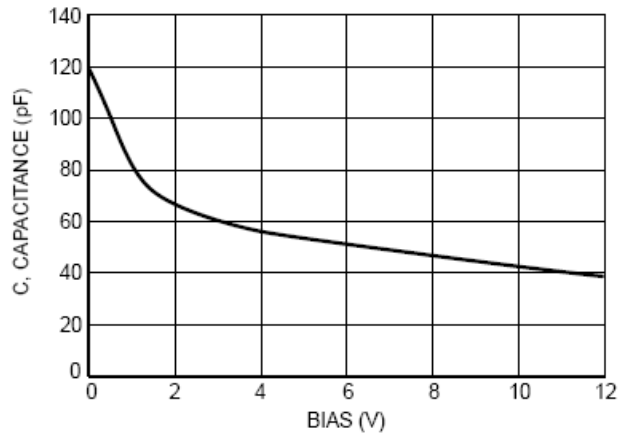


Figure 2. SD12 Typical Capacitance versus Bias Voltage

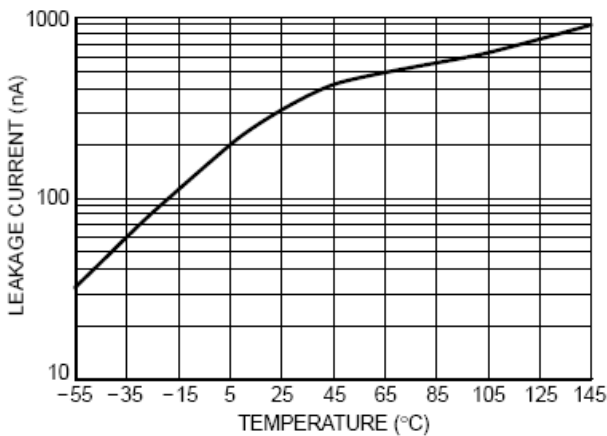


Figure 3. SD05 Typical Leakage Current versus Temperature

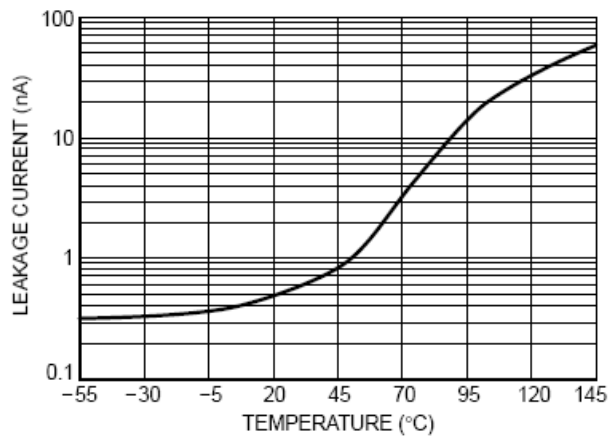


Figure 4. SD12 Typical Leakage Current versus Temperature

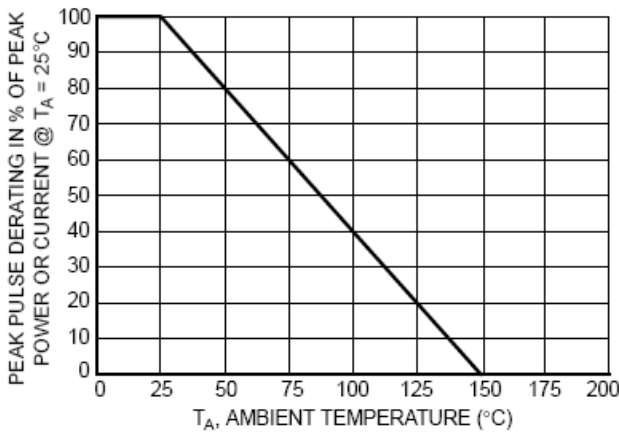


Figure 5. Pulse Derating Curve

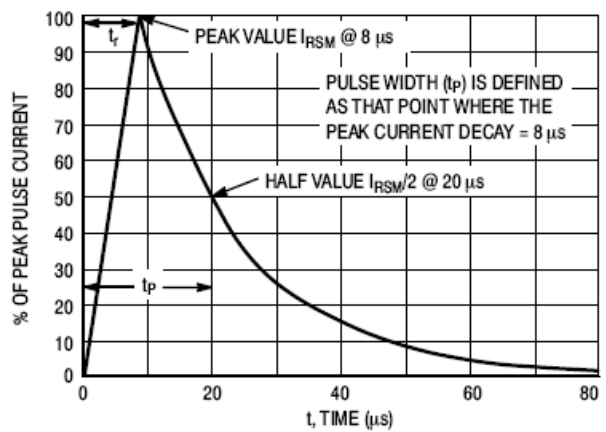


Figure 6. 8 x 20  $\mu s$  Pulse Waveform



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Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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