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# ESD3V3D5 Thru ESD12VD5

## 3.3V~12Volts ESD Protection Devices

## Features

- 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.

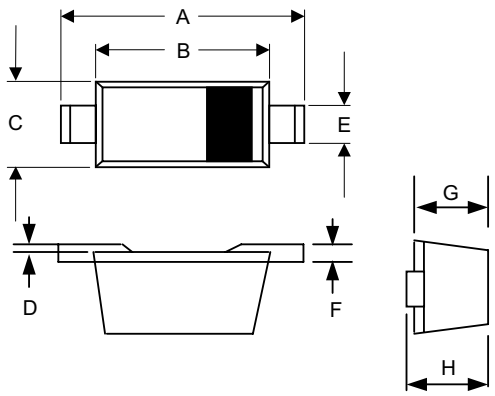
Epoxy meets UL 94 V-0 flammability rating
Moisture Sensitivity Level 1

## Maximum Ratings

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

| Parameter | | Symbol | Limits | unit |
|---|---|---|---|---|
| IEC61000-4-2(ESD) | Air<br>Contact | | ±30<br>±30 | KV |
| ESD Voltage per human body mode<br>per machine mode | | | 16<br>400 | KV<br>V |
| Power Dissipation | | Pd | 200 | mw |

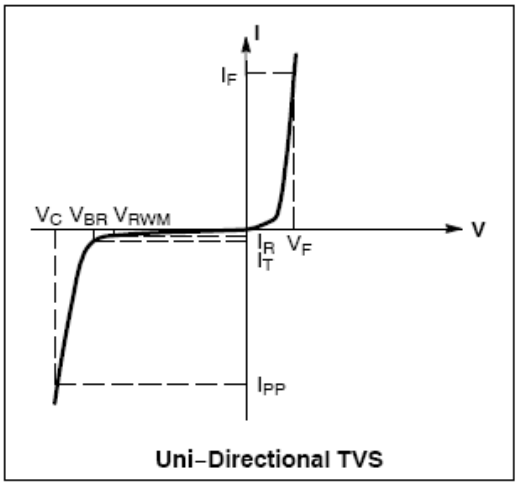
SOD523




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| | INCHES | | MM | | |
| DIM | MIN | MAX | MIN | MAX | NOTE |
| A | .059 | .067 | 1.50 | 1.70 | |
| B | .043 | .051 | 1.10 | 1.30 | |
| C | .030 | .033 | 0.75 | 0.85 | |
| D | .001 | .003 | 0.01 | 0.07 | |
| E | .010 | .014 | 0.25 | 0.35 | |
| F | .003 | .006 | 0.08 | 0.15 | |
| G | .020 | .028 | 0.50 | 0.70 | |
| H | .020 | .031 | 0.51 | 0.77 | |

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°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 =1MHz |



Uni-Directional TVS

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted, $V_F$ = 0.9 V Max. @ $I_F$ = 10mA for all types)

| Device* | Device Marking | $V_{RWM}$ (V) | $I_R$ (μA) @ $V_{RWM}$ | $V_{BR}$ (V) @ $I_T$(Note 2) | $I_T$ | Vc @IPP+ = 5 A | $I_{PP}$(A) + | $V_c$ (V) @Max $I_{PP}$+ | $P_{pk}$ + (W) | C (pF) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Max | Max | Min | mA | V | Max | Max | Max | Typ |
| **ESD3V3D5** | ZE | 3.3 | 0.08 | 5.0 | 1.0 | 9.4 | 11.2 | 14.1 | 158 | 105 |
| **ESD5V0D5** | ZF | 5.0 | 0.08 | 6.2 | 1.0 | 11.6 | 9.4 | 18.6 | 174 | 80 |
| **ESD7V0D5** | ZH | 7.0 | 0.03 | 7.5 | 1.0 | 13.5 | 8.8 | 22.7 | 200 | 65 |
| **ESD12VD5** | ZM | 12 | 0.02 | 14.1 | 1.0 | 23 | 9.6 | 29 | 240 | 55 |

+Surge current waveform per Figure 1.

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

## TYPICAL CHARACTERISTICS

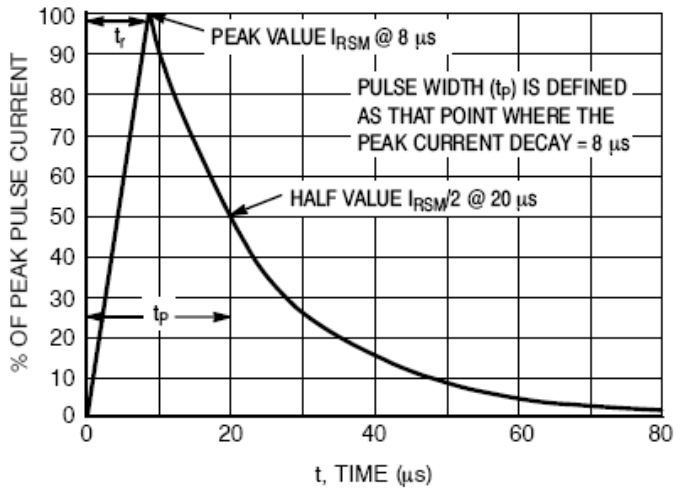


**Figure 1. 8 x 20 μs Pulse Waveform**