# VESD05A1-02V-G-08
ESD PROTECTION DIODE

## Discription

The VESD05A1-02V-G-08 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.
It gives designer the flexibility to protect one unidirectional line in applications where arrays are not practical.




SOD-523

## Features

★ Small Body Outline Dimensions
★ Low Body Height
★ Stand−off Voltage: 5V
★ Peak Power up to 250 Watts @ 8 x 20 us Pulse
★ Low Leakage
★ Response Time is Typically < 1 ns
★ ESD Rating of Class 3 per Human Body Model
★ IEC61000−4−2 Level 4 ESD Protection
★ IEC61000−4−4 Level 4 EFT Protection
★ We declare that the material of product compliance with RoHS requirements.




Circuit Diagram

## Ordering Information

| Product ID | Pack | Qty(PCS) |
|---|---|---|
| VESD05A1-02V-G-08 | SOD-523 | 3000 |

## Absolute Ratings ($T_{amb}$=25°C)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PP}$ | Peak Pulse Power ($t_p$ = 8/20μs) | 250 | W |
| $T_L$ | Maximum lead temperature for soldering during 10s | 260 | °C |
| $T_{stg}$ | Storage Temperature Range | -55 to +150 | °C |
| $T_{op}$ | Operating Temperature Range | -40 to +125 | °C |
| $T_j$ | Maximum junction temperature | 150 | °C |
| | IEC61000-4-2 (ESD) air discharge<br>contact discharge | ± 30<br>± 30 | KV |

## Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.VF = 0.9V at IF = 10mA

| Symbol | Parameter | Test Condition | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| $V_{RWM}$ | Reverse Working Voltage | | | | 5.0 | V |
| $V_{BR}$ | Reverse Breakdown Voltage | $I_T$ = 1mA | 6.5 | | | V |
| $I_R$ | Reverse Leakage Current | $V_{RWM}$ = 5.0V | | | 1.0 | uA |
| $V_C$ | Clamping Voltage | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | 9.5 | | V |
| | | $I_{PP}$ =15A,$t_p$ = 8/20μs | | 20 | | V |
| $C_J$ | Junction Capacitance | $V_R$ = 0V, f = 1MHz | | 180 | | pF |

## Typical Characteristics

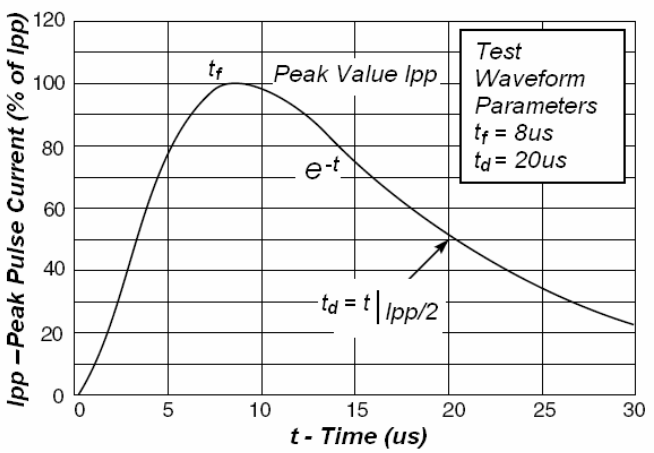



*Fig1. Pulse Waveform*

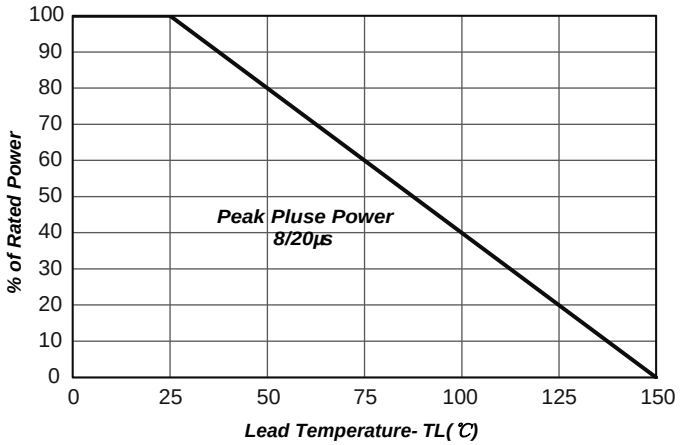
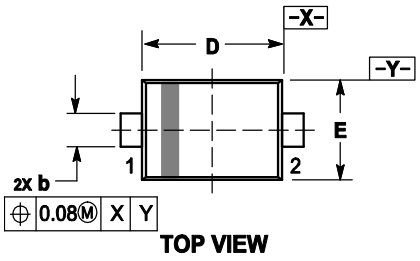
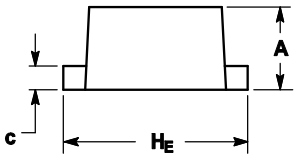



*Fig2.Power Derating*

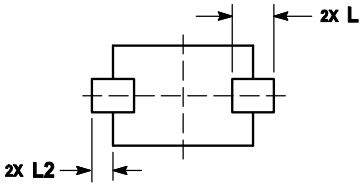
## Outline And Dimensions



TOP VIEW



SIDE VIEW



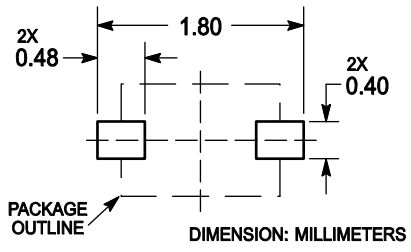
BOTTOM VIEW

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

| DIM | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.50 | 0.60 | 0.70 | 0.020 | 0.024 | 0.028 |
| b | 0.25 | 0.30 | 0.35 | 0.010 | 0.012 | 0.014 |
| c | 0.07 | 0.14 | 0.20 | 0.003 | 0.006 | 0.008 |
| D | 1.10 | 1.20 | 1.30 | 0.043 | 0.047 | 0.051 |
| E | 0.70 | 0.80 | 0.90 | 0.028 | 0.031 | 0.035 |
| $H_E$ | 1.50 | 1.60 | 1.70 | 0.059 | 0.063 | 0.067 |
| L | 0.30 REF | | | 0.012 REF | | |
| $L_2$ | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |

## Soldering Footprint



DIMENSION: MILLIMETERS

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## HXY MOSFET:

SS510C US2M HAD8542ARZ HC3D10170A SS1045 P6SMB200A BZT52C13 HMCP602-I/SN HXY2300MI SQJA04EP-T1_BE3 SS5150B HC4D20120A TPSMB100CA-VR TPSMB28A-VR HESDNC5VB1AF-B HOPA2340UA HXY2101EI MAX487ESA SD15C BZT52C3V3S HT7150 HXY8205ES IRLML6246PBF P6SMB33CA P6SMB36CA PESD5V0S1BB HT7540-1 MMBT3904T SS10100 DTC143ZE