# HSD12T1G
ESD PROTECTION DIODE

## Discription

The HSD12T1G 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-323

## Features

- ★ Unidirectional ESD protection of one line
- ★ Reverse stand-off voltage: 12.0V Max
- ★ Low leakage current: uA Level
- ★ Response time is typically < 1 us
- ★ Low clamping voltage: $V_C$ = 33 V @ $I_{PP}$ = 12 A
- ★ ESD Protection: 30kV(air)/ 30kV(contact) ( IEC61000-4-2)
- ★ RoHS compliant

Circuit Diagram

## Orderingin formation

| Product ID | Pack | Qty(PCS) |
|---|---|---|
| HSD12T1G | SOD-323 | 3000 |

## Absolute Ratings(Tamb = 25°C)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PP}$ | Peak Pulse Power ($t_p$ = 8/20 μ s) | 350 | W |
| $T_L$ | Maximum lead temperature for soldering during 10s | 260 | °C |
| $T_{stg}$ | Storage Temperature Range | -55 to +155 | °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 |

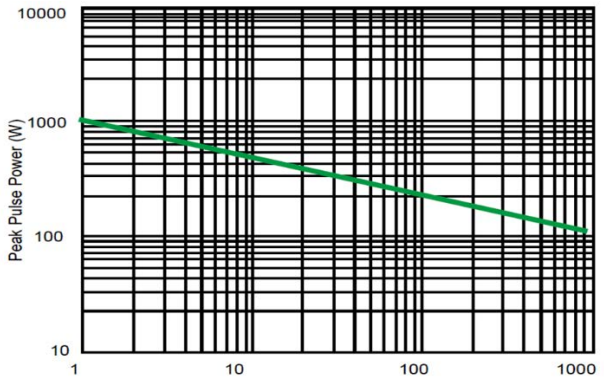
## Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.VF = 0.9V at IF = 10mA

| $V_{RWM}$ (V) | $I_R$(uA) @ $V_{RWM}$ | $V_{BR}$ (V)@ $I_T$ (Note 1) | $I_T$ | $V_C$ (V) @ $I_{PP}$=1 A* | $V_C$ (V) @ Max $I_{PP}$* | $I_{PP}$ (A)* | $P_{PK}$ (W)* | C (pF) |
|---|---|---|---|---|---|---|---|---|
| Max | Max | Min | mA | Typ | Max | Max | Max | Max |
| 12 | 1.0 | 13.3 | 1 | 19 | 33 | 15 | 350 | 110 |

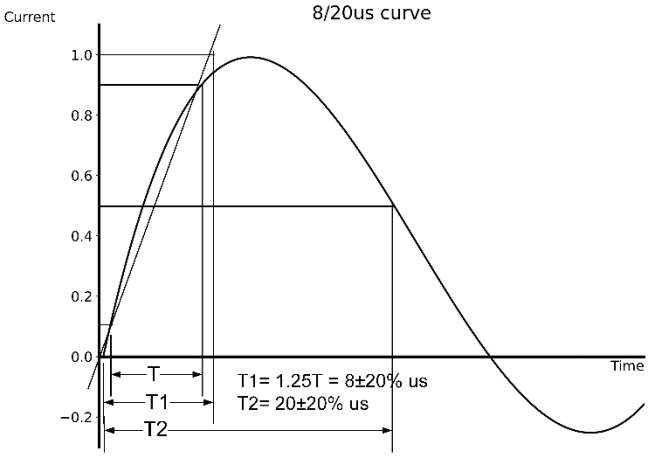
*Surge current waveform per Figure 1.

1. $V_{BR}$ is measured with a pluse test current $I_T$ at an ambient temperature of 25℃.

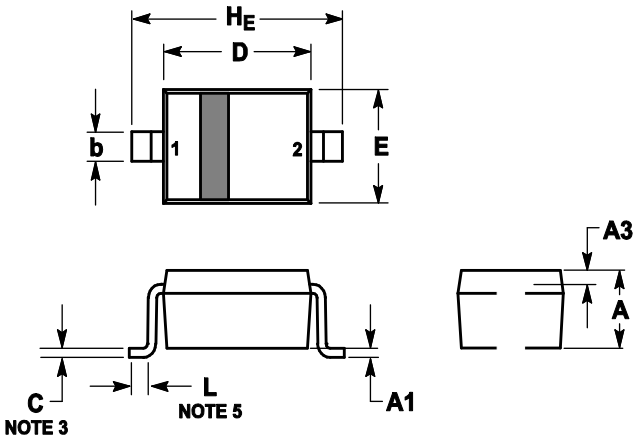
## Typical Characteristics ($T_A$=25°C unless otherwise Specified)




Non-repetitive peak pulse power vs. pulse time



## Outline And Dimensions

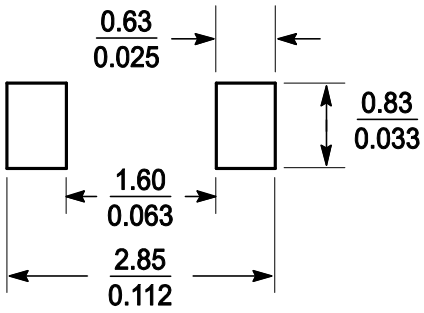



Notes:

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.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.8 | 0.9 | 1 | 0.031 | 0.035 | 0.04 |
| A1 | 0 | 0.05 | 0.1 | 0 | 0.002 | 0.004 |
| A3 | 0.15REF | | | 0.006REF | | |
| b | 0.25 | 0.32 | 0.4 | 0.01 | 0.012 | 0.016 |
| C | 0.089 | 0.12 | 0.177 | 0.003 | 0.005 | 0.007 |
| D | 1.6 | 1.7 | 1.8 | 0.062 | 0.066 | 0.07 |
| E | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| L | 0.08 | | | 0.003 | | |
| $H_E$ | 2.3 | 2.5 | 2.7 | 0.09 | 0.098 | 0.105 |

## Soledering Footprint



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