# AZ9412-01H
ESD PROTECTION DIODE

## Discription

The AZ9412-01H 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

- ★ Transient protection for high-speed data lines
  IEC 61000-4-2(ESD) ±30kV (Contact)
  ±30kV (Air)
  IEC 61000-4-4(EFT) 40A (5/50 ns)
- ★ Peak power dissipation: 174W (8/20us)
- ★ Working voltages : 5V
- ★ Protects one Vcc or data line
- ★ Low clamping voltage
- ★ Low leakage current




Circuit Diagram

## Ordering Information

| Product ID | Pack | Qty(PCS) |
|---|---|---|
| AZ9412-01H | SOD-523 | 3000 |

## Absolute Ratings(Tamb = 25°C)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PP}$ | Peak Pulse Power ($t_p$ = 8/20 μ s) | 174 | 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 |
| | IEC61000-4-4 (EFT) | 40 | A |

## Electrical Characteristics

| Symbol | Parameter | Test Condition | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| $V_{RWM}$ | Reverse Working Voltage | | | | 12 | V |
| $V_{BR}$ | Reverse Breakdown Voltage | $I_T$ = 1mA | 14.1 | | | V |
| $I_R$ | Reverse Leakage Current | $V_{RWM}$ = 12V | | | 0.02 | μA |
| $V_C$ | Clamping Voltage | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | | 23 | V |
| | | $I_{PP}$ = 6A, $t_p$ = 8/20μs | | | 29 | V |
| $C_J$ | Junction Capacitance | $V_R$ = 0V, f = 1MHz | | 35 | | pF |

## Typical Characteristics

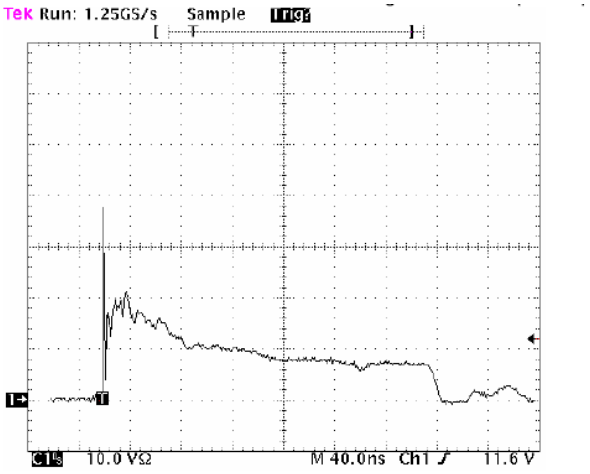



Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000-4-2

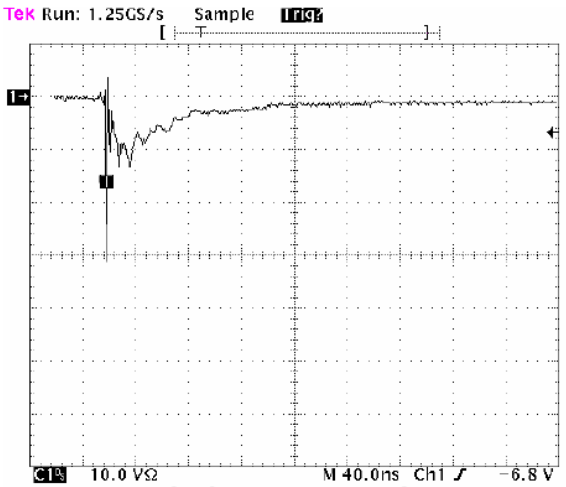
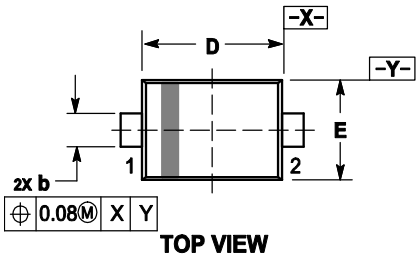
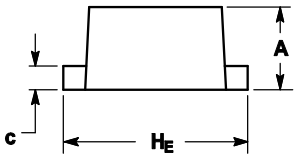



Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000-4-2

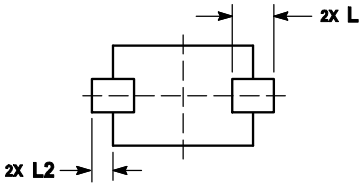
## Outline And Dimensions



TOP VIEW



SIDE VIEW



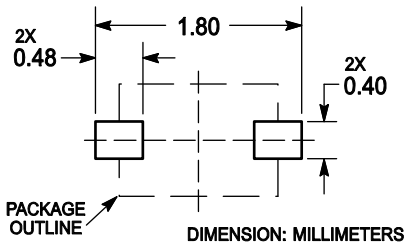
BOTTOM VIEW

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 |

## Soledering Footprint



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