# VESD12C1-HD1-G3-08
ESD PROTECTION DIODE

## Discription

The VESD12C1-HD1-G3-08 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.




DFN1006-2L
(DFN1006-2A)




Circuit Diagram

## Features

- ★ Transient protection for high-speed data lines
  IEC 61000-4-2(ESD) ±8kV (Contact)
  ±15kV (Air)
  IEC 61000-4-4(EFT) 40A (5/50 ns)
- ★ Peak power dissipation: 150W (8/20us)
- ★ Working voltages : 12V
- ★ Ultra-small package (1.0mmx0.6mmx0.5mm)
- ★ Protects one data, control line
- ★ Low capacitance: 45pF (Typical)
- ★ Low clamping voltage
- ★ Low leakage current

## Ordering Information

| Product ID | Pack | Qty(PCS) |
|---|---|---|
| VESD12C1-HD1-G3-08 | DFN1006-2L(DFNN1006-2A) | 10000 |

## Absolute Ratings(Tamb = 25°C)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PP}$ | Peak Pulse Power ($t_p$ = 8/20 μ s) | 150 | 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 | -55 to +150 | °C |
| $T_j$ | Maximum junction temperature | 150 | °C |
| | IEC61000-4-2 (ESD) air discharge<br>contact discharge | ±15<br>±8 | KV |
| | IEC61000-4-4 (EFT) | 40 | A |

## Electrical Characteristics Ratings at 25°C

| Symbol | Parameter | Test Condition | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| $V_{RWM}$ | Reverse Working Voltage | | | | 12 | V |
| $V_{BR}$ | Reverse Breakdown Voltage | $I_T$ = 1mA | 13.3 | | | V |
| $I_R$ | Reverse Leakage Current | $V_{RWM}$ = 12V | | | 1000 | nA |
| $V_C$ | Clamping Voltage | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | | 20 | V |
| | | $I_{PP}$ = 4A, $t_p$ = 8/20μs | | | 26 | V |
| $C_J$ | Junction Capacitance | $V_R$ = 0V, f = 1MHz | | 28 | 35 | pF |

## Typical Characteristics

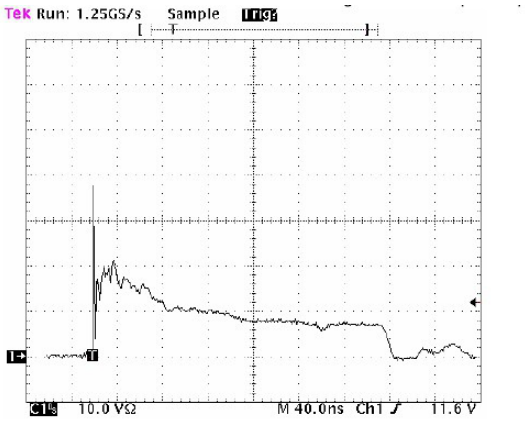



Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000−4−2

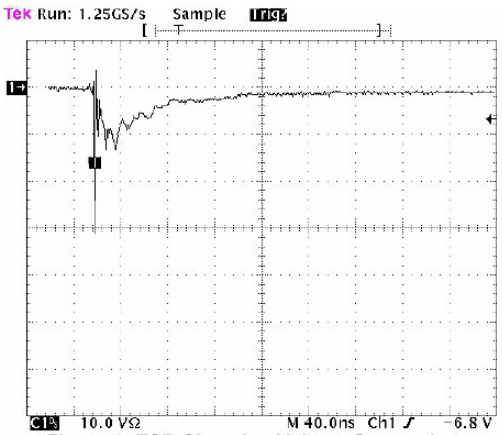
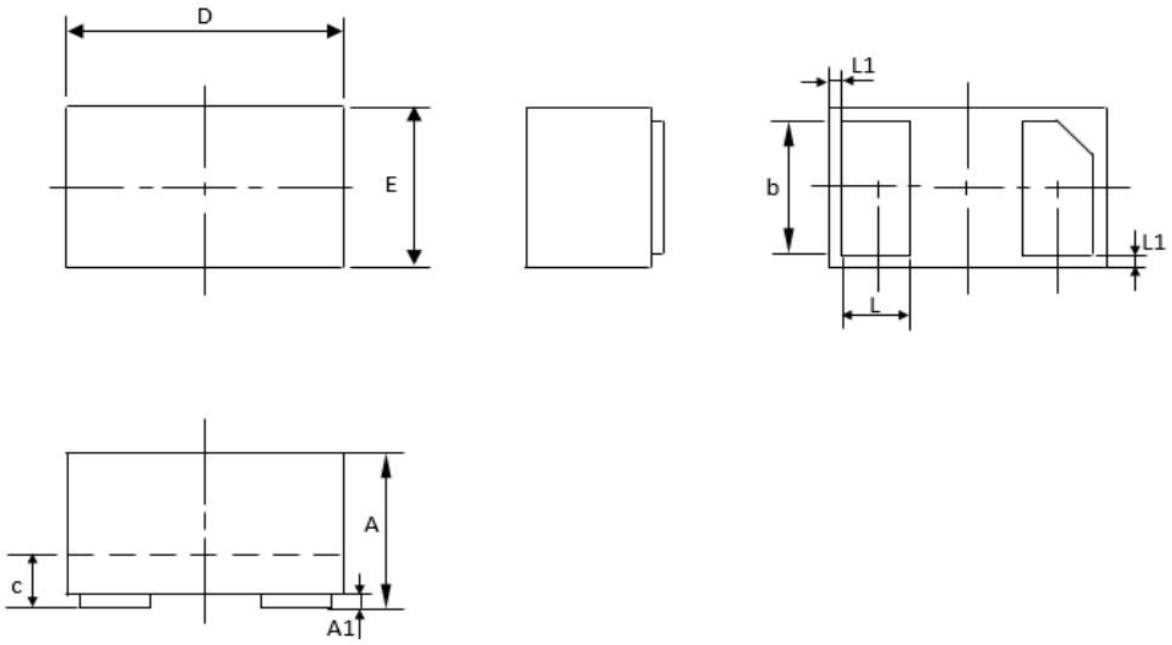



Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000−4−2

## Outline And Dimensions




| DFN1006-2L(DFN1006-2A) | | | |
|---|---|---|---|
| Dim | Min | Typ. | Max |
| A | 0.46 | 0.48 | 0.50 |
| A1 | 0 | 0.02 | 0.05 |
| b | 0.45 | 0.5 | 0.55 |
| c | 0.1 | 0.12 | 0.14 |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.65 |
| L | 0.20 | 0.25 | 0.30 |
| L1 | 0.035 | 0.05 | 0.065 |
| h | 0.07 | 0.12 | 0.17 |
| All Dimensions in mm | | | |

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