



Discription

The HESDUC5VB1AF-B 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 bi-directional line in applications where arrays are not practical.



DFN1006-2L

Specification Features:

- ★ Ultra Low Capacitance 0.6 pF
- ★ Low Clamping Voltage
- ★ Small Body Outline Dimensions:
0.039" x 0.024" (1.00 mm x 0.60 mm)
- ★ Low Body Height: 0.020" (0.5 mm)
- ★ Stand-off Voltage: 5 V
- ★ Low Leakage
- ★ Response Time is Typically < 1.0 ns
- ★ IEC61000-4-2 Level 4 ESD Protection
- ★ This is a Pb-Free Device



Circuit Diagram

Ordering information

| Product ID | Pack | Qty(PCS) |
|----------------|------------|----------|
| HESDUC5VB1AF-B | DFN1006-2L | 10000 |

Absolute Ratings ($T_{amb}=25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Units |
|-----------|---|------------------------------------|----------------------------|
| P_{PP} | Peak Pulse Power ($t_p = 8/20\mu\text{s}$) | 45 | W |
| T_L | Maximum lead temperature for soldering during 10s | 260 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Temperature Range | -55 to +150 | $^{\circ}\text{C}$ |
| T_{op} | Operating Temperature Range | -40 to +125 | $^{\circ}\text{C}$ |
| T_j | Maximum junction temperature | 150 | $^{\circ}\text{C}$ |
| | IEC61000-4-2 (ESD) | air discharge contact discharge | ± 10 ± 15 KV |



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Device | V_{RWM} (V) | I_R (μA) @ V_{RWM} | V_{BR} (V) @ I_T (Note 2) | | I_T | C (pF) | V_C (V) @ $I_{PP} = 1\text{ A}$ (Note 3) | I_{PR} (A) | P_{PK} (W)* | V_C |
|----------------|------------------|--|----------------------------------|-----|-------|----------|--|--------------|------------------|------------------------------|
| | Max | Max | Min | Max | mA | Max | Max | Max | Max | Per IEC61000-4-2 (Note 4) |
| HESDUC5VB1AF-A | 5.0 | 1.0 | 6.5 | 9.0 | 1.0 | 0.6 | 15 | 3 | 45 | Figures 1 and 2 See Below |

- V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C .
- Surge current waveform per Figure 4.
- For test procedure see Figures 3.

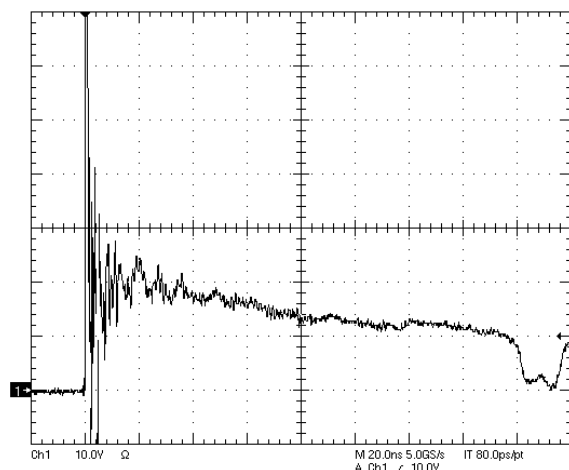


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

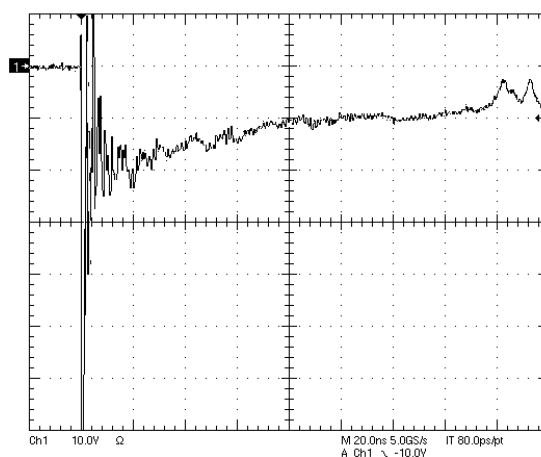


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2



IEC 61000-4-2 Spec.

| Level | Test Voltage (kV) | First Peak Current (A) | Current at 30 ns (A) | Current at 60 ns (A) |
|-------|-------------------|------------------------|----------------------|----------------------|
| 1 | 2 | 7.5 | 4 | 2 |
| 2 | 4 | 15 | 8 | 4 |
| 3 | 6 | 22.5 | 12 | 6 |
| 4 | 8 | 30 | 16 | 8 |

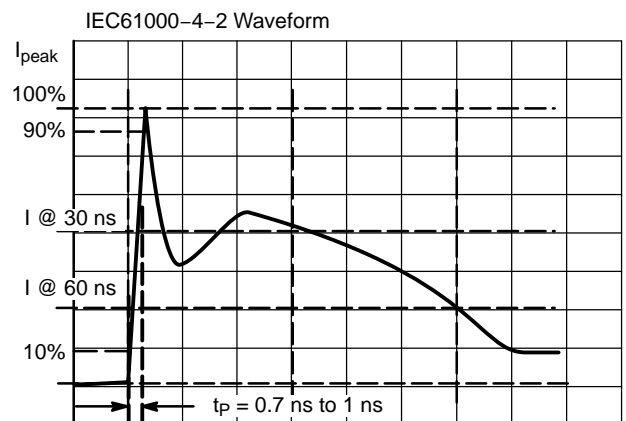


Figure 3. IEC61000-4-2 Spec

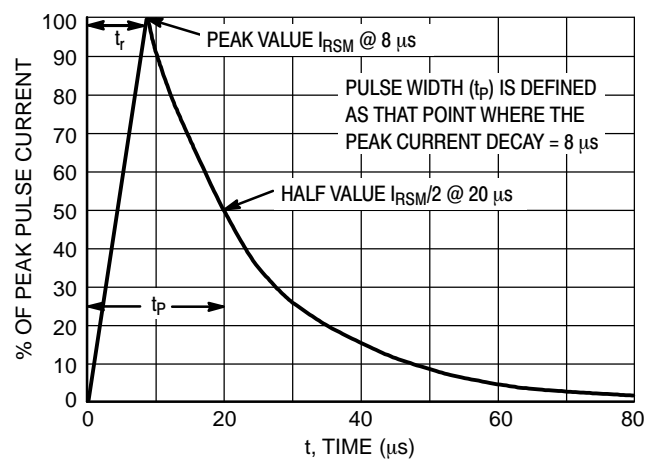
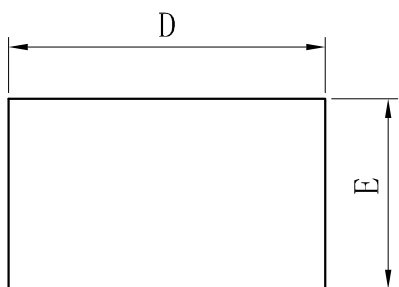


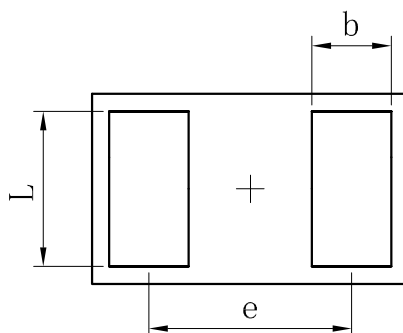
Figure 4. 8 X 20 μs Pulse Waveform



OUTLINE AND DIMENSIONS

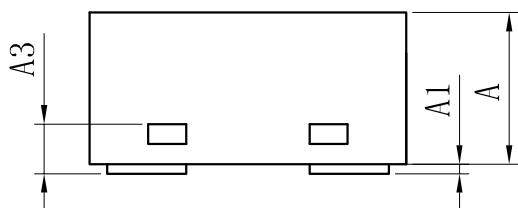


TOP VIEW



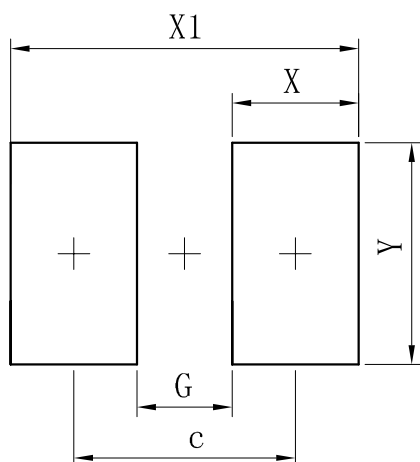
BOTTOM VIEW

| DFN1006-2L | | | |
|----------------------|-----------|------|------|
| Dim | Min | Typ | Max |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.65 |
| e | – | 0.64 | – |
| L | 0.44 | 0.49 | 0.54 |
| b | 0.20 | 0.25 | 0.30 |
| A | 0.43 | 0.48 | 0.53 |
| A1 | 0 | – | 0.05 |
| A3 | 0.127REF. | | |
| All Dimensions in mm | | | |



SIDE VIEW

SOLDERING FOOTPRINT



| Dimensions | (mm) |
|------------|------|
| c | 0.70 |
| G | 0.30 |
| X | 0.40 |
| X1 | 1.10 |
| Y | 0.70 |



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