



## Discription

The HESDNC12VU1AF-A 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.

## Features

- ★ Small Body Outline Dimensions
- ★ 300 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- ★ Small package for use in portable electronics
- ★ Suitable replacement for MLV's in ESD protection applications
- ★ Protects one I/O or power line
- ★ Low clamping voltage
- ★ Working voltages: 12V
- ★ Low leakage current
- ★ Solid-state silicon-avalanche technology
- ★ We declare that the material of product compliance with RoHS requirements.
- ★ S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



DFN1006-2L



Circuit Diagram

## Ordering information

| Product ID      | Pack       | Qty(PCS) |
|-----------------|------------|----------|
| HESDNC12VU1AF-A | DFN1006-2L | 10000    |

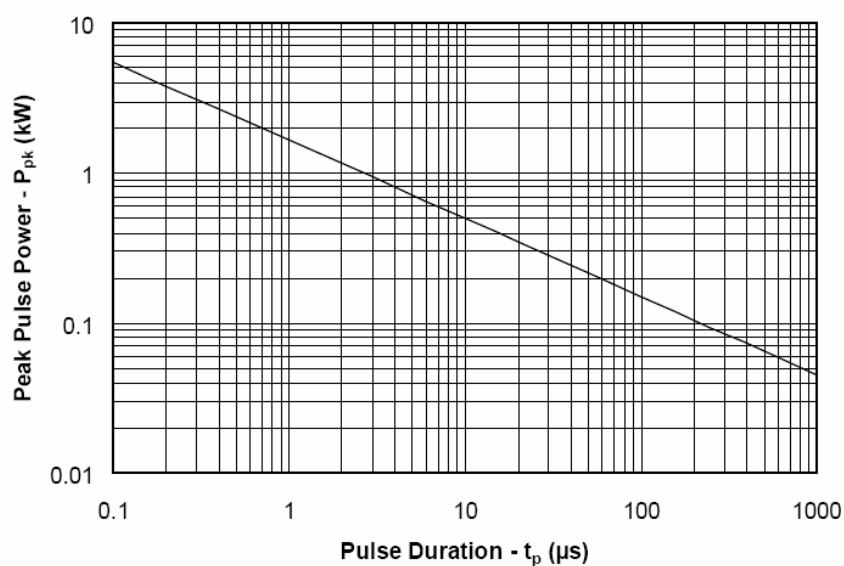
## Absolute Ratings ( $T_{amb}=25^{\circ}C$ )

| Symbol    | Parameter                                         | Value       | Units       |
|-----------|---------------------------------------------------|-------------|-------------|
| $P_{PK}$  | Peak Pulse Power ( $t_p = 8/20\mu s$ )            | 300         | W           |
| $V_{ESD}$ | ESD Voltage(HBM Waveform per IEC 61000-4-2)       | 30          | kV          |
| $T_L$     | Maximum lead temperature for soldering during 10s | 260         | $^{\circ}C$ |
| $T_{STG}$ | Storage Temperature Range                         | -55 to +150 | $^{\circ}C$ |
| $T_J$     | Maximum junction temperature                      | -55 to +125 | $^{\circ}C$ |

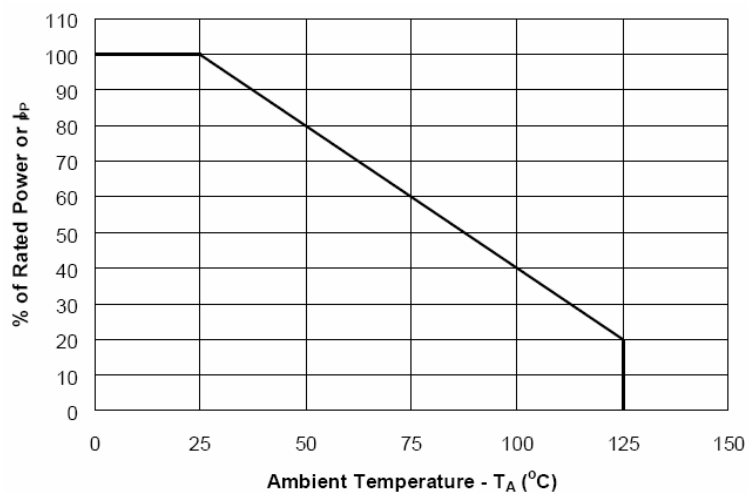


**Electrical Characteristics** Ratings at 25°C ambient temperature unless otherwise specified. VF = 0.9V at IF = 10mA

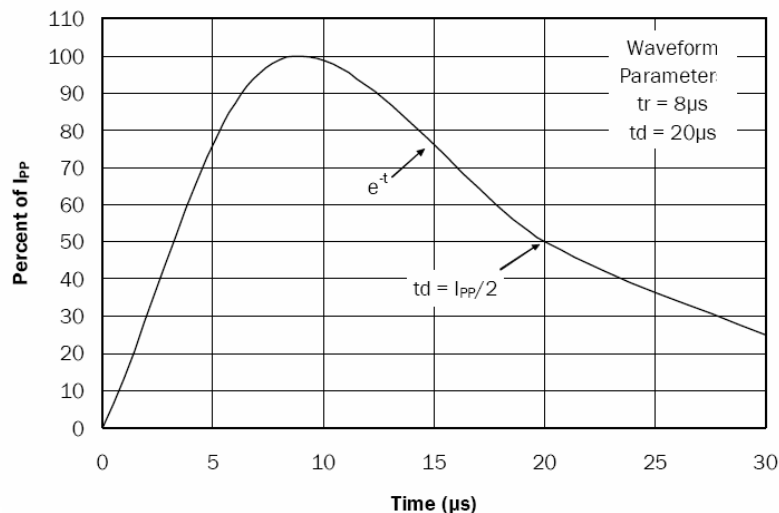
| Device          | $V_{RWM}$<br>(V) | $I_R$ ( $\mu$ A)<br>@<br>$V_{RWM}=5V$ | $V_{BR}$ (V)@<br>$I_t=1mA$ | $V_C$ (V)<br>@ $I_{PP}=5 A$<br>$t_p=8/20\mu s$ | $V_C$ (V)<br>@ $I_{PP}=24$<br>$t_p=8/20\mu s$ | $I_{PP}$<br>(A)<br>$t_p=8/20\mu s$ | C<br>(pF) |
|-----------------|------------------|---------------------------------------|----------------------------|------------------------------------------------|-----------------------------------------------|------------------------------------|-----------|
|                 | Max              | Max                                   | Min                        | Typ                                            | Typ                                           | Max                                | Typ       |
| HESDNC12VU1AF-A | 12.0             | 1.0                                   | 13.3                       | 19.0                                           | 16.5                                          | 50                                 | 100       |



**Fig.1 Non-Repetitive Peak Pulse Power vs. Pulse Time**



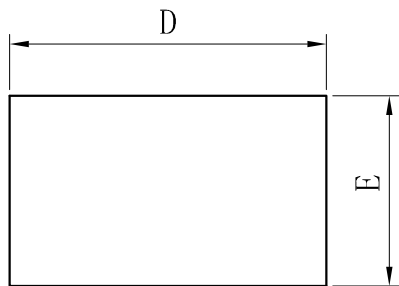
**Fig.2 Power Derating Curve**



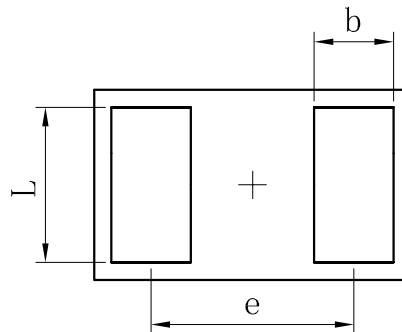
**Fig.3 Waveform**



## Outline and Dimensions

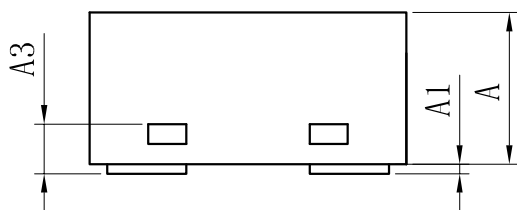


TOP VIEW



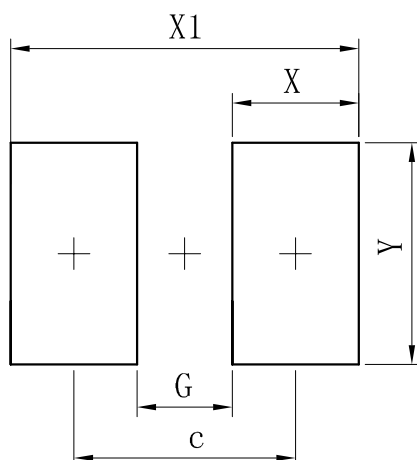
BOTTOM VIEW

| 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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