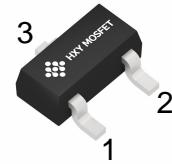




## Description

The HCEST23NC24VU 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.

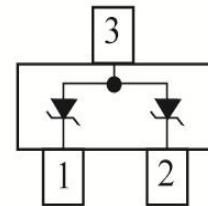
It gives designer the flexibility to protect 2 unidirectional line in applications where arrays are not practical.



**SOT-23**

## Features

- ★ We declare that the material of product compliance with RoHS requirements and Halogen Free.
- ★ 2 Unidirectional transil functions
- ★ Low leakage current: IR max < 20  $\mu$ A at VRM
- ★ 300W peak pulse power(8/20 $\mu$ s)
- ★ Transient protection for data lines as per
- ★ IEC61000-4-2(ESD) 15KV(air) 8KV(contact)
- ★ IEC61000-4-5(Lightning) see IPPM below



**Circuit Diagram**

## Ordering Information

| Product ID    | Pack   | Qty(PCS) |
|---------------|--------|----------|
| HCEST23NC24VU | SOT-23 | 3000     |

## Absolute Ratings(Tamb = 25°C)

| Symbol           | Parameter   | Value                              | Units     |
|------------------|---|------------------------------------|-----------|
| P <sub>PP</sub>  | Peak Pulse Power ( $t_p = 8/20\mu$ s)             | 100                                | W         |
| T <sub>L</sub>   | Maximum lead temperature for soldering during 10s | 260                                | °C        |
| T <sub>stg</sub> | Storage Temperature Range                         | -55 to +150                        | °C        |
| T <sub>op</sub>  | Operating Temperature Range                       | -40 to +125                        | °C        |
| T <sub>j</sub>   | Maximum junction temperature                      | 150                                | °C        |
|                  | IEC61000-4-2 (ESD)                                | air discharge<br>contact discharge | ±15<br>±8 |
|                  |   |                                    | KV        |



**Electrical Characteristics** Ratings at 25°C ambient temperature unless otherwise specified.

| Device        | $V_{RWM}$<br>(V) | $I_R$ (uA)<br>@ $V_{RWM}$ | $V_{BR}$ (V)@ $I_T$<br>(Note 1) | $I_T$ | $V_C$ (V)<br>@ Max $I_{PP}^*$ | $I_{PP}$<br>(A)* | $P_{PK}$<br>(W)* | $C$<br>(pF) |
|---------------|------------------|---------------------------|---------------------------------|-------|-------------------------------|------------------|------------------|-------------|
|               | Max              | Max                       | Min                             | mA    | Max                           | Max              | Max              | Typ         |
| HCEST23NC24VU | 24               | 1.0                       | 26                              | 1     | 50                            | 2                | 100              | 25          |

\*Surge current waveform per Figure 1.

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

**Typical Characteristics**

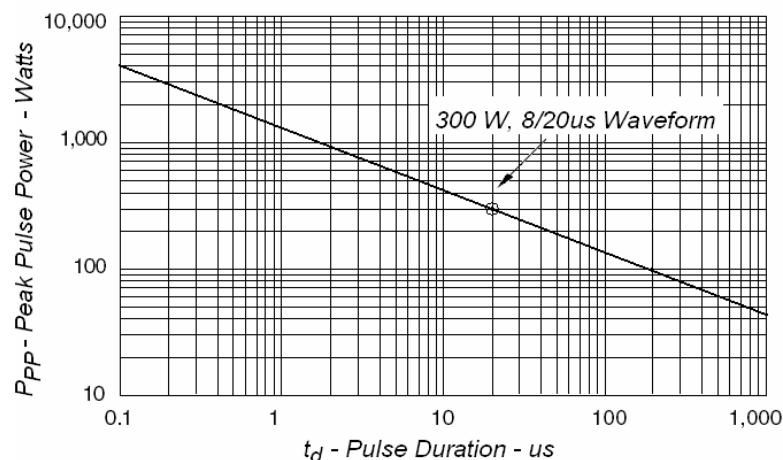


Fig1. Peak Pulse Power VS Pulse Time

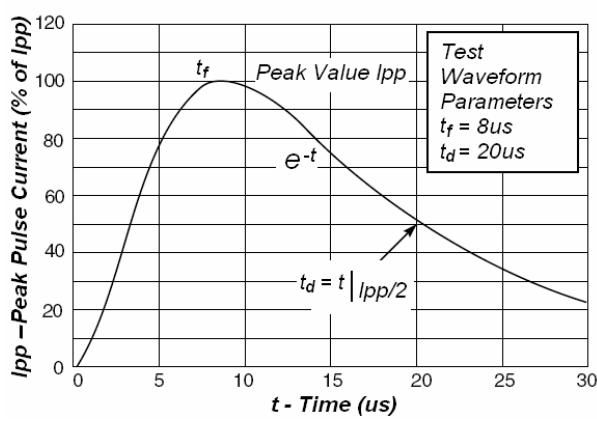


Fig2. Pulse Waveform

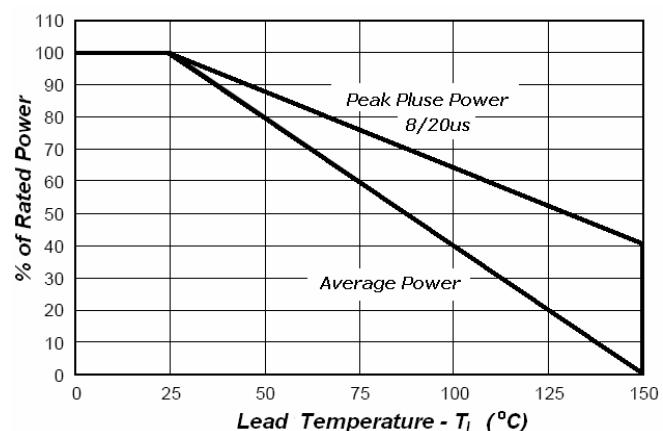
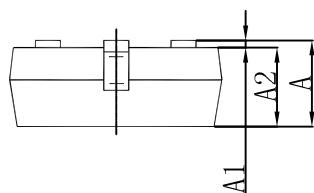
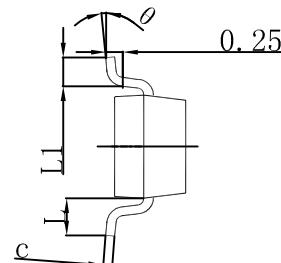
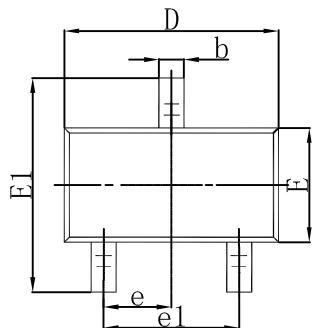


Fig3. Power Derating

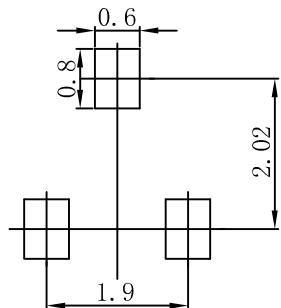


## SOT-23 Package Outline Dimensions



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min                       | Max   | Min                  | Max   |
| A        | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.050 | 0.035                | 0.041 |
| b        | 0.300                     | 0.500 | 0.012                | 0.020 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.800                     | 3.000 | 0.110                | 0.118 |
| E        | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1       | 2.250                     | 2.550 | 0.089                | 0.100 |
| e        | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1       | 1.800                     | 2.000 | 0.071                | 0.079 |
| L        | 0.550 REF                 |       | 0.022 REF            |       |
| L1       | 0.300                     | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.



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