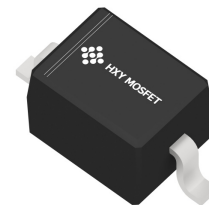




## Discription

The HESDNC15VB1EL-C 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.



SOD-323

## Specification Features:

- 500W peak pulse power (8/20 $\mu$ s)
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 3.3V, 5V, 12V, 15, 24V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30$ kV
    - Contact discharge:  $\pm 30$ kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant



Circuit Diagram

## Ordering Information

Product ID	Pack	Qty(PCS)
HESDNC15VB1EL-C	SOD-323	3000

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

Symbol	Parameter	Value	Units
$P_{PP}$	Peak Pulse Power ( $t_p = 8/20 \mu s$ )	500	W
$T_L$	Maximum lead temperature for soldering during 10s	260	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-55 to +155	$^{\circ}\text{C}$
$T_{op}$	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	$\pm 30$ $\pm 30$	KV

Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

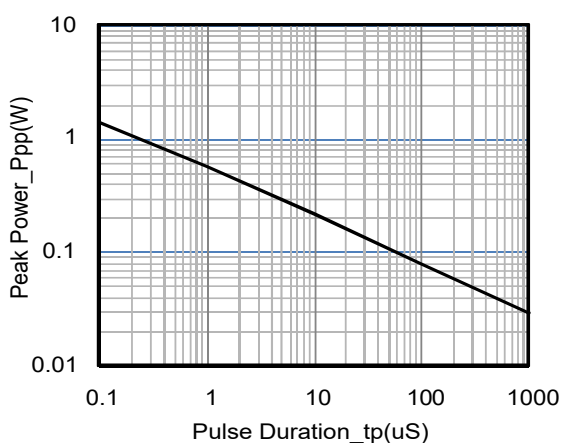
1. FR-5 = 1.0\*0.75\*0.62 in.



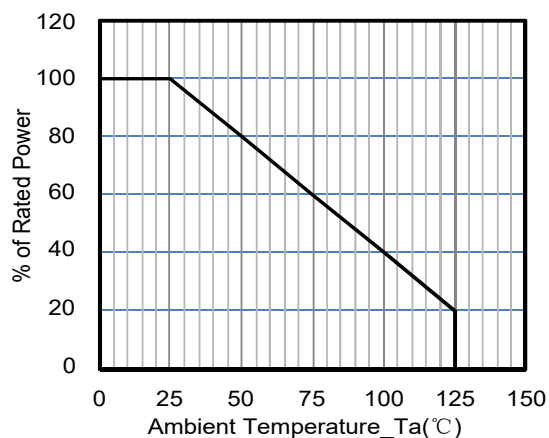
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	$V_{\text{RWM}}$			15	V	
Breakdown Voltage	$V_{\text{BR}}$	16.7			V	$I_{\text{T}} = 1\text{mA}$
Reverse Leakage Current	$I_{\text{R}}$			0.5	$\mu\text{A}$	$V_{\text{RWM}} = 12\text{V}$
Clamping Voltage	$V_{\text{C}}$			19	V	$I_{\text{PP}} = 5\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_{\text{C}}$			28	V	$I_{\text{PP}} = 18\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Peak Pulse Current	$I_{\text{PP}}$			10	A	$t_{\text{p}} = 8/20\mu\text{s}$
Junction Capacitance	$C_{\text{J}}$			100	pF	$V_{\text{R}} = 0\text{V}$ , $f = 1\text{MHz}$

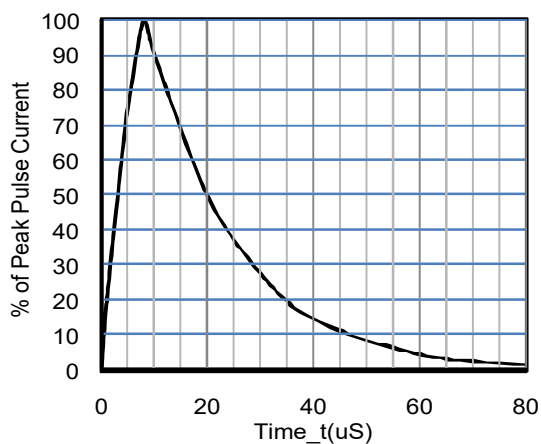
**Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)**



**Peak Pulse Power vs. Pulse Time**



**Power Derating Curve**



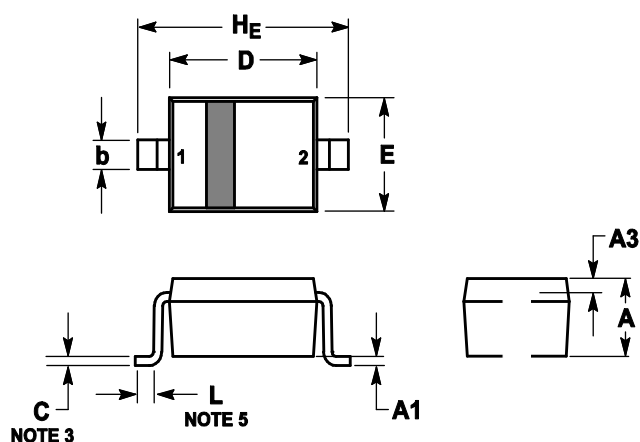
**8 X 20uS Pulse Waveform**



## Outline And Dimensions

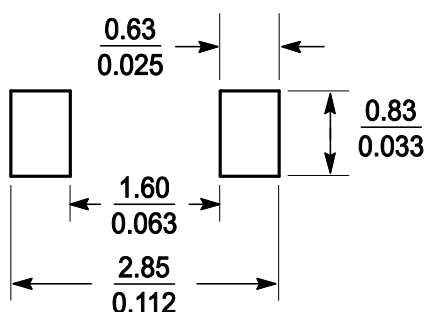
### Notes:

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	0.8	0.9	1	0.031	0.035	0.04
A1	0	0.05	0.1	0	0.002	0.004
A3	0.15REF			0.006REF		
b	0.25	0.32	0.4	0.01	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.6	1.7	1.8	0.062	0.066	0.07
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
H <sub>E</sub>	2.3	2.5	2.7	0.09	0.098	0.105

## Soldering Footprint





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