

**Features**

- Protects Two Bi-Directional Lines
- AEC-Q101 Qualified
- Ultra Low Leakage
- Low Clamping Voltage
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

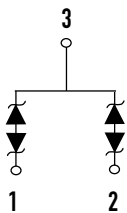


**Maximum Ratings**

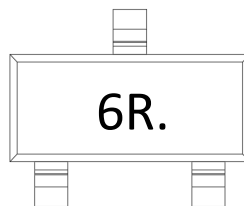
IEC61000-4-2(ESD)	Air	±30KV
	Contact	±30KV
Peak Pulse Power (8/20µs)	P <sub>PK</sub>	384W
Peak Pulse Current (8/20µs)(Note 2)	I <sub>PP</sub>	8A
Operating Junction Temperature Range	T <sub>J</sub>	−55°C to +125°C
Storage Temperature Range	T <sub>STG</sub>	−55°C to +125°C

Note:  
 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Non-repetitive current pulse 8/20 µs exponential decay waveform according to IEC61000-4-5.

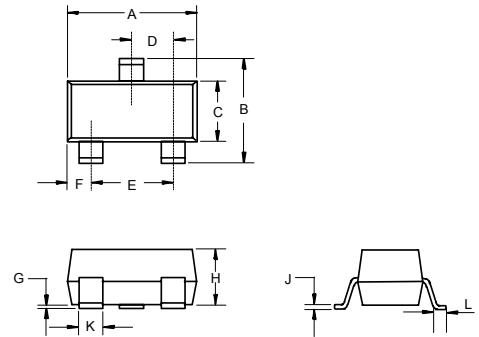
**Internal Structure**



**Marking Code**

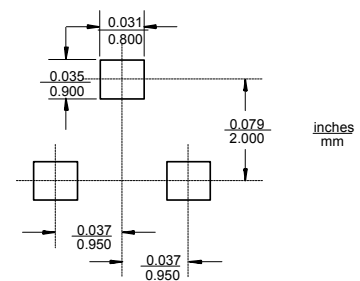


**SOT-23**



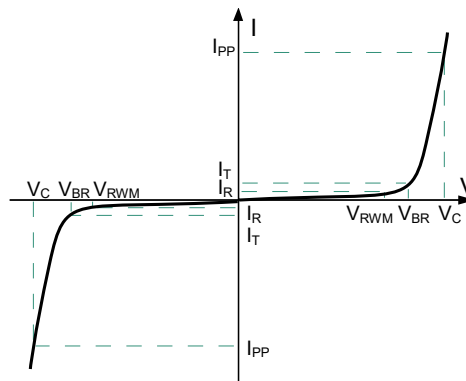
DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

**Suggested Solder Pad Layout**



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

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
C	Capacitance @ $V_R=0$ and $f=1\text{MHz}$



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				24	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	26.3	28.3	30.3	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 24\text{V}$			100	nA
Clamping Voltage <sup>Note1</sup>	$V_C$	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			34	V
Clamping Voltage <sup>Note1</sup>	$V_C$	$I_{PP}=5\text{A}, t_p=8/20\mu\text{s}$		34	40	V
Clamping Voltage <sup>Note1</sup>	$V_C$	$I_{PP}=8\text{A}, t_p=8/20\mu\text{s}$		38	48	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		27	32	pF
Dynamic Resistance <sup>Note2</sup>	$R_{DYN}$	TLP, $t_p=100\text{ns}$		0.4		$\Omega$

Note:

1. Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.
2. TLP parameter:  $Z_0=50\Omega, t_p=100\text{ns}, t_r=2\text{ns}$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

## Curve Characteristics

Fig. 1 - 8 X 20 $\mu$ s Pulse Waveform

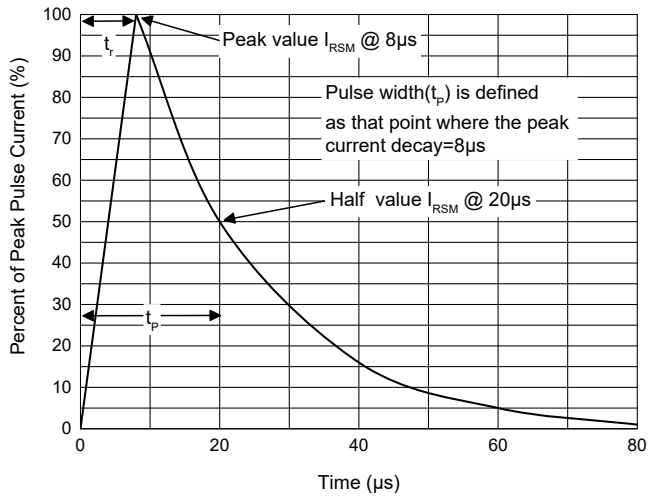


Fig. 2 - Capacitance Characteristics

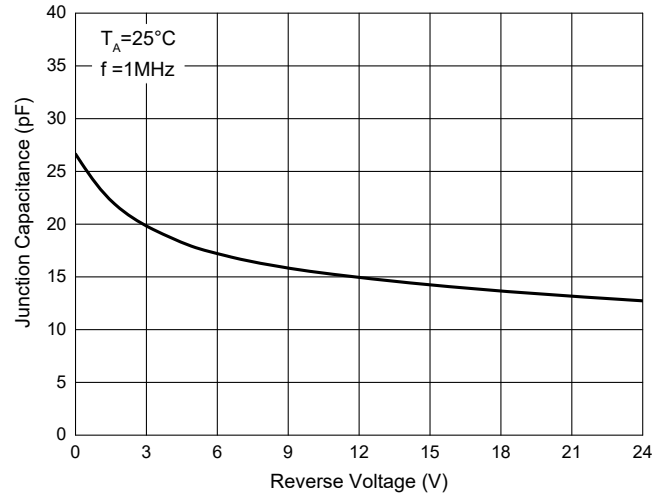


Fig. 3 - Clamping Voltage Characteristics

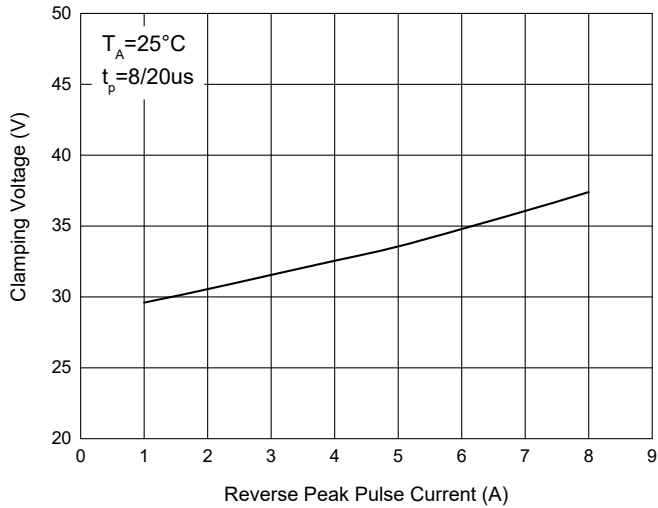


Fig. 4 - TLP Measurement

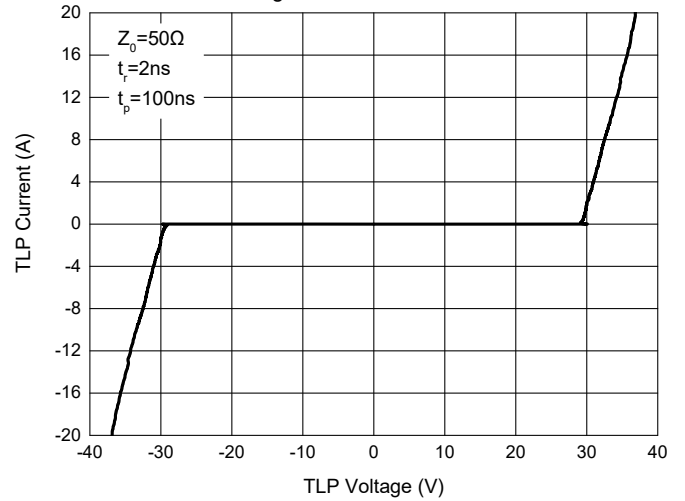
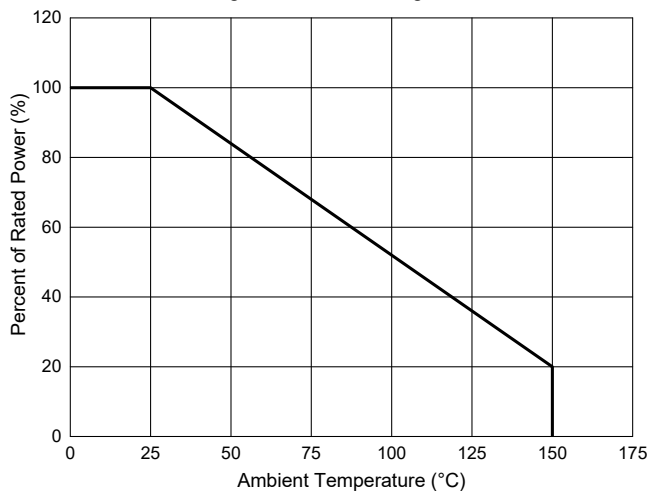


Fig. 5 - Pulse Derating Curve



## Ordering Information

Device	Packing
HSM24BHE3-TP	Tape&Reel: 3Kpcs/Reel

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