



HBN402 THRU HBN410

Glass Passivated Single-Phase 4.0Amp Surface Mount Bridge Rectifier

Features

- Surface mount bridge, small package;
- Ideal for printed circuit boards;
- Glass passivated chip junction;
- High forward current capability up to 4.0A;
- High surge current capability;
- High heat dissipation capability;
- Low profile package;
- Low forward voltage drop;
- Plastic package has Underwrites Laboratory Flammability Classification 94V-0;

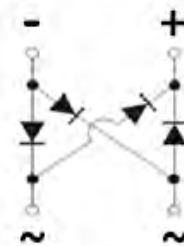
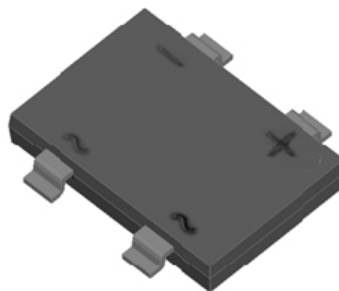
Mechanical Data

- Case: HBS;
- Epoxy meets UL-94V-0 Flammability rating;
- Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102;
- High temperature soldering guaranteed:
Solder Reflow 260 °C, 10seconds;
- Polarity: As marked on body;
- Marking: Type number;

Typical Applications

General purpose use in AC-to-DC bridge full wave rectification for Fast Charging, Switching Power Supply, USB PD, Adapter and 3-in-1 Power Board, etc.

Case: HBS



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified Single phase, half wave, 60Hz, resistive or inductive load
For capacitive load derate current by 20%

Parameter	Symbol	HBN402	HBN404	HBN406	HBN408	HBN410	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	200	400	600	800	1000	V
Maximum RMS voltage	V _{RMS}	140	280	420	560	700	V
Maximum DC blocking voltage	V _{DC}	200	400	600	800	1000	V
Maximum average forward rectified output current at T _A =25℃	I _{F(AV)}	4.0					A
Non-Repetitive Peak forward surge current 8.3 ms single sine-wave superimposed on rated load (JEDEC Method)	I _{FSM}	110					A
Rating for fusing (t<8.3ms)	I ² t	50					A ² s
Instantaneous forward voltage drop per diode @IF=2.0A @IF=4.0A	V _F	1.0 1.1					V
Reverse Current at Rated DC Blocking Voltage T _A =25℃ T _A =125℃	I _R	5 200					μA
Typical capacitance (note1)	C _j	33					pF
Typical thermal resistance	R _{θJ-A}	67.0					℃/W
	R _{θJ-C}	7.0					
	R _{θJ-L}	11.0					
Operating junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150					℃

Note:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0V D.C.



5. Rating And Characteristic Curves

Fig. 1 Forward Current Derating Curve

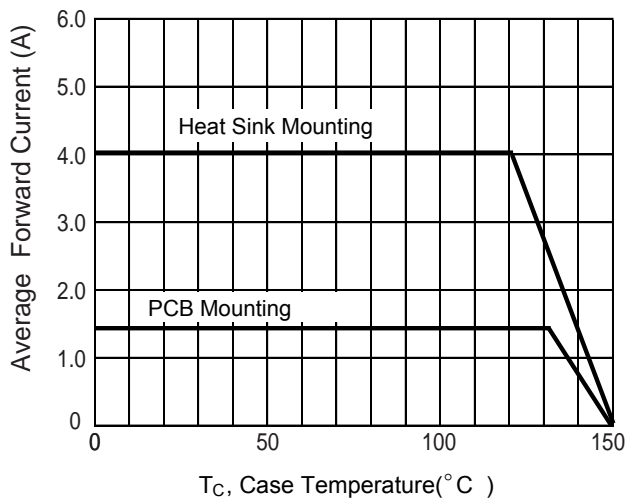


Fig. 2 Typ. Forward Characteristics

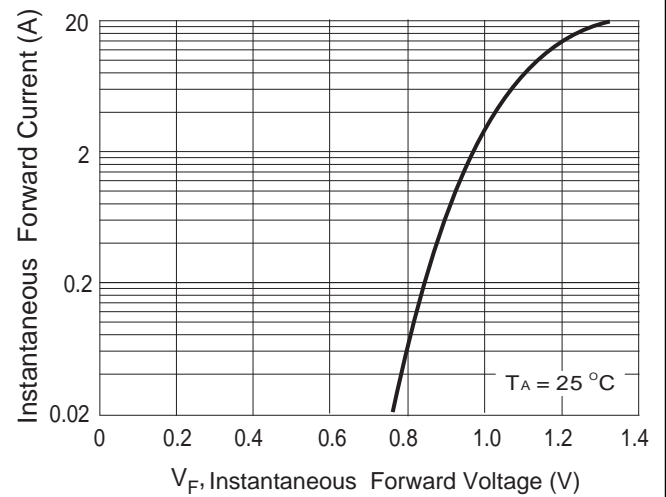


Fig. 3 Max Non-Repetitive Peak Fwd Surge Current

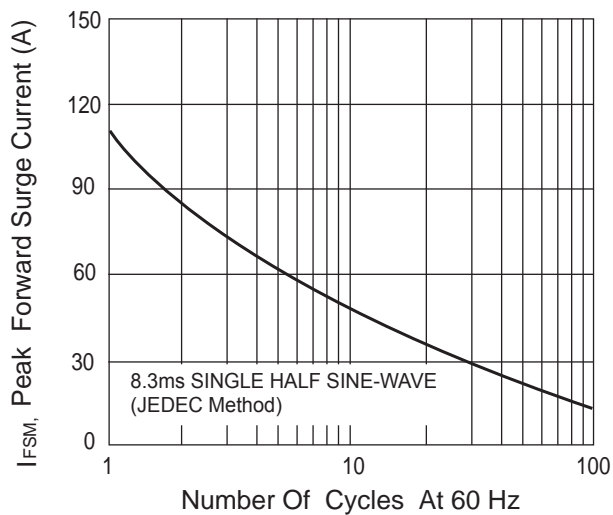
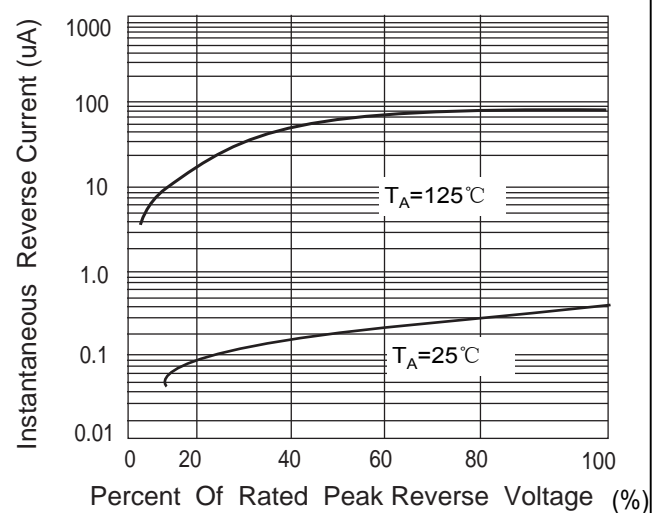


Fig.4 Typical Reverse Characteristics

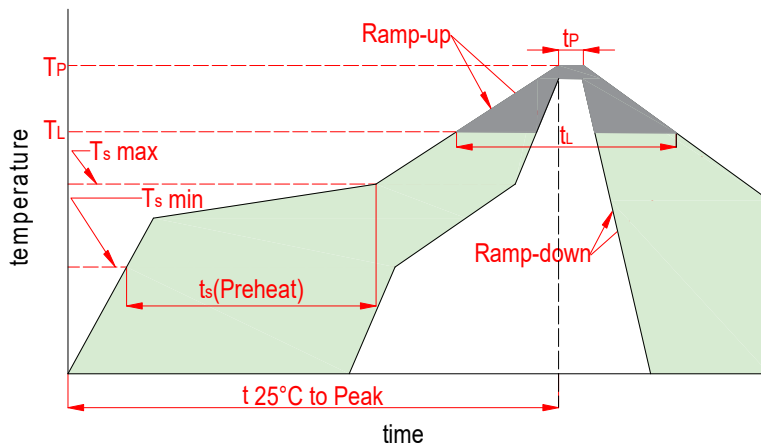




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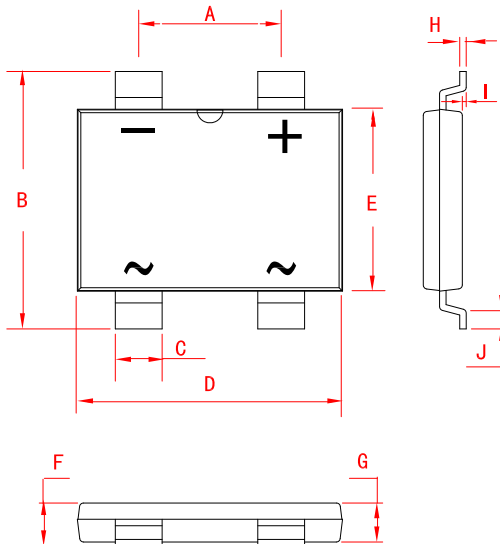
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6. Soldering Parameters



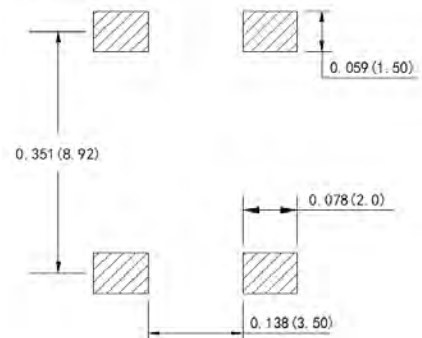
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_P)		8 minutes max
Do not exceed		260℃

7. Dimensions



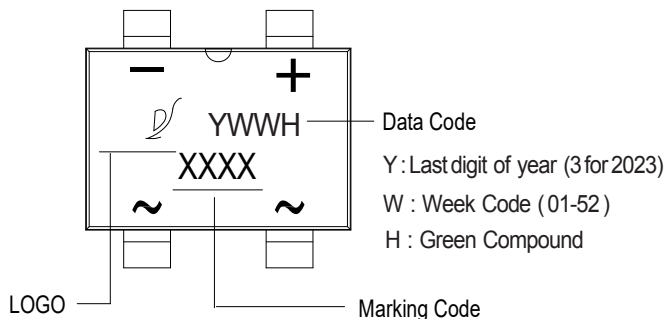
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.207	0.220	5.25	5.60
B	0.384	0.395	9.75	10.05
C	0.067	0.075	1.70	1.90
D	0.396	0.407	10.05	10.35
E	0.270	0.281	6.85	7.15
F	0.057	0.070	1.45	1.80
G	0.057	0.065	1.45	1.65
H	0.006	0.014	0.15	0.35
I	0.0	0.008	0.0	0.2
J	0.018	0.037	0.45	0.95

Suggested PCB pinfoot layout



Unit: inches (mm)

8.Part Marking System



9. Package Information

Package	Tape Width (mm)	Reel Size		Quantity(pcs)	AEC-Q101	LOGO
		mm	inch			
HBS	24.3	330	13	2500	No	



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