

1. General description

Thin-SIP Package GBJ bridge rectifier.



2. Features and benefits

- Thin-SIP
- Low forward voltage drop
- High voltage capability
- High inrush current capability
- High operating temperature capability ($T_{j(max)} = 150^{\circ}\text{C}$)
- UL Recognition file # E346397

3. Applications

- Power supplies
- Rectifiers for DC motor field supplies
- Battery charger rectifiers
- Inverter

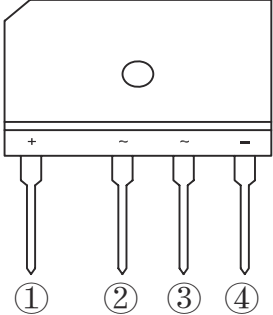
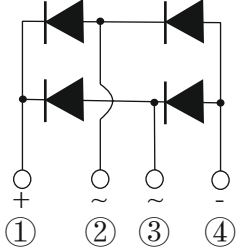
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values			Unit
Absolute maximum rating						
V_{RRM}	repetitive peak reverse voltage		600			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_c \leq 127^{\circ}\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 3	25			A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; $T_{j(\text{init})} = 25^{\circ}\text{C}$; sine-wave pulse; Fig. 4	300			A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25^{\circ}\text{C}$; sine-wave pulse	330			A
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward voltage	$I_F = 12.5\text{ A}$; $T_j = 25^{\circ}\text{C}$; per diode; Fig. 6	-	0.87	0.92	V

5. Pinning information

Table 2. Pinning information

Simplified outline	Graphic symbol
	

6. Ordering information

Table 3. Ordering information

Type number	Package Name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
WNB2560M	GBJ	WNB2560MQ	Tube	14	GBJS	08-Nov-2021

7. Marking

Table 4. Marking codes

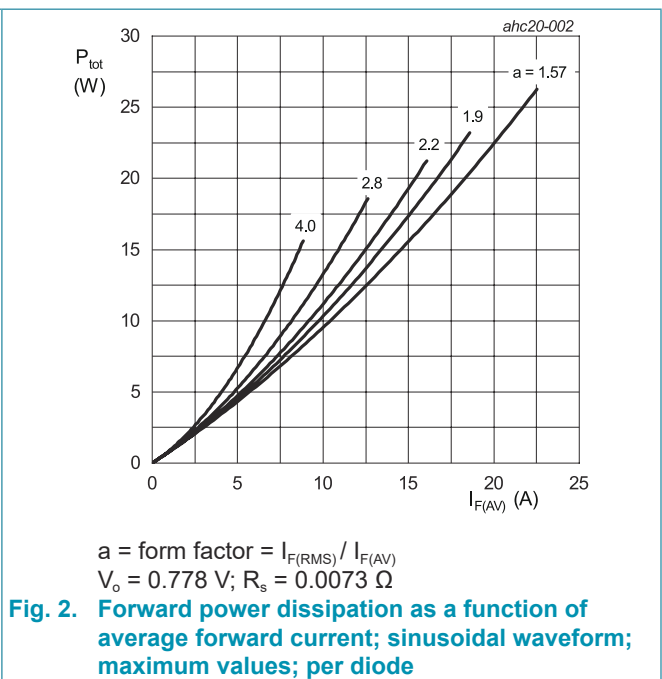
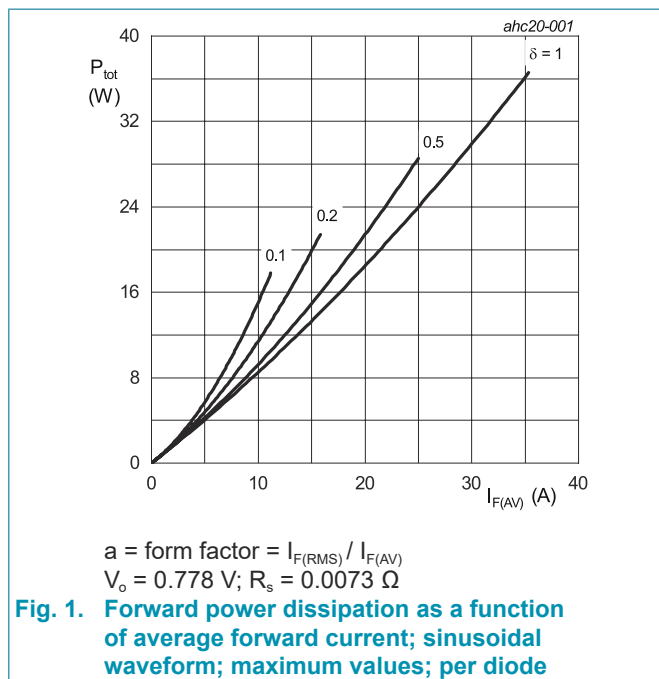
Type number	Marking codes
WNB2560M	WNB2560M

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		600	V
V_{RWM}	crest working reverse voltage		600	V
V_R	reverse voltage	DC	600	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_c \leq 127\text{ }^\circ\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 3	25	A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse; Fig. 4	300	A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse	330	A
		$t_p = 1\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse	945	A
I^2t	I^2t for fusing	$t_p = 10\text{ ms}$; sine-wave pulse	450	A^2s
V_{dis}	dielectric strength	terminals to case; AC 1 minute	2.5	kV
T_{stg}	storage temperature		-55 to 150	$^\circ\text{C}$
T_j	junction temperature		150	$^\circ\text{C}$



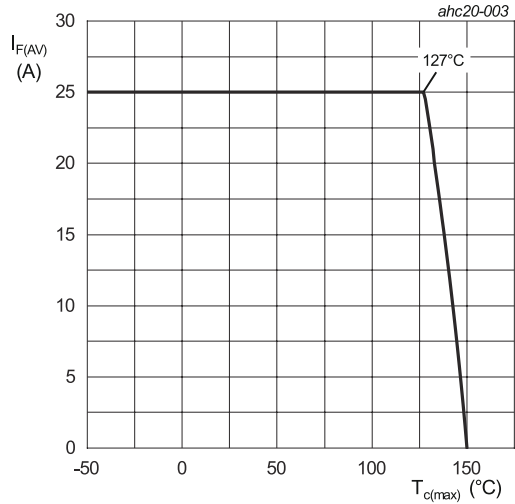


Fig. 3. Forward current as a function of case temperature with heatsink; maximum values

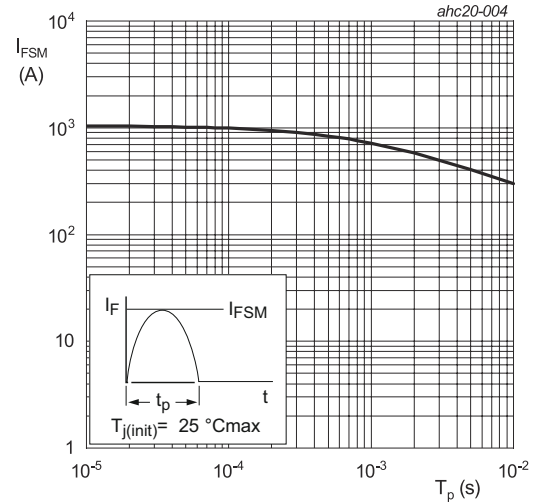


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values; per diode

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-c)}$	thermal resistance from junction to case	with heatsink; Fig. 5	-	-	0.8	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	25	-	K/W

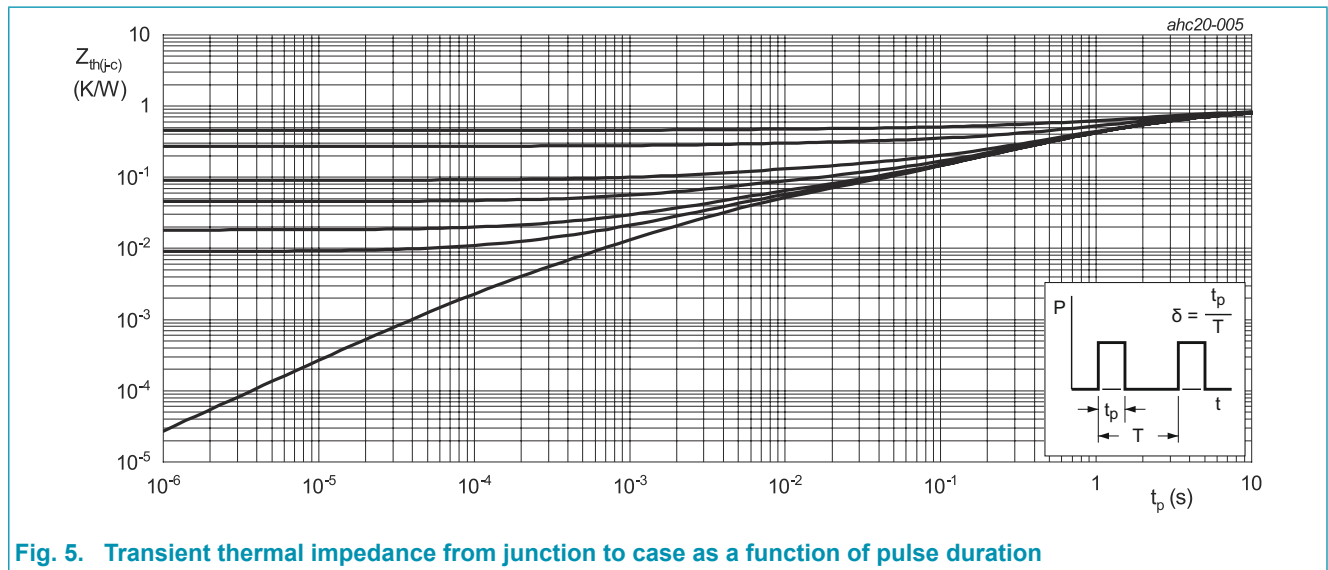


Fig. 5. Transient thermal impedance from junction to case as a function of pulse duration

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V _F	forward voltage	I _F = 5 A; T _j = 25 °C; per diode; Fig. 6	-	0.8	0.86	V
		I _F = 12.5 A; T _j = 25 °C; per diode; Fig. 6	-	0.87	0.92	V
		I _F = 5 A; T _j = 75 °C; per diode	-	0.73	0.8	V
		I _F = 12.5 A; T _j = 75 °C; per diode	-	0.82	0.88	V
		I _F = 5 A; T _j = 150 °C; per diode; Fig. 6	-	0.62	0.75	V
		I _F = 12.5 A; T _j = 150 °C; per diode; Fig. 6	-	0.72	0.84	V
I _R	reverse current	V _R = 600 V; T _j = 25 °C	-	0.1	10	μA
		V _R = 600 V; T _j = 150 °C	-	0.1	1	mA
Dynamic characteristics						
t _{rr}	reverse recovery time	I _F = 0.5 A; I _R = 1 A; I _{rr} = 0.25 A; per diode	-	0.4	-	μs

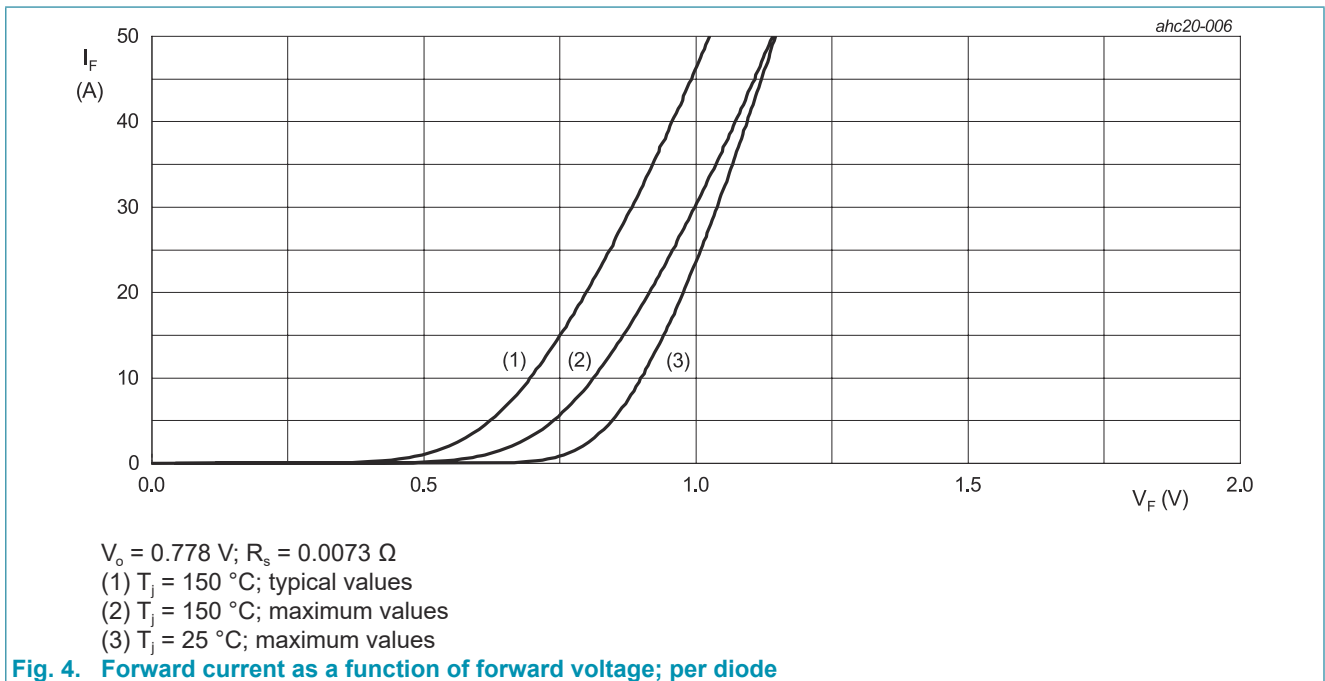
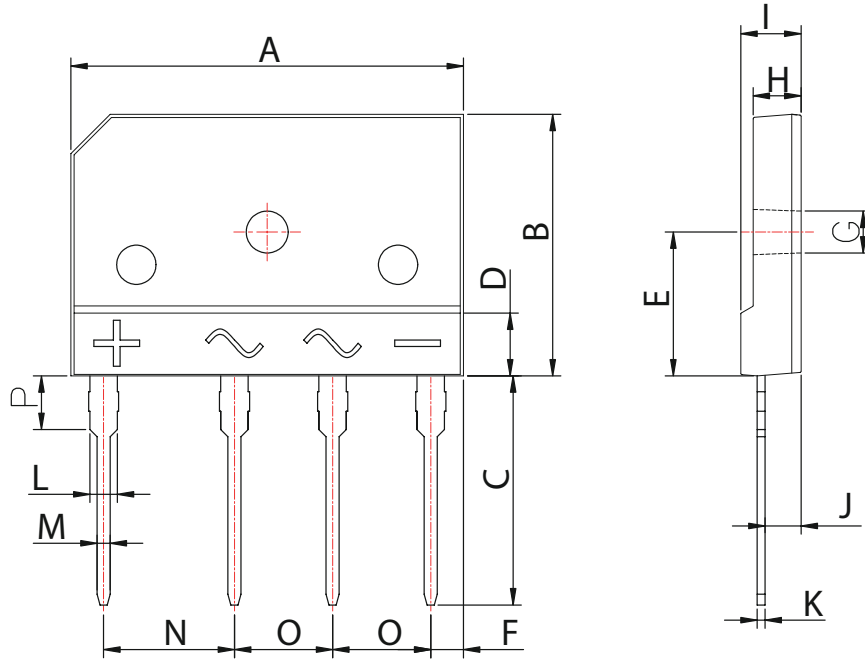


Fig. 4. Forward current as a function of forward voltage; per diode

11. Package outline



Unit		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MM	MIN	29.70	19.70	17.00	4.70	10.80	2.30	φ3.10	3.40	4.40	2.50	0.60	2.00	0.90	9.80	7.30	3.80
	MAX	30.30	20.30	18.00	4.90	11.20	2.70	φ3.40	3.80	4.80	2.90	0.80	2.40	1.10	10.20	7.70	4.20

Note:

1. All dimensions do not include mold flash and gate remain.

12. Legal information

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Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
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13. Contents

1. General description.....	1
2. Features and benefits	1
3. Applications	1
4. Quick reference data	1
5. Pinning information.....	2
6. Ordering information.....	2
7. Marking.....	2
8. Limiting values	3
9. Thermal characteristics	5
10. Characteristics.....	6
11. Package outline	7
12. Legal information	8
13. Contents	10

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