

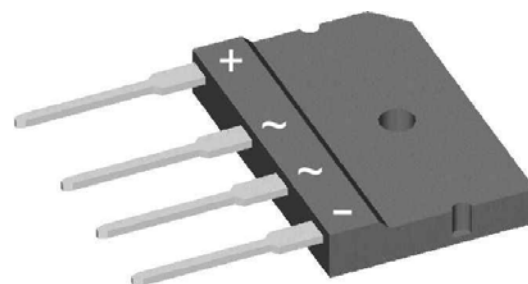
Standard Rectifier

1~ Rectifier	
V_{RRM}	= 1600 V
I_{DAV}	= 25 A
I_{FSM}	= 370 A

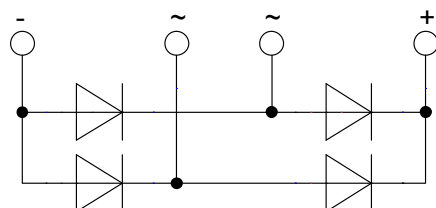
1~ Rectifier Bridge

Part number

GB025-16NO1



Backside: isolated



Features / Advantages:

- Low forward voltage drop
- Planar passivated chips
- Easy to mount with one screw
- Space and weight savings

Applications:

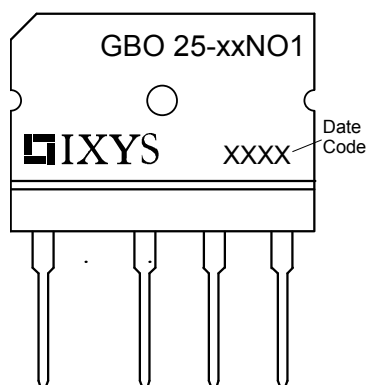
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: GBFP

- Isolation Voltage: 2500V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Base plate: Plastic overmolded tab
- Reduced weight

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				1700	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				1600	V
I_R	reverse current	$V_R = 1600\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			40	μA
		$V_R = 1600\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			1.5	mA
V_F	forward voltage drop	$I_F = 10\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.06	V
		$I_F = 20\text{ A}$				1.17	V
		$I_F = 10\text{ A}$	$T_{VJ} = 150^{\circ}\text{C}$			0.92	V
		$I_F = 20\text{ A}$				1.09	V
I_{DAV}	bridge output current	$T_C = 105^{\circ}\text{C}$ rectangular	$T_{VJ} = 175^{\circ}\text{C}$ d = 0.5			25	A
V_{FO}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		0.74	V
r_F	slope resistance					16.3	m Ω
R_{thJC}	thermal resistance junction to case					4.3	K/W
R_{thCH}	thermal resistance case to heatsink				0.50		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				35	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}\text{C}$			370	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			400	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			315	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			340	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}\text{C}$			685	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			665	A ² s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			495	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			480	A ² s
C_J	junction capacitance	$V_R = 400\text{ V}; f = 1\text{ MHz}$			10		pF

Package GBFP			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			70	A
T_{stg}	storage temperature		-55		150	°C
T_{VJ}	virtual junction temperature		-40		175	°C
Weight				7		g
M_D	mounting torque		0.5		0.8	Nm
F_c	mounting force with clip		20		120	N
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	4.9			mm
$d_{Spb/Apb}$		terminal to backside	2.5			mm
V_{ISOL}	isolation voltage	$t = 1$ second	2500			V
		$t = 1$ minute	2080			V
R_{thJA}	thermal resistance junction to ambient			50		K/W



Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	GBO25-16NO1	GBO25-16NO1	Tube	16	500240

Equivalent Circuits for Simulation

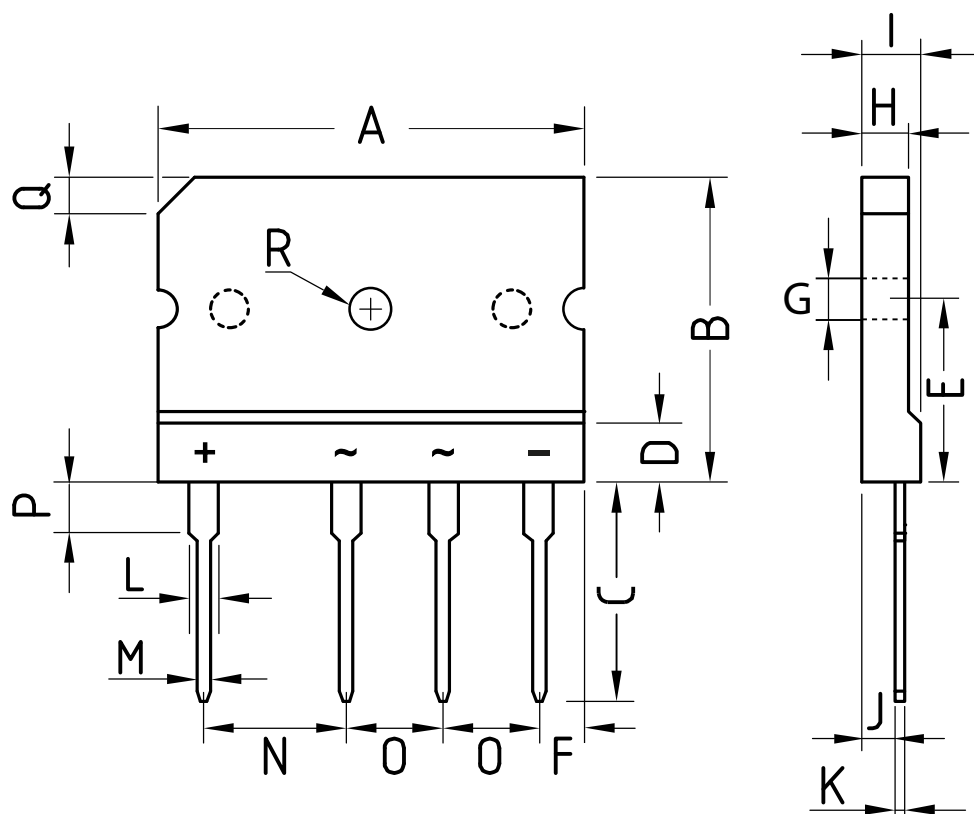
* on die level

 $T_{VJ} = 175^{\circ}\text{C}$ 

Rectifier

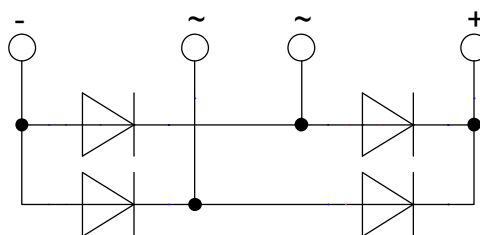
$V_{0\max}$	threshold voltage	0.74	V
$R_{0\max}$	slope resistance *	13.7	mΩ

Outlines GBFP



DIM.	MIN.	MAX.
A	29.7	30.3
B	19.7	20.3
C	17.0	18.0
D	4.7	4.9
E	10.8	11.2
F	2.3	2.7
G	3.1	3.4
H	3.4	3.8
I	4.4	4.8
J	2.5	2.9
K	0.6	0.8
L	2.0	2.4
M	0.9	1.1
N	9.8	10.2
O	7.3	7.7
P	3.8	4.2
Q	(3.0) x 45°	
R (Ø)	3.1	3.4

All Dimensions in millimeter



Rectifier

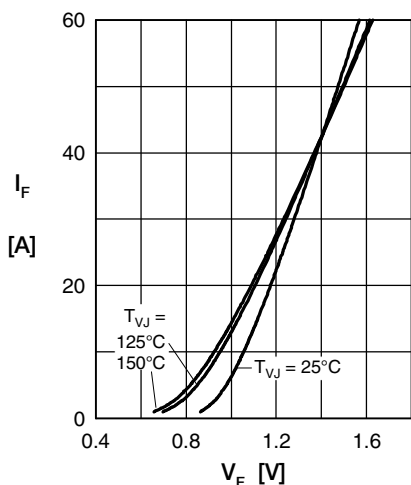


Fig. 1 Forward current vs. voltage drop per diode

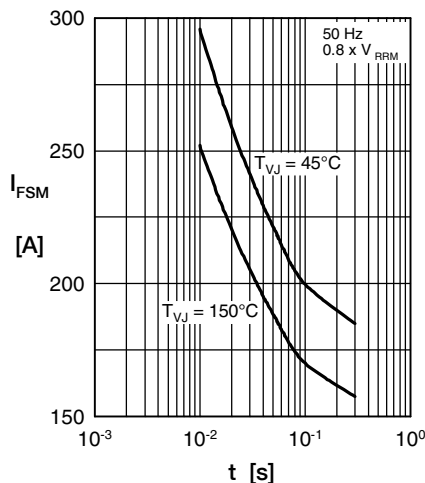


Fig. 2 Surge overload current vs. time per diode

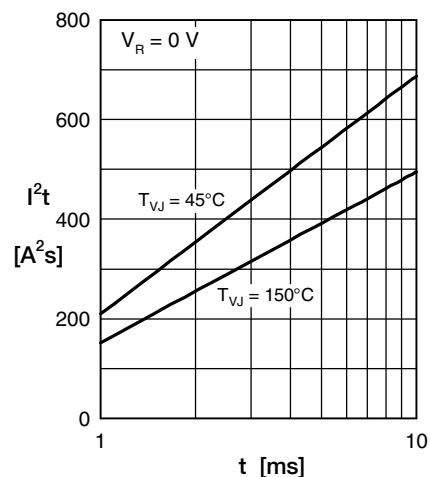


Fig. 3 I^2t vs. time per diode

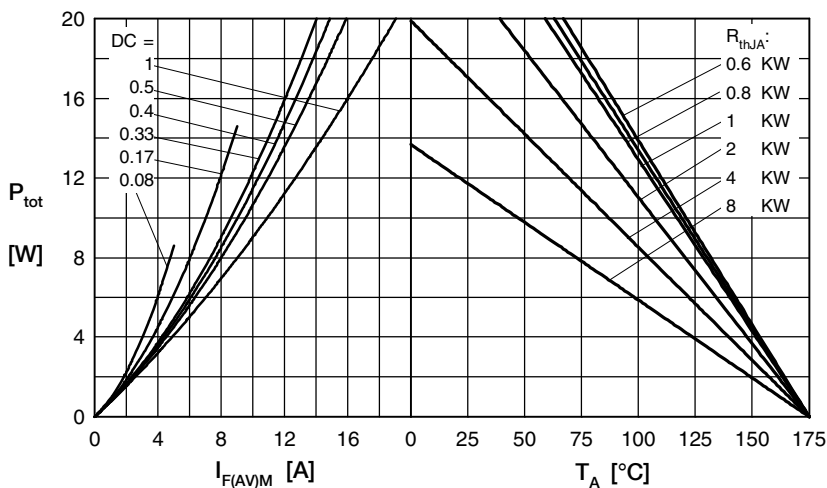


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

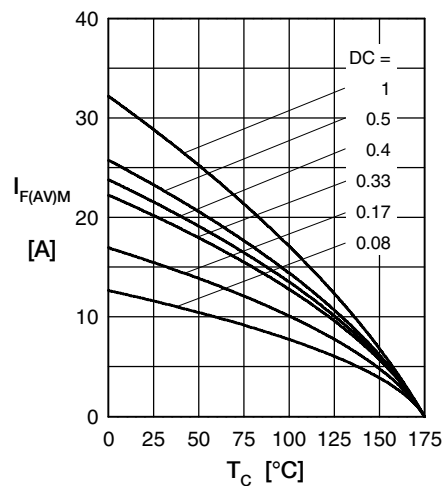


Fig. 5 Max. forward current vs. case temperature per diode

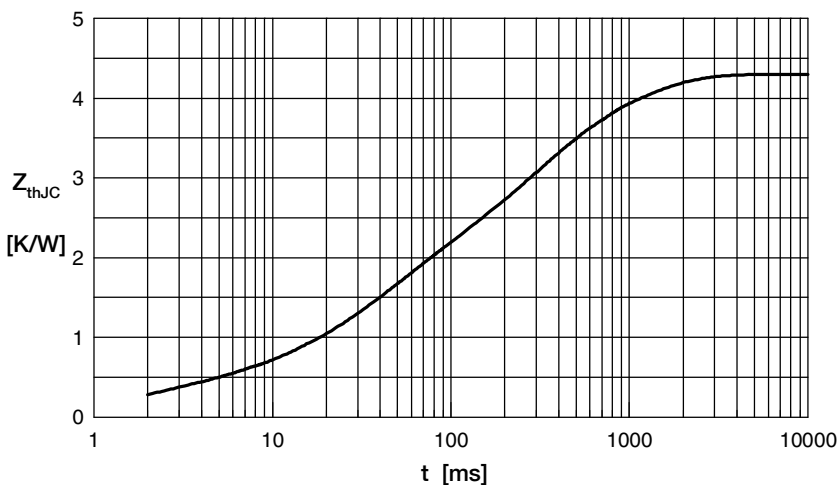


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.302	0.002
2	1.252	0.032
3	1.582	0.227
4	1.164	0.820