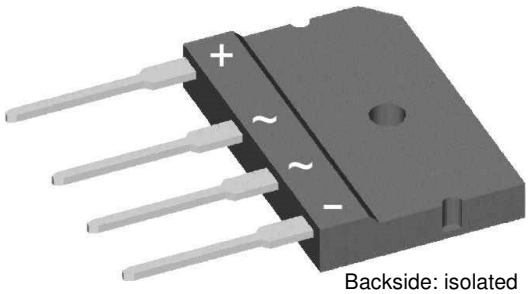
Standard Rectifier

1~ Rectifier		
V_{RRM}	=	1200 V
I_{DAV}	=	25 A
I_{FSM}	=	370 A

1~ Rectifier Bridge

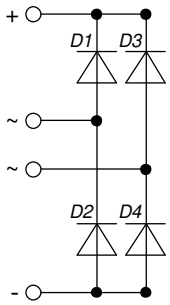
Part number

GBO25-12NO1



Backside: isolated

E72873



Features / Advantages:

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

Applications:

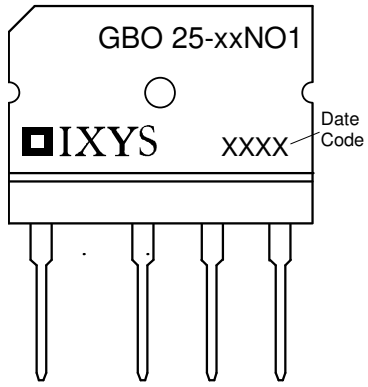
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: GBFP

- Isolation Voltage: 2500 V~
- 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°C			1300	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1200	V
I_R	*reverse current*	V_R = 1200 V	T_{VJ} = 25°C			40	µA
		V_R = 1200 V	T_{VJ} = 150°C			1.5	mA
V_F	*forward voltage drop*	I_F = 10 A	T_{VJ} = 25°C			1.06	V
		I_F = 20 A				1.17	V
		I_F = 10 A	T_{VJ} = 150°C			0.92	V
		I_F = 20 A				1.09	V
I_{DAV}	*bridge output current*	T_C = 105°C	T_{VJ} = 175°C			25	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.74	V
r_F	*slope resistance* }					16.3	mΩ
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°C			35	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			370	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			400	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			315	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			340	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			685	A^2s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			665	A^2s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			495	A^2s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			480	A^2s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		10		pF

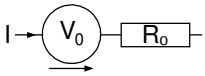
Package GBFP				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal				70	A
T_{VJ}	*virtual junction temperature*			-40		175	°C
T_{op}	*operation temperature*			-40		150	°C
T_{stg}	*storage temperature*			-40		150	°C
Weight					7		g
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	50/60 Hz, RMS; I_{ISOL} ≤ 1 mA	2500			V
		t = 1 minute		2100			V
R_{thJA}	*thermal resistance junction to ambient*				50		K/W



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	GBO25-12NO1	GBO25-12NO1	Tube	16	500233

Equivalent Circuits for Simulation

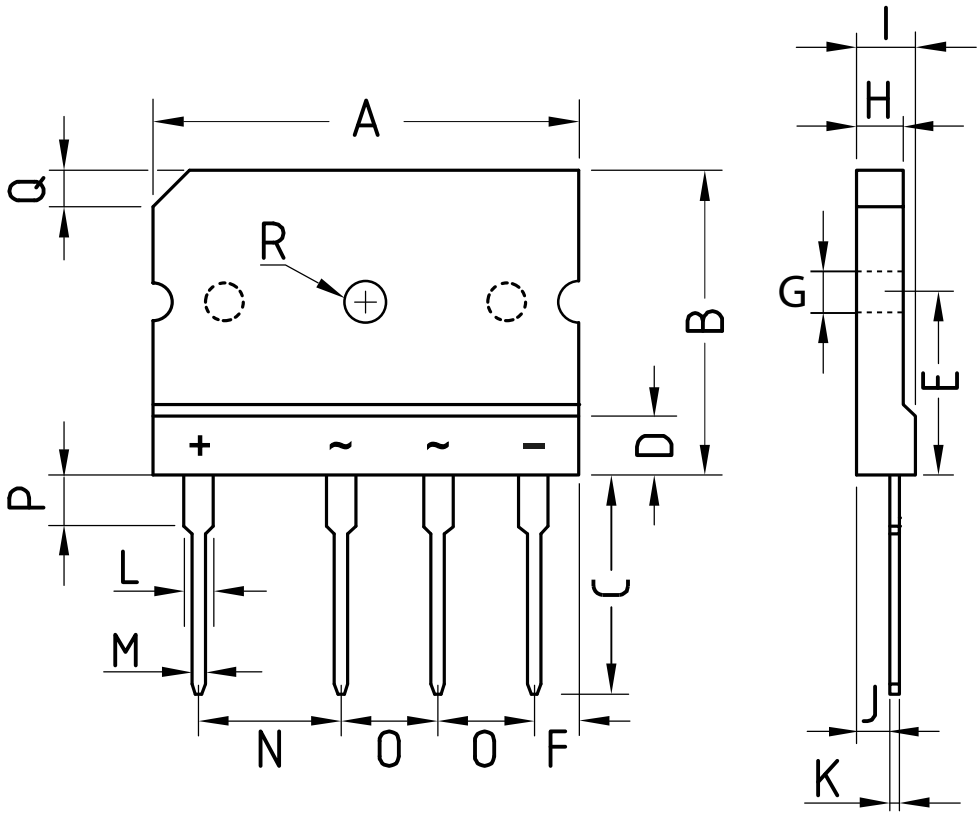
** on die level* T_{VJ} = 175 °C



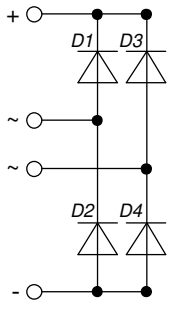
Rectifier

$V_{0\,max}$	*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

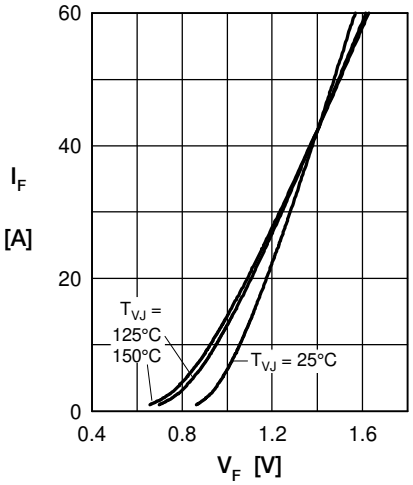


Fig. 1 Forward current vs. voltage drop per diode

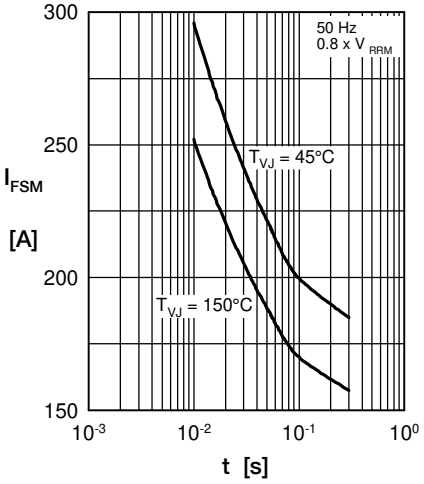


Fig. 2 Surge overload current vs. time per diode

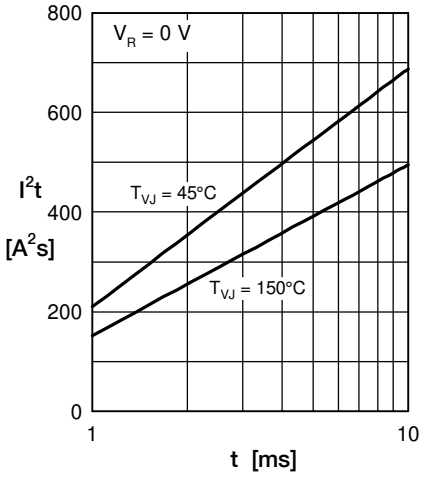


Fig. 3 I^2t vs. time per diode

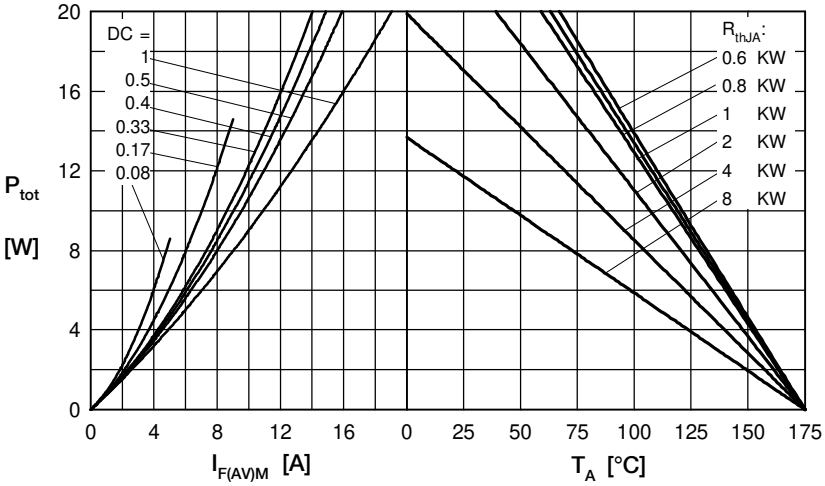


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

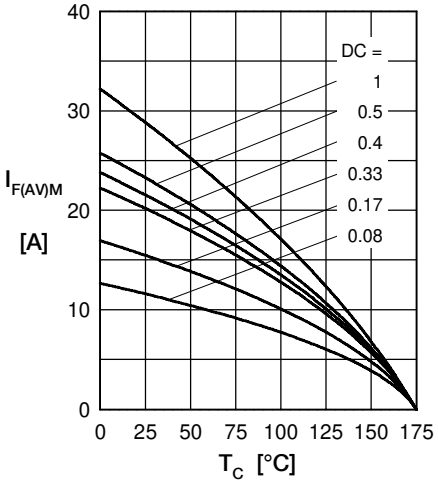


Fig. 5 Max. forward current vs. case temperature per diode

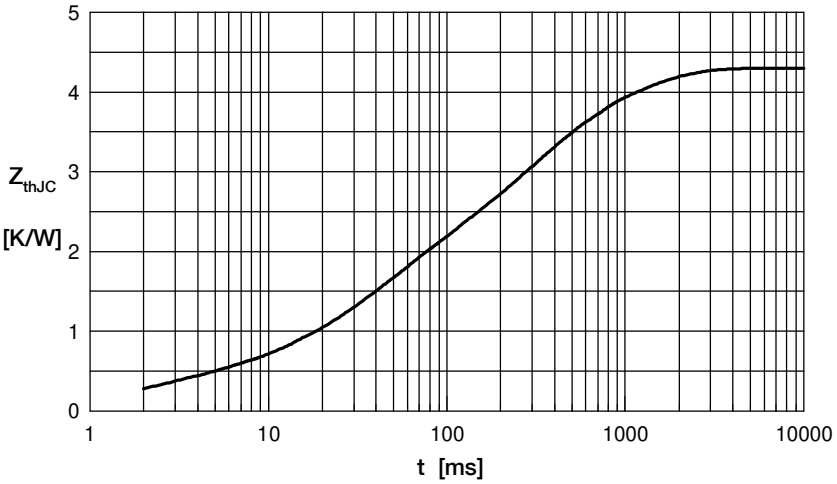


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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