

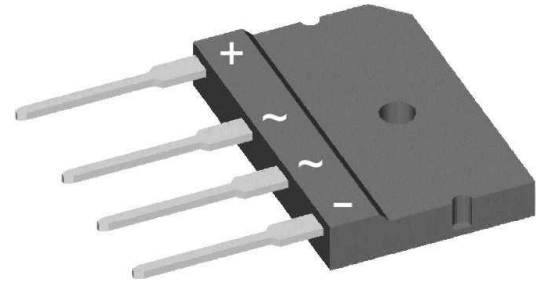
Standard Rectifier

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

1~ Rectifier Bridge

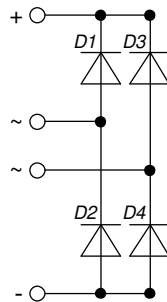
Part number

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

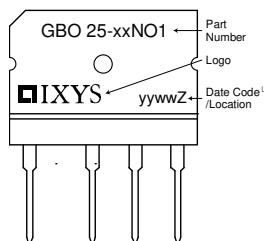
Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					1300	V
V_{RRM}	max. repetitive reverse blocking voltage					1200	V
I_R	reverse current	$V_R = 1200$ V		$T_{VJ} = 25^\circ\text{C}$		40	μA
		$V_R = 1200$ V		$T_{VJ} = 150^\circ\text{C}$		1.5	mA
V_F	forward voltage drop	$I_F = 10$ A		$T_{VJ} = 25^\circ\text{C}$		1.06	V
		$I_F = 20$ A				1.17	V
		$I_F = 10$ A		$T_{VJ} = 150^\circ\text{C}$		0.92	V
		$I_F = 20$ A				1.09	V
I_{DAV}	bridge output current	$T_C = 105^\circ\text{C}$		$T_{VJ} = 175^\circ\text{C}$		25	A
		rectangular	d = 0.5				
V_{FO}	threshold voltage			$T_{VJ} = 175^\circ\text{C}$		0.74	V
r_F	slope resistance					16.3	m Ω
						} for power loss calculation only	
R_{thJC}	thermal resistance junction to case					4.3	K/W
R_{thCH}	thermal resistance case to heatsink				0.5		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		$V_R = 0$ V		400	A
		t = 10 ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		315	A
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ 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		$V_R = 0$ 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		$V_R = 0$ V		480	A ² s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz		$T_{VJ} = 25^\circ\text{C}$		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	2500			V
		t = 1 minute	2100			V
		50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA				
R_{thJA}	thermal resistance junction to ambient			50		K/W

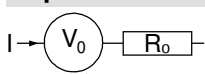


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	GBO25-12NO1	GBO25-12NO1	Tube	16	500233

Equivalent Circuits for Simulation

* on die level

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

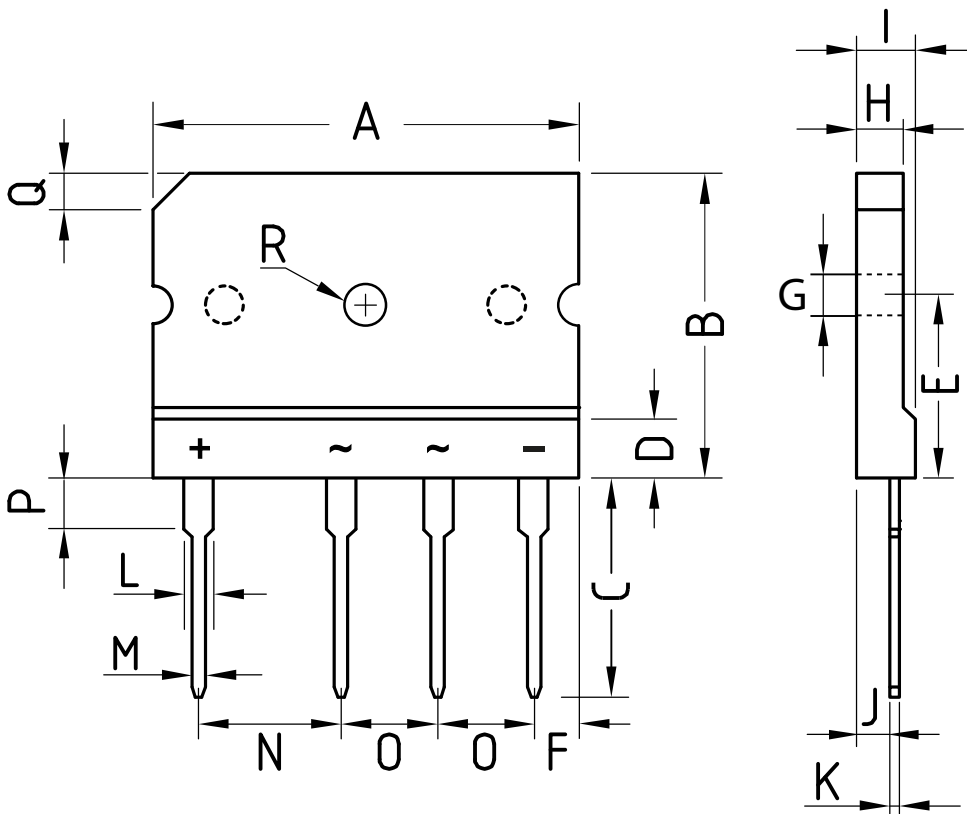


Rectifier

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

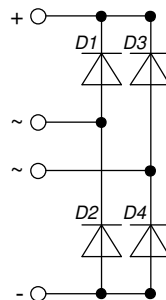


Outlines GBFP



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



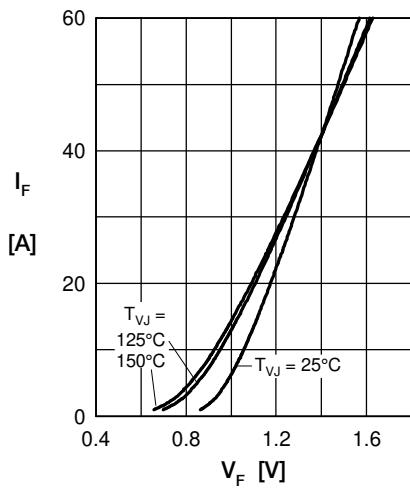
Rectifier


Fig. 1 Forward current vs. voltage drop per diode

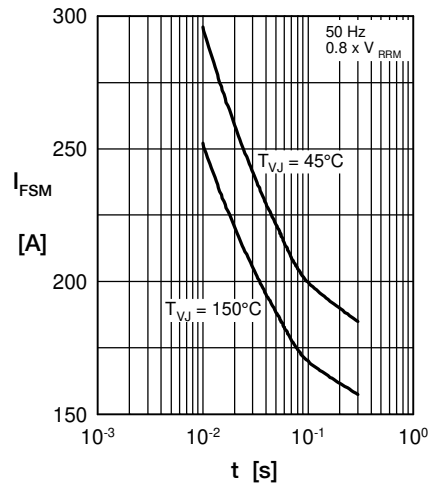


Fig. 2 Surge overload current vs. time per diode

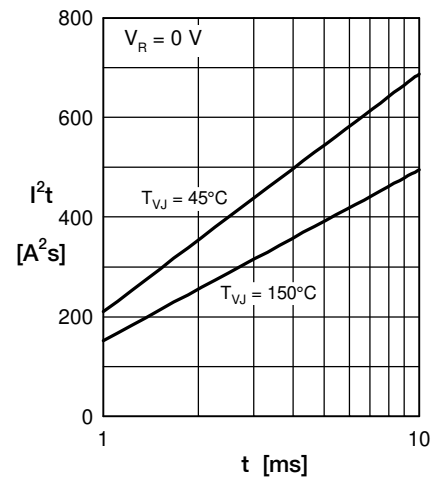
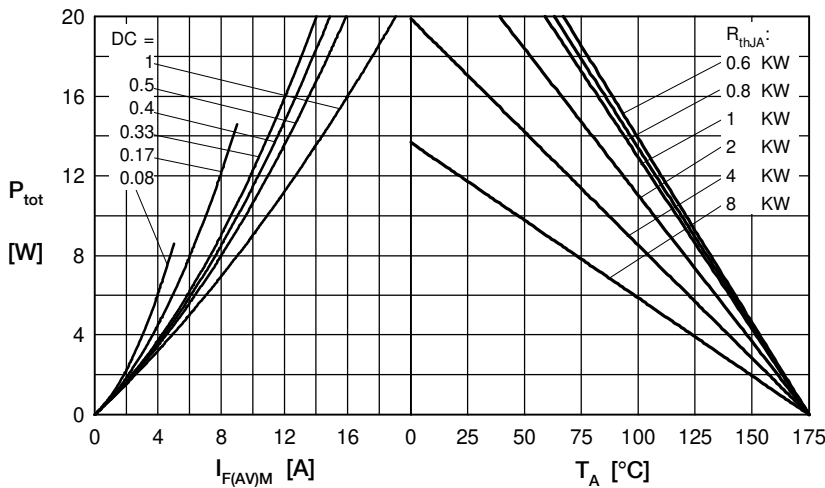

 Fig. 3 I^2t vs. time per diode


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

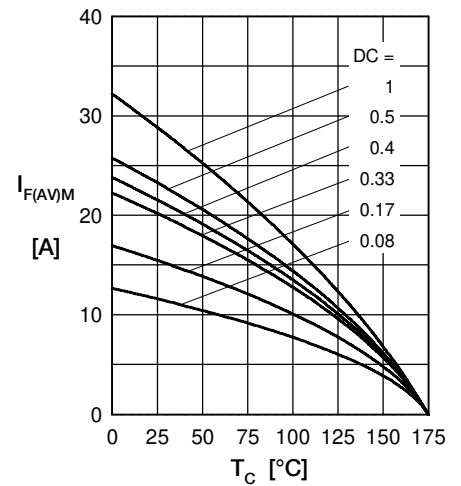


Fig. 5 Max. forward current vs. case temperature per diode

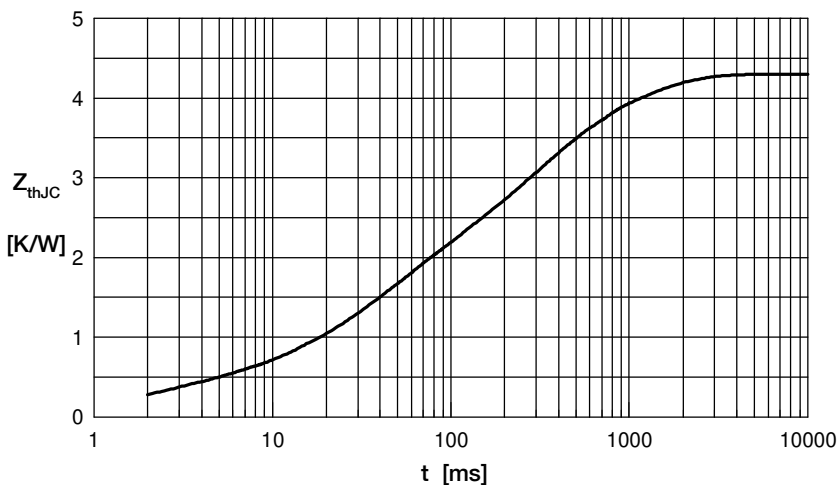


Fig. 6 Transient thermal impedance junction to case vs. time per diode

 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