

Bulletin I27505 rev. F 03/03

International IRF Rectifier

GBPC.. Series

SINGLE PHASE BRIDGE

Power Modules

Features

- Universal, 3 way terminals: push-on, wrap around or solder
- High thermal conductivity package, electrically insulated case
- Polarity symbols are moulded on body of the plastic box
- Center hole fixing
- Glass passivated diode chips
- Excellent power/ volume ratio
- Nickel plated terminals suitable for High Temperature soldering at 250 - 260°C max. time 8 - 10 seconds
- Wire lead version available
- UL E 62320 approved

25 A
35 A

Description

A range of extremely compact, encapsulated single phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

Major Ratings and Characteristics

Parameters	GBPC25	GBPC35	Units
I_O	25	35	A
@ T_C	60	55	°C
I_{FSM}			
@ 50Hz	400	475	A
@ 60Hz	420	500	A
I^2t			
@ 50Hz	790	1130	A ² s
@ 60Hz	725	1030	A ² s
V_{RRM} range	200 to 1200		V
T_J	-55 to 150		°C



GBPC...A



GBPC...W

GBPC.. Series

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ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , max repetitive peak AC rev. voltage $T_J = T_{Jmax}$. V	V_{RSM} , max non-repetitive peak AC rev. voltage $T_J = T_{Jmax}$. V	I_{RRM} max. @ rated V_{RRM} $T_J = T_{Jmax}$. mA	I_{RRM} max. D.C. rev. curr. @ $T = 125^\circ\text{C}$ (μA)
GBPC25/35..A	02	200	275	2	500
	04	400	500	2	500
GBPC25/35..W (*)	06	600	725	2	500
	08	800	900	2	500
	10	1000	1100	2	500
	12	1200	1300	2	500

(*) please see Ordering Information Table - page 3

Forward Conduction

Parameters	GBPC25	GBPC35	Units	Conditions
I_O Maximum DC output current @ Case temperature	25	35	A	Resistive or inductive load
	20	28	A	Capacitive load
	60	55	$^\circ\text{C}$	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current	400	475	A	t = 10ms No voltage reappplied
	420	500		t = 8.3ms
	335	400		t = 10ms 100% V_{RRM} reappplied
	350	420		t = 8.3ms
I^2t Maximum I^2t for fusing	790	1130	A^2s	t = 10ms No voltage reappplied
	725	1030		t = 8.3ms
	560	800		t = 10ms 100% V_{RRM} reappplied
	512	730		t = 8.3ms
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	7.9	11.3	$\text{KA}^2\sqrt{\text{s}}$	I^2t for time $t_x = I^2\sqrt{t_x\sqrt{t_x}}$; $0.1 \leq t_x \leq 10\text{ms}$, $V_{RRM} = 0\text{V}$
$V_{F(TO)1}$ Low-level of threshold voltage	0.76	0.77	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_{Jmax} .
$V_{F(TO)2}$ High-level of threshold voltage	0.89	0.92		$(I > \pi \times I_{F(AV)})$, @ T_{Jmax} .
r_{t1} Low-level forward slope resistance	8.2	4.852	m Ω	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_{Jmax} .
r_{t2} High-level forward slope resistance	6.8	3.867		$(I > \pi \times I_{F(AV)})$, @ T_{Jmax} .
V_{FM} Maximum forward voltage drop	1.1	1.1	V	$T_J = 25^\circ\text{C}$, $I_{FM} = I_{Favg}(\text{arm})$
I_{RRM} Max. DC reverse current	5.0	5.0	μA	$T_J = 25^\circ\text{C}$, per diode at V_{RRM}
V_{INS} RMS isolation voltage base plate	2700	2700	V	f = 50 Hz, t = 1s

Thermal and Mechanical Specifications

Parameters	GBPC25	GBPC35	Units	Conditions
T _J Junction temperature range	-55 to 150		°C	
T _{stg} Storage temperature range	-55 to 150		°C	
R _{thJC} Max. thermal resistance junct. to case	1.7	1.4	K/W	DC operation per bridge
R _{thCS} Max. thermal resist., case to heatsink	0.2		K/W	Mounting surface, smooth, flat and greased
wt Approximate weight	16		g	
T Mounting Torque ±10%	2.0		Nm	Bridge to heatsink

Ordering Information Table

Device Code

GBPC	35	12	A
1	2	3	4

- 1** - Circuit configuration:
Single phase bridge coding
- 2** - Current rating code: 25 = 25A (Avg)
35 = 35A (Avg)
- 3** - Voltage Code: code x 100 = V_{RRM}
- 4** - Diode bridge rectifier:
A = Standard Fasten Terminal
W = Wire Lead

Outline Table

GBPC...A

GBPC...W

All dimensions are in millimeters

GBPC25.. Series

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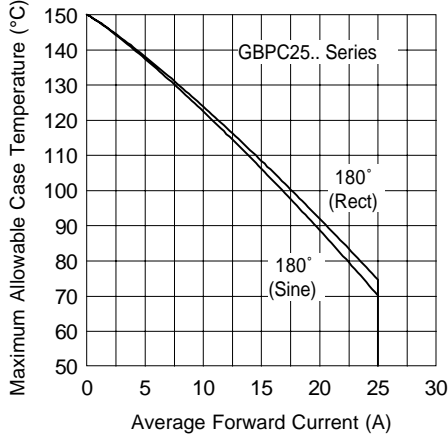


Fig. 1 - Current Ratings Characteristics

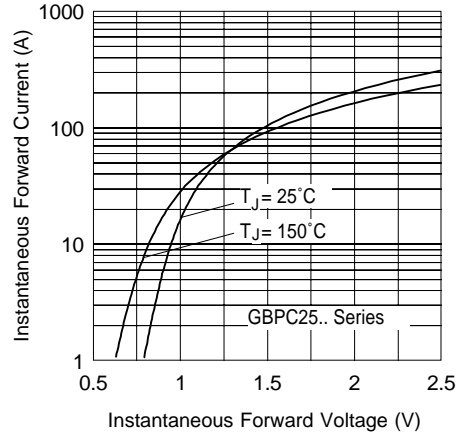


Fig. 2 - Forward Voltage Drop Characteristics

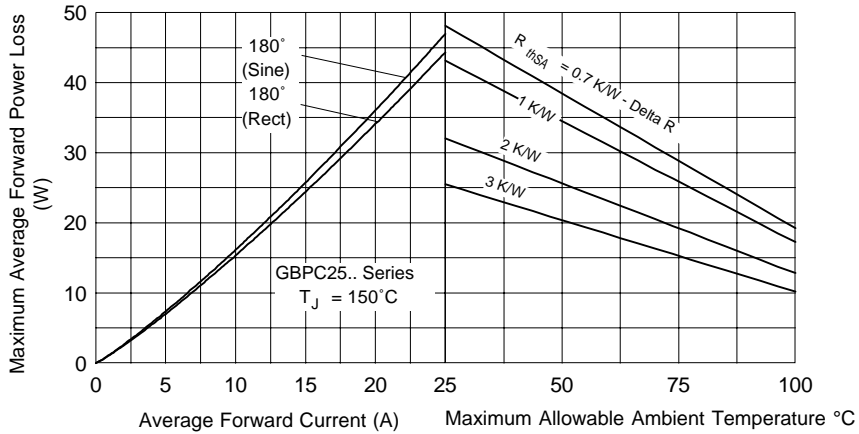


Fig. 3 - Total Power Loss Characteristics

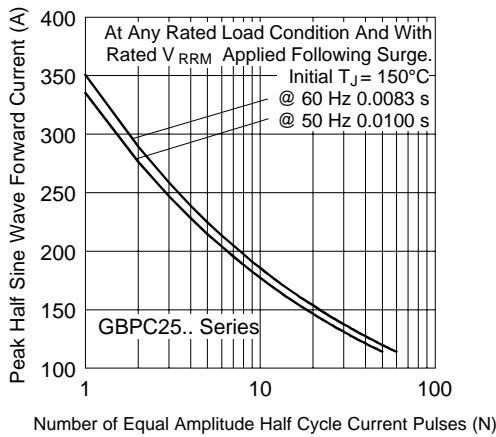


Fig. 4 - Maximum Non-Repetitive Surge Current

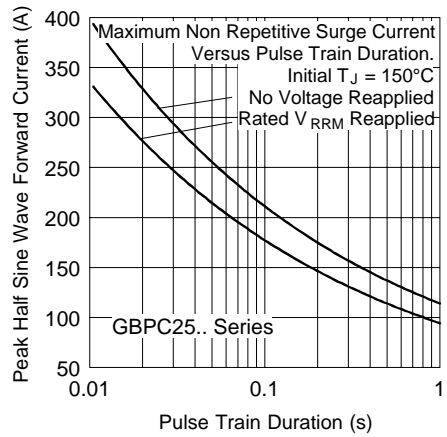


Fig. 5 - Maximum Non-Repetitive Surge Current

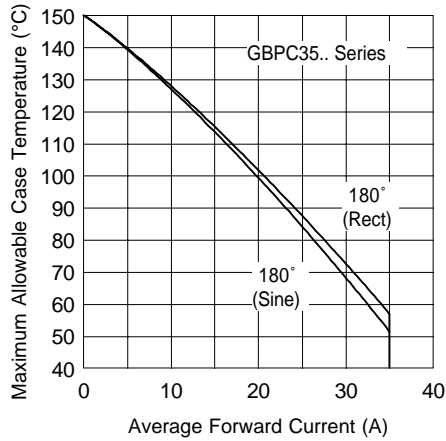


Fig. 6 - Current Ratings Characteristics

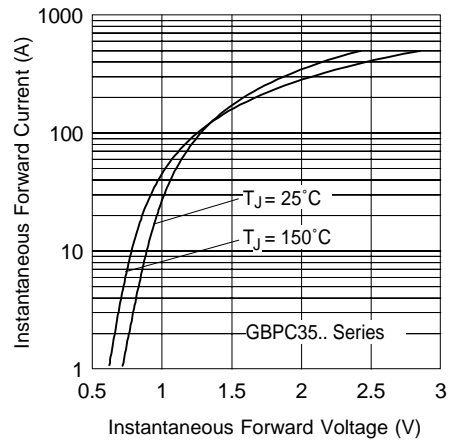


Fig. 7 - Forward Voltage Drop Characteristics

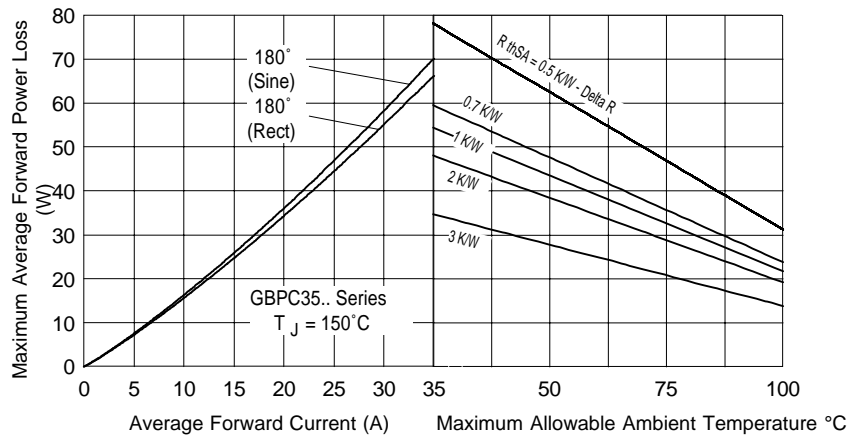


Fig. 8 - Total Power Loss Characteristics

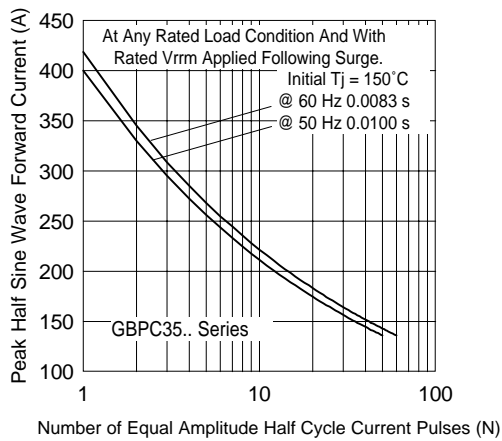


Fig. 9 - Maximum Non-Repetitive Surge Current

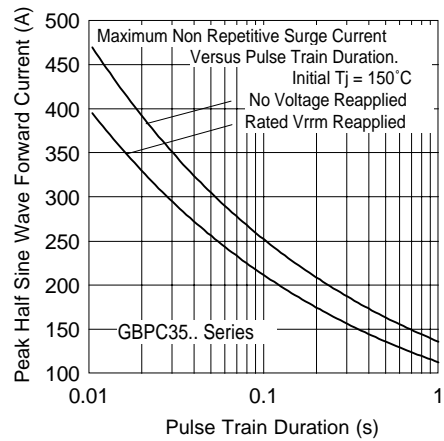


Fig. 10 - Maximum Non-Repetitive Surge Current

GBPC.. Series

Bulletin I27505 rev. F 03/03

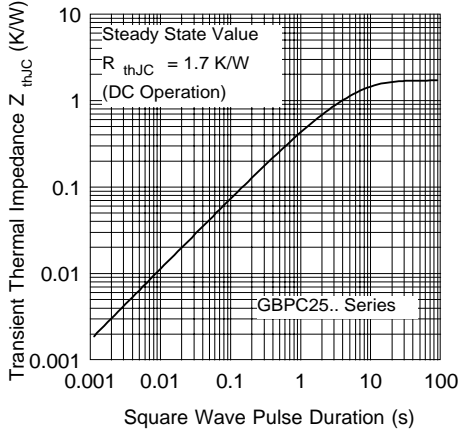


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

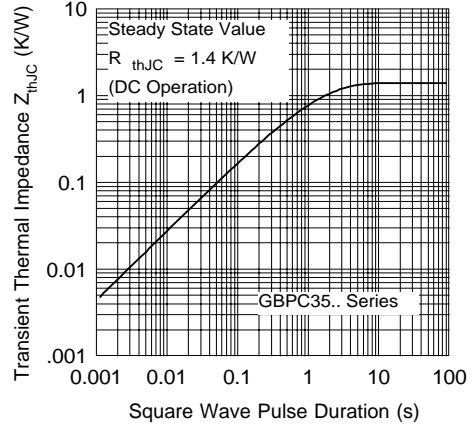


Fig. 12 - Thermal Impedance Z_{thJC} Characteristic

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial and Consumer Level.
Qualification Standards can be found on IR's Web site.