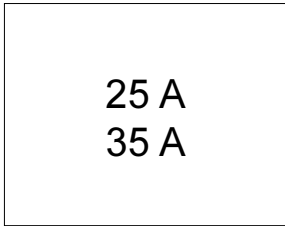


**SINGLE PHASE BRIDGE**

**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
- Fast-On and Wire lead version available
- UL E 62320 approved



**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 <sup>2</sup> s
@60Hz	725	1030	A <sup>2</sup> s
$V_{RRM}$ range	200 to 1200		V
$T_J$	-55 to 150		°C



**GBPC...A**



**GBPC...W**

**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. @ $T = 125^\circ\text{C}$ ( $\mu\text{A}$ )
GBPC25/35..A GBPC25/35..W (*)	02	200	275	2	500
	04	400	500	2	500
	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	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
	420	500		t = 8.3ms reapplied
	335	400		t = 10ms 100% $V_{RRM}$
	350	420		t = 8.3ms reapplied
$I^2t$ Maximum $I^2t$ for fusing	790	1130	$\text{A}^2\text{s}$	t = 10ms No voltage
	725	1030		t = 8.3ms reapplied
	560	800		t = 10ms 100% $V_{RRM}$
	512	730		t = 8.3ms reapplied
$I^2\sqrt{t}$ 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	$\text{m}\Omega$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , @ $T_{Jmax}$ .
$r_{t2}$ 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	$T_J = 25^\circ\text{C}$ , $I_{FM} = I_{Favg(arm)}$
$I_{RRM}$ Max. DC reverse current	5.0	5.0	$\mu\text{A}$	$T_J = 25^\circ\text{C}$ , 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 <sub>J</sub> Junction temperature range	-55 to 150		°C	
T <sub>stg</sub> Storage temperature range	-55 to 150		°C	
R <sub>thJC</sub> Max. thermal resistance junct. to case	1.7	1.4	K/W	DC operation per bridge
R <sub>thCS</sub> 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<sub>RRM</sub>
- 4** - Diode bridge rectifier:  
A = Standard Fast-on Terminal  
W = Wire Lead

Outline Table

**GBPC...A**

**GBPC...W**

All dimensions are in millimeters

# GBPC.. Series

Bulletin I27505 rev. G 10/03

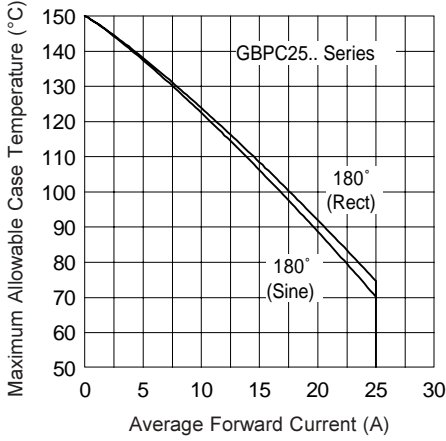


Fig. 1 - Current Ratings Characteristics

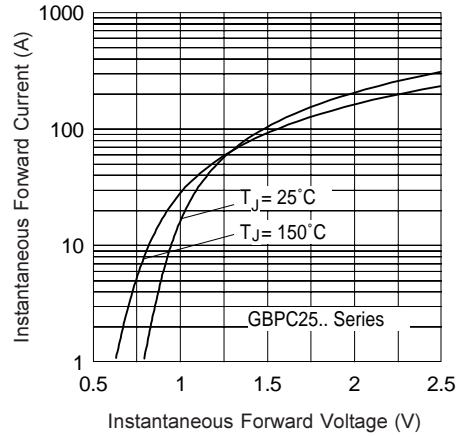


Fig. 2 - Forward Voltage Drop Characteristics

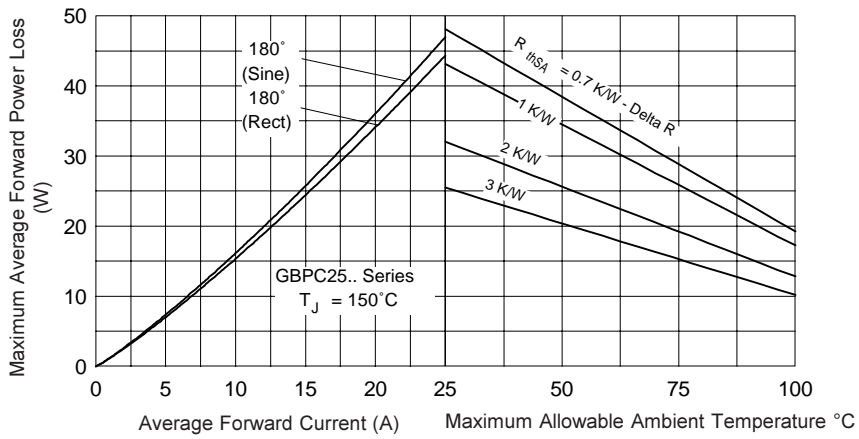


Fig. 3 - Total Power Loss Characteristics

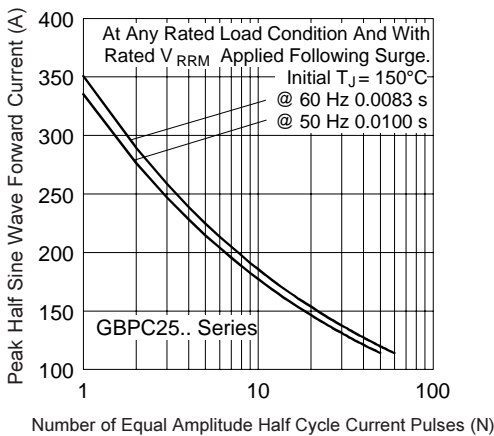


Fig. 4 - Maximum Non-Repetitive Surge Current

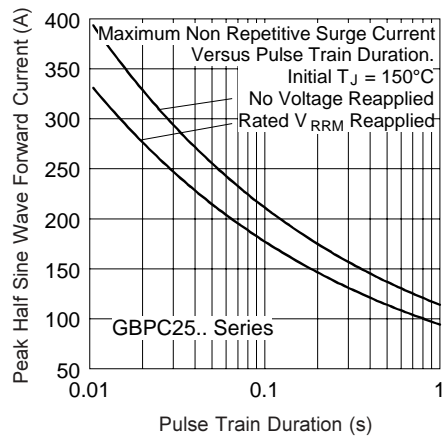


Fig. 5 - Maximum Non-Repetitive Surge Current

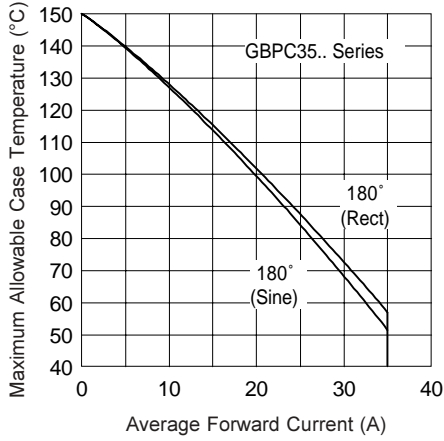


Fig. 6 - Current Ratings Characteristics

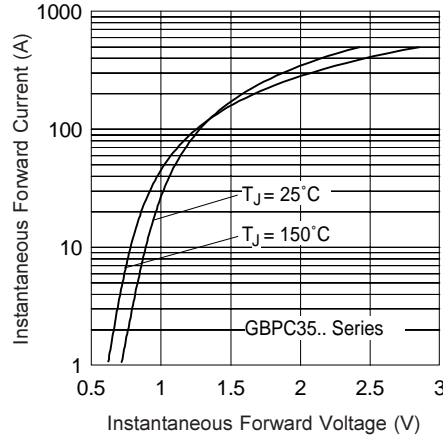


Fig. 7 - Forward Voltage Drop Characteristics

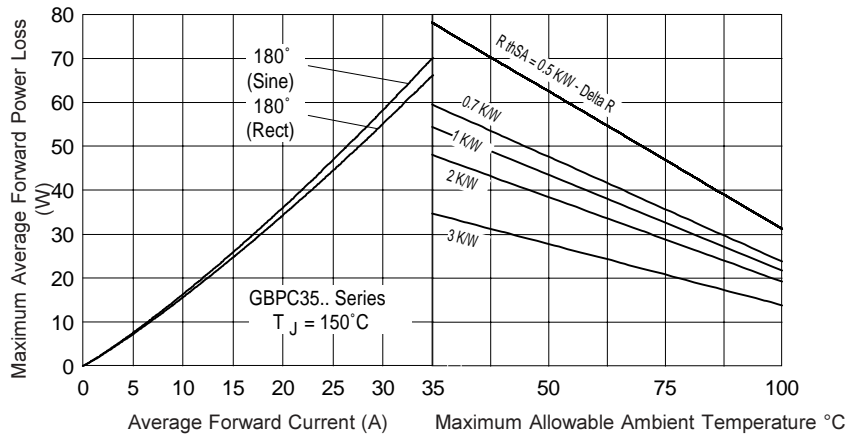


Fig. 8 - Total Power Loss Characteristics

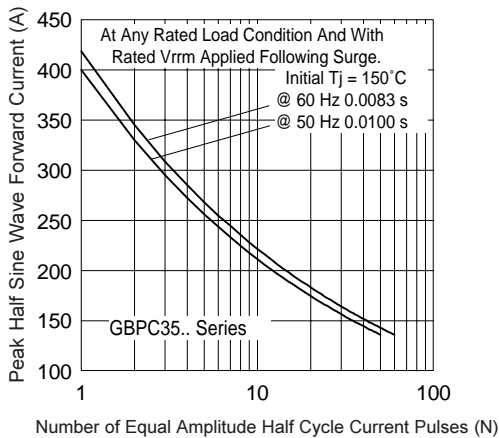


Fig. 9 - Maximum Non-Repetitive Surge Current

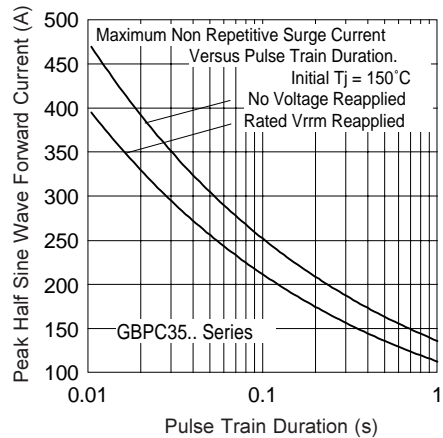


Fig. 10 - Maximum Non-Repetitive Surge Current

## GBPC.. Series

Bulletin I27505 rev. G 10/03

International  
**IR** Rectifier

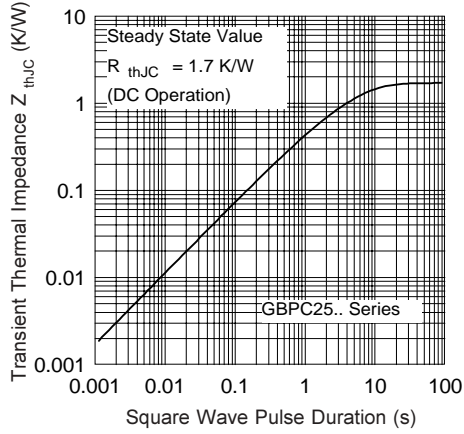


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristic

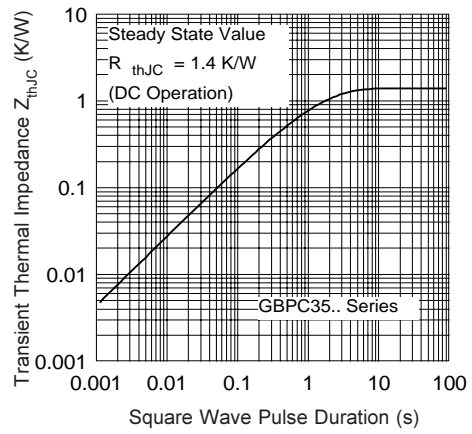


Fig. 12 - Thermal Impedance  $Z_{thJC}$  Characteristic

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.

International  
**IR** Rectifier

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 TAC Fax: (310) 252-7309  
 Visit us at [www.irf.com](http://www.irf.com) for sales contact information. 03/03