


### SINGLE PHASE BRIDGE

### Power Modules

#### Features

- Universal, 3 way terminals:  
push-on, wrap around or solder
- High thermal conductivity package,  
electrically insulated case
- Positive Polarity symbol molded  
on the plastic case
- Center hole fixing
- Glass passivated diode chips
- Excellent power/ volume ratio
- Nickel plated terminals solderable using Lead-Free solder;  
Solder Alloy Sn/Ag/Cu (SAC305); Solder temperature 260-275°C
- Wire lead version available
- UL E300359 approved 
- RoHS compliant

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 <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 $T_J = T_J \text{ max.}$ V	$V_{RSM}$ , max non-repetitive peak AC rev. voltage $T_J = T_J \text{ max.}$ V	$I_{RRM}$ max. @ rated $V_{RRM}$ $T_J = T_J \text{ max.}$ mA	$I_{RRM}$ max. D.C. rev. curr. @ $T = 125^\circ\text{C}$ ( $\mu\text{A}$ )
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	$\text{A}^2\text{s}$	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	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , @ $T_J \text{ max.}$
$V_{F(TO)2}$ High-level of threshold voltage	0.89	0.92		$(I > \pi \times I_{F(AV)})$ , @ $T_J \text{ max.}$
$r_{t1}$ Low-level forward slope resistance	8.2	4.852	m $\Omega$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , @ $T_J \text{ max.}$
$r_{t2}$ High-level forward slope resistance	6.8	3.867		$(I > \pi \times I_{F(AV)})$ , @ $T_J \text{ max.}$
$V_{FM}$ 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**

<b>GBPC</b>	<b>35</b>	<b>12</b>	<b>A</b>
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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>R<sub>RM</sub></sub>
- 4** - Diode bridge rectifier:  
A = Standard Fast-on Terminal  
W = Wire Lead

**Outline Table**

**GBPC...A**

**GBPC...W**

All dimensions are in millimeters

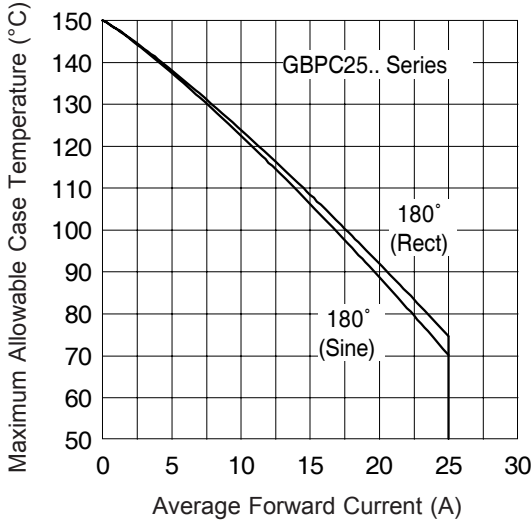


Fig. 1 - Current Ratings Characteristics

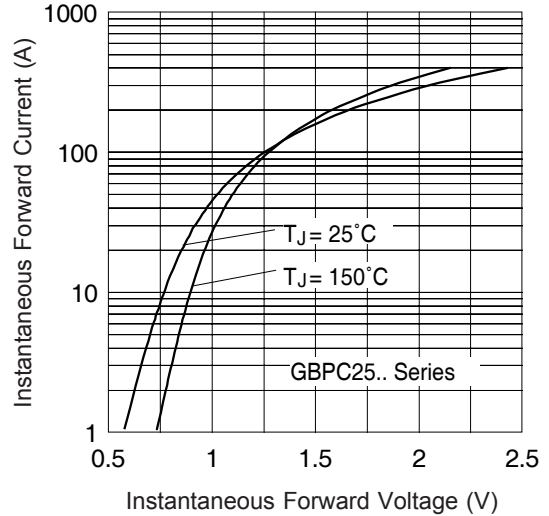


Fig. 2 - Forward Voltage Drop Characteristics

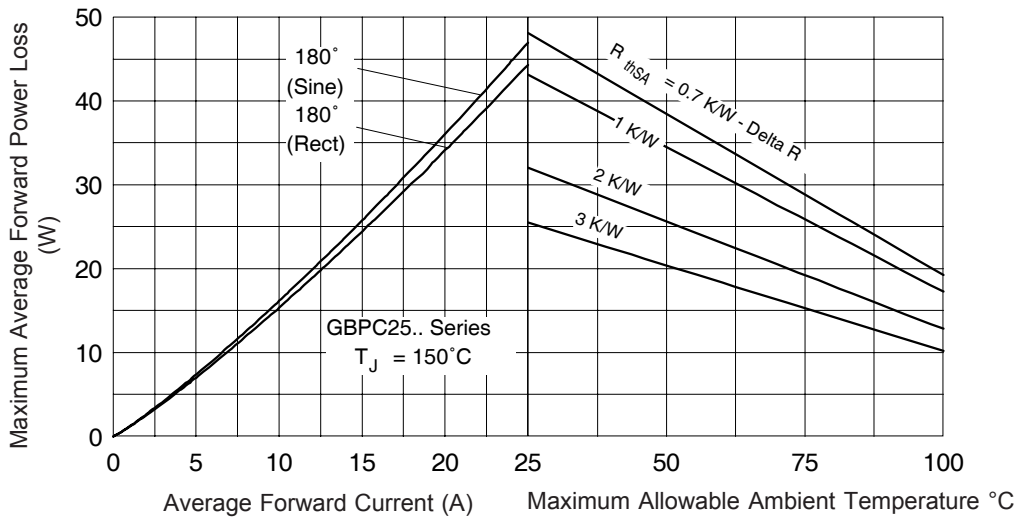


Fig. 3 - Total Power Loss Characteristics

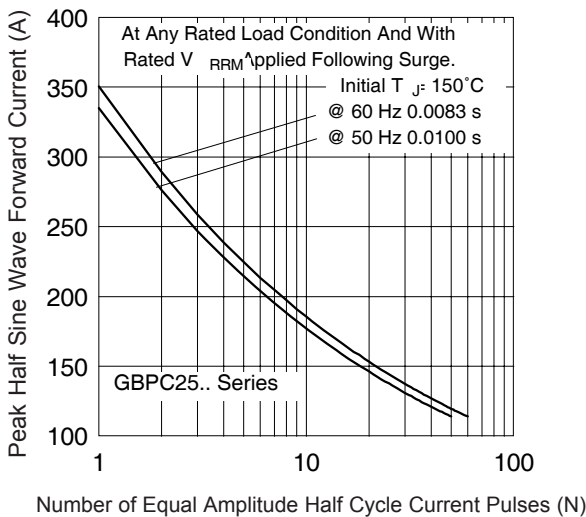


Fig. 4 - Maximum Non-Repetitive Surge Current

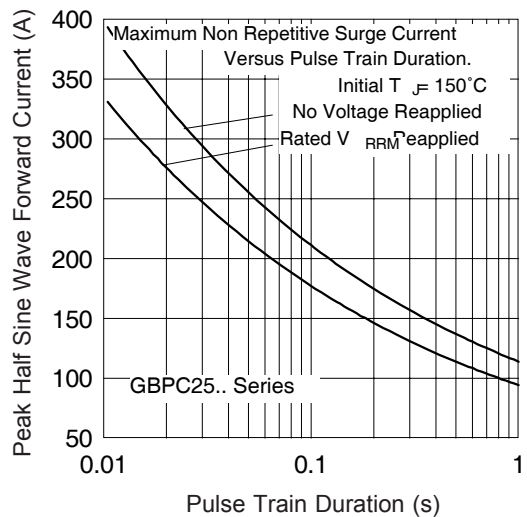


Fig. 5 - Maximum Non-Repetitive Surge Current

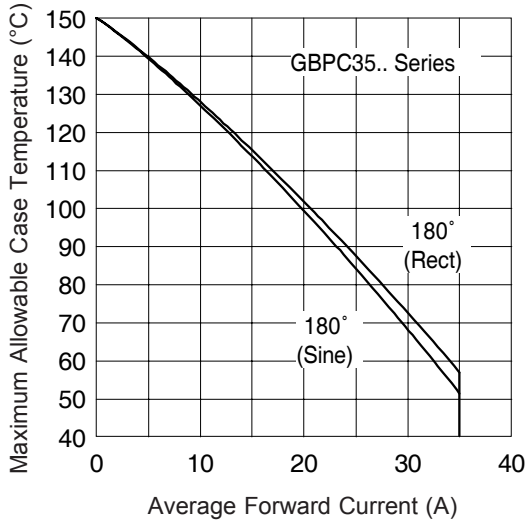


Fig. 6 - Current Ratings Characteristics

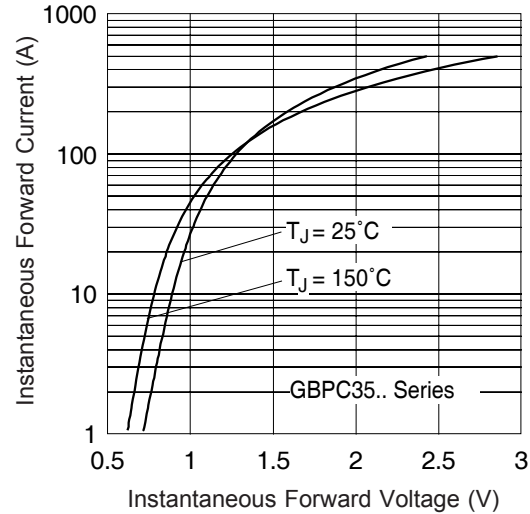


Fig. 7 - Forward Voltage Drop Characteristics

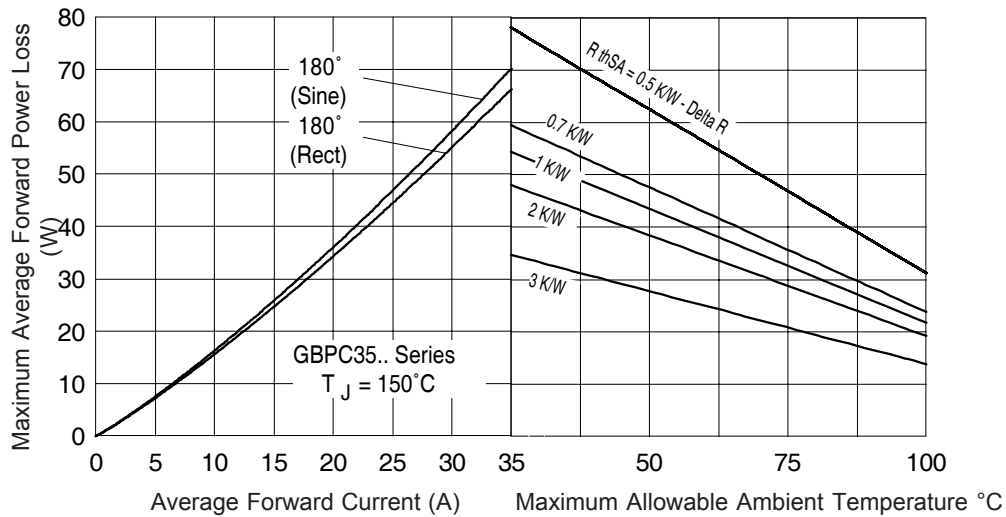


Fig. 8 - Total Power Loss Characteristics

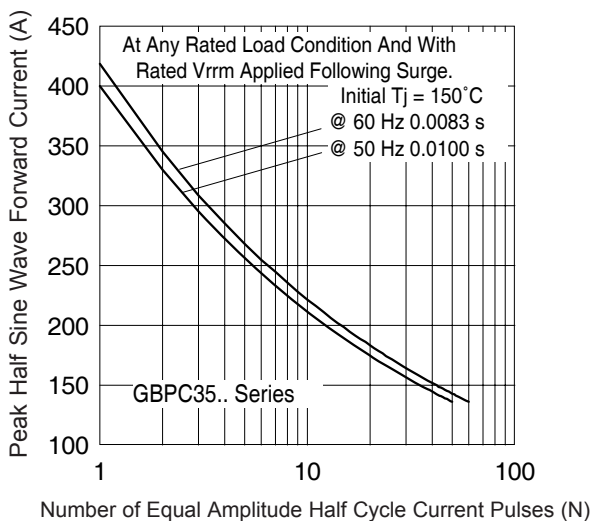


Fig. 9 - Maximum Non-Repetitive Surge Current

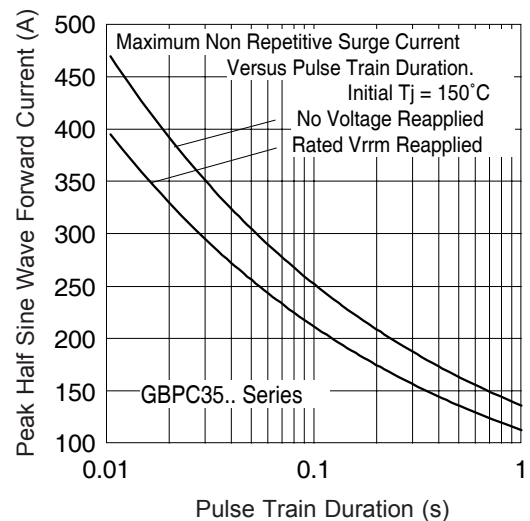


Fig. 10 - Maximum Non-Repetitive Surge Current

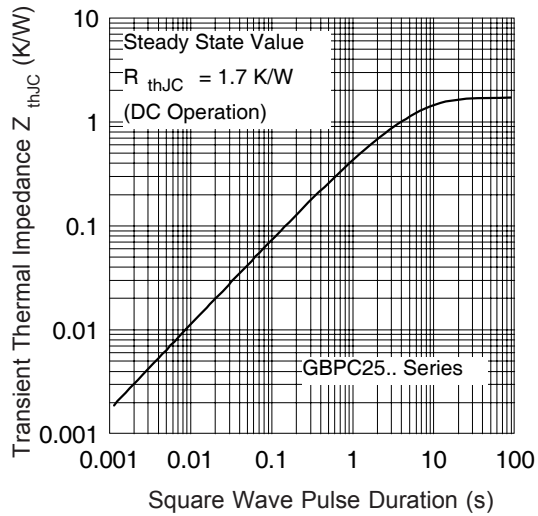


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristic

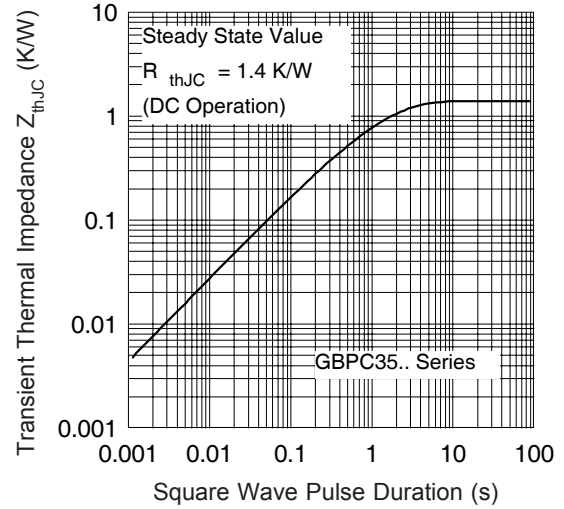


Fig. 12 - Thermal Impedance  $Z_{thJC}$  Characteristic

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