

## Single Phase Bridge (Power Modules), 25 A/35 A



GBPC...A



GBPC...W

### 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 (Pb)-free solder; Solder Alloy Sn/Ag/Cu (SAC305); Solder temperature 260 °C to 275 °C
- Wire lead version available
- UL E300359 approved
- Designed and qualified for industrial and consumer level
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


 RoHS  
COMPLIANT

PRODUCT SUMMARY	
$I_o$	25 A to 35 A
$V_{RRM}$	200 V to 1200 V
Package	GBPC..A, GBPC..W
Circuit	Single phase bridge

### DESCRIPTION/APPLICATIONS

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				
SYMBOL	CHARACTERISTICS	VALUES GBPC25	VALUES GBPC35	UNITS
$I_o$		25	35	A
	$T_C$	60	55	°C
$I_{FSM}$	50 Hz	400	475	A
	60 Hz	420	500	
$I^2t$	50 Hz	790	1130	A <sup>2</sup> s
	60 Hz	725	1030	
$V_{RRM}$	Range	200 to 1200		V
$T_J$		-55 to 150		°C

### ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS					
TYPE NUMBER	VOLTAGE CODE	$V_{RRM}$ , MAXIMUM REPETITIVE PEAK AC REVERSE VOLTAGE $T_J = T_J$ MAXIMUM V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK AC REVERSE VOLTAGE $T_J = T_J$ MAXIMUM V	$I_{RRM}$ MAXIMUM AT RATED $V_{RRM}$ $T_J = T_J$ MAXIMUM mA	$I_{RRM}$ MAXIMUM DC REVERSE CURRENT AT $T_J = 125$ °C A
VS-GBPC25/35..A <sup>(1)</sup> VS-GBPC25/35..W	02	200	275	2	500
	04	400	500		
	06	600	725		
	08	800	900		
	10	1000	1100		
	12	1200	1300		

#### Note

<sup>(1)</sup> See Ordering Information table at the end of datasheet



FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES GBPC25	VALUES GBPC35	UNITS	
Maximum DC output current at case temperature	I <sub>O</sub>	Resistive or inductive load		25	35	A	
		Capacitive load		20	28		
				60	55	°C	
Maximum peak, one-cycle non-repetitive forward current	I <sub>FSM</sub>	t = 10 ms	No voltage reapplied	Initial T <sub>J</sub> = T <sub>J</sub> maximum	400	475	A
		t = 8.3 ms					
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		335	400	
		t = 8.3 ms					
Maximum I <sup>2</sup> t for fusing	I <sup>2</sup> t	t = 10 ms	No voltage reapplied	Initial T <sub>J</sub> = T <sub>J</sub> maximum	790	1130	A <sup>2</sup> s
		t = 8.3 ms					
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		560	800	
		t = 8.3 ms					
Maximum I <sup>2</sup> √t for fusing	I <sup>2</sup> √t	I <sup>2</sup> t for time t <sub>x</sub> = I <sup>2</sup> √t × √t <sub>x</sub> ; 0.1 ≤ t <sub>x</sub> ≤ 10 ms, V <sub>RRM</sub> = 0 V		7.9	11.3	kA <sup>2</sup> √s	
Low level of threshold voltage	V <sub>F(TO)1</sub>	(16.7 % × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> maximum		0.76	0.77	V	
High level of threshold voltage	V <sub>F(TO)2</sub>	(I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> maximum		0.89	0.92		
Low level forward slope resistance	r <sub>t1</sub>	(16.7 % × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> maximum		8.2	4.852	mΩ	
High level forward slope resistance	r <sub>t2</sub>	(I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> maximum		6.8	3.867		
Maximum forward voltage drop	V <sub>FM</sub>	T <sub>J</sub> = 25 °C, I <sub>FM</sub> = I <sub>Favg</sub> (arm)		1.1	1.1	V	
Maximum DC reverse current	I <sub>RRM</sub>	T <sub>J</sub> = 25 °C, per diode at V <sub>RRM</sub>		5.0		μA	
RMS isolation voltage base plate	V <sub>INS</sub>	f = 50 Hz, t = 1 s		2700		V	

THERMAL AND MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES GBPC25	VALUES GBPC35	UNITS
Junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>			-55 to 150		°C
Maximum thermal resistance, junction to case per bridge	R <sub>thJC</sub>	DC operation		1.7	1.4	K/W
Maximum thermal resistance, case to heatsink	R <sub>thCS</sub>	Mounting surface, smooth, flat and greased		0.2		
Approximate weight				16		g
Mounting torque ± 10 %		Bridge to heatsink		2.0		N · m (lbf · in)

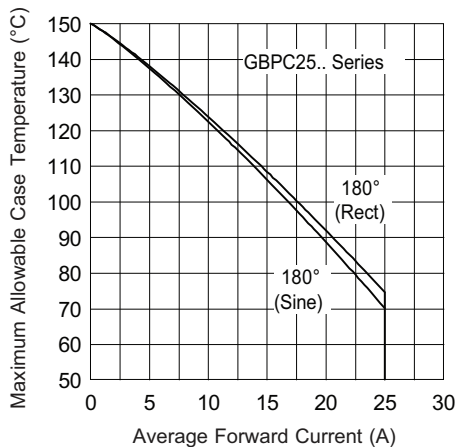


Fig. 1 - Current Ratings Characteristics

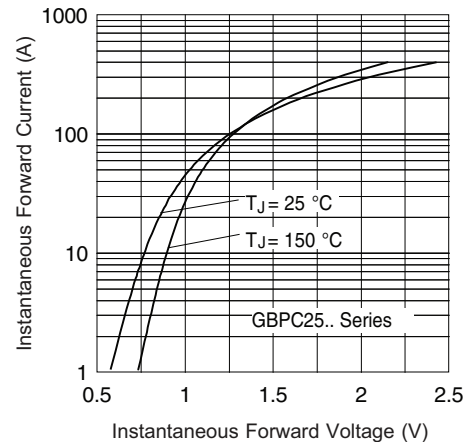


Fig. 2 - Forward Voltage Drop Characteristics

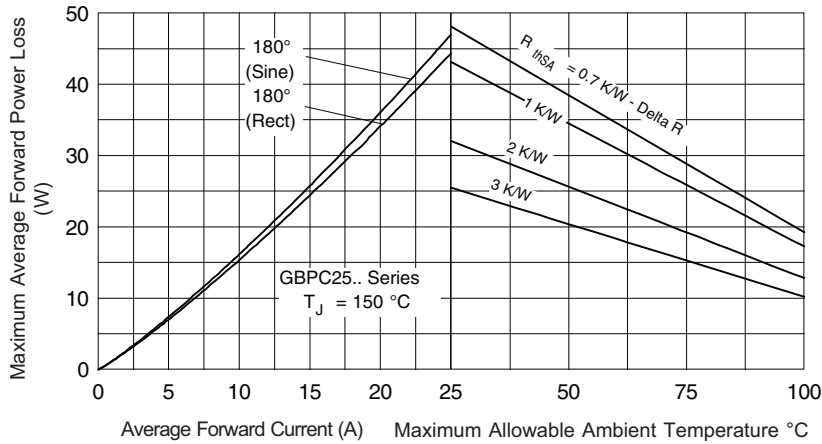


Fig. 3 - Total Power Loss Characteristics

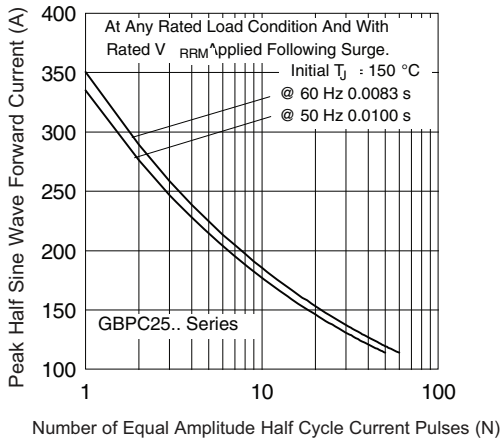


Fig. 4 - Maximum Non-Repetitive Surge Current

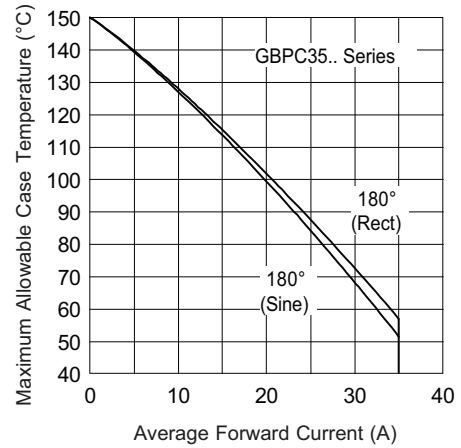


Fig. 6 - Current Ratings Characteristics

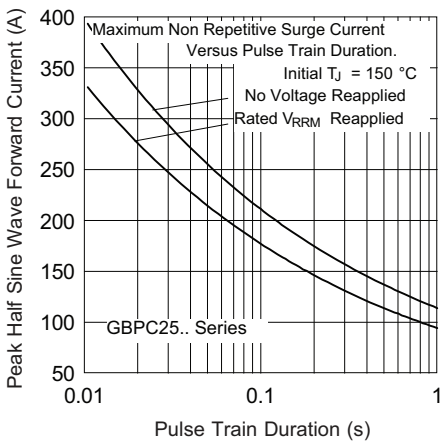


Fig. 5 - Maximum Non-Repetitive Surge Current

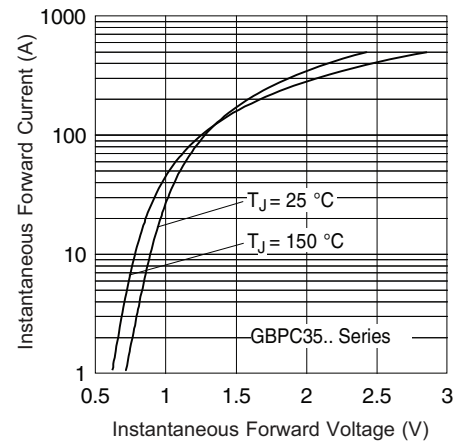


Fig. 7 - Forward Voltage Drop Characteristics

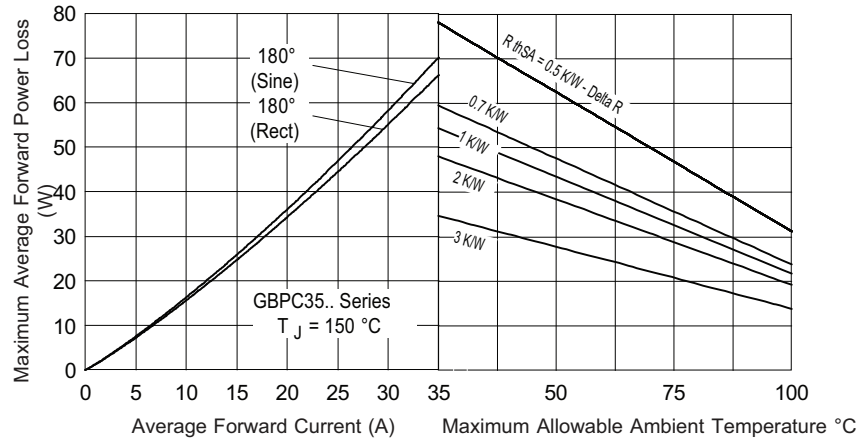


Fig. 8 - Total Power Loss Characteristics

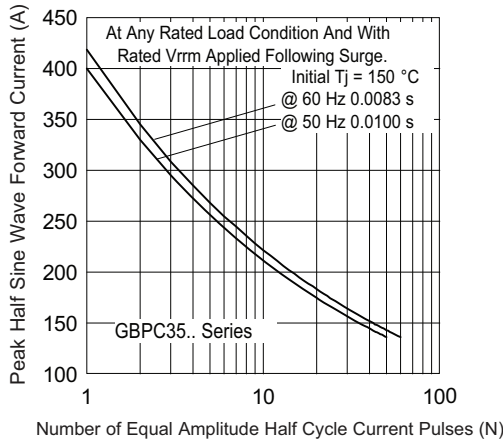


Fig. 9 - Maximum Non-Repetitive Surge Current

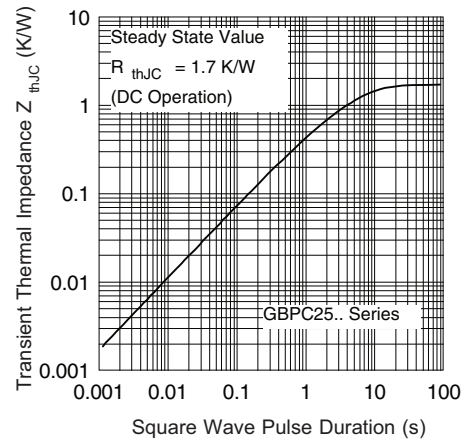


Fig. 11 - Thermal Impedance  $Z_{\theta JC}$  Characteristic

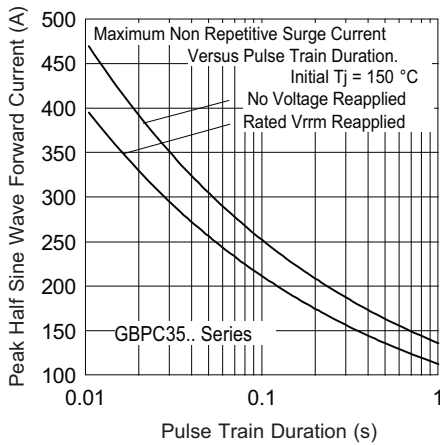


Fig. 10 - Maximum Non-Repetitive Surge Current

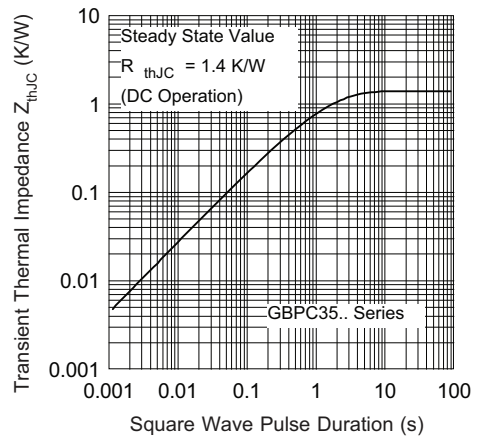
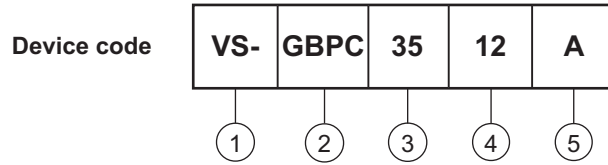


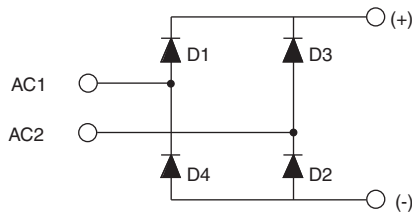
Fig. 12 - Thermal Impedance  $Z_{\theta JC}$  Characteristic

## ORDERING INFORMATION TABLE



- 1 - Vishay Semiconductors product
- 2 - Circuit configuration:  
Single phase bridge coding
- 3 - Current rating code 25 = 25 A (average)  
35 = 35 A (average)
- 4 - Voltage code x 100 =  $V_{RRM}$
- 5 - Diode bridge rectifier:
  - A = Standard fast-on terminal
  - W = Wire lead

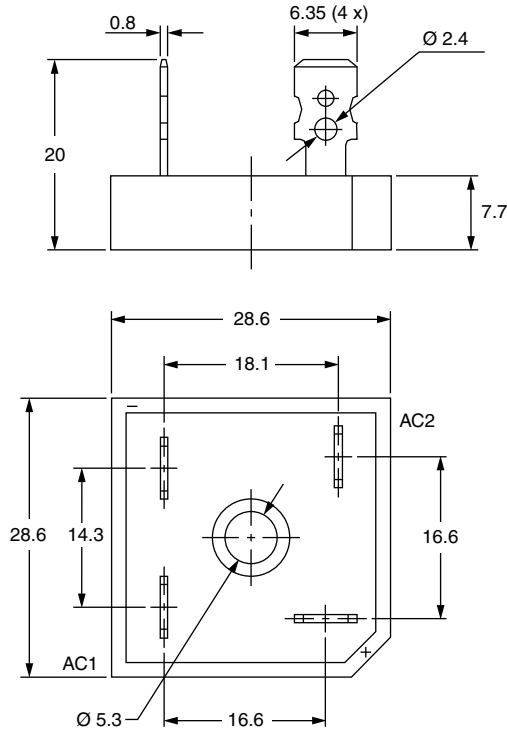
## CIRCUIT CONFIGURATION



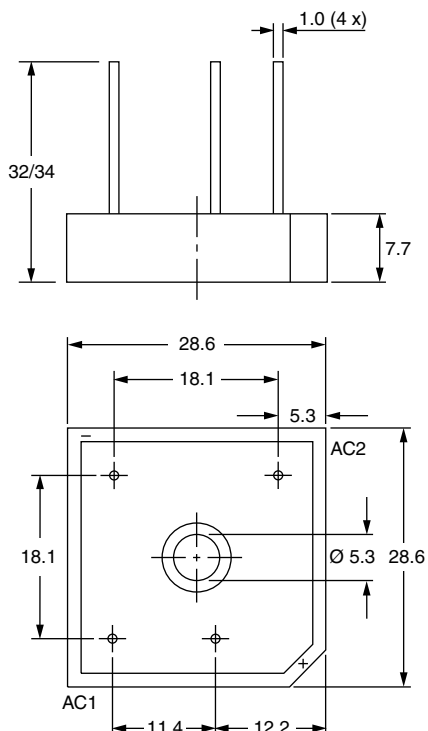
LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95331">www.vishay.com/doc?95331</a>

## GBPC

### DIMENSIONS FOR GBPC...A in millimeters



### DIMENSIONS FOR GBPC...W in millimeters





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