

## 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, 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 μA
VS-GBPC25..A <sup>(1)</sup> VS-GBPC35..A <sup>(1)</sup> VS-GBPC25..W VS-GBPC35..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			420	500		
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		335	400		
		t = 8.3 ms			350	420		
Maximum I <sup>2</sup> t for fusing	I <sup>2</sup> t	t = 10 ms	No voltage reapplied		790	1130	A <sup>2</sup> s	
		t = 8.3 ms			725	1030		
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		560	800		
		t = 8.3 ms			512	730		
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 x √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 % x π x I <sub>F(AV)</sub> ) < I < π x 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 x 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 % x π x I <sub>F(AV)</sub> ) < I < π x 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 x 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)

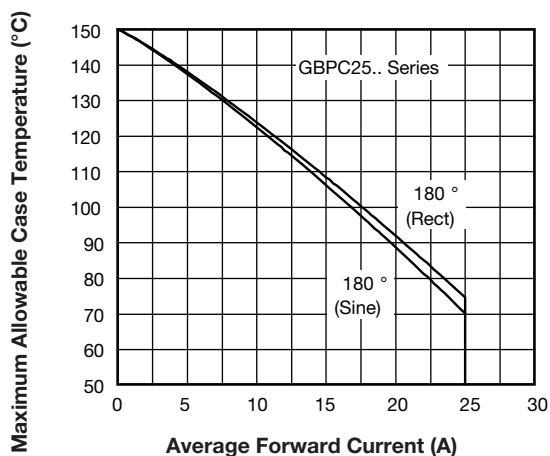


Fig. 1 - Current Ratings Characteristics

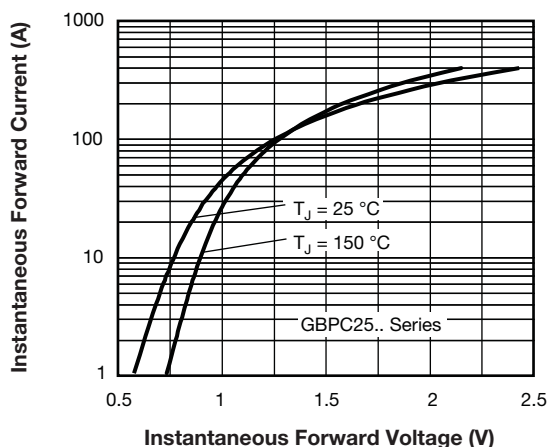


Fig. 2 - Forward Voltage Drop Characteristics

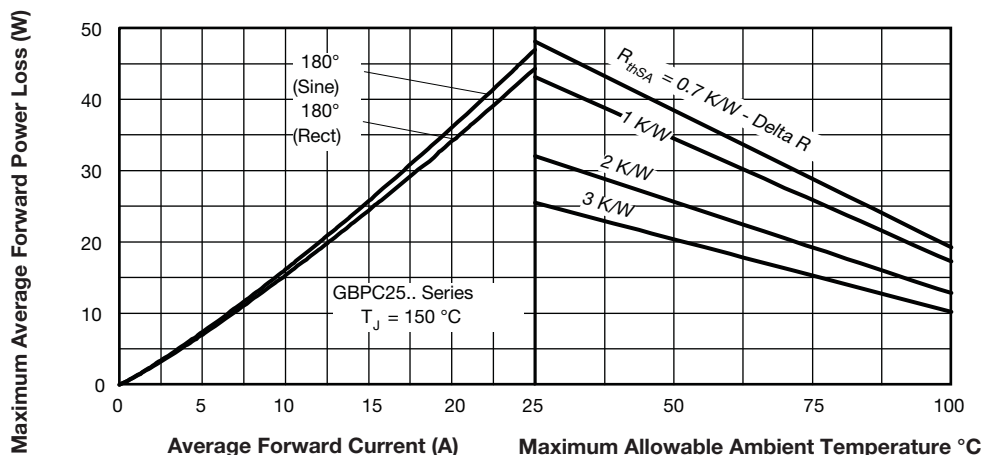


Fig. 3 - Total Power Loss Characteristics

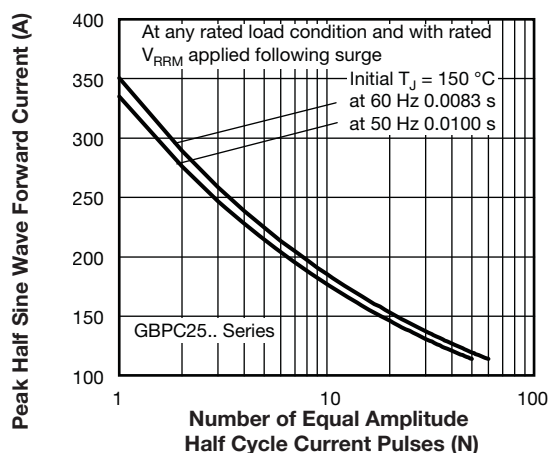


Fig. 4 - Maximum Non-Repetitive Surge Current

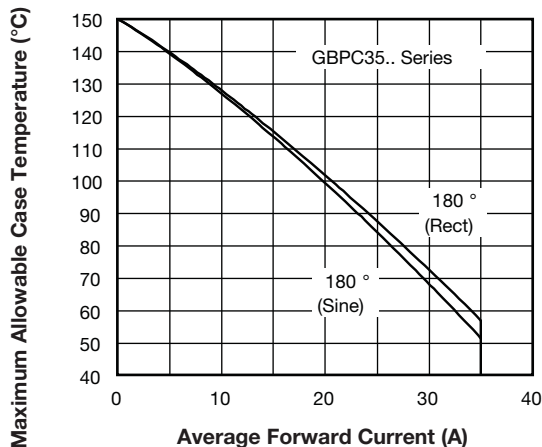


Fig. 6 - Current Ratings Characteristics

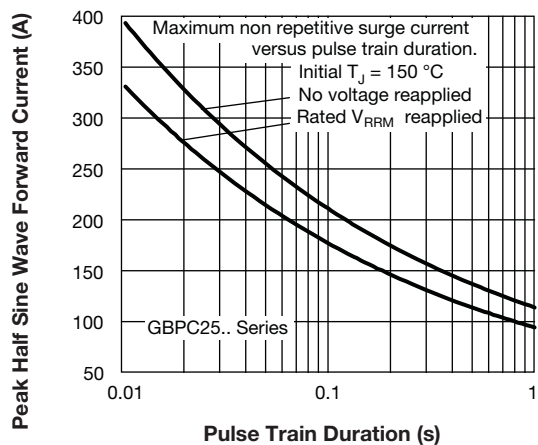


Fig. 5 - Maximum Non-Repetitive Surge Current

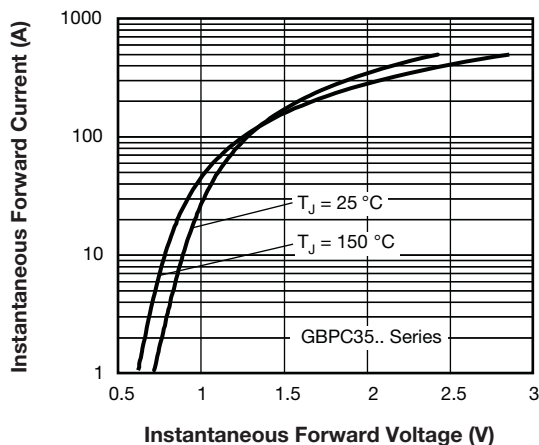


Fig. 7 - Forward Voltage Drop Characteristics

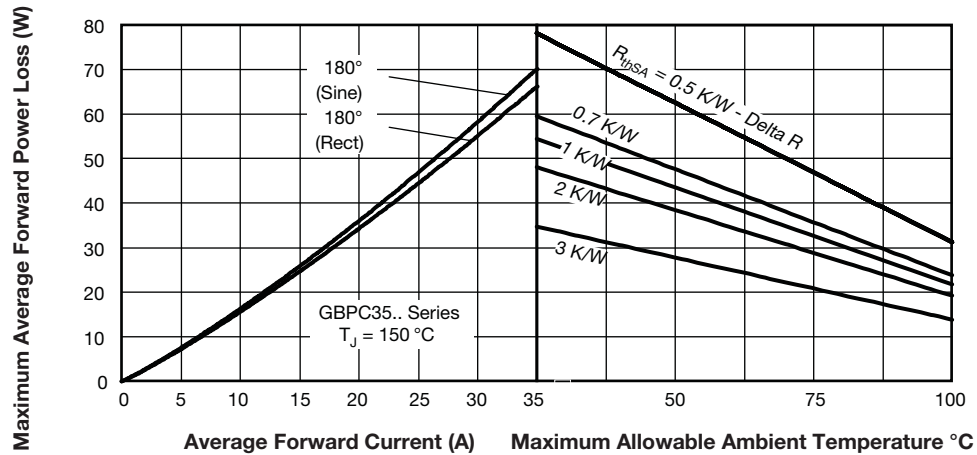


Fig. 8 - Total Power Loss Characteristics

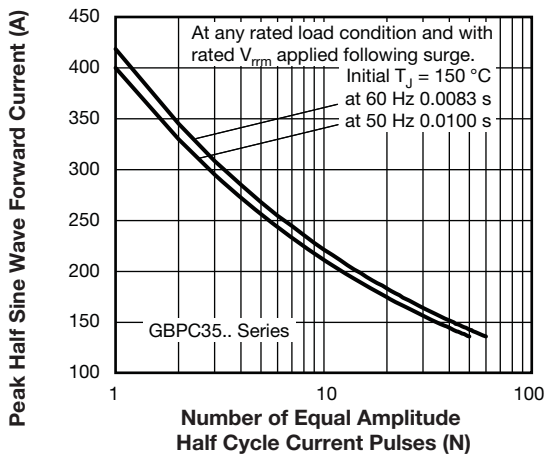


Fig. 9 - Maximum Non-Repetitive Surge Current

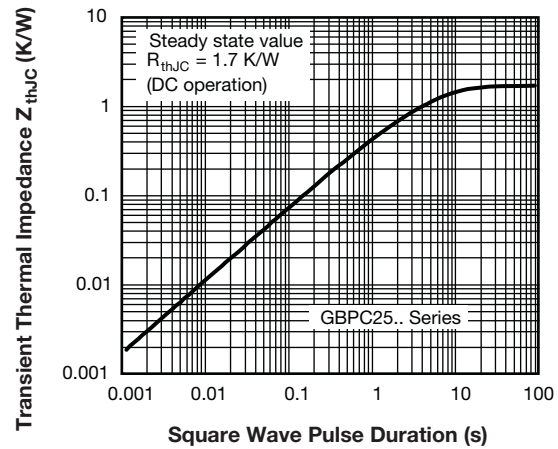


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristic

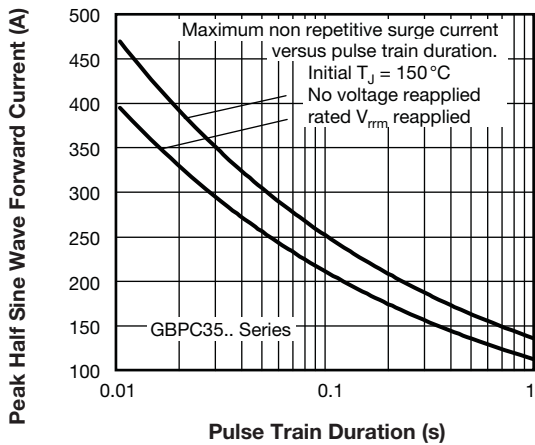


Fig. 10 - Maximum Non-Repetitive Surge Current

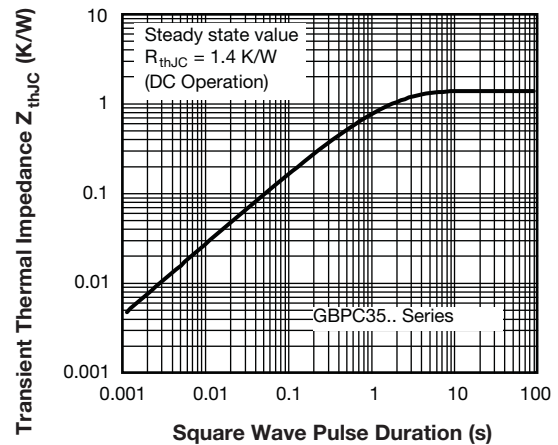


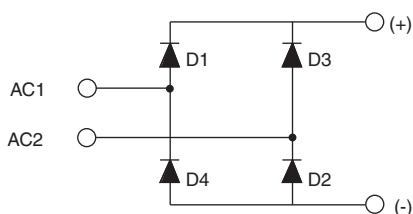
Fig. 12 - Thermal Impedance  $Z_{thJC}$  Characteristic



**ORDERING INFORMATION TABLE**

Device code	VS-	GBPC	35	12	A
	1	2	3	4	5
1	- Vishay Semiconductors product				
2	- Circuit configuration: Single phase bridge coding				
3	- Current rating code				
4	- Voltage code x 100 = $V_{RRM}$				
5	- Diode bridge rectifier:				
					25 = 25 A (average) 35 = 35 A (average)
					• A = standard fast-on terminal • W = wire lead

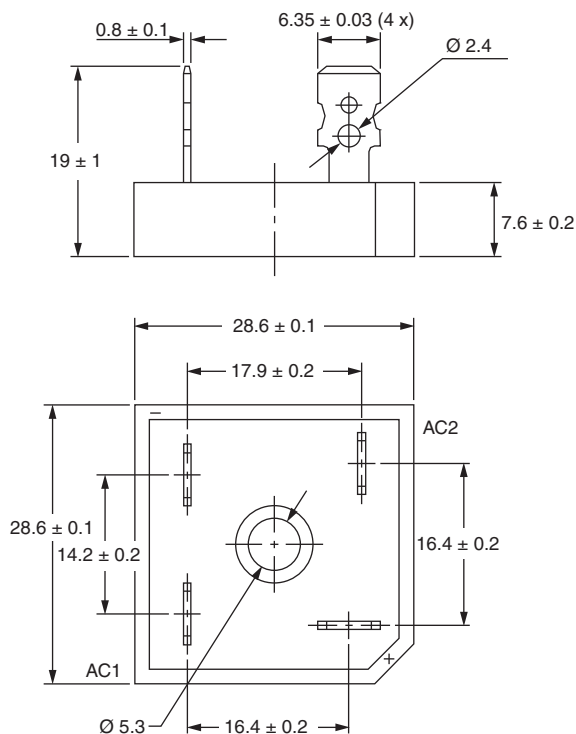
**CIRCUIT CONFIGURATION**



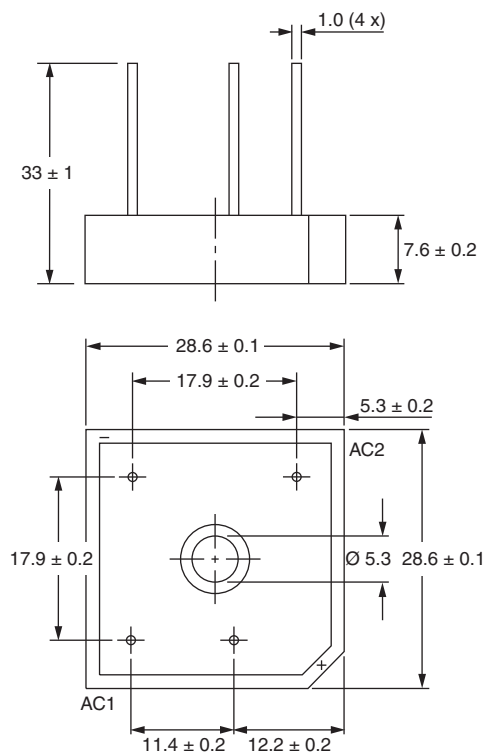
LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95331">www.vishay.com/doc?95331</a>

## GBPC

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



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





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