

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





GBPC...A

GBPC...W

PRODUCT SUMMARY				
Io	25 A to 35 A			
V _{RRM}	200 V to 1200 V			
Package	GBPCA, GBPCW			
Circuit	Single phase bridge			

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 <u>www.vishay.com/doc?99912</u>

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	
1		25	35	Α	
lo	T _C	60	55	°C	
I _{FSM}	50 Hz	400	475	A	
	60 Hz	420	500		
l ² t	50 Hz	790	1130	— A ² s	
	60 Hz	725	1030		
V _{RRM}	Range	200 to 1200		V	
T,J		-55	°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	$\begin{split} &I_{RRM} \text{ MAXIMUM} \\ &\text{AT RATED } V_{RRM} \\ &T_J = T_J \text{ MAXIMUM} \\ &\text{mA} \end{split}$	I _{RRM} MAXIMUM DC REVERSE CURRENT AT T _J = 125 °C A	
	02	200	275			
VS-GBPC25/35A ⁽¹⁾ VS-GBPC25/35W	04	400	500		500	
	06	600	725	2		
	08	800	900	2		
	10	1000	1100			
	12	1200	1300	ii.		

Note

⁽¹⁾ See Ordering Information table at the end of datasheet



FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES GBPC25	VALUES GBPC35	UNITS
	Io	Resistive or inductive load		25	35	Α	
Maximum DC output current at case temperature		Capacitive load		20	28		
at base temperature					60	55	°C
Maximum peak, one-cycle non-repetitive forward current	I _{FSM}	t = 10 ms	No voltage		400	475	А
		t = 8.3 ms	reapplied		420	500	
		t = 10 ms	100 % V _{RRM}		335	400	
		t = 8.3 ms	reapplied		350	420	
Maximum I ² t for fusing	l ² t	t = 10 ms	No voltage	Initial $T_J = T_J$ maximum	790	1130	A ² s
		t = 8.3 ms	reapplied		725	1030	
		t = 10 ms	100 % V _{RRM}		560	800	
		t = 8.3 ms	reapplied		512	730	
Maximum I ² √t for fusing	I ² √t	I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \le t_x \le 10$ ms, $V_{RRM} = 0$ V		7.9	11.3	kA²√s	
Low level of threshold voltage	V _{F(TO)1}	(16.7 % x π x I _{F(AV)} < I < π x I _{F(AV)}), T _J maximum		0.76	0.77	V	
High level of threshold voltage	V _{F(TO)2}	$(I > \pi \times I_{F(AV)})$, T_J maximum		0.89	0.92	V	
Low level forward slope resistance	r _{t1}	(16.7 % x π x I _{F(AV)} < I < π x I _{F(AV)}), T _J maximum		8.2	4.852		
High level forward slope resistance	r _{t2}	$(I > \pi \times I_{F(AV)}), T_J$ maximum		6.8	3.867	mΩ	
Maximum forward voltage drop	V_{FM}	T _J = 25 °C, I _{FM} = I _{Favg (arm)}		1.1	1.1	V	
Maximum DC reverse current	I _{RRM}	T _J = 25 °C, per diode at V _{RRM}		·		.0	μΑ
RMS isolation voltage base plate	V _{INS}	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 _J , T _{Stg}		-55 to	o 150	°C	
Maximum thermal resistance, junction to case per bridge	R _{thJC}	DC operation	1.7	1.4	K/W	
Maximuml thermal resistance, case to heatsink	R _{thCS}	Mounting surface, smooth, flat and greased	0.2		IV/ VV	
Approximate weight			1	6	g	
Mounting torque ± 10 %		Bridge to heatsink	2.0		N · m (lbf · in)	

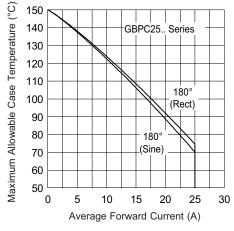


Fig. 1 - Current Ratings Characteristics

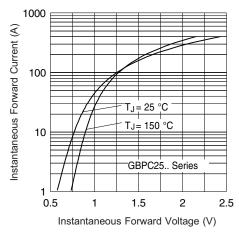


Fig. 2 - Forward Voltage Drop Characteristics

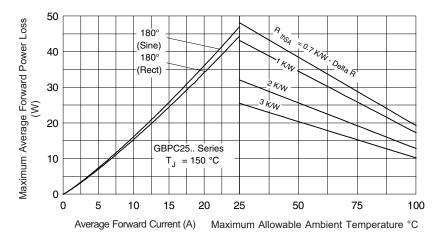
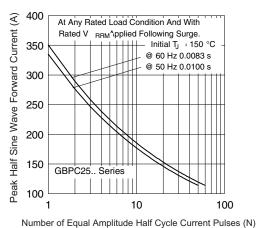
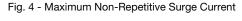


Fig. 3 - Total Power Loss Characteristics



Number of Equal Amplitude Flair Cycle Current Fulses (1



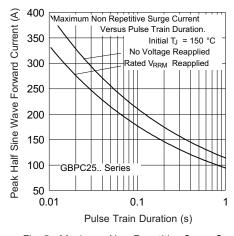


Fig. 5 - Maximum Non-Repetitive Surge Current

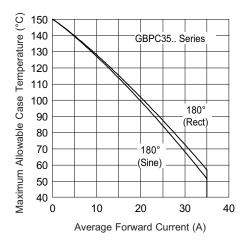


Fig. 6 - Current Ratings Characteristics

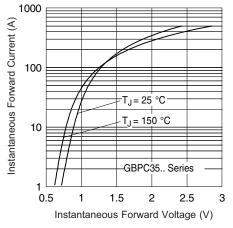


Fig. 7 - Forward Voltage Drop Characteristics

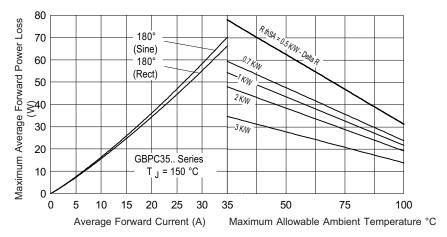


Fig. 8 - Total Power Loss Characteristics

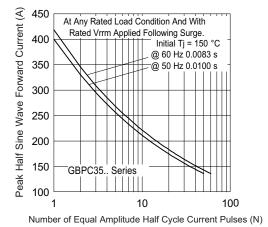


Fig. 9 - Maximum Non-Repetitive Surge Current

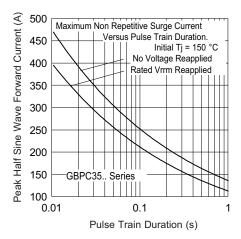


Fig. 10 - Maximum Non-Repetitive Surge Current

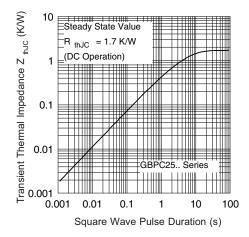


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

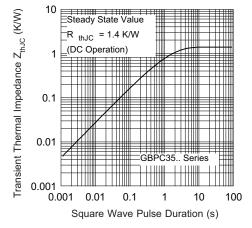
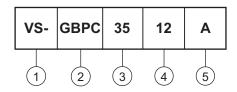


Fig. 12 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE

Device code



- 1 Vishay Semiconductors product
- 2 Circuit configuration:

Single phase bridge coding

3 - Current rating code 25 = 25 A (average) 35 = 35 A (average)

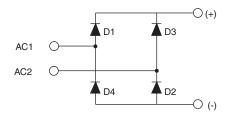
Voltage code x 100 = V_{RRM}

Diode bridge rectifier:

• A = Standard fast-on terminal

• W = Wire lead

CIRCUIT CONFIGURATION

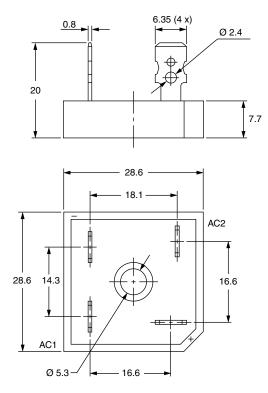


LINKS TO RELATED DOCUMENTS			
Dimensions	www.vishay.com/doc?95331		

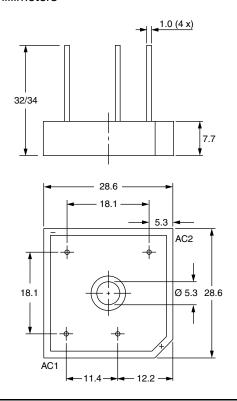


GBPC

DIMENSIONS FOR GBPC...A in millimeters



DIMENSIONS FOR GBPC...W in millimeters





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