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

GBPC...A

GBPC...W

FEATURES

RoHS COMPLIANT

- 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 to 275 °C
- Wire lead version available
- UL E300359 approved
- RoHS compliant
- Designed and qualified for industrial and consumer level

PRODUCT SUMMARY	
I_O	25/35 A

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 applicaions

MAJOR RATINGS AND CHARACTERISTICS				
SYMBOL	CHARACTERISTICS	GBPC25	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^2s
	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
GBPC25/35..A (1) GBPC25/35..W	02	200	275	2	500
	04	400	500		
	06	600	725		
	08	800	900		
	10	1000	1100		
	12	1200	1300		

Note

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

FORWARD CONDUCTION

PARAMETER	SYMBOL	TEST CONDITIONS			GBPC25	GBPC35	UNITS
Maximum DC output current at case temperature	I_O	Resistive or inductive load			25	35	A
		Capacitive load			20	28	
					60	55	°C
Maximum peak, one-cycle non-repetitive forward current	I_{FSM}	t = 10 ms	No voltage reapplied	Initial $T_J = T_J$ maximum	400	475	A
		t = 8.3 ms			420	500	
		t = 10 ms	100 % V_{RRM} reapplied		335	400	
		t = 8.3 ms			350	420	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied		790	1130	A^2s
		t = 8.3 ms			725	1030	
		t = 10 ms	100 % V_{RRM} reapplied		560	800	
		t = 8.3 ms			512	730	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	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	$kA^2\sqrt{s}$
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 > π x $I_{F(AV)}$), T_J maximum			0.89	0.92	
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	mΩ
High level forward slope resistance	r_{t2}	(I > π x $I_{F(AV)}$), T_J maximum			6.8	3.867	
Maximum forward voltage drop	V_{FM}	T_J = 25 °C, $I_{FM} = I_{Favg\ (arm)}$			1.1		V
Maximum DC reverse current	I_{RRM}	T_J = 25 °C, per diode at V_{RRM}			5.0		µA
RMS isolation voltage base plate	V_{INS}	f = 50 Hz, t = 1 s			2700		V

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**GBPC25**	**GBPC35**	**UNITS**
Junction and storage temperature range	T_J, T_{Stg}		- 55 to 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		
Approximate weight			16		g
Mounting torque ± 10 %		Bridge to heatsink	2.0		N · m (lbf · in)

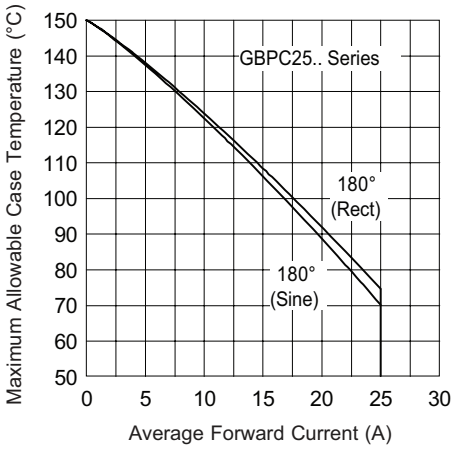


Fig. 1 - Current Ratings Characteristics

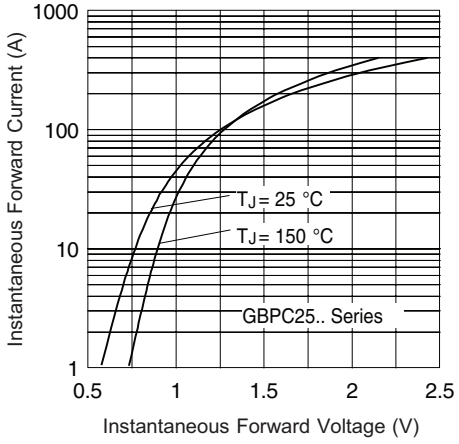


Fig. 2 - Forward Voltage Drop Characteristics

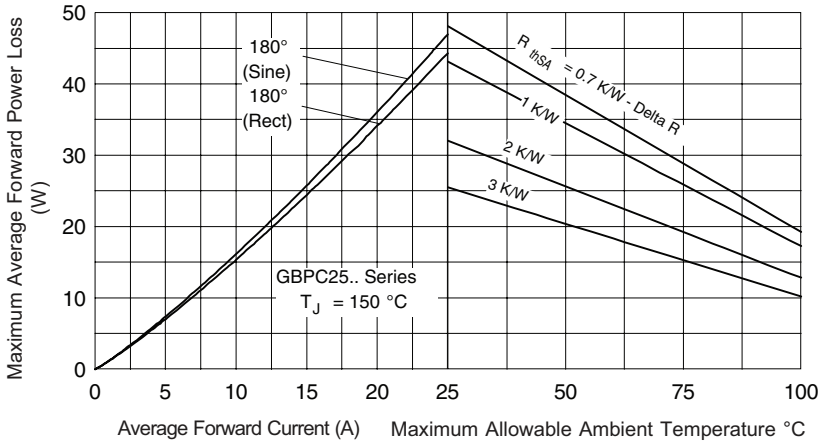


Fig. 3 - Total Power Loss Characteristics

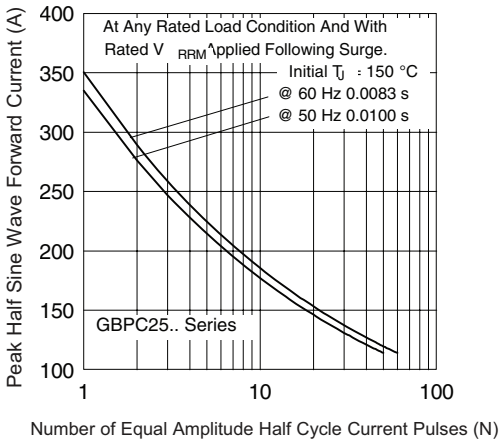


Fig. 4 - Maximum Non-Repetitive Surge Current

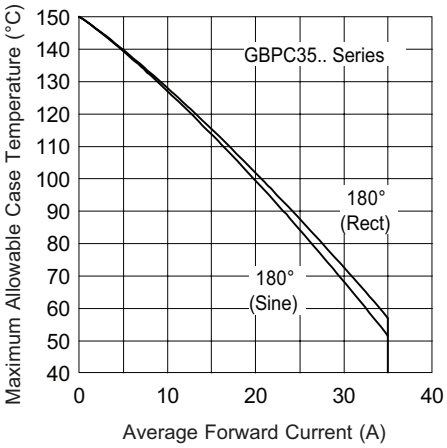


Fig. 6 - Current Ratings Characteristics

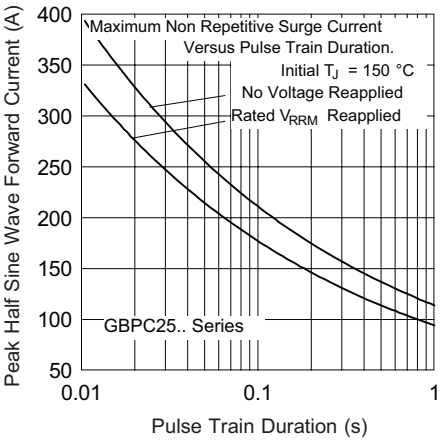


Fig. 5 - Maximum Non-Repetitive Surge Current

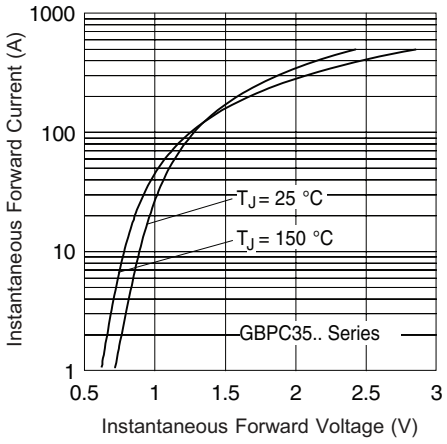


Fig. 7 - Forward Voltage Drop Characteristics

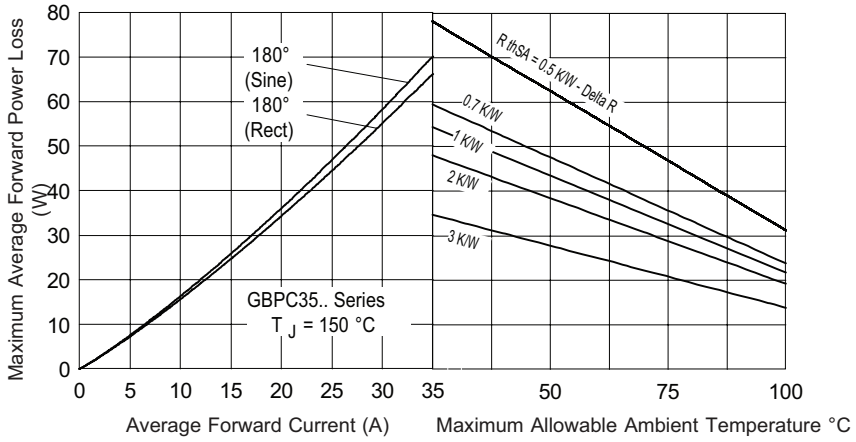


Fig. 8 - Total Power Loss Characteristics

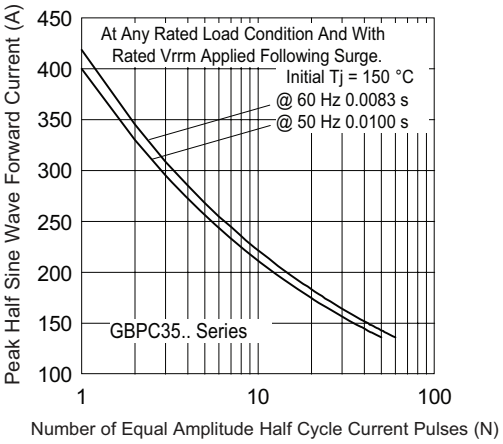


Fig. 9 - Maximum Non-Repetitive Surge Current

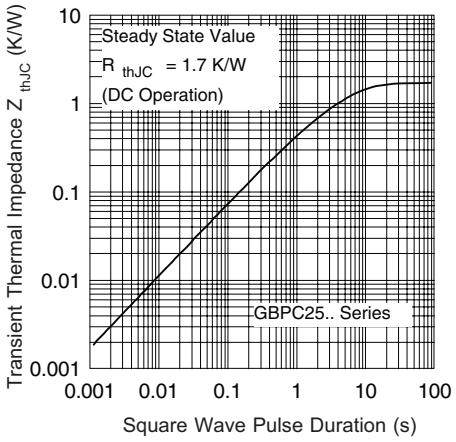


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

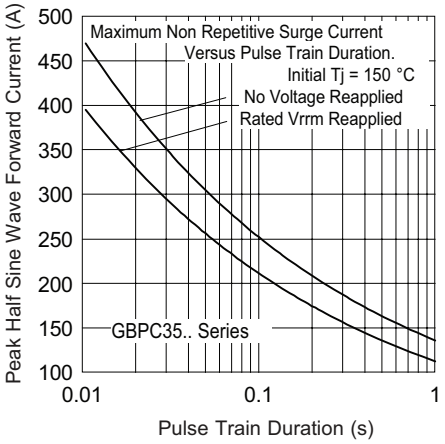


Fig. 10 - Maximum Non-Repetitive Surge Current

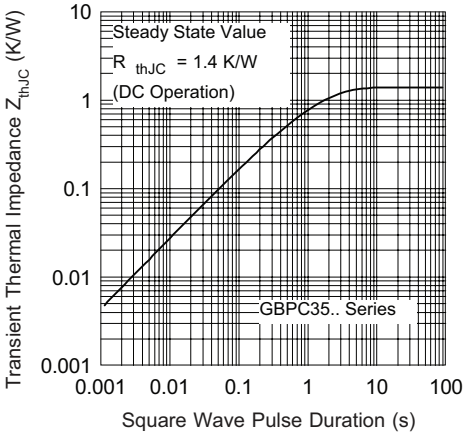


Fig. 12 - Thermal Impedance Z_{thJC} Characteristic

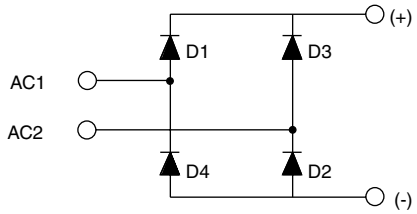
ORDERING INFORMATION TABLE

Device code

GBPC	35	12	A
1	2	3	4

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

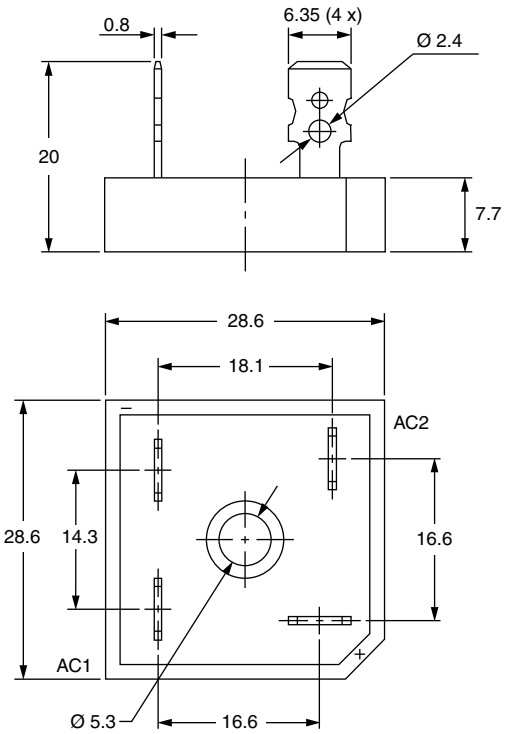
CIRCUIT CONFIGURATION



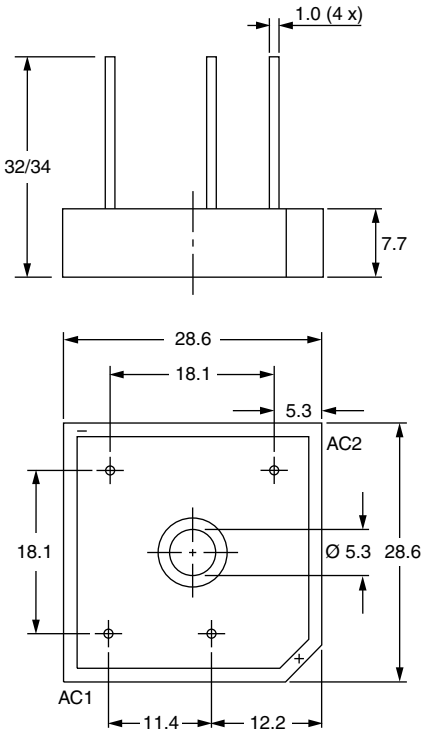
LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95331

GBPC

DIMENSIONS FOR GBPC...A in millimeters



DIMENSIONS FOR GBPC...W in millimeters



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