

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



RoHS
COMPLIANT

PRIMARY CHARACTERISTICS	
I_o	25 A, 35 A
V_{RRM}	200 V to 1200 V
Package	GBPC..A, GBPC..W
Circuit configuration	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 ² 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 ⁽¹⁾ VS-GBPC35..A ⁽¹⁾ 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

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

FORWARD CONDUCTION CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES GBPC25	VALUES 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					
		$t = 10$ ms	100 % V_{RRM} reapplied		335	400	
		$t = 8.3$ ms					
Maximum I^2t for fusing	I^2t	$t = 10$ ms	No voltage reapplied	Initial $T_J = T_J$ maximum	790	1130	A ² s
		$t = 8.3$ ms					
		$t = 10$ ms	100 % V_{RRM} reapplied		560	800	
		$t = 8.3$ ms					
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \leq t_x \leq 10$ ms, $V_{RRM} = 0$ V		7.9	11.3	kA ² √s	
Low level of threshold voltage	$V_{F(TO)1}$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, 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		
Low level forward slope resistance	r_{t1}	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum		8.2	4.852	mΩ	
High level forward slope resistance	r_{t2}	$(I > \pi \times I_{F(AV)})$, T_J maximum		6.8	3.867		
Maximum forward voltage drop	V_{FM}	$T_J = 25$ °C, $I_{FM} = I_{Favg}$ (arm)		1.1	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		VALUES GBPC25	VALUES 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
Maximum 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)

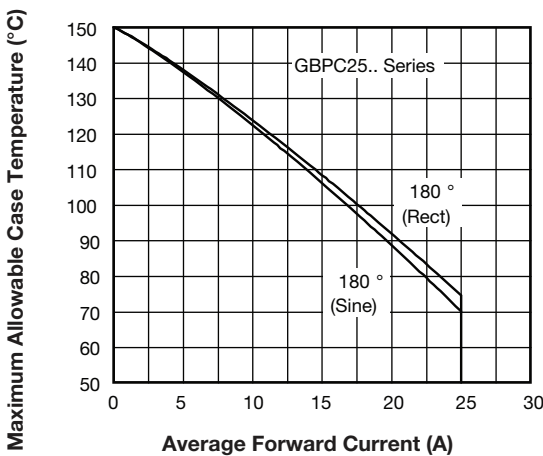


Fig. 1 - Current Ratings Characteristics

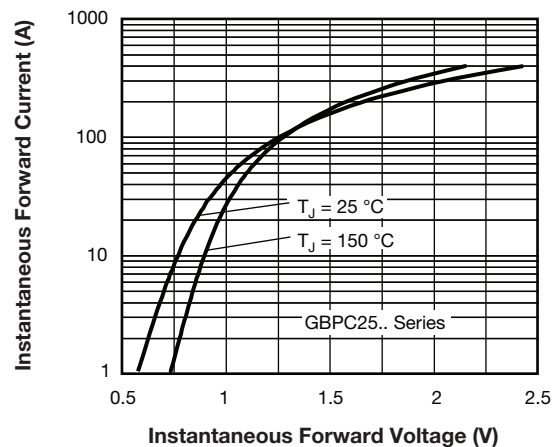


Fig. 2 - Forward Voltage Drop Characteristics

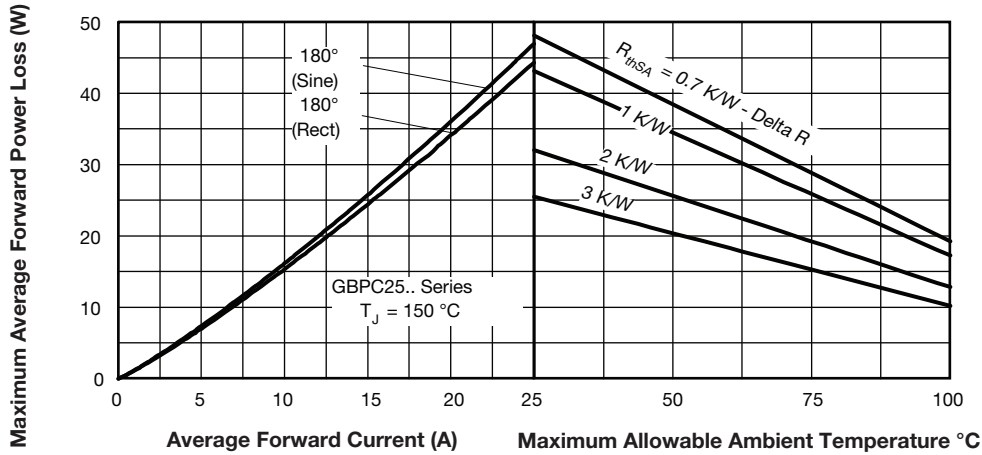


Fig. 3 - Total Power Loss Characteristics

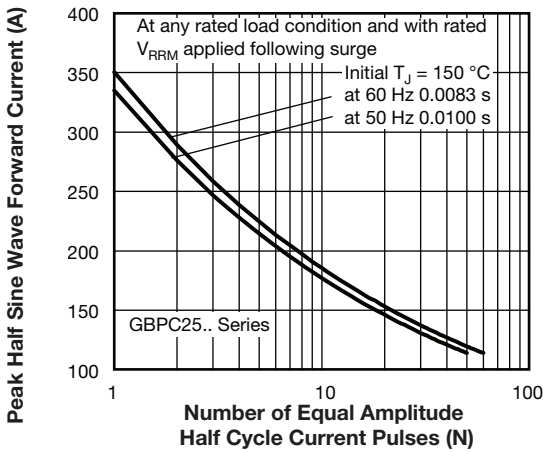


Fig. 4 - Maximum Non-Repetitive Surge Current

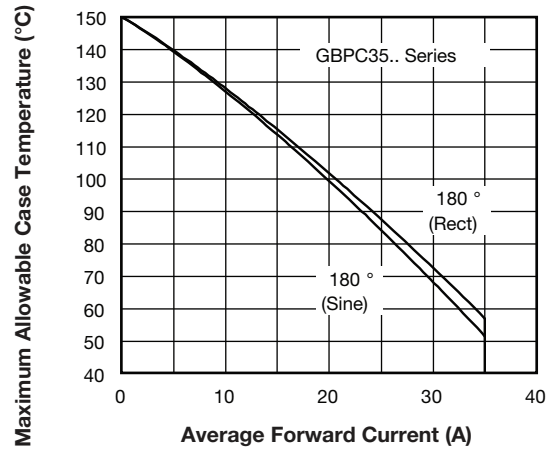


Fig. 6 - Current Ratings Characteristics

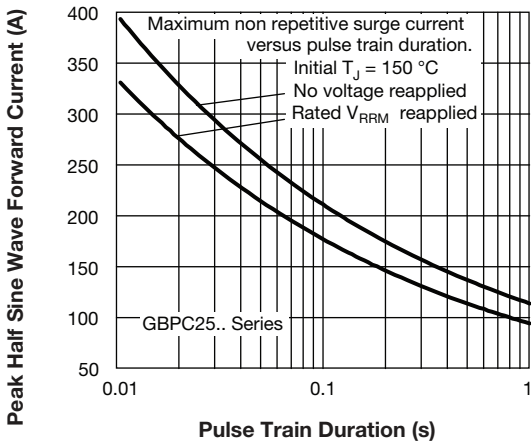


Fig. 5 - Maximum Non-Repetitive Surge Current

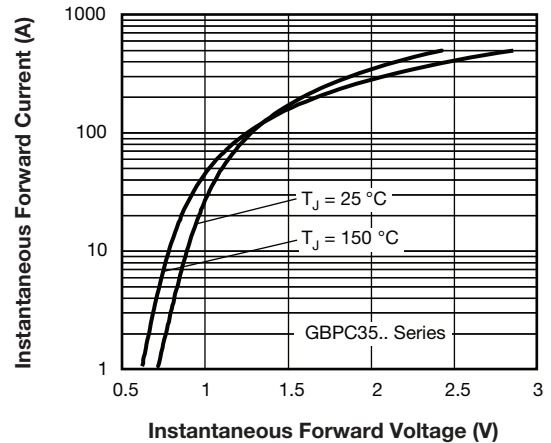


Fig. 7 - Forward Voltage Drop Characteristics

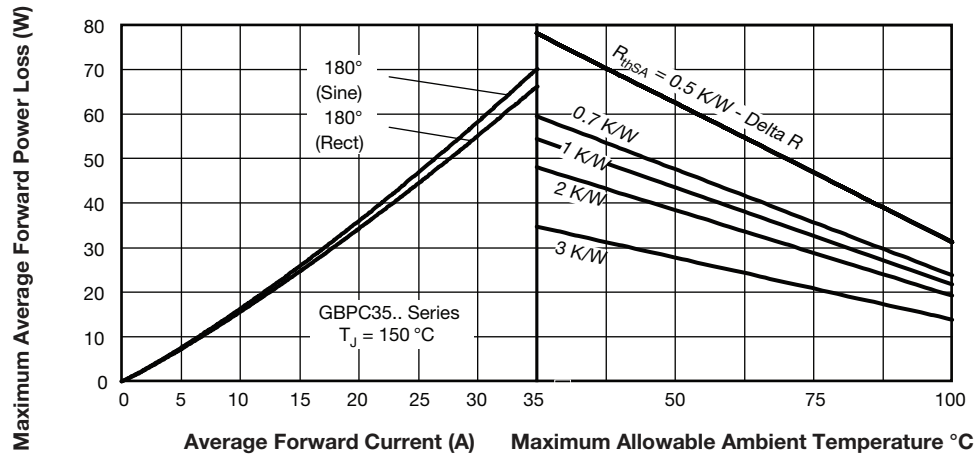


Fig. 8 - Total Power Loss Characteristics

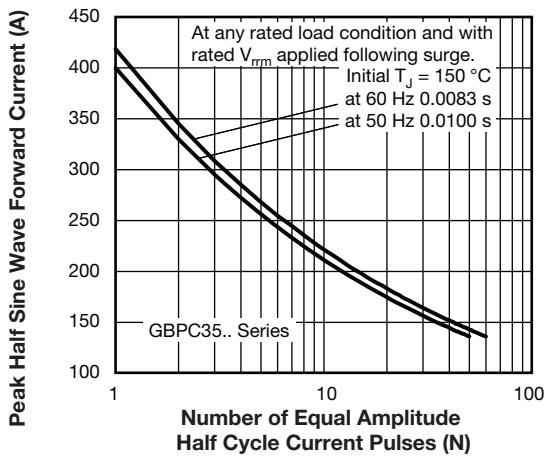


Fig. 9 - Maximum Non-Repetitive Surge Current

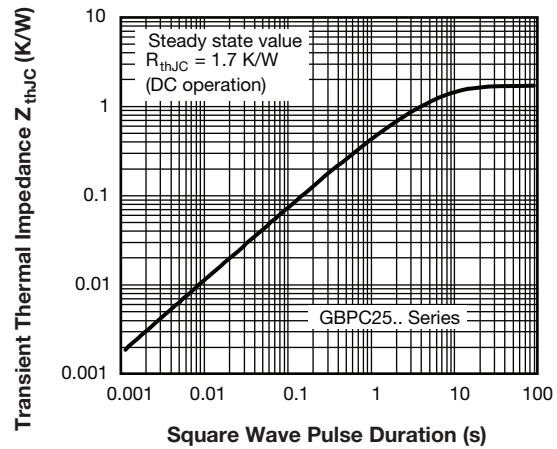


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

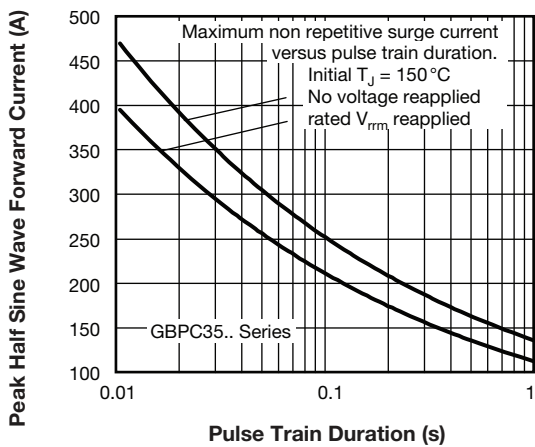


Fig. 10 - Maximum Non-Repetitive Surge Current

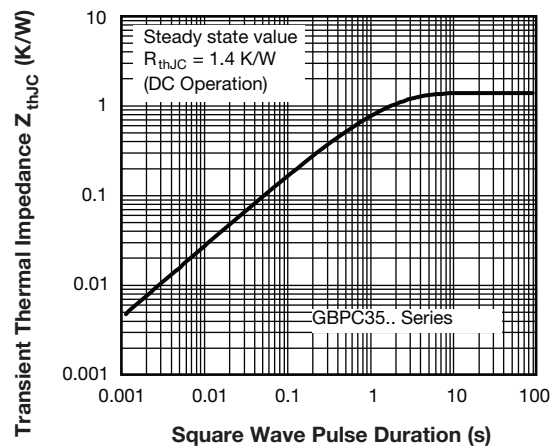
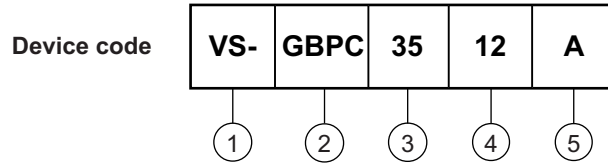


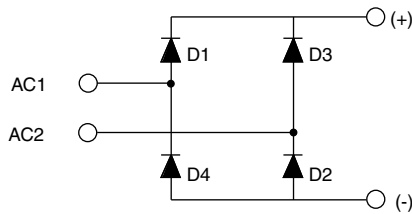
Fig. 12 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE



- 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	www.vishay.com/doc?95331
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