

# GBPC15005 THRU GBPC5010

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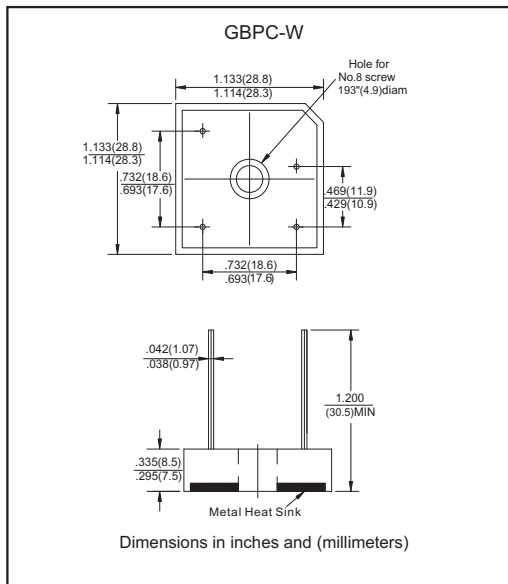
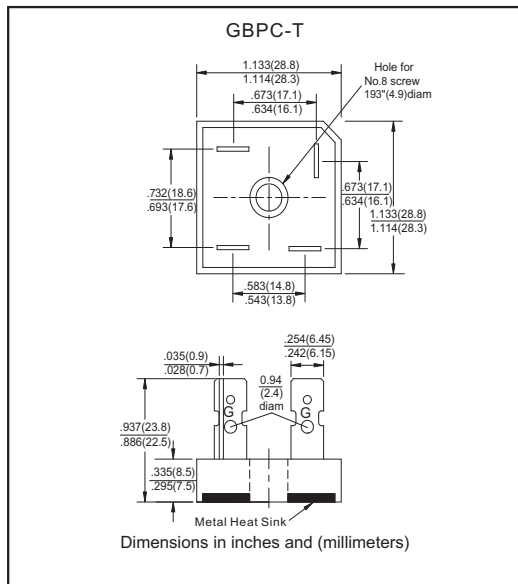
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# GBPC15005 THRU GBPC5010

15.0A ~ 50.0A Glass Passivated Single-Phase Bridge Rectifiers - 50V-1000V

## Package outline



## Features

- Surge overload 300 ~ 450 amperes peak
- Low forward drop voltage
- Integrally molded heatsink provides very low thermal Resistance for maximum heat dissipation
- Glass passivated chip junctions.
- Lead-free parts meet RoHS requirements.
- UL recognized file # E321971

## Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, GBPC case with heatsink
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on side body
- Mounting Torque: 20 in-lb (23cm-kg) max.
- Weight : GBPC-T, 0.63 ounce, 18 grams  
GBPC-W, 0.53 ounce, 15 grams

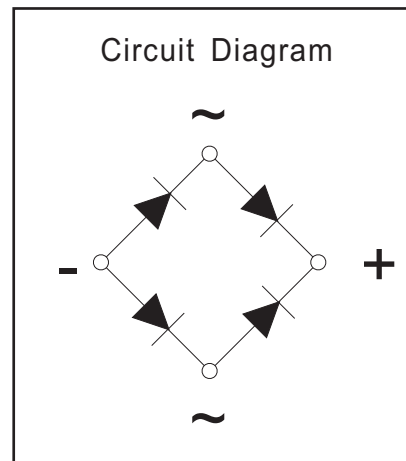
## Part Numbering

GBPCXX XX-X

Lead Types,  
T : faston terminals  
W : wire leads

Reverse Voltage,  
005: 50V 01: 100V 02: 200V  
04: 400V 06: 600V 08: 800V  
10: 1000V

Forward Rectified Output Current,  
15: 15.0A 25: 25.0A 35: 35.0A  
50: 50.0A



# GBPC15005 THRU GBPC5010

## Maximum ratings and electrical characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

CHARACTERISTICS	SYMBOL	GBPC	GBPC	GBPC	GBPC	GBPC	GBPC	GBPC	UNIT	
		15005	1501	1502	1504	1506	1508	1510		
		25005	2501	2502	2504	2506	2508	2510		
		35005	3501	3502	3504	3506	3508	3510		
		50005	5001	5002	5004	5006	5008	5010		
Maximum recurrent peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V	
Maximum RMS bridge input voltage	$V_{RMS}$	35	70	140	280	420	560	700	V	
Maximum average forward Rectified output current @ $T_c=55^\circ\text{C}$	$I_{F(AV)}$	GBPC 15	15	GBPC 25	25	GBPC 35	35	GBPC 50	50	A
Peak forward surge current 8.3ms single half sine-wave	$I_{FSM}$		300		350		400		450	A
Maximum forward voltage drop per element GBPC15 at $I_F=7.5\text{A}$ GBPC25 at $I_F=12.5\text{A}$ GBPC35 at $I_F=17.5\text{A}$ GBPC50 at $I_F=25.0\text{A}$	$V_F$	1.1							V	
Maximum reverse current at rated $T_J=25^\circ\text{C}$ DC blocking voltage per element $T_J=125^\circ\text{C}$	$I_R$	5.0 500							$\mu\text{A}$	
Operating junction temperature range	$T_J$	-55 to +150							$^\circ\text{C}$	
Storage temperature range	$T_{STG}$	-55 to +150							$^\circ\text{C}$	

## Rating and characteristic curves (GBPC15005 THRU GBPC5010)

FIG.1-MAXIMUM FORWARD SURGE CURRENT

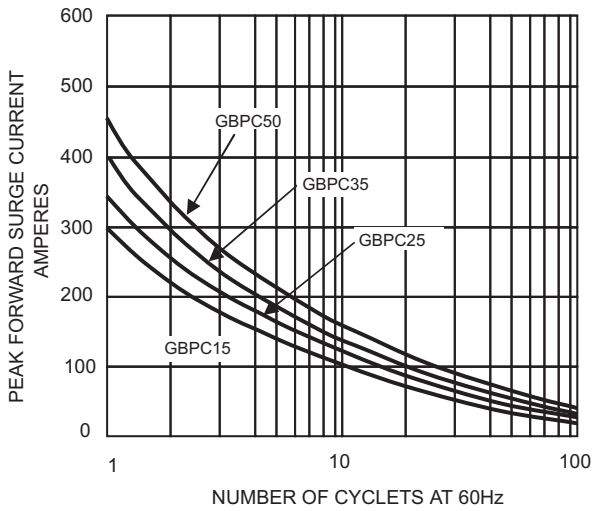


FIG.2- DERATING CURVE OUTPUT RECTIFIED CURRENT

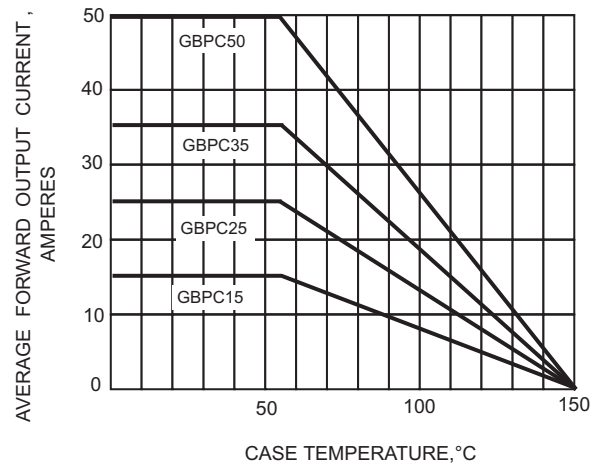


FIG.3-TYPICAL FORWARD CHARACTERISTICS

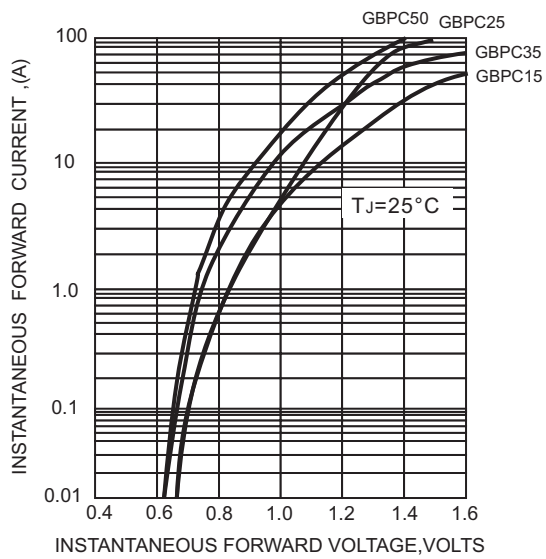
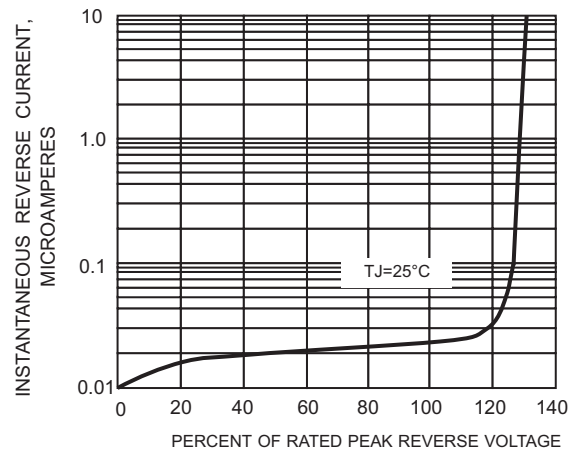


FIG.4-TYPICAL REVERSE CHARACTERISTICS



# GBPC15005 THRU GBPC5010

## Marking

Type number	Marking code
GBPCXX005	GBPCXX005
GBPCXX01	GBPCXX01
GBPCXX02	GBPCXX02
GBPCXX04	GBPCXX04
GBPCXX06	GBPCXX06
GBPCXX08	GBPCXX08
GBPCXX10	GBPCXX10

XX=15, 25, 35, or 50

## BULK PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
GBPC-T	50	203 * 203 * 44	435 * 215 * 260	500	9.2

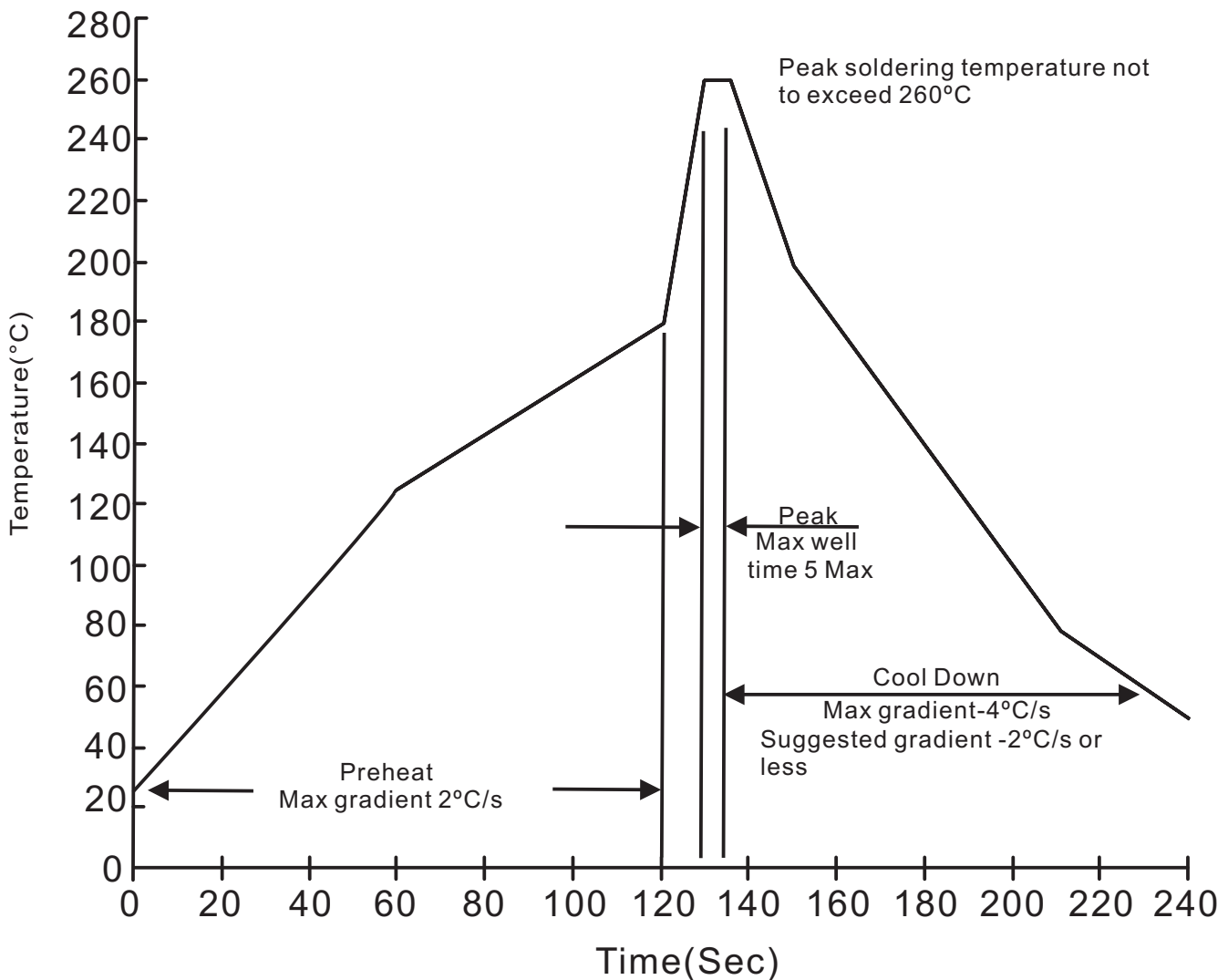
## TRAY PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / TRAY)	TRAY SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
GBPC-W	100	330 * 280 * 30	340 * 300 * 260	500	8.4

# GBPC15005 THRU GBPC5010

## Suggested thermal profiles for soldering processes

### 1. Lead free temperature profile wave-soldering



# GBPC15005 THRU GBPC5010

## High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2$ sec. immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$ , $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	$-55^\circ\text{C}$ to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at $175^\circ\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031