

GBU6A THRU GBU6M

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GBU6A THRU GBU6M

6.0A Glass Passivated Single-Phase Bridge Rectifiers 50V-1000V

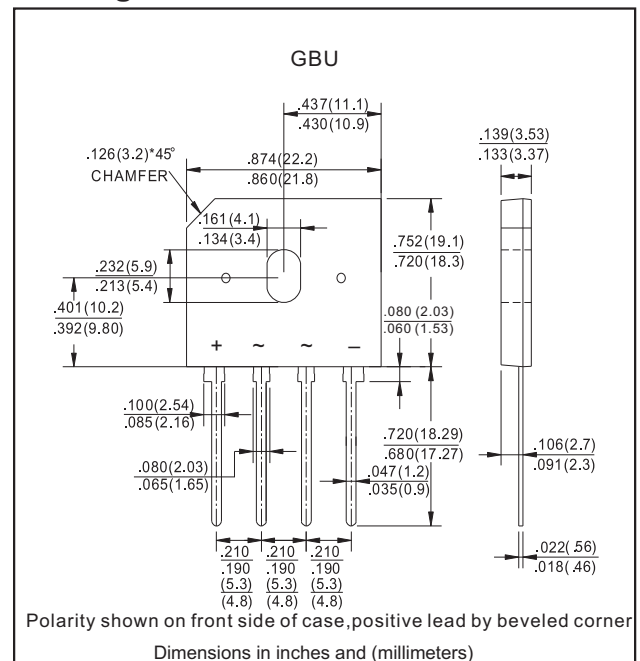
Features

- Surge overload ratings to 175 amperes peak
- Recommended for non-automatic applications
- Ideal for & save space on printed circuit board
- Applicable for automatic insertion
- Reliable low cost construction utilizing molded plastic technology results in inexpensive product
- Glass passivated chip junctions
- Lead-free parts meet RoHS requirements
- UL recognized file # E321971
- Suffix "-H" indicates Halogen free parts, ex. GBU6A-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, GBU
- Terminals : Solder plated, solderable per
MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 4.00 gram

Package outline



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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	(with heatsink Note 1) at $T_c=100^{\circ}\text{C}$ (without heatsink)	I_o			6.0 2.8	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	I_{FSM}			175	A
Reverse current per diode	$V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$	I_R			10.0	μA
	$V_R = V_{RRM} \quad T_J = 125^{\circ}\text{C}$				500	
I^2t Rating for fusing	$t < 8.3 \text{ ms}$	I^2t			127.1	A^2s
Typical junction capacitance per diode	Measured at 1.0MHz and applied reverse voltage of 4.0 VDC	C_J		50		pF
Typical thermal resistance	Junction to case	$R_{\theta JC}$		2.0		$^{\circ}\text{C/W}$
Storage temperature		T_{STG}	-55		+150	$^{\circ}\text{C}$

Note 1. Device mounted on 75mm*75mm*1.6mm Cu plate heatsink.

SYMBOLS	V_{RRM}^{*1} (V)	V_{RMS}^{*2} (V)	V_R^{*3} (V)	V_F^{*4} (V)	Operating temperature $T_J, (^{\circ}\text{C})$
GBU6A	50	35	50	1.10	-55 to +150
GBU6B	100	70	100		
GBU6D	200	140	200		
GBU6G	400	280	400		
GBU6J	600	420	600		
GBU6K	800	560	800		
GBU6M	1000	700	1000		

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage per diode@ $I_F=3.0\text{A}$

Rating and characteristic curves (GBU6A THRU GBU6M)

Fig.1 - Forward Current Derating Curve

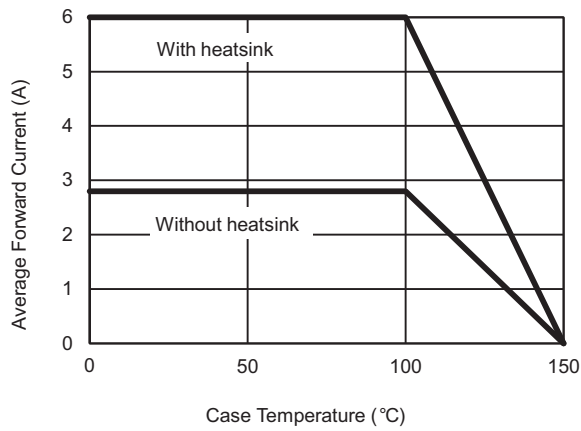


Fig.2 - Maximum Non-Repetitive Surge Current

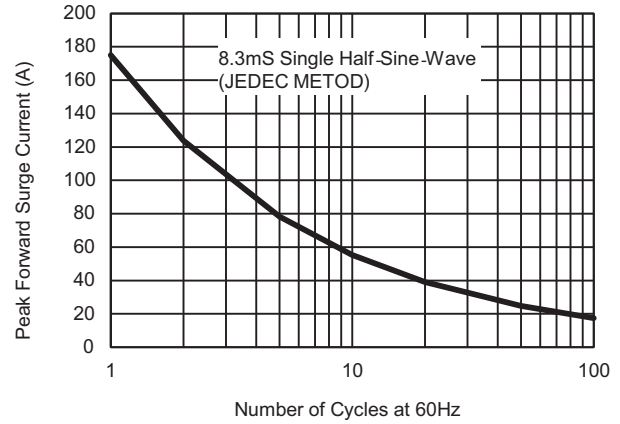


Fig.3 - Typical Reverse Characteristics

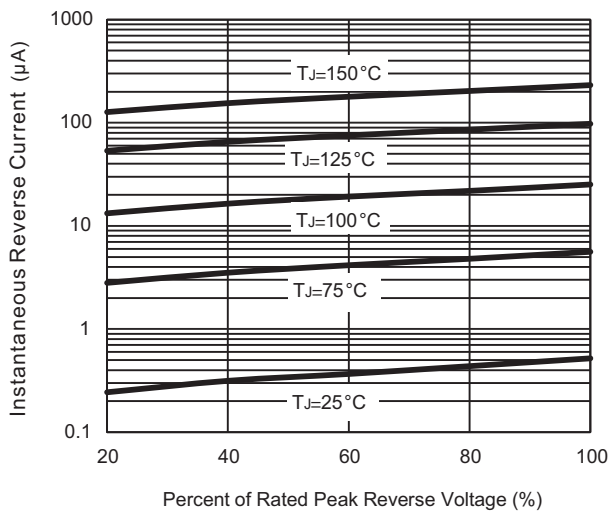


Fig.4 - Typical Forward Characteristics

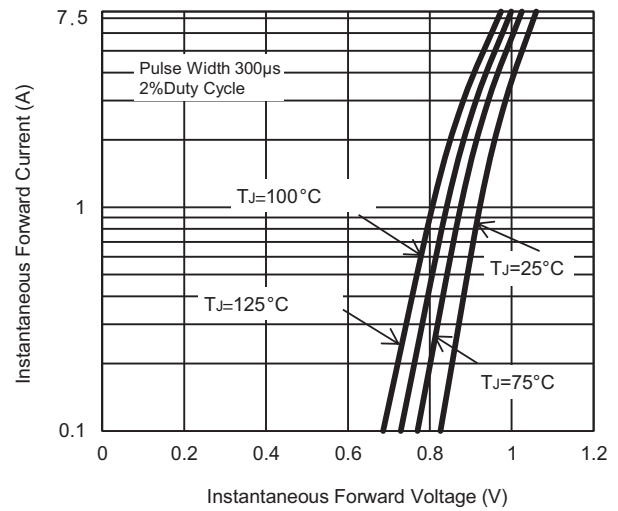
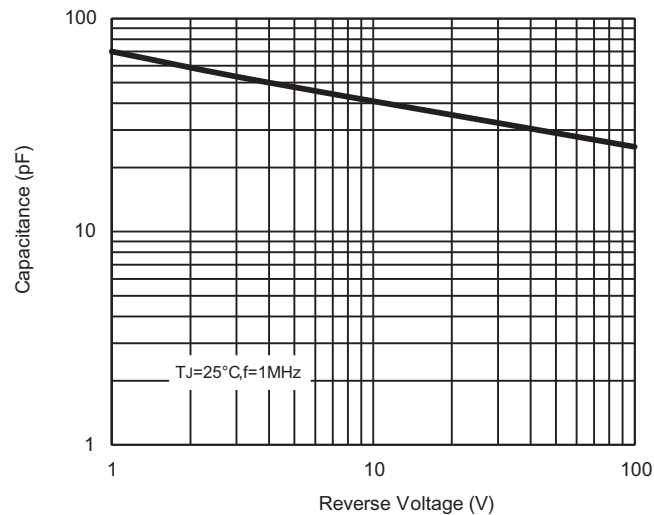
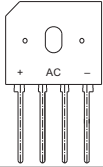
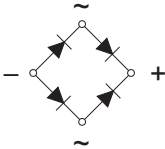


Fig.5 - Typical Junction Capacitance



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Pinning information

Simplified outline	Symbol
	

Marking

Type number	Marking code
GBU6A	GBU6A
GBU6B	GBU6B
GBU6D	GBU6D
GBU6G	GBU6G
GBU6J	GBU6J
GBU6K	GBU6K
GBU6M	GBU6M

Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
GBU	20	474*42*7	496*225*90	1,000	6.5

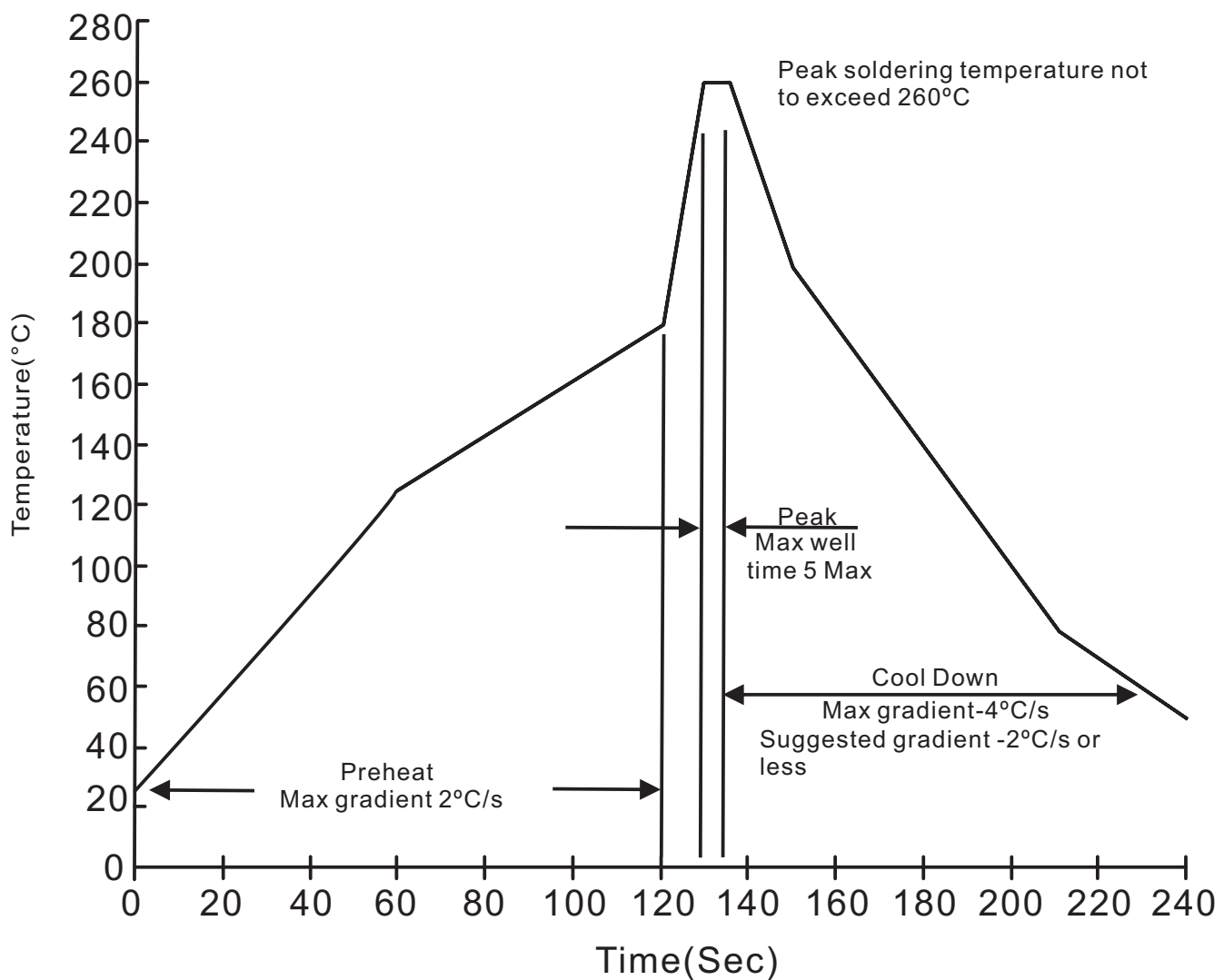
BULK PACKING

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)
GBU	800	350 * 337 * 44	375 * 360 * 213	3,200	16.9

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Suggested thermal profiles for soldering processes

1. Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$ 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°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°C for 1000 hrs.	MIL-STD-750D METHOD-1031