

## 4.0A Glass Passivated Single-Phase Bridge Rectifiers-50-1000V

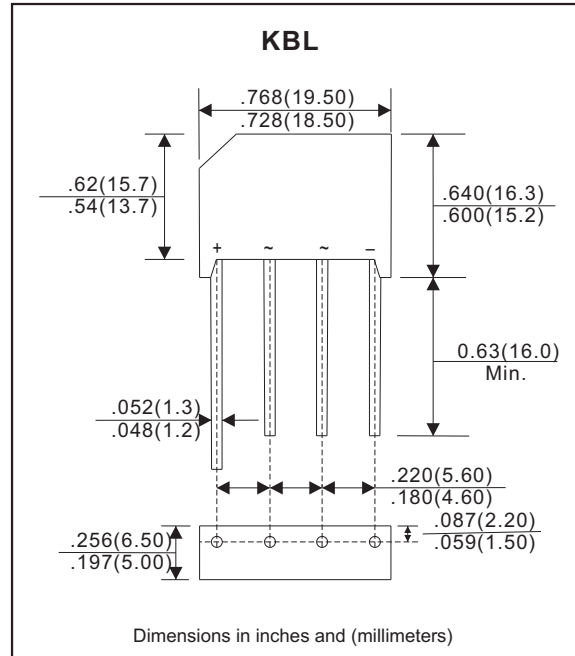
### Features

- Surge overload ratings to 125 amperes peak
- Ideal for printed circuit board
- Lead-free parts for green partner, meet RoHS requirements
- UL recognized file # E321971.

### Mechanical data

- Case: Molded plastic KBL case
- Epoxy: UL94-V0 rated flame retardant
- Terminals: Solderable per MIL-STD-750 Method 2026
- Polarity: As marked
- Mounting Position: Any

### 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	at (Note1)	$I_O$			4.0	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	$I_{FSM}$			125	A
Reverse current	$V_R = V_{RRM} T_J = 25^{\circ}\text{C}$	$I_R$			5.0	uA
	$V_R = V_{RRM} T_J = 125^{\circ}\text{C}$				500	
$I^2t$ Rating for fusing	$t < 8.3 \text{ ms}$	$I^2t$			65	$\text{A}^2\text{s}$
Storage temperature		$T_{STG}$	-65		+175	$^{\circ}\text{C}$

Note 1: Mounting conditions 0.5" lead length maximum.

SYMBOLS	$V_{RRM}^{*1}$ (V)	$V_{RMS}^{*2}$ (V)	$V_R^{*3}$ (V)	$V_F^{*4}$ (V)	Operating temperature $T_J$ ( $^{\circ}\text{C}$ )
KBL4005	50	35	50	1.10	-55 to +150
KBL401	100	70	100		
KBL402	200	140	200		
KBL404	400	280	400		
KBL406	600	420	600		
KBL410	1000	700	1000		

\*1 Repetitive peak reverse voltage

\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage @ $I_F=4.0\text{A}$

### Rating and characteristic curves

FIG.1-DERATING CURVE  
OUTPUT RECTIFIED CURRENT

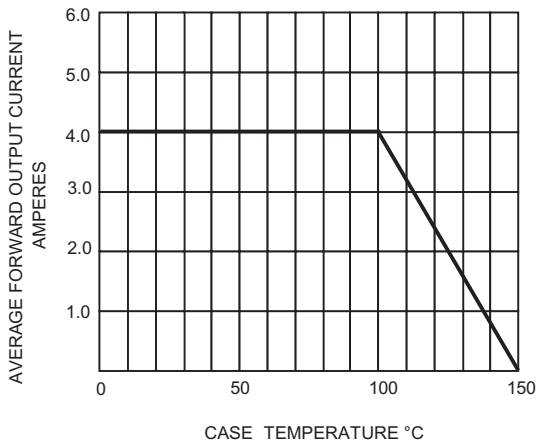


FIG.2-MAXIMUM FORWARD SURGE CURRENT

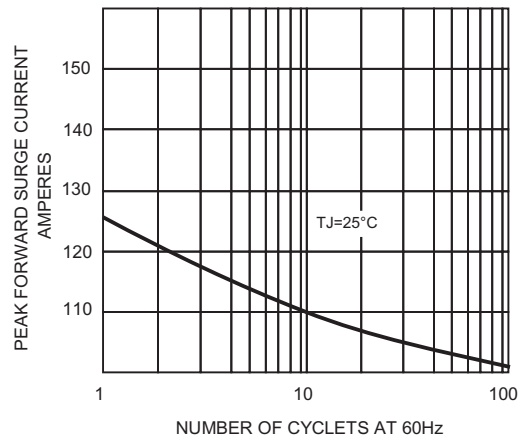


FIG.3-TYPICAL FORWARD CHARACTERISTICS

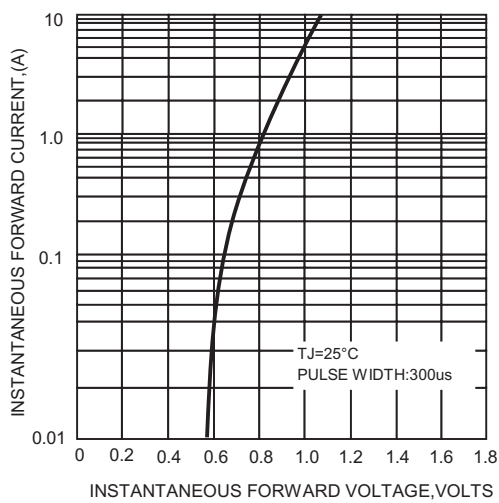
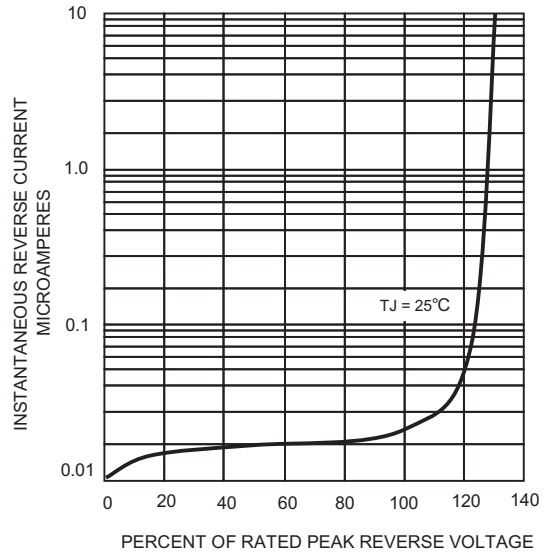
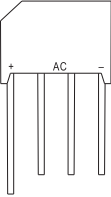
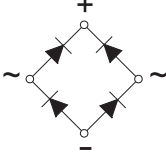


FIG.4- TYPICAL REVERSE CHARACTERISTICS



### Pinning information

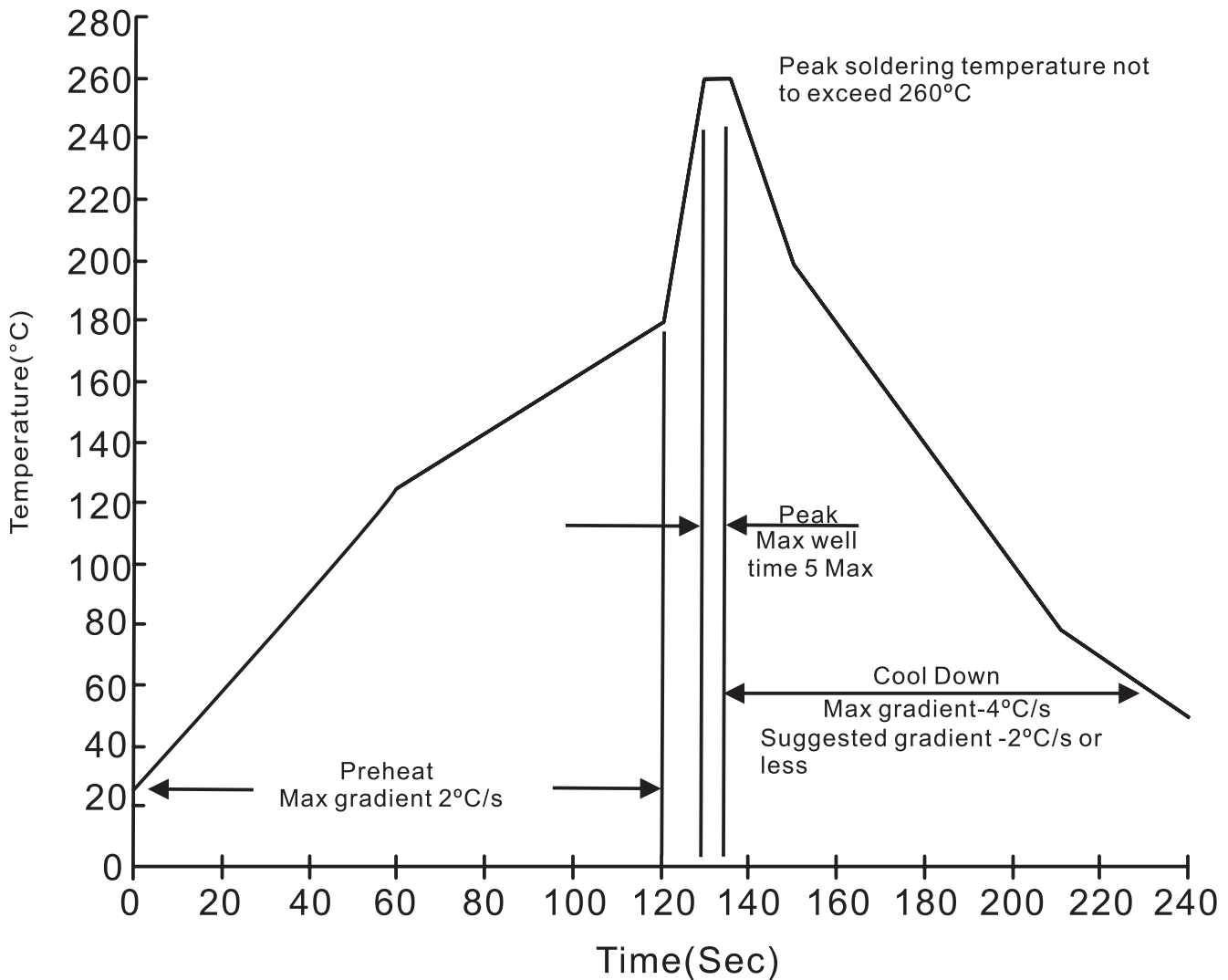
Simplified outline	Symbol
	

### Marking

Type number	Marking code
KBL4005	KBL4005
KBL401	KBL401
KBL402	KBL402
KBL404	KBL404
KBL406	KBL406
KBL408	KBL408
KBL410	KBL410

## Suggested thermal profiles for soldering processes

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



### 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. Thermal Shock	$0^\circ\text{C}$ for 5 min. rise to $100^\circ\text{C}$ for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at $175^\circ\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031

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