

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

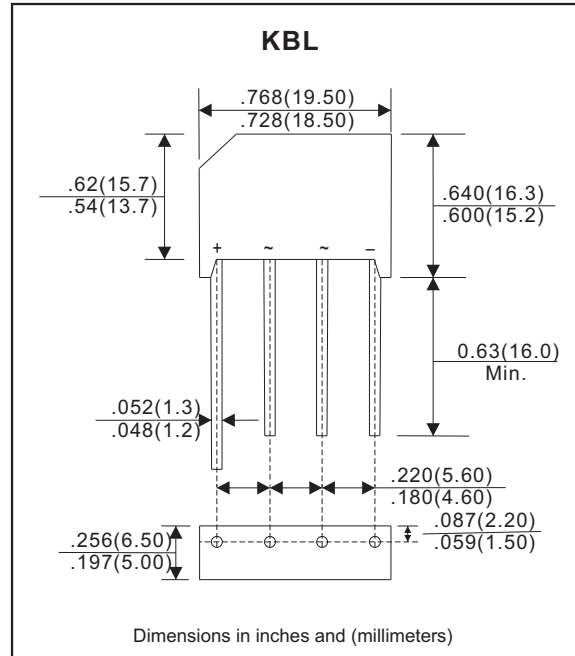
Features

- 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	A^2s
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		
KBL408	800	560	800		
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

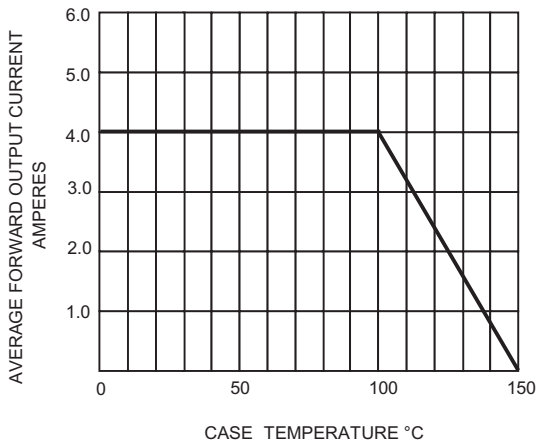


FIG.2-MAXIMUM FORWARD SURGE CURRENT

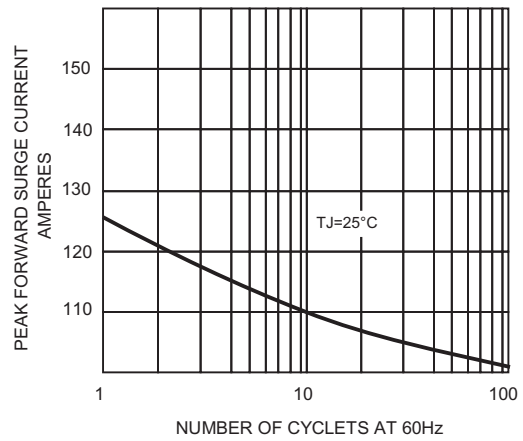


FIG.3-TYPICAL FORWARD CHARACTERISTICS

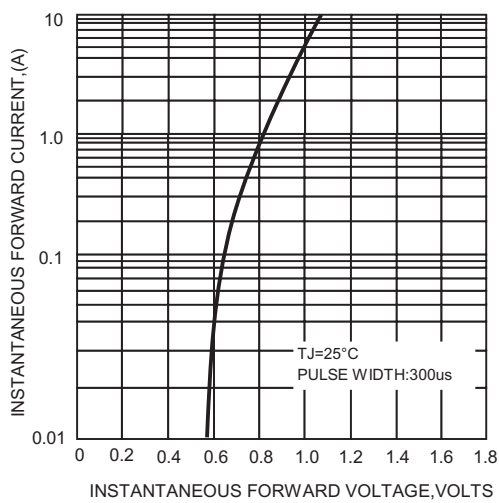
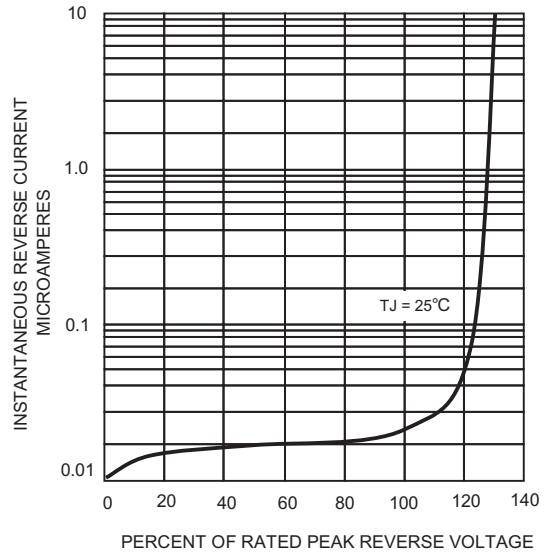
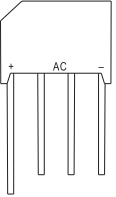
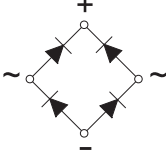


FIG.4- TYPICAL REVERSE CHARACTERISTICS



Pinning information

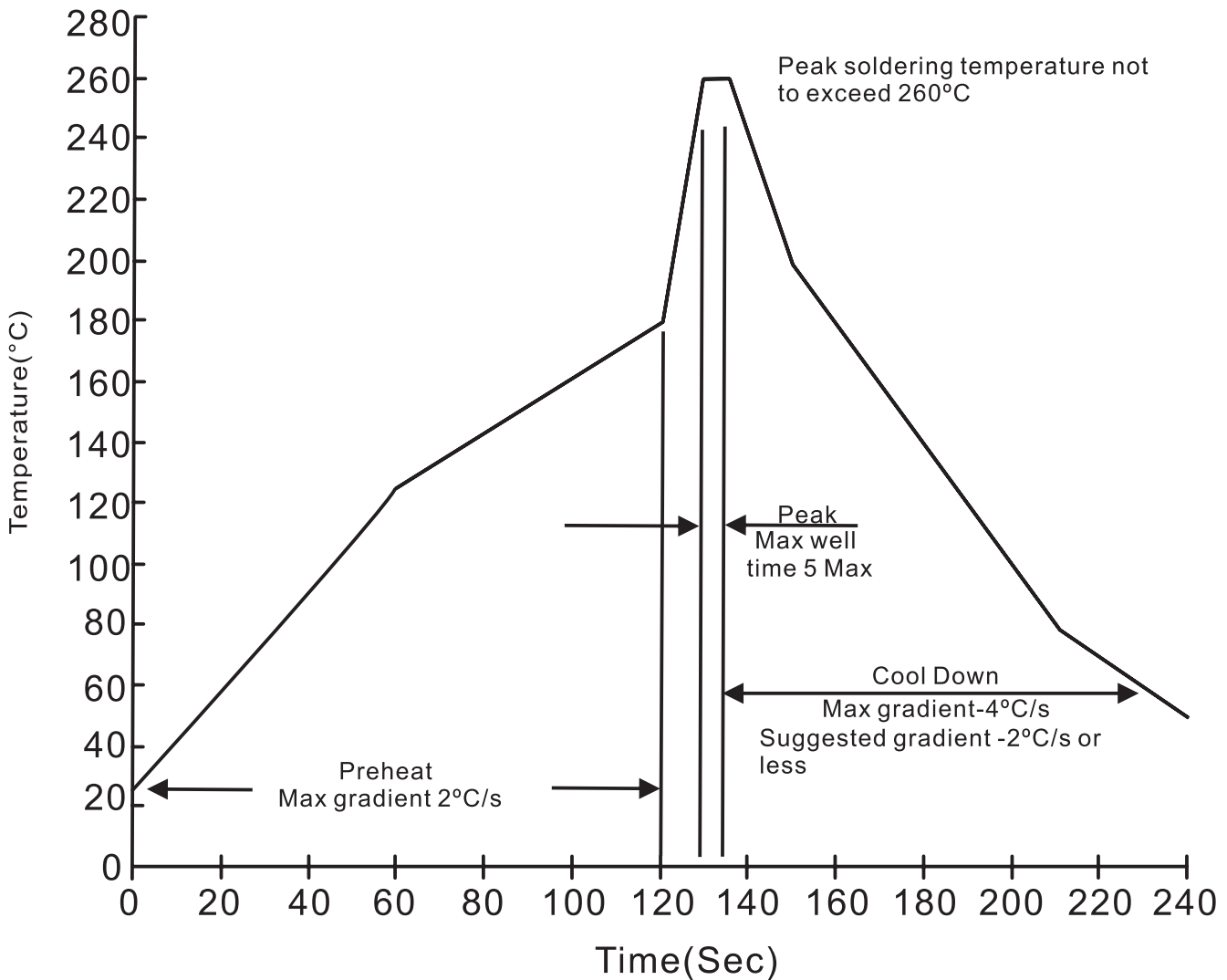
Simplified outline	Symbol
	

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±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°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°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°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°C for 1000 hrs.	MIL-STD-750D METHOD-1031