

KBU4005 THRU KBU410

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings and Electrical characteristics	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Tube packing & Bulk packing.....	4
Suggested thermal profiles for soldering processes.....	5
High reliability test capabilities.....	6

KBU4005 THRU KBU410

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

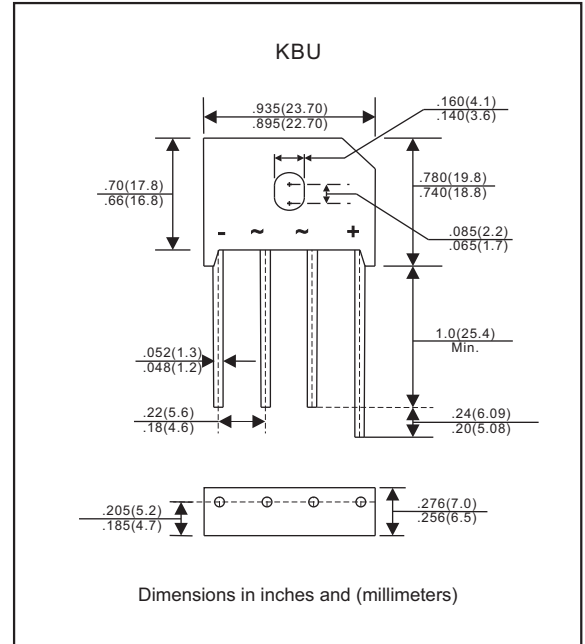
Features

- Surge overload rating 150 amperes peak
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- Plastic Passivated chip junctions.
- Lead-free parts meet RoHS requirements
- UL recognized file # E321971
- Suffix "-H" indicates Halogen-free part, ex. KBU4005-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, KBU
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 8.00 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	at $T_c=100^{\circ}\text{C}$	I_o			4.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC method)	I_{FSM}			150	A
Reverse current	$V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$	I_R			10	μA
	$V_R = V_{RRM} \quad T_J = 100^{\circ}\text{C}$				100	
I^2t Rating for fusing	$t < 8.3\text{ms}$	I^2t			94	A^2s
Typical Junction capacitance per element	Measured at 1.0MHz and applied reverse voltage of 4.0 VDC	C_J		110		pF
Storage temperature		T_{STG}	-55		+150	$^{\circ}\text{C}$

SYMBOLS	V_{RRM}^{*1} (V)	V_{RMS}^{*2} (V)	V_R^{*3} (V)	V_F^{*4} (V)	Operating temperature $T_J, (^{\circ}\text{C})$
KBU4005	50	35	50	1.0	-55 to +150
KBU401	100	70	100		
KBU402	200	140	200		
KBU404	400	280	400		
KBU406	600	420	600		
KBU408	800	560	800		
KBU410	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 (KBU4005 THRU KBU410)

Fig. 1 - Forward Current Derating Curve

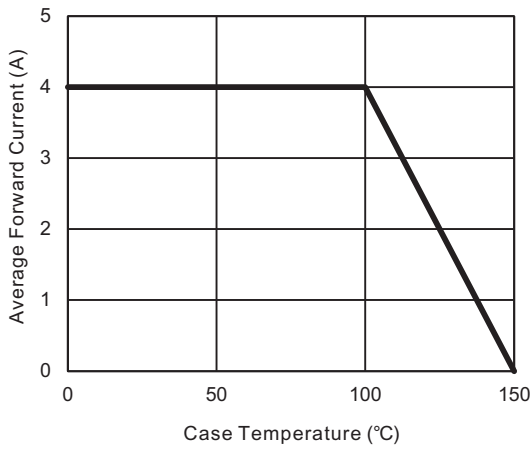


Fig. 2 - Maximum Non-Repetitive Surge Current

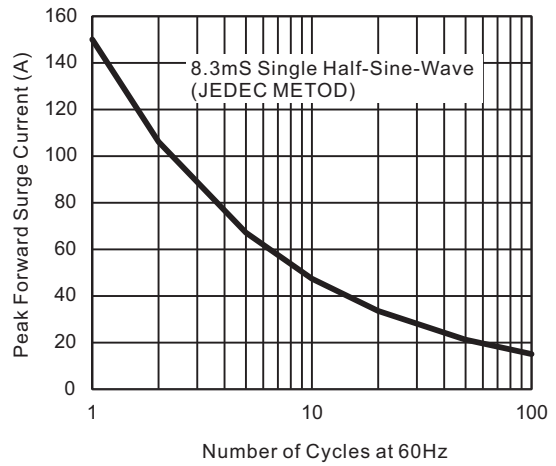


Fig. 3 - Typical Reverse Characteristics

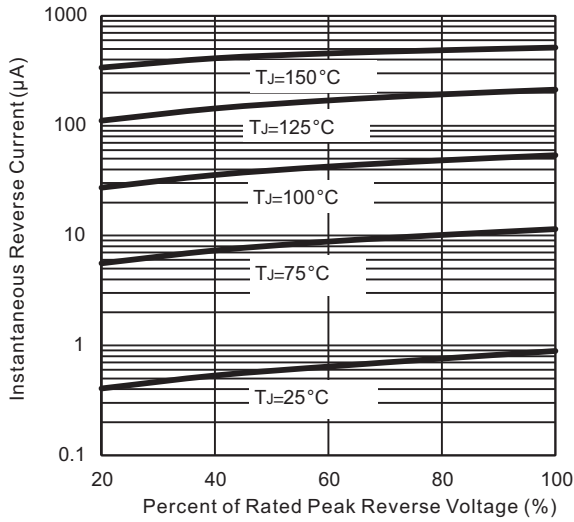


Fig. 4 - Typical Forward Characteristics

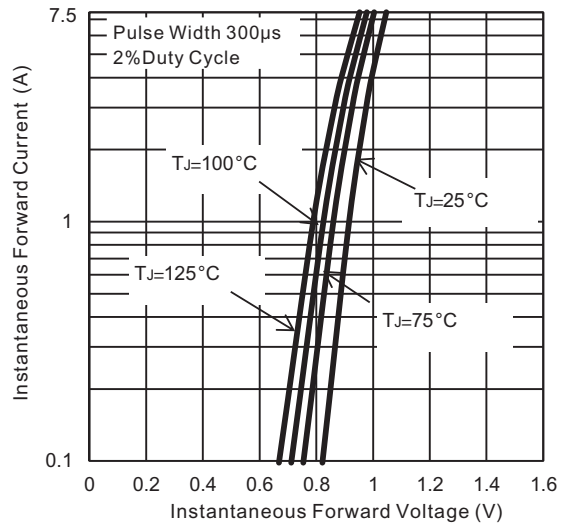
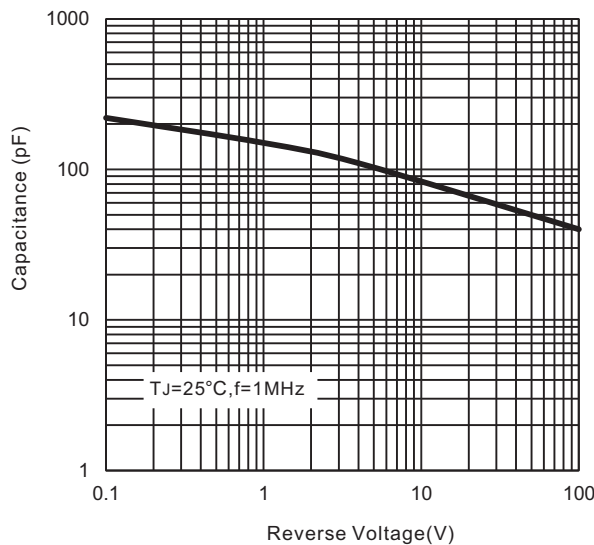
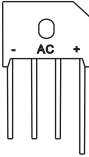
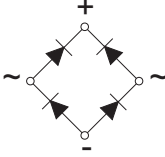


Fig. 5 - Typical Junction Capacitance



KBU4005 THRU KBU410

Pinning information

Simplified outline	Symbol
	

Marking

Type number	Marking code
KBU4005	KBU4005
KBU401	KBU401
KBU402	KBU402
KBU404	KBU404
KBU406	KBU406
KBU408	KBU408
KBU410	KBU410

Tube packing

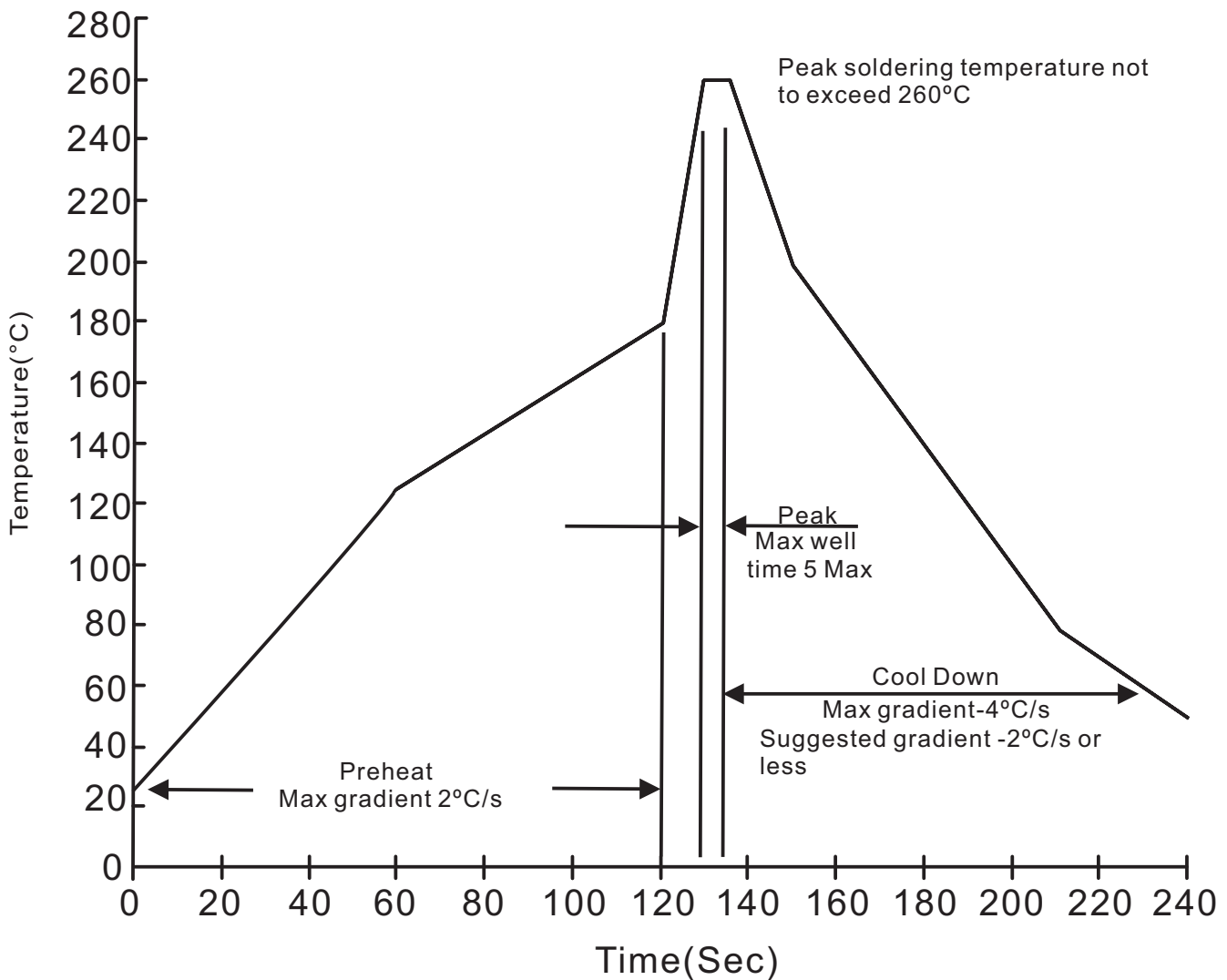
PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
KBU	20	488*55.2*9.5	400	510*110*125	530*240*285	1,600	19.5

Bulk packing

PACKAGE	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
KBU	400	230*230*49	485*240*172	2,400	18.6

KBU4005 THRU KBU410

1. Lead free temperature profile wave-soldering



KBU4005 THRU KBU410

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. 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