

**GENERAL DESCRIPTION**

Suitable for AC-to-DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

FEATURES

- Rated at 1000V PRV
- Compact, thin profile package design
- Ideal for SMT manufacturing
- Reliable robust construction
- UL recognized file#E364304

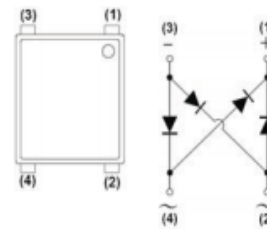
MECHANICAL DATA

- Molding compound meets UL 94 V-0 flammability rating, Halogen-free, RoHS-compliant, and commercial grade
- Polarity indicator: As marked on body
- Marking : MSB310
- Weight: 216 mg

REVERSE VOLTAGE – 1000 Volts
FORWARD CURRENT – 3.0 Ampere



Pin Assignment



Maximum Ratings & Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Limit	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	1000	V
Maximum DC Blocking Voltage	V_{DC}	1000	V
Maximum Average Forward Rectified Current @ $T_C = 120^\circ\text{C}$	$I_{(AV)}$	3.0	A
Peak Forward Surge Current 8,3ms single half sine-wave	I_{FSM} @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	100 80	A
Peak Forward Surge Current 1,0ms single half sine-wave	I_{FSM} @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	200 160	A
$I^2 t$ Rating for fusing ($1\text{ms} < t < 8,3\text{ms}$)	$I^2 t$	26.56	A^2S
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ.	Max	Unit
Maximum Forward Voltage	@ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$I_F = 1.5\text{A}$	V_F	-- 0.80	1.02 --	V
Maximum Forward Voltage	@ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$I_F = 3.0\text{A}$	V_F	-- 0.88	1.1 --	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	@ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$V_R = 1000\text{V}$	I_R	--	5 500	μA
Typical junction capacitance per element	Note(1)	C_J	--	35	--	pF

Thermal Characteristics

Characteristics	Symbol	Min	Typ.	Max	Unit
Typical thermal resistance (Note 2)	$R_{\theta JC}$	--	8	--	$^\circ\text{C/W}$
	$R_{\theta JL}$	--	15	--	
	$R_{\theta JA}$	--	25	--	

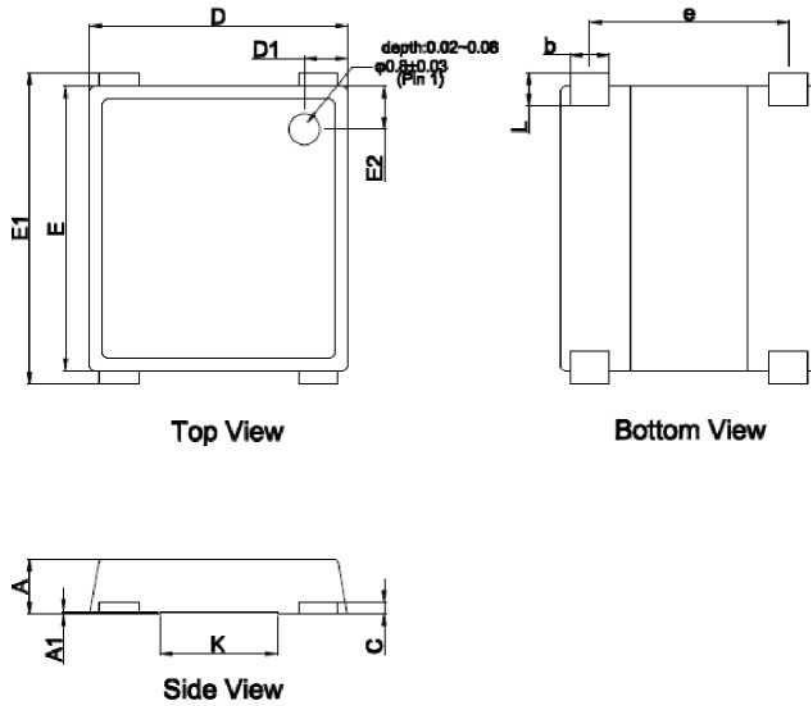
Note :

- (1) Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
- (2) Thermal Resistance test performed in accordance with JESD-51. Unit mounted on 15 mm*12 mm*1.6 mm AL pad attach 195 mm*110 mm*10 mm steel plate

REV.2, Jul-2017, KBDA41



Package Dimension



MSBL			
Dim.	Min.	Typ.	Max.
A	1.30	1.40	1.50
A1	0.04	0.06	0.08
C	0.27	0.30	0.40
D	6.50	6.60	6.70
D1	0.95	1.10	1.25
E	7.20	7.30	7.40
E1	8.20	8.50	8.80
E2	0.95	1.10	1.25
L	0.90	1.10	1.15
b	0.95	1.00	1.15
e	5.00	5.10	5.20
K	2.90	3.00	3.10

All dimensions in millimeter



FIG.1-FORWARD CURRENT DERATING CURVE

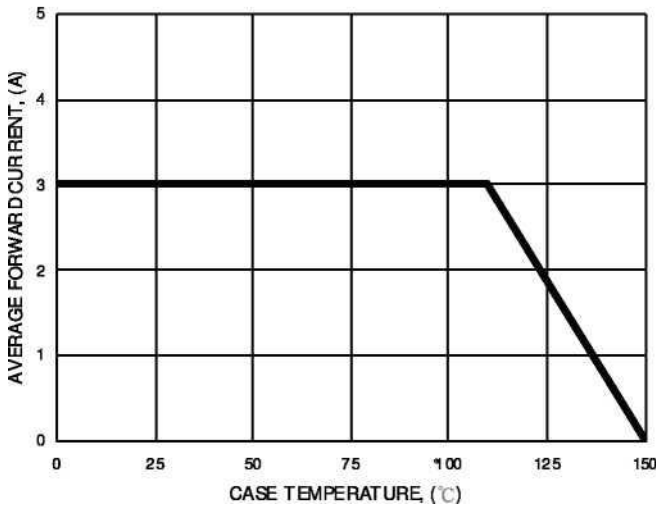


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

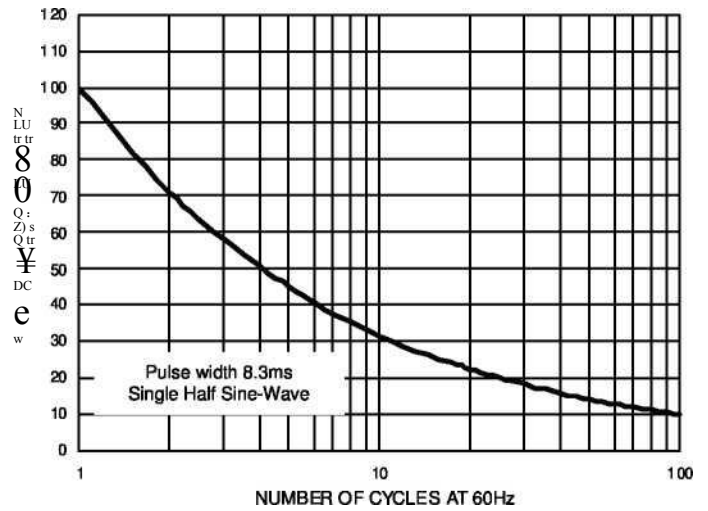


FIG.3- TYPICAL FORWARD CHARACTERISTICS

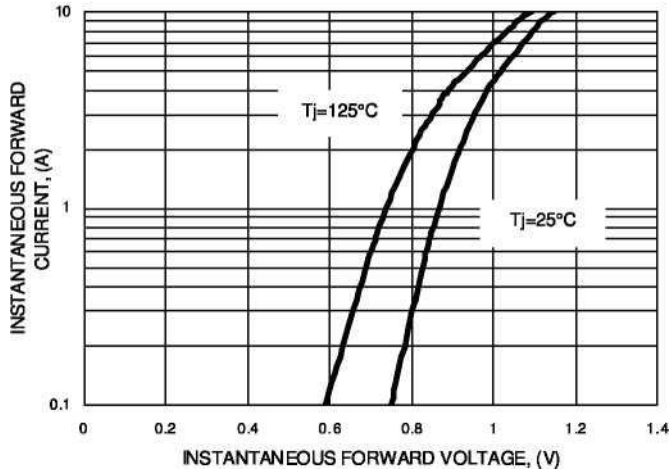


FIG.4-TYPICAL JUNCTION CAPACITANCE

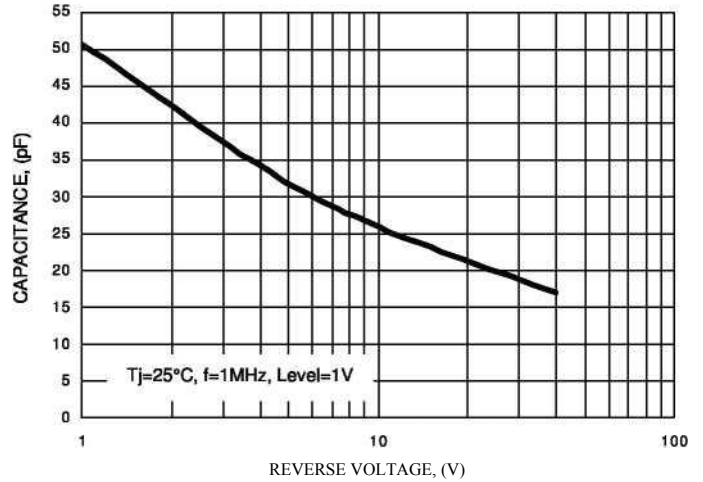


FIG.5- TYPICAL REVERSE CHARACTERISTICS

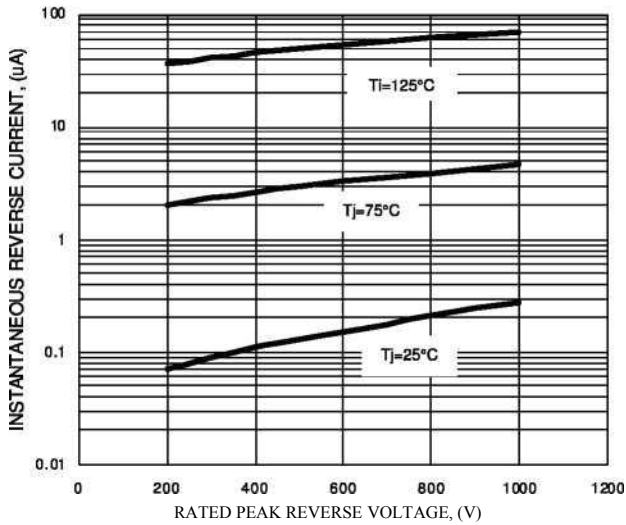
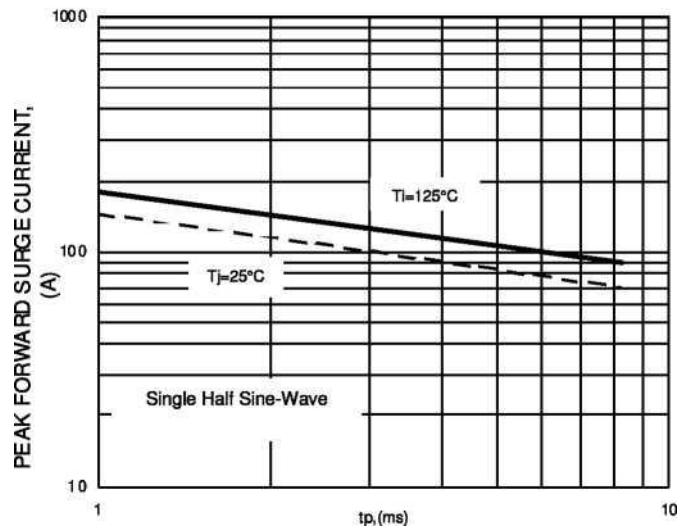


FIG.6- NON-REPETITIVE SURGE CURRENT





Typical IR Reflow Soldering Thermal Profile

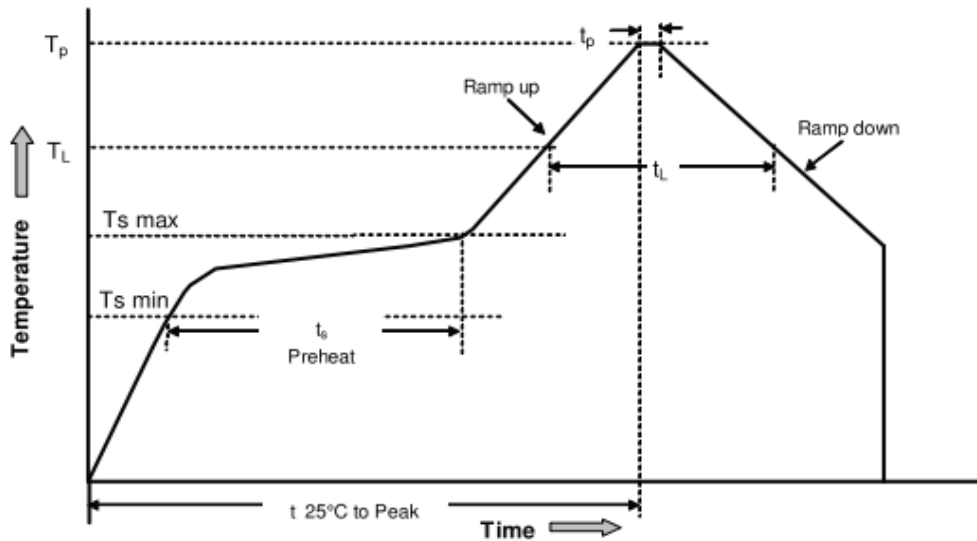


Table 1- Reflow profile

Reflow condition	Sn-Pb assembly	Pb-free assembly
Average ramp-up rate (Liquidus Temperature (TL) to Peak)	3 °C/second max.	3 °C/second max.
Preheat		
--Temperature Min, Ts (Min)	100 °C	150 °C
--Temperature Max, Ts (Max)	150 °C	200 °C
--Time (min to max, ts)	60-120 seconds	60-180 seconds
Ts(max) to TL		3 °C/second max.
- Ramp-up Rate		
Time maintained above:		
--Temperature(TL)	183 °C	217 °C
--Time(tL)	60-150 seconds	60-150 seconds
Peak Temperature (Tp)	240 +0/-5 °C	260 +0/-5 °C
Time within 5 °C of actual Peak Temperature(tp)	10-30 seconds	20-40 seconds
Ramp-down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature.	6 minutes max.	8 minutes max.

Note: All temperatures refer to topside of the package, measured on the package body surface



注意事项

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3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
4. 本说明书如有版本变更不另外告知

NOTE

1. Shenzhen Huatianwei Electronics co., Ltd sales its product either through direct sales or sales agent , thus, for customers, when ordering , please check with our company.
2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Shenzhen Huatianwei Electronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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