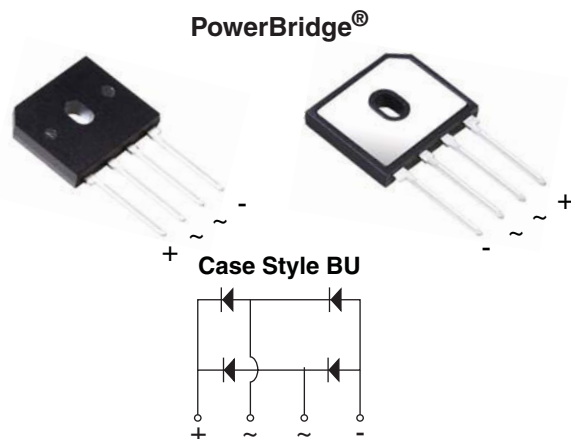


Enhanced PowerBridge[®] Rectifiers

* Tested to UL standard for safety electrically isolated semiconductor devices. UL 1557 4th edition.
Dielectric tested to maximum case, storage and junction temperature to 150 °C to withstand 1500 V.
Epoxy meets UL 94 V-0 flammability rating.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	10 A
V_{RRM}	600 V, 800 V, 1000 V
I_{FSM}	90 A
I_R	5 μ A
V_F at $I_F = 5$ A	0.94 V
T_J max.	150 °C

FEATURES

- UL recognition file number E309391 (QQQX2) UL 1557 (see *)
- Thin single in-line package
- Available for BU-5S lead forming option (part number with "5S" suffix, e.g. BU1006A5S)
- Superior thermal conductivity
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for switching power supply, home appliances and white-goods applications.

MECHANICAL DATA

Case: BU

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked on body

Mounting Torque: 10 cm-kg (8.8 inches-lbs) max.

Recommended Torque: 5.7 cm-kg (5 inches-lbs)

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	BU1006A	BU1008A	BU1010A	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	600	800	1000	V
Average rectified forward current (Fig. 1, 2) $T_C = 90$ °C ⁽¹⁾ $T_A = 25$ °C ⁽²⁾	I_O	10 3.0			A
Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C	I_{FSM}	90			A
Rating for fusing ($t < 8.3$ ms) $T_J = 25$ °C	I^2t	33			A ² s
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150			°C

Notes

⁽¹⁾ With 60 W air cooled heatsink

⁽²⁾ Without heatsink, free air

BU1006A thru BU1010A

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**ELECTRICAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 5.0\text{ A}$ $T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	V_F	1.02 0.94	1.10 1.00	V
Maximum reverse current per diode	rated V_R $T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	I_R	- 45	5.0 250	μA
Typical junction capacitance per diode	4.0 V, 1 MHz	C_J	30	-	pF

Note⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	BU1006A	BU1008A	BU1010A	UNIT
Typical thermal resistance	$R_{\theta JC}$ ⁽¹⁾ $R_{\theta JA}$ ⁽²⁾		3.0 20		$^{\circ}\text{C/W}$

Notes⁽¹⁾ With 60 W air cooled heatsink⁽²⁾ Without heatsink, free air**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BU1006A-M3/45	4.48	45	20	Tube
BU1006A-M3/51	4.48	51	250	Paper tray
BU1006A5S-M3/45	4.48	45	20	Tube

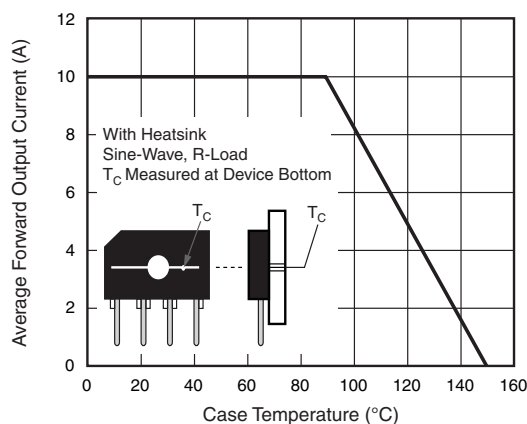
RATINGS AND CHARACTERISTICS CURVES $(T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Derating Curve Output Rectified Current

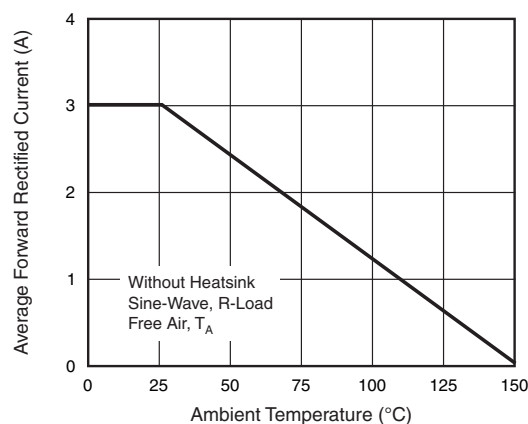


Figure 2. Forward Current Derating Curve

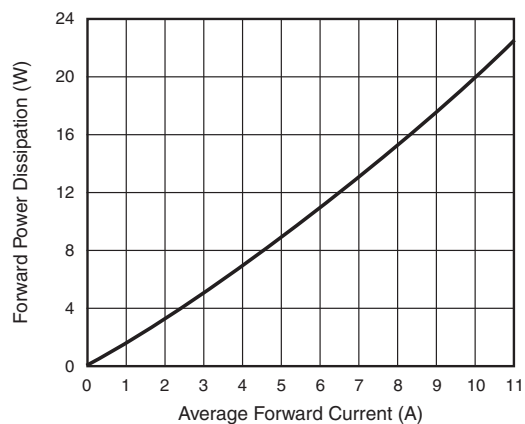


Figure 3. Forward Power Dissipation

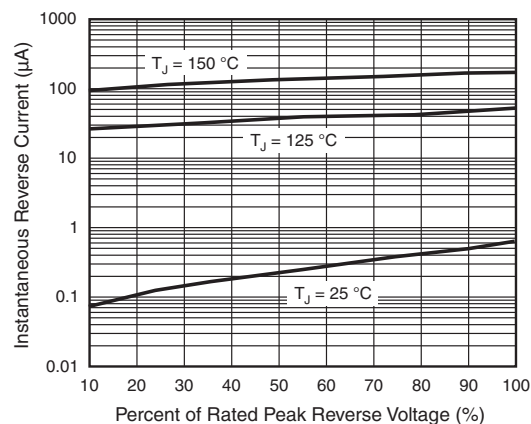


Figure 5. Typical Reverse Characteristics Per Diode

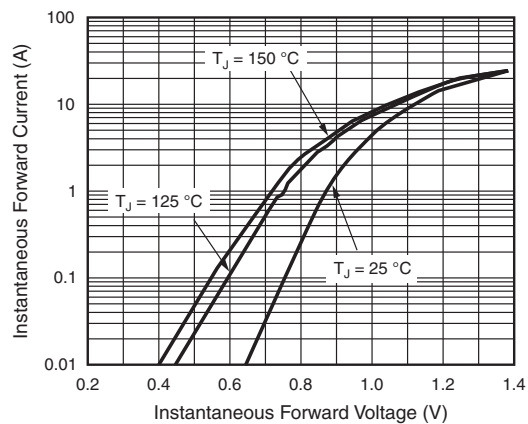


Figure 4. Typical Forward Characteristics Per Diode

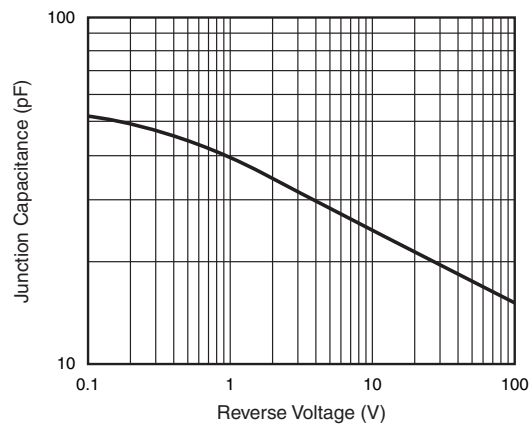
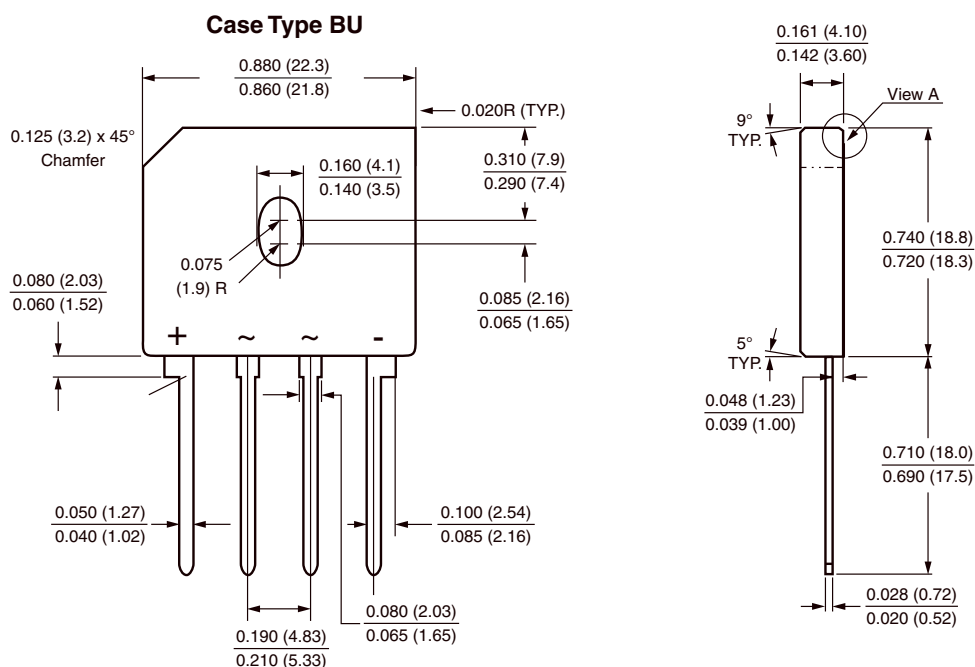


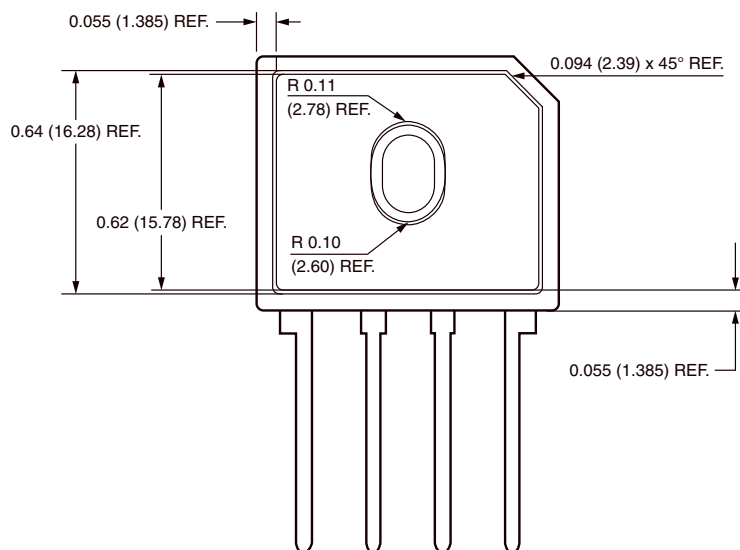
Figure 6. Typical Junction Capacitance Per Diode

BU1006A thru BU1010A

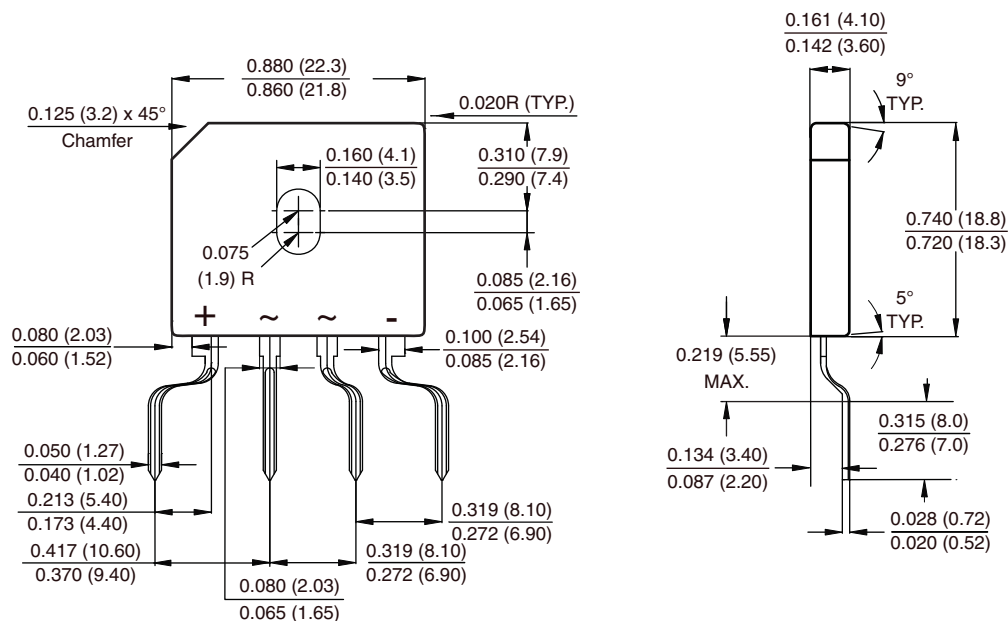
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**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

Polarity shown on front side of case, positive lead beveled corner

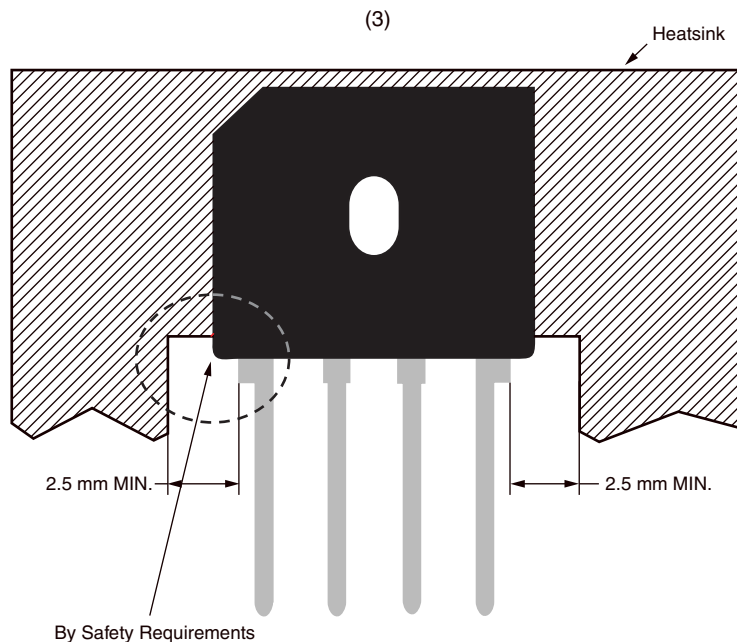


FORMING SPECIFICATION: BU-5S in inches (millimeters)



APPLICATION NOTE

- (1) Device UL approved for safety use dielectric strength of 1500 V.
- (2) If device is mounted in Floating Ground (F. G.) application, insulator is recommended to use to meet safety requirement.
- (3) Heat sink shape recommendation:





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