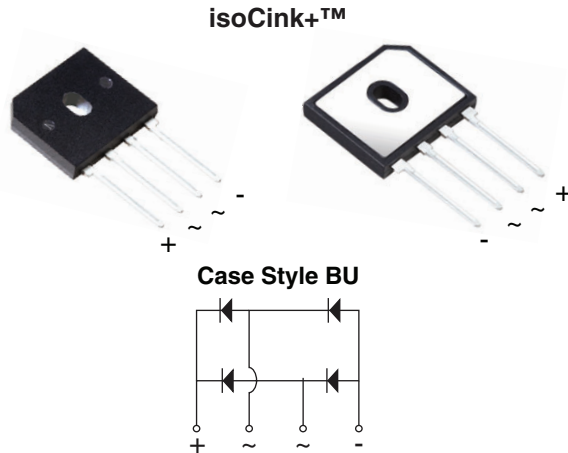




**THE DATASHEET OF  
BU1006-E3/45**



## Enhanced isoCink+™ Bridge Rectifiers



### FEATURES

- UL recognition file number E312394
- Thin single in-line package
- Glass passivated chip junction
- Available for BU-5S lead forming option (part number with "5S" suffix, e.g. BU10065S)
- Superior thermal conductivity
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
Available

### 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-E3 - RoHS-compliant, commercial grade  
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  
E3 and M3 suffix meet JESD 201 class 1A whisker test

**Polarity:** as marked on body

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

PRIMARY CHARACTERISTICS	
Package	BU
$I_{F(AV)}$	10 A
$V_{RRM}$	600 V, 800 V, 1000 V
$I_{FSM}$	120 A
$I_R$	5 $\mu$ A
$V_F$ at $I_F = 5.0$ A	0.88 V
$T_J$ max.	150 °C
Circuit configuration	In-line

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	BU1006	BU1008	BU1010	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	600	800	1000	V
Average rectified forward current (Fig. 1, 2)	$I_O$	$T_C = 92$ °C <sup>(1)</sup>		10	A
		$T_A = 25$ °C <sup>(2)</sup>		3.2	
Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C	$I_{FSM}$	120			A
Rating for fusing ( $t < 8.3$ ms) $T_J = 25$ °C	$I^2t$	60			A <sup>2</sup> s
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150			°C

#### Notes

<sup>(1)</sup> With 60 W air cooled heatsink

<sup>(2)</sup> Without heatsink, free air

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 5.0$ A	$V_F$	$T_A = 25$ °C	0.98	1.05	V
			$T_A = 125$ °C	0.88	0.95	
Maximum reverse current per diode	rated $V_R$	$I_R$	$T_A = 25$ °C	-	5.0	$\mu$ A
			$T_A = 125$ °C	64	250	
Typical junction capacitance per diode	4.0 V, 1 MHz	$C_J$	43	-	pF	

#### Note

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	BU1006	BU1008	BU1010	UNIT
Typical thermal resistance	$R_{\theta JC}$ <sup>(1)</sup>	3.0			$^\circ\text{C}/\text{W}$
	$R_{\theta JA}$ <sup>(2)</sup>	20			

**Notes**

- (1) With 60 W air cooled heatsink
- (2) Without heatsink, free air

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BU1006-E3/45	4.55	45	20	Tube
BU1006-E3/51	4.55	51	250	Paper tray
BU1006-M3/45	4.55	45	20	Tube
BU1006S-E3/45	4.55	45	20	Tube

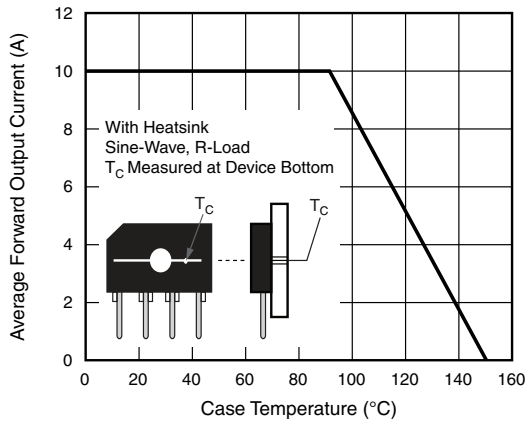
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified)


Fig. 1 - Derating Curve Output Rectified Current

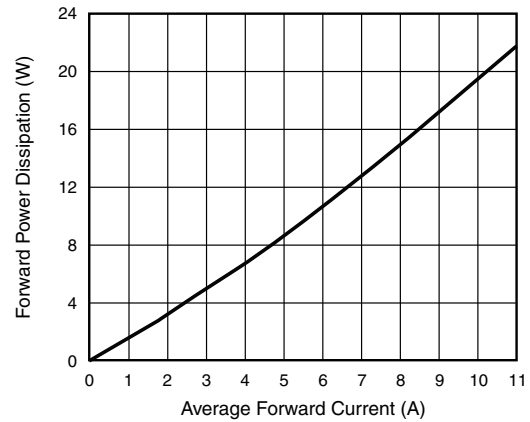


Fig. 3 - Forward Power Dissipation

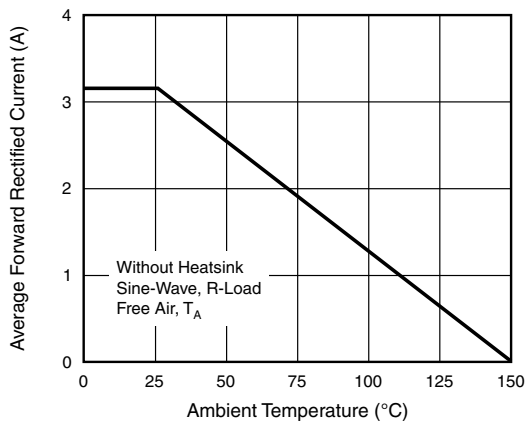


Fig. 2 - Forward Current Derating Curve

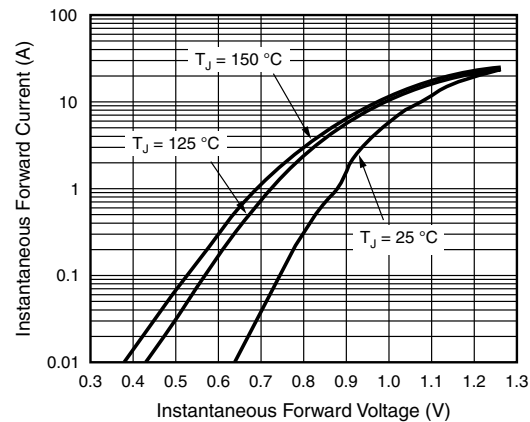


Fig. 4 - Typical Forward Characteristics Per Diode

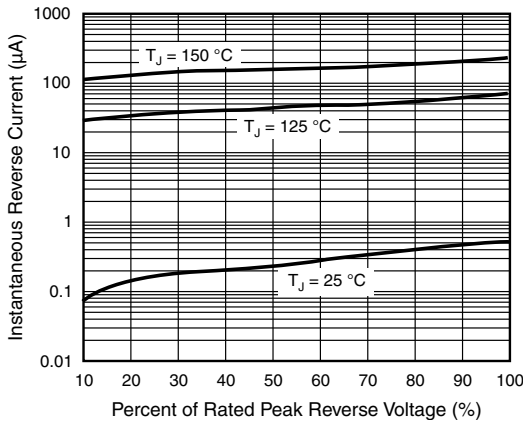


Fig. 5 - Typical Reverse Characteristics Per Diode

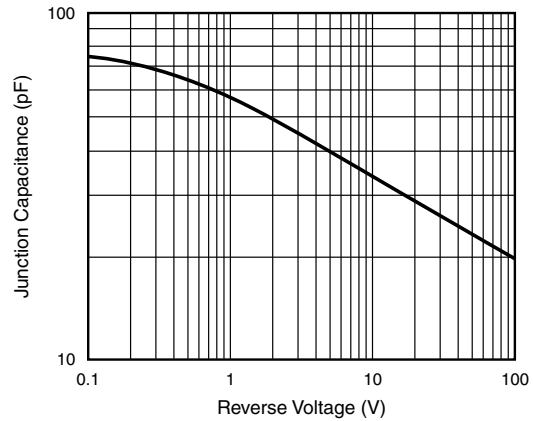
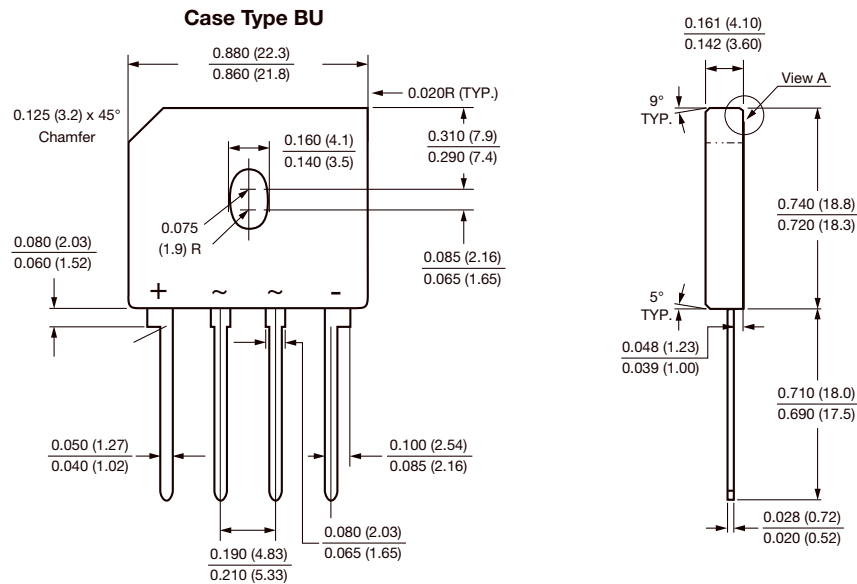
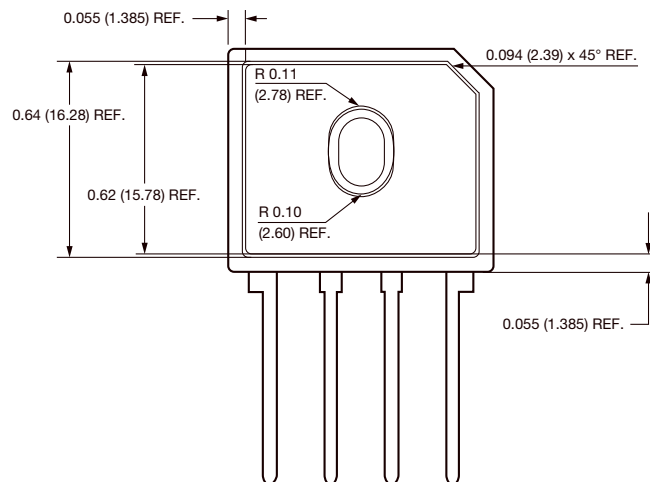


Fig. 6 - Typical Junction Capacitance Per Diode

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

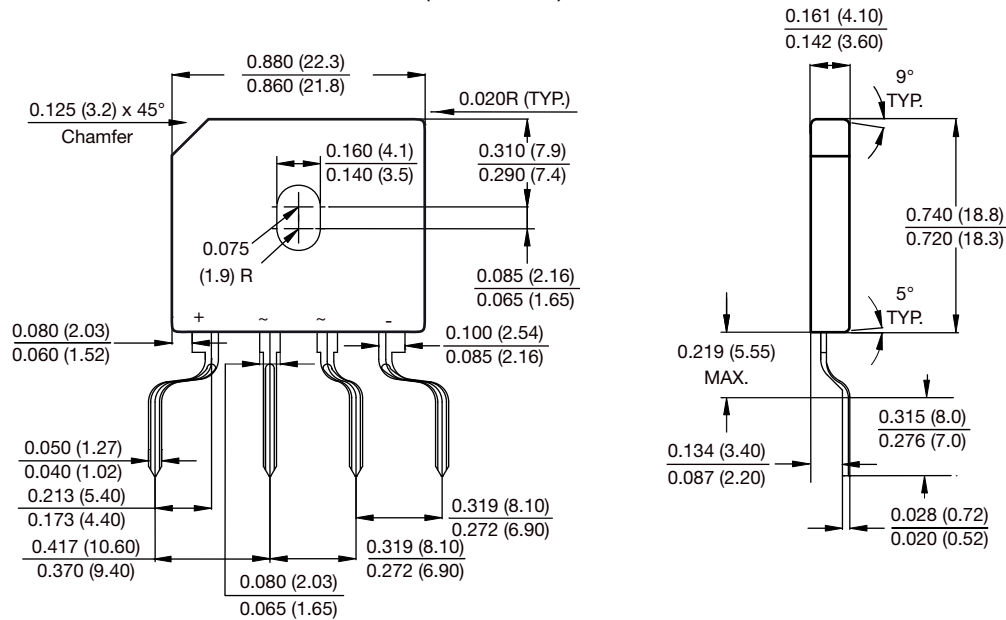


Polarity shown on front side of case, positive lead beveled corner



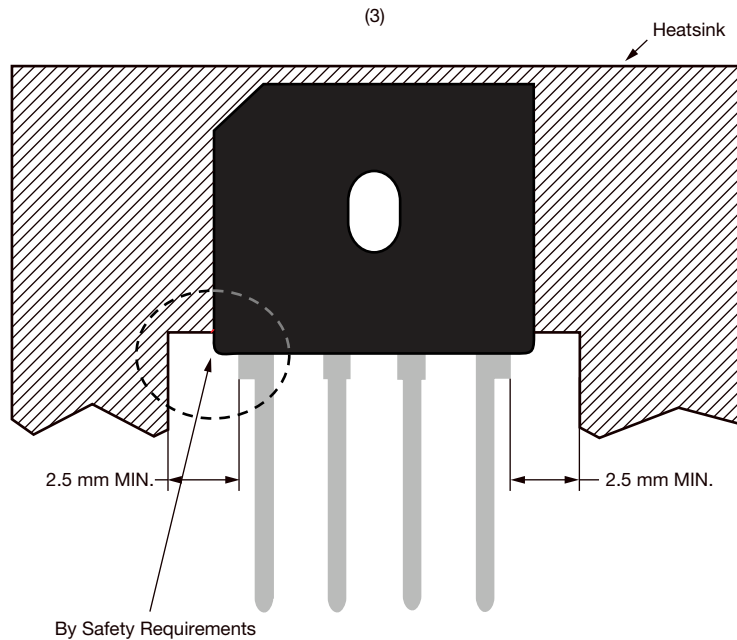


**FORMING SPECIFICATION: BU-5S** in inches (millimeters)



**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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