



# STBR406/408

## 50-60Hz RECTIFICATION BRIDGE

### MAJOR PRODUCT CHARACTERISTICS

|            |               |
|------------|---------------|
| $I_F(AV)$  | 4 A           |
| $V_{RRM}$  | 600 V / 800 V |
| $V_F(max)$ | 1.05 V        |

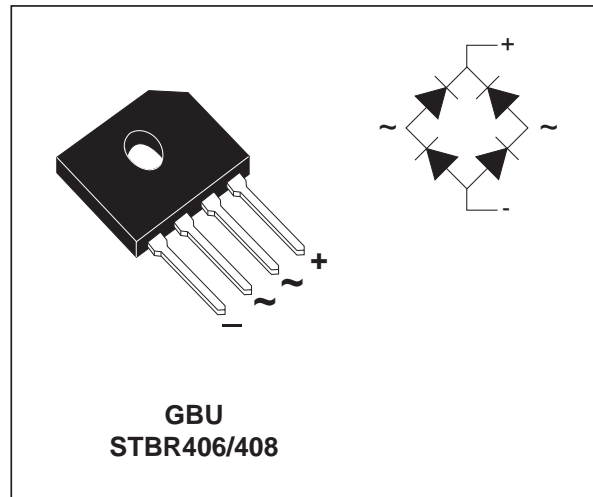
### FEATURES AND BENEFITS

- Dielectric strength of 2000V
- High Surge overload rating
- High Surge current capability
- UL94V0
- Planar technology

### DESCRIPTION

Single-phase 4A Bridge for 50 & 60Hz rectification in Switch Mode Power Supplies.

Application: Home appliances, Automation, Telecommunications, PC, Servers.



### ABSOLUTE RATINGS (limiting values)

| Symbol    | Parameter                                 |  | STBR406     | STBR408 | Unit             |
|-----------|---|--|-------------|---------|------------------|
| $V_{RRM}$ | Repetitive peak reverse voltage           |  | 600         | 800     | V                |
| $V_{RMS}$ | RMS Voltage                               |  | 420         | 560     | V                |
| $V_{DC}$  | DC Blocking voltage                       |  | 600         | 800     | V                |
| $I_F(AV)$ | Average Forward Current                   | $T_C = 90^\circ C$                                   | 4           |         | A                |
| $I_{FSM}$ | Non repetitive surge peak forward current | $t_p = 8.3$ ms<br>Single sine wave<br>(JEDEC method) | 120         |         | A                |
| $I^2t$    | Rating for Fusing ( $t_p < 8.3ms$ )       |  | 60          |         | A <sup>2</sup> S |
| $T_j$     | Maximum operating junction temperature    |  | 150         |         | °C               |
| $T_{stg}$ | Storage temperature range                 |  | - 50 to 150 |         | °C               |

**THERMAL PARAMETERS**

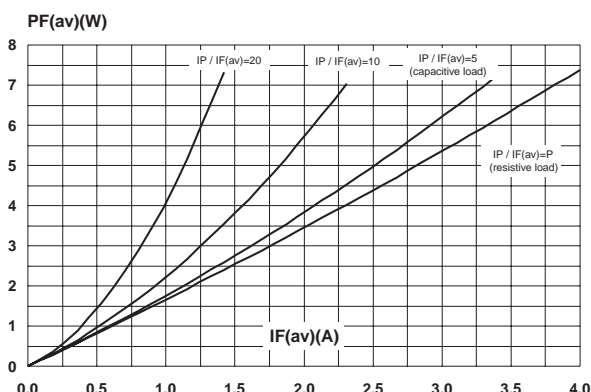
| Symbol        | Parameter           | Min. | Typ. | Max. | Unit          |
|---------------|---------------------|------|------|------|---------------|
| $R_{th(j-c)}$ | Junction to case    |      | 7.6  | 8.4  | $^{\circ}C/W$ |
| $R_{th(j-a)}$ | Junction to ambient |      |      | 35   | $^{\circ}C/W$ |

**ELECTRICAL CHARACTERISTICS**

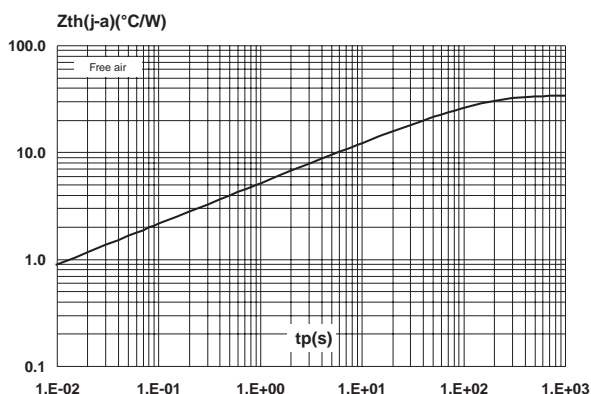
| Symbol | Parameter                             | Test conditions      | Min. | Typ. | Max. | Unit    |
|--------|---------------------------------------|----------------------|------|------|------|---------|
| $V_F$  | Forward voltage drop                  | $I_F = 4A$           |      |      | 1.05 | V       |
| $I_R$  | Reverse leakage current per leg       | $V_R = V_{RRM}$      |      |      | 5    | $\mu A$ |
|        |                                       | $T_j = 25^{\circ}C$  |      |      |      |         |
|        |                                       | $T_j = 125^{\circ}C$ |      |      | 50   | $\mu A$ |
| C      | Junction capacitance per leg (note 1) |                      |      | 40   |      | pF      |

Note 1: Measured at 1MHz and applied reverse voltage of 4V.

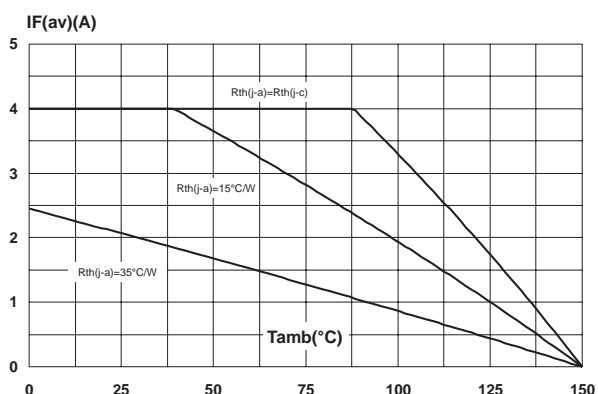
**Fig. 1:** Average power dissipation of bridge versus average output current.



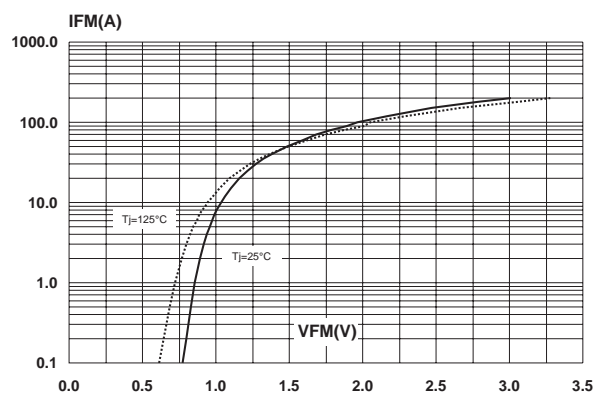
**Fig. 3:** Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board epoxy FR4).



**Fig. 2:** Average output current versus ambient temperature (resistive load or inductive load)

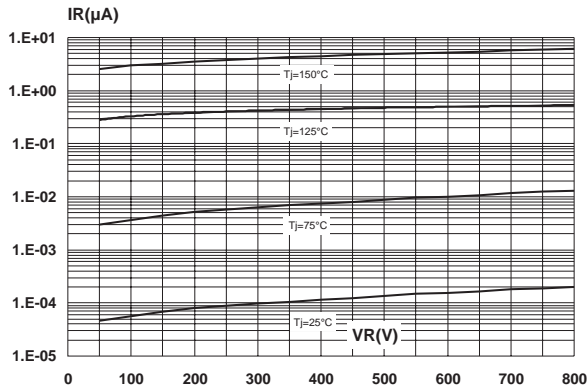


**Fig. 4:** Forward voltage drop versus forward current (typical values, per leg).

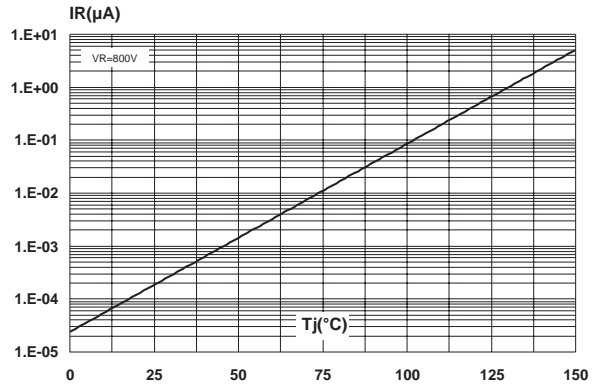


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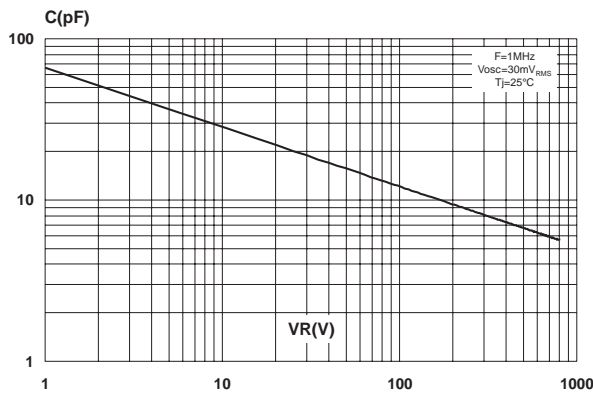
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per leg).



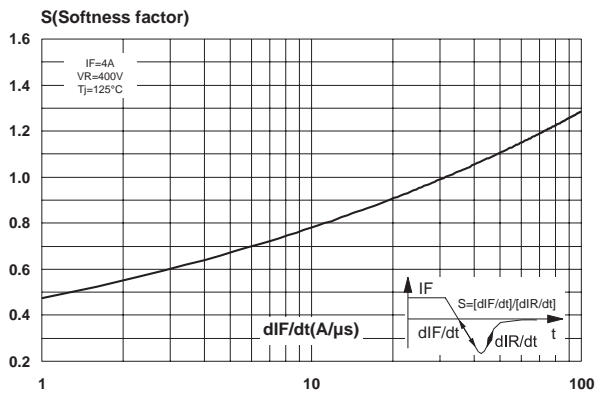
**Fig. 6:** Reverse leakage current versus junction temperature (typical values).



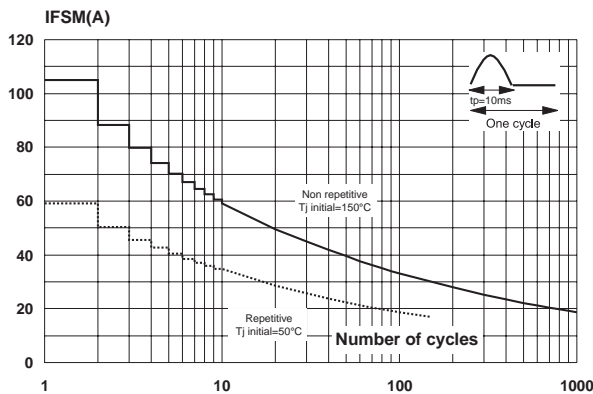
**Fig. 7:** Junction capacitance versus reverse voltage applied (typical values).



**Fig. 8:** Softness factor versus  $dI_F/dt$  (typical values).

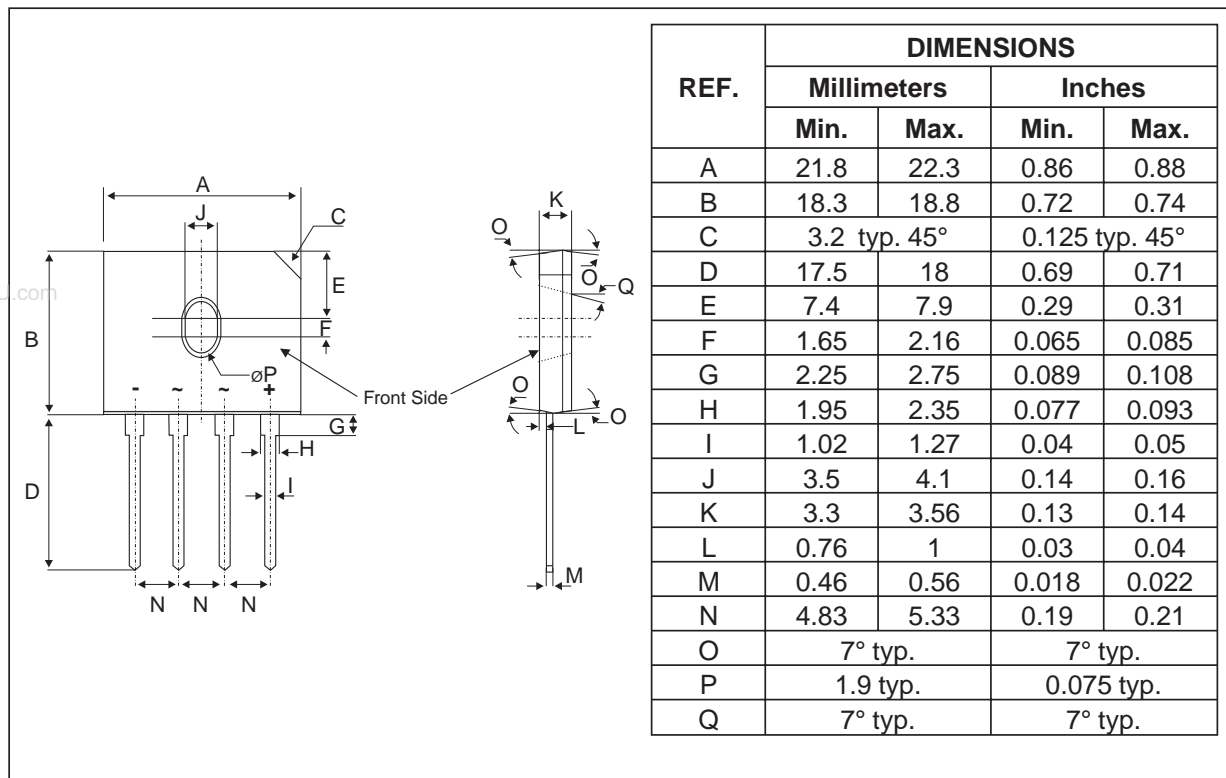


**Fig. 9:** Surge peak forward current versus number of cycles (per leg).



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## PACKAGE MECHANICAL DATA GBU



| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|---------|---------|--------|----------|---------------|
| STBR406       | STBR406 | GBU     | 4.0g   | 20       | Tube          |
| STBR408       | STBR408 | GBU     | 4.0g   | 20       | Tube          |

- Epoxy meets UL94,V0
- Cooling method: C
- Recommended torque value: 0.8 m.N
- Maximum torque value: 1.0 m.N

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