

## 3A, 400V - 1000V Glass Passivated Bridge Rectifier

### FEATURES

- Glass passivated junction
- Ideal for automated placement
- Reliable low cost construction utilizing molded plastic technique
- High surge current capability
- UL Recognized File # E-326854
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### KEY PARAMETERS

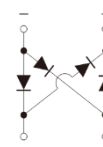
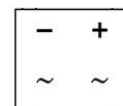
| PARAMETER     | VALUE      | UNIT |
|---------------|------------|------|
| $I_{F(AV)}$   | 3          | A    |
| $V_{RRM}$     | 400 - 1000 | V    |
| $I_{FSM}$     | 110        | A    |
| $T_{J\ MAX}$  | 150        | °C   |
| Package       | YBS        |      |
| Configuration | Quad       |      |

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- TV
- Monitor



**YBS**



### MECHANICAL DATA

- Case: YBS
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.22g (approximately)

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                                                                           | SYMBOL              | YBS<br>3004G | YBS<br>3005G | YBS<br>3006G | YBS<br>3007G | UNIT             |
|-------------------------------------------------------------------------------------|---------------------|--------------|--------------|--------------|--------------|------------------|
| Marking code on the device                                                          |                     | YBS<br>3004G | YBS<br>3005G | YBS<br>3006G | YBS<br>3007G |                  |
| Repetitive peak reverse voltage                                                     | V <sub>RRM</sub>    | 400          | 600          | 800          | 1000         | V                |
| Reverse voltage, total rms value                                                    | V <sub>R(RMS)</sub> | 280          | 420          | 560          | 700          | V                |
| Forward current                                                                     | I <sub>F(AV)</sub>  | 3            |              |              |              | A                |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>    | 25°C         | 110          |              |              | A                |
|                                                                                     |                     | 125°C        | 88           |              |              |                  |
| Surge peak forward current, 1 ms single half sine-wave superimposed on rated load   | I <sub>FSM</sub>    | 25°C         | 220          |              |              | A                |
|                                                                                     |                     | 125°C        | 175          |              |              |                  |
| I <sup>2</sup> t value (of a surge on-state current) <sup>(1)</sup>                 | I <sup>2</sup> t    | 50           |              |              |              | A <sup>2</sup> s |
| Junction temperature                                                                | T <sub>J</sub>      | -55 to +150  |              |              |              | °C               |
| Storage temperature                                                                 | T <sub>STG</sub>    | -55 to +150  |              |              |              | °C               |

#### Note:

1. Pulse test with PW=8.3 ms single half sine-wave

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | LIMIT | UNIT |
|----------------------------------------|-----------------|-------|------|
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 25    | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 80    | °C/W |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 28    | °C/W |

**Thermal Performance Note:** Units mounted on recommended PCB (16mm x 16mm Cu pad test board)

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

| PARAMETER                                              | CONDITIONS                                   | SYMBOL | TYP  | MAX  | UNIT          |
|--------------------------------------------------------|----------------------------------------------|--------|------|------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$  | $V_F$  | 0.89 | 1.02 | V             |
|                                                        | $I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$  |        | 0.93 | 1.10 | V             |
|                                                        | $I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$ |        | 0.76 | 0.90 | V             |
|                                                        | $I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$ |        | 0.82 | 1.00 | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $T_J = 25^\circ\text{C}$                     | $I_R$  | -    | 5    | $\mu\text{A}$ |
|                                                        | $T_J = 125^\circ\text{C}$                    |        | -    | 100  | $\mu\text{A}$ |
| Junction capacitance                                   | 1 MHz, $V_R = 4.0\text{V}$                   | $C_J$  | 33   | -    | pF            |

**Notes:**

- Pulse test with  $PW = 0.3\text{ ms}$
- Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

| PART NO.                | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING                  |
|-------------------------|--------------|---------------------|---------|--------------------------|
| YBS30xxG<br>(Note 1, 2) | RA           | G                   | YBS     | 3,000 / 13" Plastic reel |

**Notes:**

- "xx" defines voltage from 400V (YBS3004G) to 1000V (YBS3007G)
- Whole series with green compound (halogen-free)

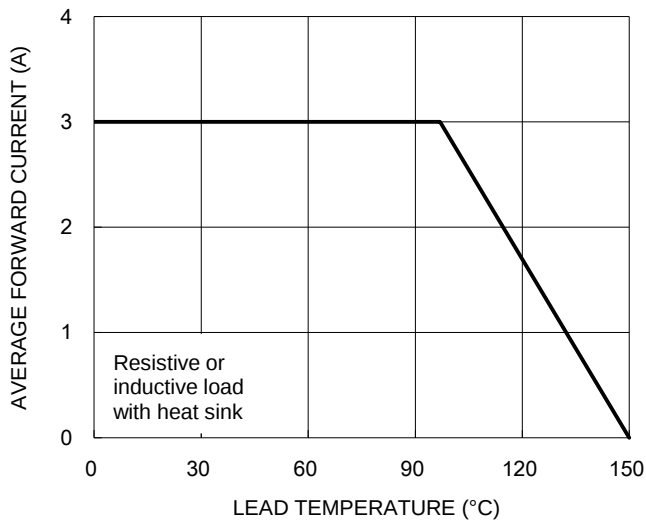
**EXAMPLE**

| EXAMPLE P/N  | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|--------------|----------|--------------|---------------------|----------------|
| YBS3007G RAG | YBS3007G | RA           | G                   | Green compound |

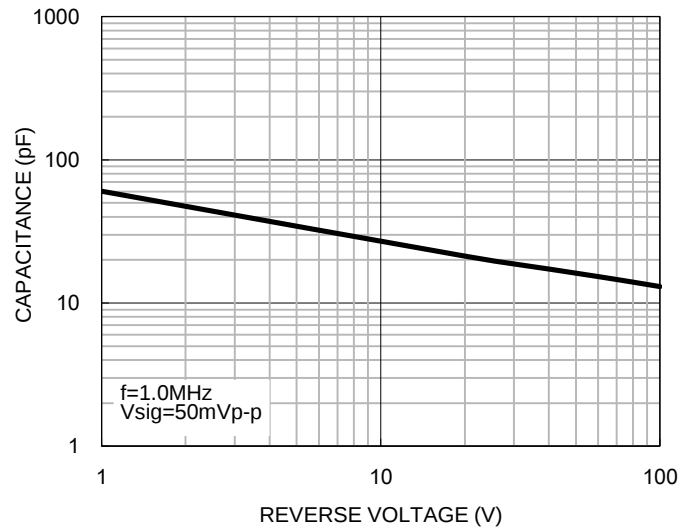
## CHARACTERISTICS CURVES

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

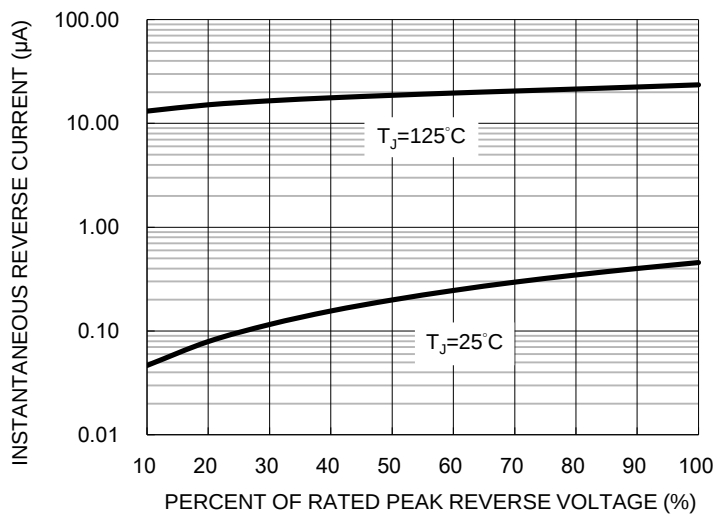
**Fig1. Forward Current Derating Curve**



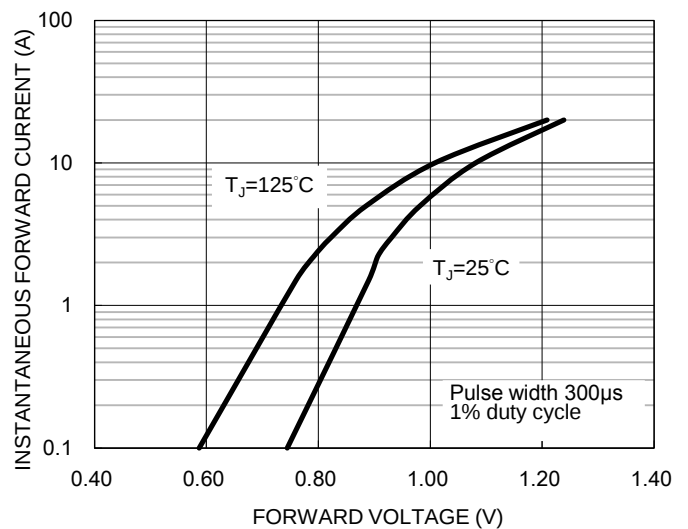
**Fig2. Typical Junction Capacitance**



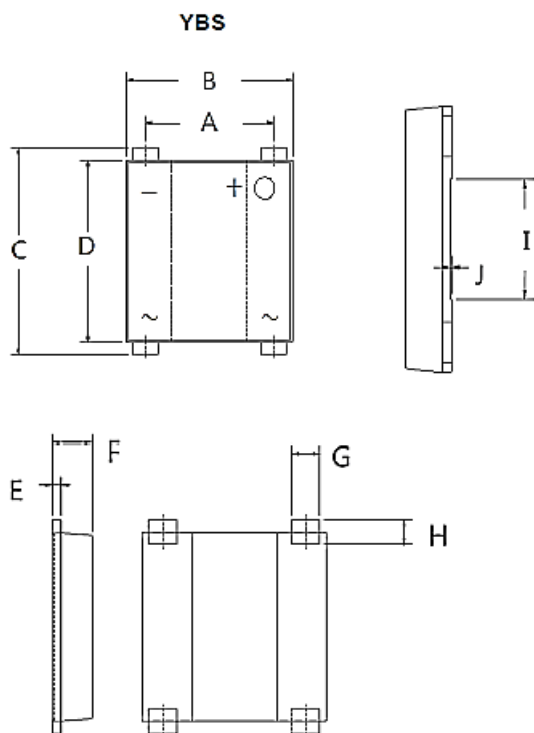
**Fig3. Typical Reverse Characteristics**



**Fig4. Typical Forward Characteristics**

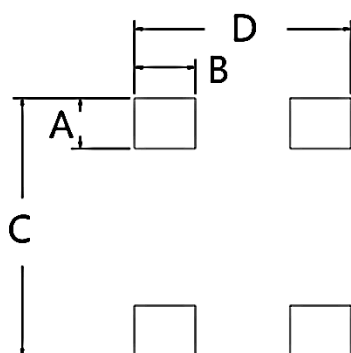


## PACKAGE OUTLINE DIMENSIONS



| DIM | Unit (mm) |      | Unit (inch) |       |
|-----|-----------|------|-------------|-------|
|     | Min       | Max  | Min         | Max   |
| A   | 5.00      | 5.20 | 0.197       | 0.205 |
| B   | 6.50      | 6.70 | 0.256       | 0.264 |
| C   | 7.90      | 8.60 | 0.311       | 0.339 |
| D   | 7.20      | 7.40 | 0.283       | 0.291 |
| E   | 0.27      | 0.40 | 0.011       | 0.016 |
| F   | 1.30      | 1.50 | 0.051       | 0.059 |
| G   | 0.95      | 1.15 | 0.037       | 0.045 |
| H   | 0.70      | 1.05 | 0.028       | 0.041 |
| I   | 2.90      | 3.10 | 0.114       | 0.122 |
| J   | 0.04      | 0.08 | 0.002       | 0.003 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 1.80      | 0.070       |
| B      | 2.00      | 0.078       |
| C      | 9.15      | 0.360       |
| D      | 7.10      | 0.279       |

## MARKING DIAGRAM



P/N = Marking Code  
 YW = Date Code  
 F = Factory Code

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