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October 2013

## DFB2005 - DFB20100 Glass-Passivated Bridge Rectifiers

### Features

- UL Certificate: # E258596
- Glass-Passivated Junction
- Ideal for Printed Circuit Board
- Reliable Low-Cost Construction
- Plastic Material has Underwriters Laboratory Flammability Classification 94V-0
- Surge Overload Rating to 250 A Peak
- High Case Dielectric Strength: 2000 V<sub>RMS</sub>
- Isolated Voltage from Case to Lead: > 2500 V



TS-6P

### Ordering Informations

| Part Number | Marking  | Package  | Packing Method |
|-------------|----------|----------|----------------|
| DFB2005     | DFB2005  | TS-6P 4L | Rail           |
| DFB2010     | DFB2010  |          |                |
| DFB2020     | DFB2020  |          |                |
| DFB2040     | DFB2040  |          |                |
| DFB2060     | DFB2060  |          |                |
| DFB2080     | DFB2080  |          |                |
| DFB20100    | DFB20100 |          |                |

## Absolute Maximum Ratings<sup>(1)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                                            | Value       |          |          |          |          |          |           | Units              |
|-----------------|------------------------------------------------------|-------------|----------|----------|----------|----------|----------|-----------|--------------------|
|                 |                                                      | DFB 2005    | DFB 2010 | DFB 2020 | DFB 2040 | DFB 2060 | DFB 2080 | DFB 20100 |                    |
| $V_{RRM}$       | Maximum Recurrent Peak Reverse Voltage               | 50          | 100      | 200      | 400      | 600      | 800      | 1000      | V                  |
| $V_{RMS}$       | Maximum RMS Voltage                                  | 35          | 70       | 140      | 280      | 420      | 560      | 700       | V                  |
| $V_{DC}$        | Maximum DC Blocking Voltage                          | 50          | 100      | 200      | 400      | 600      | 800      | 1000      | V                  |
| $I_{(AV)}$      | Maximum Average Forward Rectified Current            | 20          |          |          |          |          |          |           | A                  |
| $I_{FSM}$       | Peak Forward Surge Current (8.3 ms Single Half-wave) | 250         |          |          |          |          |          |           | A                  |
| $R_{\theta JC}$ | Typical Thermal Resistance <sup>(2)</sup>            | 4.75        |          |          |          |          |          |           | $^\circ\text{C/W}$ |
| $T_J$           | Operating Temperature Range                          | -55 to +150 |          |          |          |          |          |           | $^\circ\text{C}$   |
| $T_{STG}$       | Storage Temperature Range                            | -55 to +150 |          |          |          |          |          |           | $^\circ\text{C}$   |

### Notes:

1. Single-phase, half-wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.
2. Device mounted on 4 inch x 5 inch x 0.25 inch Al-plate heat sink.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise specified.

| Symbol | Parameter                                               | Test condition            | Value | Unit                 |
|--------|---------------------------------------------------------|---------------------------|-------|----------------------|
| $V_F$  | Maximum                                                 | 10 A                      | 1.0   | V                    |
|        | Instantaneous Forward Voltage                           | 20 A                      | 1.1   |                      |
| $I_R$  | Maximum DC Reverse Current at Rated DC Blocking Voltage | $T_A = 25^\circ\text{C}$  | 10    | $\mu\text{A}$        |
|        |                                                         | $T_A = 125^\circ\text{C}$ | 500   |                      |
| $I^2t$ | Rating for Fusing ( $t < 8.3$ ms)                       |                           | 259   | $\text{A}^2\text{s}$ |
| $C_J$  | Typical Junction Capacitance per Leg <sup>(3)</sup>     |                           | 140   | pF                   |

### Note:

3. Measured at 1 MHz and applied reverse bias of 4.0 V DC.

## Typical Performance Characteristics

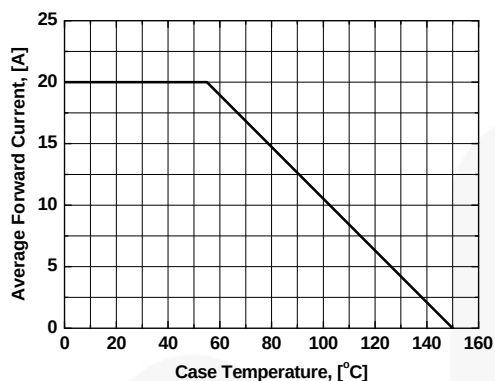


Figure 1. Maximum Derating Curve for Output Current

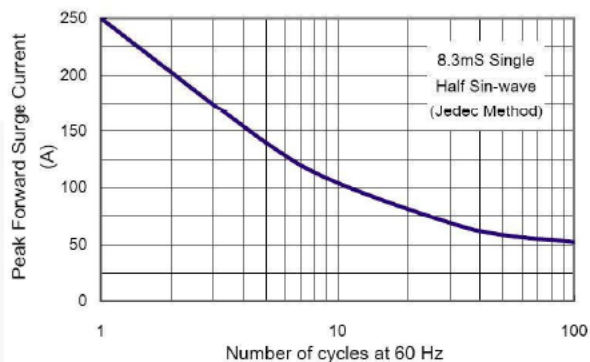


Figure 2. Maximum Forward Surge Current per Leg

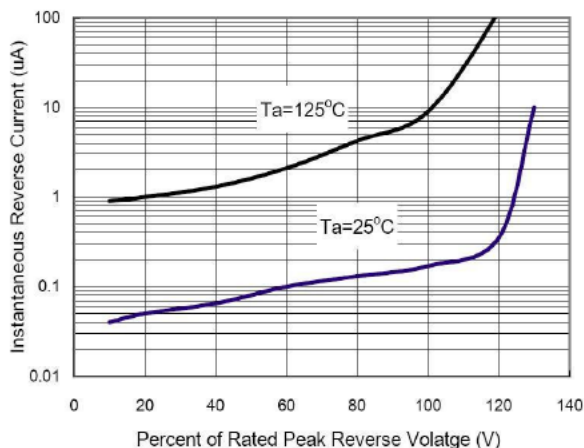


Figure 3. Typical Reverse Characteristics per Leg

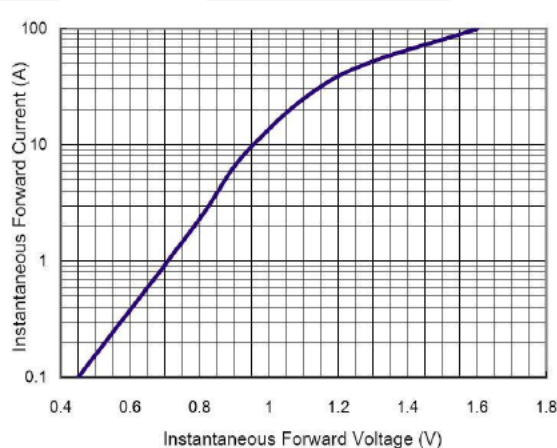


Figure 4. Typical Forward Characteristics per Leg

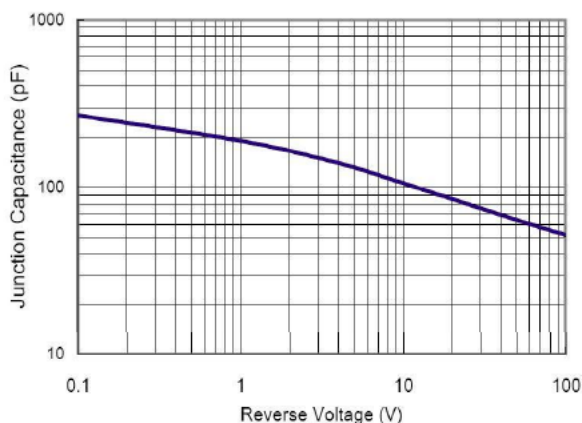
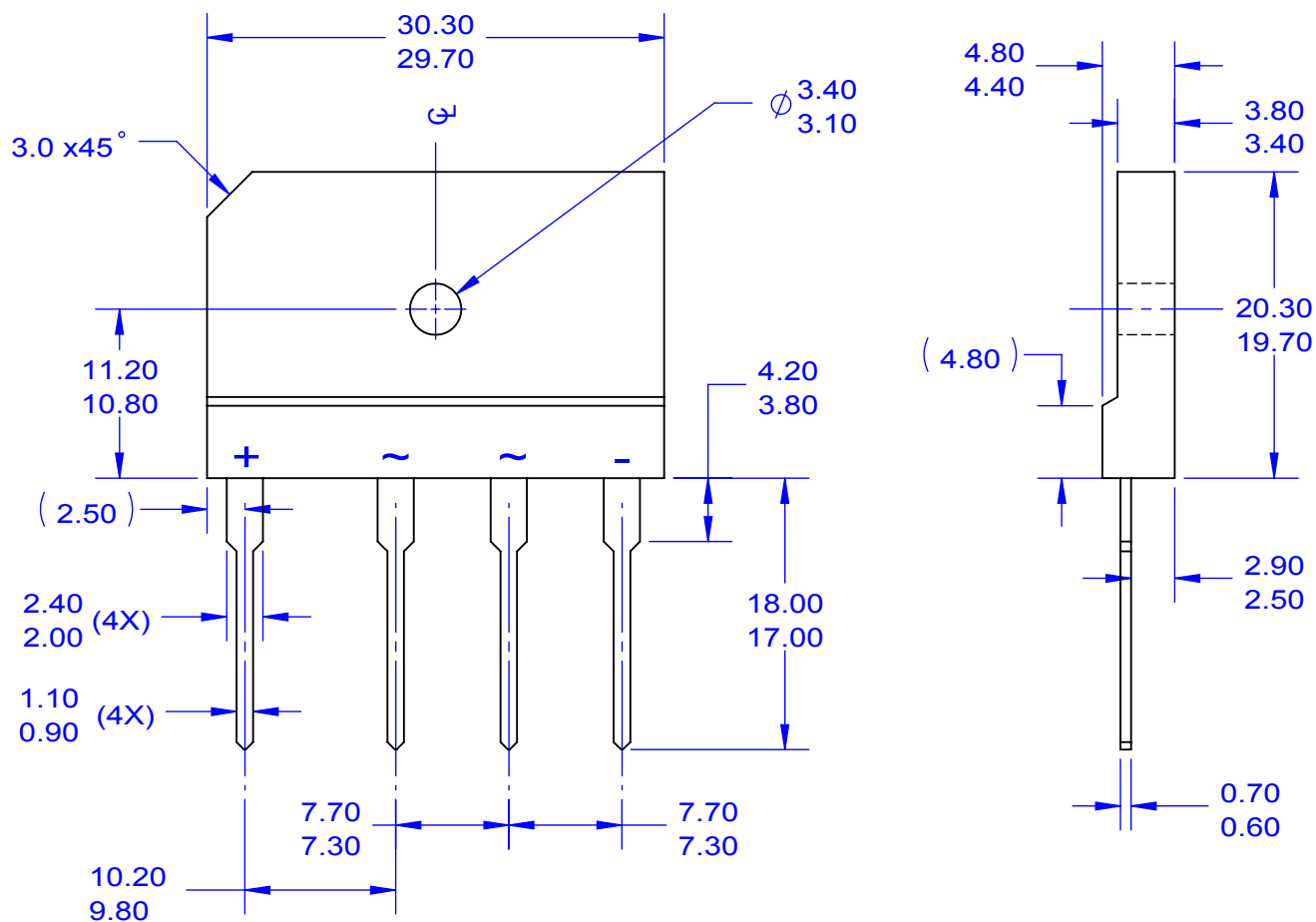


Figure 5. Typical Junction Capacitance



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А