DF005 THRU DF10

SINGLE-PHASE GLASS PASSIVATED
SILICON BRIDGE RECTIFIER
Reverse Voltage – 50 to 1000 V
Forward Current – 1 A

Features
- Glass passivated chip junction
- Low forward voltage drop
- High surge overload rating of 50 Amperes peak
- Ideal for printed circuit board

Mechanical Data
- Case: Molded plastic, DB
- Epoxy: UL 94V-0 rate flame retardant
- Terminals: Leads solderable per MIL-STD-202, method 208 guaranteed
- Mounting position: Any

Absolute Maximum Ratings and Characteristics
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbols</th>
<th>DF005</th>
<th>DF01</th>
<th>DF02</th>
<th>DF04</th>
<th>DF06</th>
<th>DF08</th>
<th>DF10</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Recurrent Peak Reverse Voltage</td>
<td>V_{RRM}</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS Voltage</td>
<td>V_{RMS}</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>280</td>
<td>420</td>
<td>560</td>
<td>700</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC Blocking Voltage</td>
<td>V_{DC}</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum Average Forward Rectified Current at ( T_a = 40 °C )</td>
<td>I_{F(AV)}</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Peak Forward Surge Current 8.3 ms Single Half-sine-wave Superimposed on Rated Load (JEDEC method)</td>
<td>I_{FSM}</td>
<td>50</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Maximum Forward Voltage at 1 A</td>
<td>V_{F}</td>
<td>1.1</td>
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<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum Reverse Voltage at Rated DC Blocking Voltage at ( T_a = 25 °C ) at ( T_a = 125 °C )</td>
<td>I_{L}</td>
<td>5</td>
<td></td>
<td></td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td>( \mu A )</td>
</tr>
<tr>
<td>Typical Junction Capacitance(^1)</td>
<td>C_{j}</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
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<tr>
<td>Typical Thermal Resistance(^2)</td>
<td>R_{J(A)}</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td>Typical Thermal Resistance(^2)</td>
<td>R_{J(L)}</td>
<td>15</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>°C/W</td>
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<tr>
<td>Operating and storage temperature range</td>
<td>( T_p, T_{stg} )</td>
<td>-55 to +150</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
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</tbody>
</table>

\(^1\) Measured at 1 MHz and applied reverse voltage of 4V.
\(^2\) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.5 X 0.5" (13 X 13 mm) copper pads.
RATINGS AND CHARACTERISTIC CURVES

Fig. 1 - Derating Curve Output Rectified Current
- 60 Hz
- Resistive or Inductive Load
- P.C.B mounted on 0.51 x 0.51" (13 x 13mm) Copper pads with 0.06" (1.5mm) lead length
- Ambient Temperature (°C)
- Average Forward Output Current (A)

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Leg
- TJ = 150°C
- Single Sine-Wave (JEDEC Method)
- Number of Cycles at 60 Hz
- Average Forward Output Current (A)

Fig. 3 - Typical Forward Characteristics Per Leg
- TJ = 25°C
- Pulse width = 300µs
- 1% Duty Cycle
- Instantaneous Forward Current (A)
- Instantaneous Forward Voltage (V)

Fig. 4 - Typical Reverse Leakage Characteristics Per Leg
- TJ = 125°C
- TJ = 25°C
- Percent of Rated Peak Reverse Voltage (V)
- Instantaneous Reverse Current (µA)

Fig. 5 - Typical Junction Capacitance Per Leg
- TJ = 25°C
- f = 1.0MHz
- Vsig = 50mVp-p
- Reverse Voltage (V)
- Junction Capacitance (pF)

Fig. 6 - Typical Transient Thermal Impedance
- Transient Thermal Impedance (°C/W)
- t, Heating Time (sec.)
- 0.01
- 0.1
- 1
- 10
- 100

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