SF31 thru SF39

Glass Passivated Super Fast Rectifiers
Reverse Voltage 50 to 1000 Volts Forward Current 3.0 Amperes

Features

◆ Low forward voltage drop
◆ High current capability
◆ High reliability
◆ High surge current capability

Mechanical Data

◆ Case: Molded plastic DO-201AD
◆ Epoxy: UL 94V-O rate flame retardant
◆ Lead: Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
◆ Polarity: Color band denotes cathode end
◆ High temperature soldering guaranteed:
  250°C/10 seconds .375" (9.5mm) lead lengths at 5 lbs., (2.3kg) tension
◆ Mounting position: Any
◆ Weight: 0.042 ounce, 1.195 grams

Maximum Ratings and Electrical Characteristics

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbols</th>
<th>SF31</th>
<th>SF32</th>
<th>SF33</th>
<th>SF34</th>
<th>SF35</th>
<th>SF36</th>
<th>SF37</th>
<th>SF38</th>
<th>SF39</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>V_{Pmax}</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>Volts</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>V_{rms}</td>
<td>35</td>
<td>70</td>
<td>105</td>
<td>140</td>
<td>210</td>
<td>280</td>
<td>420</td>
<td>560</td>
<td>700</td>
<td>Volts</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>V_{DC}</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>Volts</td>
</tr>
<tr>
<td>Maximum average forward rectified current .375&quot; (9.5mm) lead length @T_{a}=55°C</td>
<td>I_{AVG}</td>
<td>3.0</td>
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<td></td>
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<td>Amps</td>
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<tr>
<td>Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)</td>
<td>I_{PSM}</td>
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<td></td>
<td></td>
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<td></td>
<td>125.0</td>
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<td>Amps</td>
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<tr>
<td>Maximum instantaneous forward voltage @ 3.0A DC</td>
<td>V_{f}</td>
<td>0.95</td>
<td>1.3</td>
<td>1.7</td>
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<td></td>
<td>Volts</td>
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<tr>
<td>Maximum DC reverse current @ T_{a}=25°C</td>
<td>I_{r}</td>
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<td></td>
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<td>5.0</td>
<td>100</td>
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<td></td>
<td></td>
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<td>μA</td>
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<td>at rated DC blocking voltage @ T_{a}=125°C</td>
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<td>25.0</td>
<td>8.0</td>
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<td></td>
<td></td>
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<td>μA</td>
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<td>Maximum reverse recovery time (Note 1)</td>
<td>t_{r}</td>
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<td></td>
<td>35</td>
<td></td>
<td>ns</td>
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<td>Typical junction capacitance (Note 2)</td>
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<td>80</td>
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<td>pF</td>
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<td>Typical thermal resistance</td>
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<td>25</td>
<td>8.0</td>
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<td>Operating junction temperature range</td>
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<td>+150</td>
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<td>Storage temperature range</td>
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<td></td>
<td></td>
<td>-55</td>
<td>+150</td>
<td>°C</td>
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</tbody>
</table>

Notes:
1. Reverse Recovery Test Conditions: I_{P}=0.5A, I_{R}=1.0A, I_{RR}=0.25A
2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 V D.C.
RATINGS AND CHARACTERISTIC CURVES

**FIG. 1 - REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM**

- 50Ω NONINDUCTIVE
- 1kΩ NONINDUCTIVE

+ (approx)
- (+)

PULSE GENERATOR (NOTE 1)

OSCILLOSCOPE (NOTE 2)

NOTES:
1. Rise Time = The max. input impedance = 1 megohm.
2. Rise Time = 10ns max. Source impedance = 50 ohms.

**FIG. 2 - MAXIMUM AVERAGE FORWARD CURRENT DERATING**

- Single Phase
- Half Wave 60Hz
- Resistive or Inductive Load
- 0.5775" (9 mm)
- Load Length

**FIG. 3 - TYPICAL REVERSE CHARACTERISTICS**

- Tj=150°C
- Tj=125°C
- Tj=25°C

**FIG. 4 - TYPICAL FORWARD CHARACTERISTICS**

**FIG. 5 - MAXIMUM NON-REPELITIVE FORWARD SURGE CURRENT**

- 8.3ms Single Half Sine Wave
- JEDEC Method

**FIG. 6 - TYPICAL JUNCTION CAPACITANCE**

- Tj=25°C

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