1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Features

- Guard Ring Die Construction for Transient Protection
- Very Low Forward Voltage Drop
- Totally Lead-Free & Fully RoHS Compliant(Note 1 & 2)
- Halogen and Antimony Free."Green" Device(Note 3)

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Lead Free Plating (Matte Tin Finish annealed over Alloy 42 Leadframe) Solderable per MIL-STD-202, Method 208 ③
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

Ordering Information (Note 4)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Case</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>B130LAW-7-F</td>
<td>SOD123</td>
<td>3000/Tape &amp; Reel</td>
</tr>
</tbody>
</table>

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds

Marking Information

SX = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Repetitive Reverse Voltage</td>
<td>V_RRM</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Working Peak Reverse Voltage</td>
<td>V_RWM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Blocking Voltage</td>
<td>V_R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS Reverse Voltage</td>
<td>V_R(RMS)</td>
<td>21</td>
<td>V</td>
</tr>
<tr>
<td>Average Forward Current</td>
<td>I_F(AV)</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td>Non-Repetitive Peak Forward Surge Current 8.3ms</td>
<td>I_FSM</td>
<td>12</td>
<td>A</td>
</tr>
<tr>
<td>Single Half Sine-Wave Superimposed on Rated Load</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thermal Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation (Note 6)</td>
<td><strong>P&lt;sub&gt;D&lt;/sub&gt;</strong></td>
<td>450</td>
<td>mW</td>
</tr>
<tr>
<td>Typical Thermal Resistance Junction to Ambient (Note 6)</td>
<td><strong>R&lt;sub&gt;θJA&lt;/sub&gt;</strong></td>
<td>222</td>
<td>°C/W</td>
</tr>
<tr>
<td>Operating Temperature Range (See Figure 5)</td>
<td><strong>T&lt;sub&gt;J&lt;/sub&gt;</strong></td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td><strong>T&lt;sub&gt;STG&lt;/sub&gt;</strong></td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical Characteristics (on T<sub>A</sub> = +25°C, unless otherwise specified.)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Test Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Breakdown Voltage (Note 7)</td>
<td><strong>V&lt;sub&gt;(BR)R&lt;/sub&gt;</strong></td>
<td>30</td>
<td>—</td>
<td>—</td>
<td>V</td>
<td>I&lt;sub&gt;R&lt;/sub&gt; = 1.5mA</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td><strong>V&lt;sub&gt;F&lt;/sub&gt;</strong></td>
<td>—</td>
<td>0.25</td>
<td>—</td>
<td>V</td>
<td>I&lt;sub&gt;F&lt;/sub&gt; = 0.1A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>0.35</td>
<td>0.37</td>
<td>V</td>
<td>I&lt;sub&gt;F&lt;/sub&gt; = 0.7A</td>
</tr>
<tr>
<td>Leakage Current (Note 7)</td>
<td><strong>I&lt;sub&gt;R&lt;/sub&gt;</strong></td>
<td>—</td>
<td>0.15</td>
<td>1.0</td>
<td>mA</td>
<td>V&lt;sub&gt;R&lt;/sub&gt; = 30V, T&lt;sub&gt;A&lt;/sub&gt; = 25°C</td>
</tr>
<tr>
<td>Total Capacitance</td>
<td><strong>C&lt;sub&gt;T&lt;/sub&gt;</strong></td>
<td>—</td>
<td>40</td>
<td>—</td>
<td>pF</td>
<td>V&lt;sub&gt;R&lt;/sub&gt; = 10V, f = 1.0MHz</td>
</tr>
</tbody>
</table>

Notes:
5. Device mounted on GETEK substrate, 2”x2”, 2 oz. copper, double-sided, cathode pad dimensions 0.75” x 1.0”, anode pad dimensions 0.25” x 1.0”.
6. Device mounted on FR-4 substrate, 2”x2”, 2 oz. copper, single-sided, pad layout as per Diodes Incorporated, which can be found on our website at http://www.diodes.com/package-outlines.html.
7. Short duration pulse test used to minimize self-heating effect.
Fig. 3 Typical Pulsed Reverse Characteristics

Fig. 4 Total Capacitance vs. Reverse Voltage

Fig. 5 Forward Current Derating Curve

Fig. 6 Operating Temperature Derating

Fig. 7 Maximum Non-Repetitive Peak Forward Surge Current
Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD123

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD123
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