1A1S THRU 1A7S

SILICON RECTIFIERS
Reverse Voltage – 50 to 1000 Volts
Forward Current – 1.0 Amperes

Features
- High reliability
- Low leakage
- Low forward voltage drop
- High current capability

Mechanical Data
- Case: Molded plastic black body
- Mounting Position: Any
- Lead: MIL-STD 202E method 208C guaranteed

Absolute Maximum Ratings and 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>Symbols</th>
<th>A1S</th>
<th>A2S</th>
<th>A3S</th>
<th>A4S</th>
<th>A5S</th>
<th>A6S</th>
<th>A7S</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum repetitive 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>
</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>
</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>
</tr>
<tr>
<td>Maximum average forward rectified current at $T_A = 25°C$</td>
<td>$I_O$</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)</td>
<td>$I_{FSM}$</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Maximum instantaneous forward voltage at 1A DC</td>
<td>$V_F$</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage</td>
<td>$I_R$</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>uA</td>
</tr>
<tr>
<td>@ $T_A = 25°C$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>@ $T_A = 100°C$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum full load reverse current full cycle average 0.375” (9.5mm) lead length at $T_L = 75°C$</td>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>uA</td>
</tr>
<tr>
<td>Typical junction capacitance at 4 V, 1MHz</td>
<td>$C_J$</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
</tr>
<tr>
<td>Typical thermal resistance</td>
<td>$R_{θJA}$</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td>Operating and storage temperature range</td>
<td>$T_J , T_S$</td>
<td>-65 to +150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>
RATING AND CHARACTERISTIC CURVES (1A1S thru 1A7S)

**FIG. 1-TYPICAL FORWARD CURRENT DERATING CURVE**

- **AVERAGE FORWARD CURRENT (A)**
- **ambiENT TEMPERATURE(°C)**
- **60 Hz**
- **Resistive or Inductive Load**

**FIG. 2-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

- **INSTANTANEOUS FORWARD CURRENT (A)**
- **INSTANTANEOUS FORWARD VOLTAGE(V)**
- **Pulse Width=300 μS**
- **1% Duty Cycle**
- **Tj=25°C**

**FIG. 3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**

- **PEAK FORWARD SURGE CURRENT (A)**
- **NUMBER OF CYCLES AT 60 Hz**
- **8.3ms Single Half Sine-Wave (JEDEC Method)**

**FIG. 4-TYPICAL REVERSE CHARACTERISTICS**

- **INSTANTANEOUS REVERSE CURRENT (μA)**
- **PERCENT OF RATED PEAK REVERSE VOLTAGE (%)**
- **Tj=25°C**

**FIG. 5-TYPICAL JUNCTION CAPACITANCE**

- **JUNCTION CAPACITANCE(pF)**
- **REVERSE VOLTAGE (V)**
- **Tj=25°C**

SEMTECH ELECTRONICS LTD.
(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)