HER101 THRU HER108

HIGH EFFICIENCY RECTIFIERS
Reverse Voltage – 50 to 1000 Volts
Forward Current – 1.0 Ampere

Features
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O utilizing Flame Retardant Epoxy Molding Compound
- Void-free Plastic in DO-41 package
- 1.0 amperes operation at Ta = 55°C with no thermal runaway
- Ultra Fast switching for high efficiency
- Exceeds environmental standards of MIL-S-19500/228

Mechanical Data
- **Case:** Molded plastic, DO-41
- **Lead:** MIL-STD-202 method 208 guaranteed
- **Polarity:** Band denotes cathode
- **Mounting Position:** Any

Absolute Maximum Ratings and Characteristics
Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>HER101</th>
<th>HER102</th>
<th>HER103</th>
<th>HER104</th>
<th>HER105</th>
<th>HER106</th>
<th>HER107</th>
<th>HER108</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>V_{HRM}</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>300</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>210</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>300</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
</tr>
<tr>
<td>Maximum average forward rectified current at Ta = 55°C</td>
<td>I_o</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</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>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Maximum instantaneous forward voltage at 1A DC</td>
<td>V_f</td>
<td>1.0</td>
<td>1.3</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Maximum reverse current at rated reverse voltage</td>
<td>T_j = 25°C</td>
<td>I_R</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Maximum reverse current at rated reverse voltage</td>
<td>T_j = 100°C</td>
<td>I_R</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Maximum reverse recovery time (Note 1)</td>
<td>t_{RR}</td>
<td>50</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Typical junction capacitance (Note 2)</td>
<td>C_J</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Typical junction resistance (Note 3)</td>
<td>R_{JUA}</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Operating and storage temperature range</td>
<td>T_J, T_S</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
<td>-55 to +150</td>
</tr>
</tbody>
</table>

Notes:
1. Test Conditions: I_f = 0.5A, I_R = -1A, I_{RR} = -0.25A.
2. Measured at 1MHz and applied reverse voltage of 4 volts DC.
3. Thermal resistance from junction to ambient and from junction to lead length 0.375” (9.5mm) P.C.B. mounted.
HER101 THRU HER108

REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

NOTES: 1. Rise Time=7ns max. Input Impedance=1 megohm 22 pf
2. Rise Time=10ns max. Source Impedance=50 ohms

FORWARD CHARACTERISTICS

FORWARD CURRENT, AMPERES

FORWARD VOLTAGE, VOLTS

HER101
TYPICAL

HER108
Tj=25°C

FORWARD CURRENT DERATING CURVE

AVGAE FORWARD CURRENT, A

AMBIENT TEMPERATURE, (°C)

TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE, pF

REVERSE VOLTAGE, VOLTS

Tj=25°C
f=1.0MHz
Vsigt=50mVp-p

PEAK FORWARD SURGE CURRENT

FORWARD SURGE CURRENT, A

NUMBER OF CYCLES AT 60Hz

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

Dated : 22/03/2003