IN4587, R - IN4596, R

General Purpose Rectifier
150 Amperes Average
1400 Volts

Ordering Information:
Select the complete six digit part number you desire from the table, i.e. IN4596 is a 1400 Volt, 150 Ampere General Purpose Rectifier.

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage (Volts)</th>
<th>Current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN4587</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>IN4588</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>IN4589</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>IN4590</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>IN4591</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>IN4592</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>IN4593</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>IN4594</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>IN4595</td>
<td>1200</td>
<td></td>
</tr>
<tr>
<td>IN4596</td>
<td>1400</td>
<td></td>
</tr>
</tbody>
</table>

Features:
- Standard and Reverse Polarities with Color Coded Seals
- High Surge Current Ratings
- Electrical Selection for Parallel and Series Operation
- Compression Bonded Encapsulation

Applications:
- Welders
- Battery Chargers
- Electromechanical Refining
- Metal Reduction
- General Industrial High Current Rectification
### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>IN4587 - R - IN4696 - R</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS Forward Current</td>
<td>$I_{F(rms)}$</td>
<td>236</td>
<td>Amperes</td>
</tr>
<tr>
<td>Maximum Average Forward Current</td>
<td>$I_{F(avg)}$</td>
<td>150</td>
<td>Amperes</td>
</tr>
<tr>
<td>One-half Cycle Surge Current (at 60Hz Under Load)</td>
<td>$I_{FSM}$</td>
<td>3000</td>
<td>Amperes</td>
</tr>
<tr>
<td>$I_{T}^{2}$ (for Fusing), (at 60Hz Half-wave)</td>
<td>$I_{T}^{2}$</td>
<td>37200</td>
<td>A$^2$/sec</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{stg}$</td>
<td>-60 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{j}$</td>
<td>-60 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>Mounting Torque (Lubricated)</td>
<td></td>
<td>120</td>
<td>in-lb</td>
</tr>
</tbody>
</table>

### Electrical and Thermal Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>IN4587</th>
<th>IN4588</th>
<th>IN4589</th>
<th>IN4590</th>
<th>IN4591</th>
<th>IN4592</th>
<th>IN4593</th>
<th>IN4594</th>
<th>IN4595</th>
<th>IN4596 *</th>
<th>IN4597</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current - Conducting State Maxima, $T_{j} = 200^\circ$C</td>
<td>$I_{(av)}$</td>
<td>9.5</td>
<td>9.5</td>
<td>9.0</td>
<td>9.0</td>
<td>8.0</td>
<td>6.5</td>
<td>5.5</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Max. Reverse Current at Rated $V_{RRM}$</td>
<td>$I_{R(avg)}$</td>
<td>150A Avg. Forward Current, $T_{j} = 110^\circ$C</td>
<td>9.5</td>
<td>9.5</td>
<td>9.0</td>
<td>9.0</td>
<td>8.0</td>
<td>6.5</td>
<td>5.5</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Voltage - Blocking State Maxima

<table>
<thead>
<tr>
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<th>IN4589</th>
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<th>IN4591</th>
<th>IN4592</th>
<th>IN4593</th>
<th>IN4594</th>
<th>IN4595</th>
<th>IN4596</th>
<th>IN4597</th>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive Peak Reverse Voltage</td>
<td>$V_{RRM}$</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>1200</td>
<td>1400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-rep. Trans. Peak Rev. Voltage</td>
<td>$V_{RSM}$</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>525</td>
<td>650</td>
<td>800</td>
<td>1050</td>
<td>1300</td>
<td>1600</td>
<td>1800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Allowable d-c Blocking Voltage</td>
<td>$V_{R}$</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>1200</td>
<td>1400</td>
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</tr>
</tbody>
</table>

### Thermal

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>IN4587</th>
<th>IN4588</th>
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<th>IN4592</th>
<th>IN4593</th>
<th>IN4594</th>
<th>IN4595</th>
<th>IN4596</th>
<th>IN4597</th>
<th>°C/Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Resistance, Junction to Case</td>
<td>$R_{B(j-c)}$</td>
<td>0.35 (All Types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Resistance, Case to Sink (Lubricated)</td>
<td>$R_{B(c-s)}$</td>
<td>0.15 (All Types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* Ceramic Seal Supplied
**IN4587,R - IN4596,R**

**General Purpose Rectifier**

150 Ampere Average, 1400 Volts

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**Electrical Characteristics**

**Figure 1.** Forward current vs. Forward voltage.

**Figure 2.** Maximum allowable surge current at rated load conditions.

**Figure 3.** Power dissipation vs. Average forward current.

**Figure 4.** Forward current vs. Case temperature.
Figure 5: Transient thermal impedance vs. time.