Automotive Electronics

Product Information

CR719 – Multi-Function Alternator Regulator

Features

- Single chip, closed loop voltage control of 14V automotive synchronous alternators
- Free-wheeling diode integrated
- Applicable for all numbers of pole pairs, defaults for 6 and 8 pole pairs
- Field current from fixed frequency high side PWM
- Voltage set point trimmed in production
- Soft start procedure with no torque load
- Relay driver integrated
- Load response functionality
- Active handling of load dump
- Autonomous default operation mode
- Very low stand-by current
- No data loss down to 5.5V
- Accepts jump start with 24V

Customer benefits

- Fully-integrated alternator regulator
- Active load dump and response functions
- Diagnostics and counter-measures for common failures
- Operation in rough environments
- Lamp brightness stabilized
- MW8 package or bare die
- Proven in numerous OEM applications
- Five variants available

Communication features

- DFM terminal indicates duty cycle of output stage
- Lamp terminal indicates errors
- Wake up from lamp L pin or alternator phase V pin

Multiwatt 8 package pin list

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DFM</td>
</tr>
<tr>
<td>2</td>
<td>L</td>
</tr>
<tr>
<td>3</td>
<td>n/c</td>
</tr>
<tr>
<td>4</td>
<td>B+</td>
</tr>
<tr>
<td>5</td>
<td>n/c</td>
</tr>
<tr>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>7</td>
<td>DF</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
</tbody>
</table>

Functions to protect alternator and battery

- Emergency start via V pin phase if L pin is disconnected
- Monitor of excitation field driver circuit
- Continuous B+ measurement and appropriate response
- Field current limitation
- Temperature dependent regulation voltage reduction
- Power stage shutdown at extreme temperature
- Short circuit protection on L and DF power stages
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Multiwatt 8 package from top

Key parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>min.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top operating temperature</td>
<td>$T_J$</td>
<td>140</td>
<td>150</td>
</tr>
<tr>
<td>min=cont., max=0.25h/5%LT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating supply voltage</td>
<td>$V_{B+}$</td>
<td>7.5</td>
<td>24</td>
</tr>
<tr>
<td>Supply with no data loss</td>
<td>$V_{B+}$</td>
<td>5.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Transient over-voltage t&lt;0.4s on pins</td>
<td>$V_{B+}$</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Field driver on-resistance at 150°C / 3A</td>
<td>$R_{on}$</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Standby current</td>
<td>$I_{STBY}$</td>
<td>60</td>
<td>500</td>
</tr>
<tr>
<td>Relay /w diode</td>
<td>$I_{r}$</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lamp load</td>
<td>$P_{L}$</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Application Diagram

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