**DESCRIPTION**

PT16598 is an automotive digital clock CMOS LSI. It drives LCD panel directly. It can be driven by a 4.194304MHz crystal oscillator. And provide the 12/24 hour display system.

**FEATURES**

- 1/2 Duty – 1/2 Bias Drive Technique
- 4.194304MHz crystal oscillator
- Hour and Minutes setting
- 12/24 hour time display mode
- 8Hz signal output
- Internal VDET (Voltage Detection Type Reset Circuit)
- Time accuracy correction
- Power supply voltage: 2.4V to 5.5V
- 12/24 hour time display mode
- Operating temperature: -40~105℃
- Package: 44-LQFP
- 4Hz / 1Hz set mode

**BLOCK DIAGRAM**
APPLICATION CIRCUIT

Note:
R=1~10K
C=0.1~0.47μF
ORDER INFORMATION

<table>
<thead>
<tr>
<th>Valid Part Number</th>
<th>Package Type</th>
<th>Top Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT16598-LQ</td>
<td>44-pin, LQFP</td>
<td>PT16598-LQ</td>
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</table>

PIN CONFIGURATION
## PIN DESCRIPTION

<table>
<thead>
<tr>
<th>Pin Name</th>
<th>I/O</th>
<th>Description</th>
<th>Pin No</th>
</tr>
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<tbody>
<tr>
<td>S1</td>
<td>I</td>
<td>Hour Adjustment Input</td>
<td>1</td>
</tr>
<tr>
<td>AC</td>
<td>I</td>
<td>All Clear Input</td>
<td>2</td>
</tr>
<tr>
<td>OSC IN</td>
<td>I</td>
<td>Oscillator Input</td>
<td>3</td>
</tr>
<tr>
<td>OSC OUT</td>
<td>O</td>
<td>Oscillator Output</td>
<td>4</td>
</tr>
<tr>
<td>VSS</td>
<td>-</td>
<td>Ground Pin</td>
<td>5</td>
</tr>
<tr>
<td>MODE</td>
<td>I</td>
<td>12/24-Hour Mode Select Input</td>
<td>6</td>
</tr>
<tr>
<td>BLANK</td>
<td>I</td>
<td>LCD Display On/Off Control Signal</td>
<td>7</td>
</tr>
<tr>
<td>TS</td>
<td>I</td>
<td>Test Pin. Test Scan Clock Pin</td>
<td>8</td>
</tr>
<tr>
<td>ENABLE</td>
<td>I</td>
<td>Enable Input(For S1 And S2)</td>
<td>9</td>
</tr>
<tr>
<td>VDD</td>
<td>-</td>
<td>Power Supply Input Pin For Logic Part</td>
<td>10</td>
</tr>
<tr>
<td>NC</td>
<td>-</td>
<td>NC Pin</td>
<td>11, 21, 33, 43~44</td>
</tr>
<tr>
<td>FLASH</td>
<td>I</td>
<td>Colon Option Input</td>
<td>12</td>
</tr>
<tr>
<td>S2</td>
<td>I</td>
<td>Minute Adjustment Input</td>
<td>13</td>
</tr>
<tr>
<td>B4/C4</td>
<td>O</td>
<td>Segment Driver</td>
<td>14</td>
</tr>
<tr>
<td>G4/D4</td>
<td>O</td>
<td>Segment Driver</td>
<td>15</td>
</tr>
<tr>
<td>F4/E4</td>
<td>O</td>
<td>Segment Driver</td>
<td>16</td>
</tr>
<tr>
<td>B3/C3</td>
<td>O</td>
<td>Segment Driver</td>
<td>17</td>
</tr>
<tr>
<td>G3/AD3</td>
<td>O</td>
<td>Segment Driver</td>
<td>18</td>
</tr>
<tr>
<td>F3/E3</td>
<td>O</td>
<td>Segment Driver</td>
<td>19</td>
</tr>
<tr>
<td>A4/COL</td>
<td>O</td>
<td>Segment Driver</td>
<td>20</td>
</tr>
<tr>
<td>B2/C2</td>
<td>O</td>
<td>Segment Driver</td>
<td>22</td>
</tr>
<tr>
<td>G2/D2</td>
<td>O</td>
<td>Segment Driver</td>
<td>23</td>
</tr>
<tr>
<td>F2/E2</td>
<td>O</td>
<td>Segment Driver</td>
<td>24</td>
</tr>
<tr>
<td>B1/C1</td>
<td>O</td>
<td>Segment Driver</td>
<td>25</td>
</tr>
<tr>
<td>A2/ADEG1</td>
<td>O</td>
<td>Segment Driver</td>
<td>26</td>
</tr>
<tr>
<td>AM/PM</td>
<td>O</td>
<td>Segment Driver</td>
<td>27</td>
</tr>
<tr>
<td>BP2</td>
<td>O</td>
<td>Backplane2</td>
<td>28</td>
</tr>
<tr>
<td>BP1</td>
<td>O</td>
<td>Backplane1</td>
<td>29</td>
</tr>
<tr>
<td>VLCD2</td>
<td>-</td>
<td>The Current Of Bias Voltage Generation Circuit Adjust Input</td>
<td>30</td>
</tr>
<tr>
<td>VLCD1</td>
<td>I/O</td>
<td>LCD Driver 1/2 Bias Supply Pin</td>
<td>31</td>
</tr>
<tr>
<td>VLCD</td>
<td>I/O</td>
<td>Power Supply Input Pin For LCD Driver Part</td>
<td>32</td>
</tr>
<tr>
<td>ADJ1~6</td>
<td>I</td>
<td>Time Accuracy Correct Control Input</td>
<td>34~39</td>
</tr>
<tr>
<td>MCLK</td>
<td>O</td>
<td>Clock of 8Hz frequency is generated when using 4.194304MHz crystal</td>
<td>40</td>
</tr>
<tr>
<td>TST</td>
<td>I</td>
<td>Test Scan Mode Select Input</td>
<td>41</td>
</tr>
<tr>
<td>KEY_SET</td>
<td>I</td>
<td>4HZ/1Hz set mode select</td>
<td>42</td>
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</table>
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