Introduction

The aim of this document is to give recommendations for hardware designers using STMicroelectronics® SPC560P44Lx, SPC560P50Lx microcontrollers. It gives values of TV_DD parameter respect to its description inside the 32-bit Power Architecture® based MCU with 576 KB Flash memory and 40 KB SRAM for automotive chassis and safety applications (see Section Appendix A: Reference document) to the following silicon versions.

Table 1. Devices affected by TVDD changes

<table>
<thead>
<tr>
<th>Part number</th>
<th>Package device marking mask identifier</th>
<th>MIDR1 register</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC560P50Lxx/P44Lx</td>
<td>BD - cut 3.4 (and older)</td>
<td>MAJOR_MASK[3:0]: 4'b0001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MINOR_MASK[3:0]: 4'b0101</td>
</tr>
</tbody>
</table>
Contents

1 \( \text{TV}_\text{DD} \) ratings ................................................................. 4
  1.1 TVDD ratings described on SPC560P44x,SPC560P50x Datasheet (Doc ID 14723, Rev 8) 4
  1.2 TVDD ratings for SPC560P44Lx,SPC560P50Lx ............................... 4

Appendix A Reference document .................................................... 5

Revision history ................................................................. 6
List of tables

Table 1. Devices affected by TVDD changes ................................................................. 1
Table 2. Absolute maximum ratings .......................................................................... 4
Table 3. Update of absolute maximum ratings .......................................................... 4
Table 4. Revision history ......................................................................................... 6
1 TVDD ratings

This section gives the values of TVDD parameter for SPC560P44Lx, SPC560P50Lx microcontrollers (see Table 1: Devices affected by TVDD changes) compared with values described in table Absolute maximum ratings of device datasheet (see Table 2 and for further information see Section Appendix A).

The TVDD, min has been limited to 500 [V/s] and a note to ensure a monotonic supply ramp has been added (see Table 3: Update of absolute maximum ratings and for further information see Section Appendix A AN4057).

1.1 TVDD ratings described on SPC560P44x, SPC560P50x Datasheet (Doc ID 14723, Rev 8)

Table 2. Absolute maximum ratings(1)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Max(2)</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVDD</td>
<td>SR</td>
<td>Slope characteristics on all VDD during power up(3) with respect to ground (VSS_HV)</td>
<td>—</td>
<td>3.0</td>
<td>500*10^3 (0.5 [V/μs])</td>
</tr>
</tbody>
</table>

1. Functional operating conditions are given in the DC electrical characteristics. Absolute maximum ratings are stress ratings only, and functional operation at the maxima is not guaranteed. Stress beyond the listed maxima may affect device reliability or cause permanent damage to the device.

2. Absolute maximum voltages are currently maximum burn-in voltages. Absolute maximum specifications for device stress have not yet been determined.

3. Guaranteed by device validation

1.2 TVDD ratings for SPC560P44Lx, SPC560P50Lx

Table 3. Update of absolute maximum ratings(1)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Max(2)</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVDD</td>
<td>SR</td>
<td>Slope characteristics on all VDD during power up(4) with respect to ground (VSS_HV)</td>
<td>—</td>
<td>500</td>
<td>500*10^3 (0.5 [V/μs])</td>
</tr>
</tbody>
</table>

1. Functional operating conditions are given in the DC electrical characteristics. Absolute maximum ratings are stress ratings only, and functional operation at the maxima is not guaranteed. Stress beyond the listed maxima may affect device reliability or cause permanent damage to the device.

2. Absolute maximum voltages are currently maximum burn-in voltages. Absolute maximum specifications for device stress have not yet been determined.

3. Ensure a monotonic supply ramp starting at ground level

4. Guaranteed by device validation
Appendix A  Reference document

- 32-bit Power Architecture® based MCU with 576 KB Flash memory and 40 KB SRAM for automotive chassis and safety applications (SPC560P44L3, SPC560P44L5 SPC560P50L3, SPC560P50L5, Doc ID 14723 Rev 8)
- SPC560Pxx, SPC56APxx power up HW guideline (Doc ID 022842 Rev 1)
# Revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-Jul-2012</td>
<td>1</td>
<td>Initial release.</td>
</tr>
<tr>
<td>17-Sep-2013</td>
<td>2</td>
<td>Updated disclaimer.</td>
</tr>
</tbody>
</table>
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