TN0969
Technical note

TV_{DD} ratings for SPC560P34Lx, SPC560P40Lx microcontrollers datasheet addendum

Introduction

The aim of this document is to give recommendations for hardware designers using STMicroelectronics® SPC560P34Lx,SPC560P40Lx microcontrollers. It gives values of TV_{DD} parameter respect to its description inside the 32-bit Power Architecture® based MCU with 320 KB Flash memory and 20 KB RAM for automotive chassis and safety applications (see *Section Appendix A: Reference document*) to the following silicon versions.

Table 1. Devices affected by TV_{DD} changes

Part number	Package device marking mask identifier	MIDR1 register
SPC560P40Lx/P34Lx	AB - cut 1.1 (and older)	MAJOR_MASK[3:0]: 4'b0000 MINOR_MASK[3:0]: 4'b0001

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1 TV_{DD} ratings

This section gives the values of TV_{DD} parameter for SPC560P34Lx, SPC560P40Lx microcontrollers (see *Table 1: Devices affected by TV_{DD} 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 TV_{DD_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 TV_{DD} ratings described on SPC560P34x, SPC560P40x datasheet (DocID 16100, Rev 6)

Table 2. Absolute maximum ratings(1)

Symbol		Parameter	Conditions	Min	Max(2)	Unit
TV_{DD}	SR	Slope characteristics on all V_{DD} during power up(3) with respect to ground (V_{SS_HV})	—	3.0(4)	$500*10^3$ (0.5 [V/µs])	V/s

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.
4. Minimum value of T_{VDD} must be guaranteed until $V_{DD_HV_REG}$ reaches 2.6 V (maximum value of V_{PORH}).

1.2 TV_{DD} ratings for SPC560P34Lx, SPC560P40Lx

Table 3. Update of absolute maximum ratings(1)

Symbol		Parameter	Conditions	Min	Max(2)	Unit
TV_{DD}(3)	SR	Slope characteristics on all V_{DD} during power up(4) with respect to ground (V_{SS_HV})	—	500(5)	$500*10^3$ (0.5 [V/µs])	V/s

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.
5. Minimum value of T_{VDD} must be guaranteed until $V_{DD_HV_REG}$ reaches 2.6 V (maximum value of V_{PORH}).

Appendix A Reference document

- 32-bit Power Architecture® based MCU with 320 KB Flash memory and 20 KB RAM for automotive chassis and safety applications (SPC560P34L1, SPC560P34L3, SPC560P40L1, SPC560P40L3, DocID 16100, Rev 6)
- SPC560Pxx, SPC56APxx power up HW guideline (AN4057, DocID 022842, Rev 1)

Revision history

Table 4. Revision history

Date	Revision	Changes
19-Dec-2012	1	Initial release.
17-Sep-2013	2	Updated Disclaimer.

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