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RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-SH7-A920A/E	Rev.	1.00
Title	Notes about SSCG		Information Category	Technical Notification		
Applicable Product	See following	Lot No. All	Reference Document	See following		

In the products listed in bellow, a bug about SSCG function is found. There is a possibility that SSCG function can not modulate clock frequency properly.

The details is shown in below.

Applicable products and relevant documents

Applicable products		Relevant documents	Rev.	Document number
series	Group			
SH7260	SH7268, SH7269	SH7268 Group, SH7269 Group User's Manual: Hardware	Rev 3.00	R01UH0048EJ0300

[1] Condition

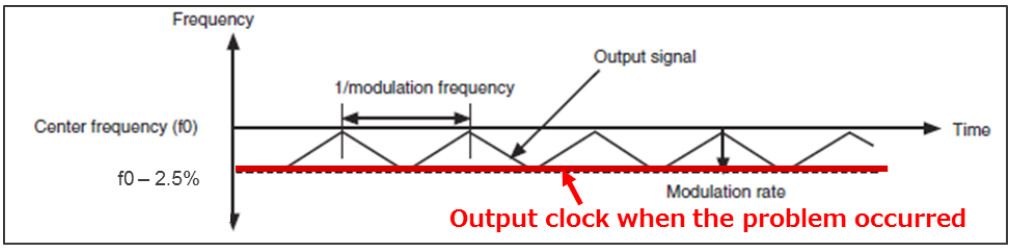
When SSCG is used and fulfill more than one of following conditions.

- The power is supplied in the power on sequence as following order
  1) Supply 3.3 volt power and MD_CLK0 pin is changed to high level (SSCG ON)
  2) Supply 1.2 volt power

Detail condition is described in "[4] Detail Condition".

[2] Phenomenon

There is a possibility that clock modulation function does not work and the frequency is fixed to the lower limit frequency.



[3] Workaround

Please apply the following software workarounds or hardware workarounds.

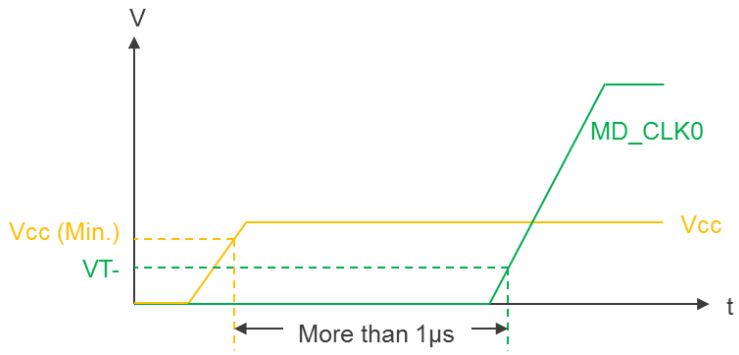
- Software workarounds

  After power on, be sure to execute transition to Deep standby mode and cancelling, then execute user program.

  Details are described in the “[5] Software workarounds details”.

- Hardware workarounds

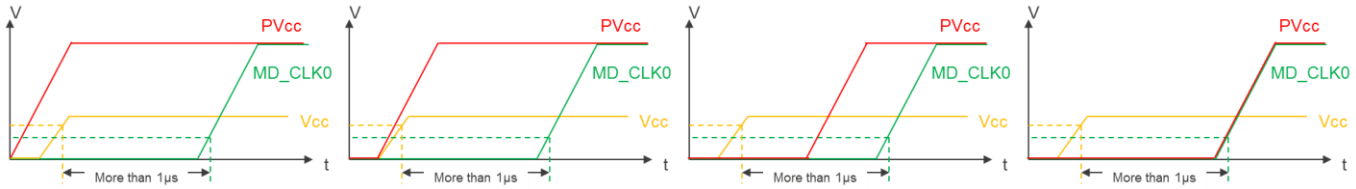
- Please make more than one microsecond between Vcc power on and change timing of MD_CLK0 pin to high level. (below figure)



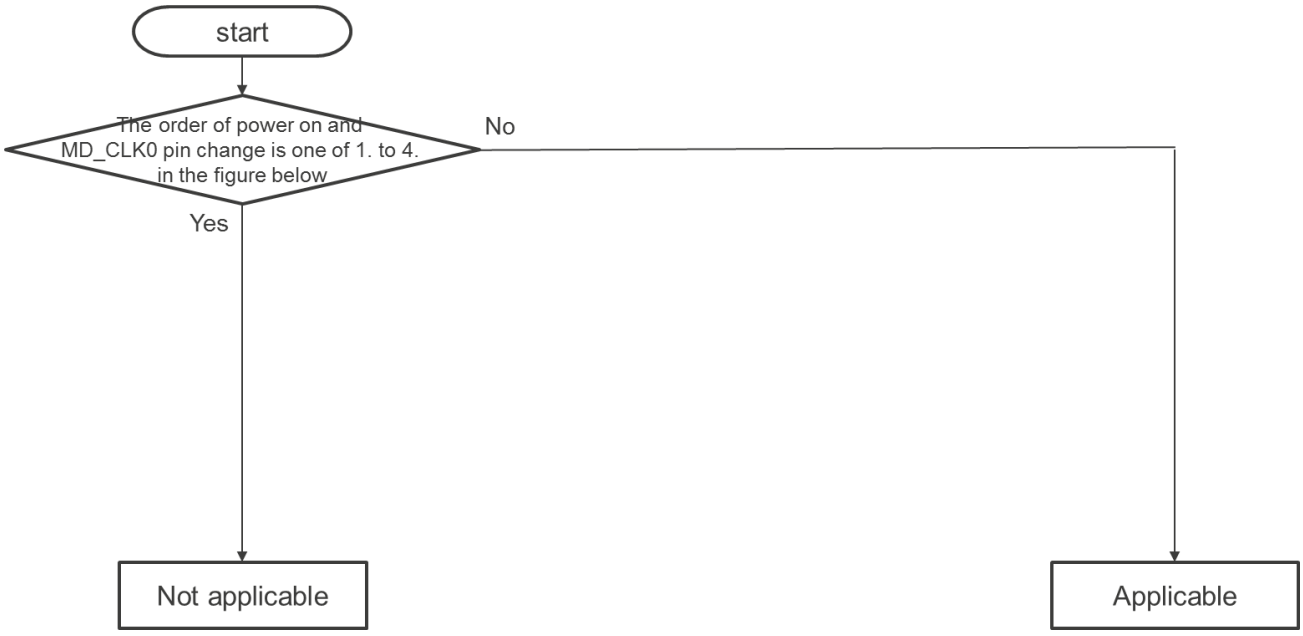
From Electrical Characteristics (DC) in
- SH7268 Group, SH7269 Group
  User’s Manual: Hardware
Vcc (Min.) = 1.15V
VT- = 0.5V

- PVcc power on timing should be at the same time as MD_CLK0 pin or faster than MD_CLK0 pin. (below figure)

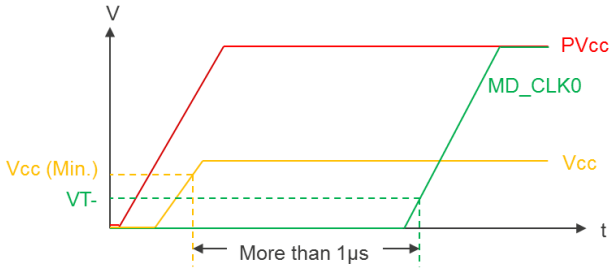
  if PVcc power on timing is later than change timing of MD_CLK0 pin to high level, it becomes absolute maximum rating violation.



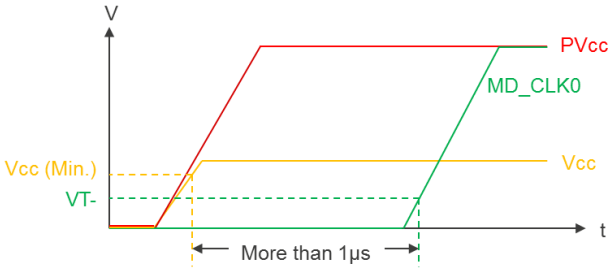
[4] Detail Condition



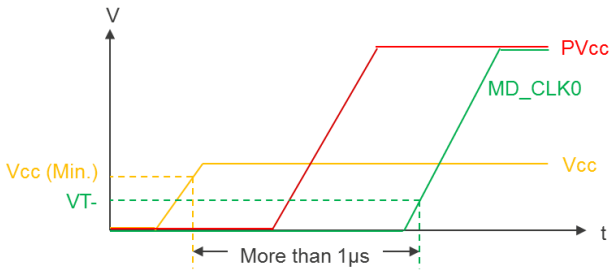
1. In case of order of PVcc, Vcc, MD_CLK0



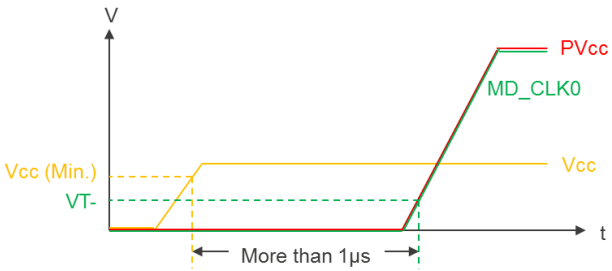
2. In case of order of PVcc = Vcc, MD_CLK0



3. In case of order of Vcc, PVcc, MD_CLK0



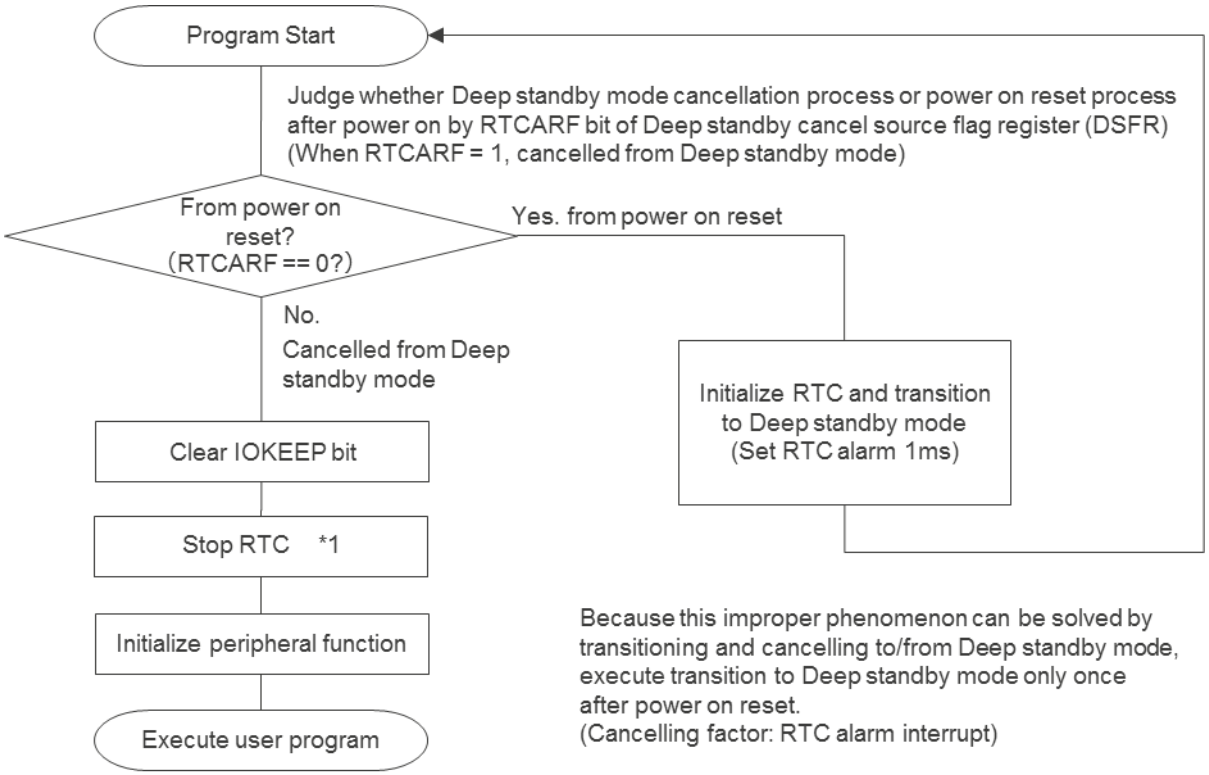
4. In case of order of Vcc, PVcc = MD_CLK0



From Electrical Characteristics (DC) in
- SH7268 Group, SH7269 Group
User's Manual: Hardware
Vcc (Min.) = 1.15V
VT- = 0.5V

[5] Software workarounds details

According to flowchart below, after power on, be sure to execute transition to Deep standby mode and cancelling, then execute user program.



*1: Please execute depending on system

Only when selecting EXTAL as RTC operation clock, the frequency of the operation clock for performing the one-second counting operation can be set by Frequency register H / L (RFRH / L).

In this case, by setting the value of RFRH / L register according to the following formula, RTC alarm interrupt can be generated in less than 1s.

RFRH/L.RFC[18:0] = Alarm interrupt time ÷ (EXTAL period × 64)

（in case of RFRH/L.SEL64 = 1）

e.g.) When EXTAL frequency is 13.33MHz, RFC[18:0]=209

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