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RENESAS TECHNICAL UPDATE

1753, Shimonumabe, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8668 Japan
Renesas Electronics Corporation

Product Category	MPU/MCU		Document No.	TN-RX*-A085A/E	Rev.	1.00
Title	Changes and Additions to Description in the RX220 Group.		Information Category	Technical Notification		
Applicable Product	RX220 Group	Lot No.	Reference Document	RX220 Group User's Manual : Hardware Rev.1.00 (R01UH0292EJ0100)		
		All				

This document explains some changes and additions to description in the RX220 Group User's Manual : Hardware Rev.1.00.

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   Table 19.3 Treatment of Unused Pins is corrected as follows.

   Before correction

   Table 19.3 Treatment of Unused Pins

Pin Name	Description
EXTAL	Connect this pin to VSS via a pull-down resistor.
XTAL	Leave this pin open.

   Corrections

   Table 19.3 Treatment of Unused Pins

Pin Name	Description
P36/EXTAL	When the main clock is not used, set the MOSCCR.MOSTP bit to 1 (general port P36). When this pin is not used as port P36 either, it is configured in the same way as port 0 to 9.
P37/XTAL	When the main clock is not used, set the MOSCCR.MOSTP bit to 1 (general port P37). When this pin is not used as port P37 either, it is configured in the same way as port 0 to 9. When the external clock is input to the EXTAL pin, leave this pin open.

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   The following Usage Note is added in Serial Communications Interface (SCI).

   27.13.14   Note in Relation to Transmit Enable Bit (TE)

   When the SCR.TE bit is set to 0 (serial transmission disabled) with a pin functions as TXDn (n = 1, 5, 6, 9, 12), the pin output goes high impedance.

   To avoid the TXDn line going high impedance, take any of the following methods.

   (1)   Connect pull-up resistor to the TXDn line.

   (2)   Before setting the SCR.TE bit to 0, modify the pin function to "general I/O port, output", or, after setting the SCR.TE bit to 1, modify the pin function to TXDn.

   Note that a TXI interrupt request is generated when both bits SCR.TE and SCR.TIE become 1.

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Table 38.4 DC Characteristics (3) is corrected as follows

Table 38.4 DC Characteristics (3)

Conditions: VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, T_a=-40 to +105°C

Item		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input leakage current	RES#, MD pin, P35/NMI	$\|I_{in}\|$	-	-	1.0	µA	V_{in} = 0V, VCC
Three-state leakage current (off-state)	Other pins except for ports for 5V tolerant	$\|I_{TSI}\|$	-	-	0.2	µA	V_{in} = 0V, VCC
	Ports for 5V tolerant		-	-	1.0		V_{in} = 0V, 5.8V
Input capacitance	All input pins (except for XCIN and XCOUT)	C_{in}	-	-	15	pF	V_{in} = 0V, f = 1MHz T_a = 25°C
	XCIN and XCOUT		-	-	3		

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The following Table of Permissible total consumption power is added.

Table 38.xx DC Characteristics (yy)

Conditions : VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, T_a=-40 to +105°C

Item	Symbol	Typ.	Max.	Unit	Test Conditions
Permissible total consumption power[1]	Pd	-	350	mW	T_a = -40 to 85°C
		-	150		85°C < T_a ≤ 105°C

Note 1. Total power dissipated by the entire chip (including output currents).

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Table 38.12 Permissible Output Currents (1) is corrected as follows

Table 38.12 Permissible Output Currents (1)

Conditions : VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, when total power (mW) < 1000 − 10 x T_a

Item		Symbol	Max.	Unit
Permissible output low current (average value per 1 pin)	Normal output mode	I_{OL}	4.0	mA
	High-drive output mode		16.0	
Permissible output low current (maximum value per 1 pin)	Normal output mode		4.0	mA
	High-drive output mode		16.0	
Permissible output low current (total)	Total of all output pins	ΣI_{OL}	80	mA
Permissible output high current (average value per 1 pin)	Normal output mode	I_{OH}	-4.0	mA
	High-drive output mode		-8.0	
Permissible output high current (maximum value per 1 pin)	Normal output mode		-4.0	mA
	High-drive output mode		-8.0	
Permissible output high current (total)	Total of all output pins	ΣI_{OH}	-60	mA

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Table 38.xx Permissible Output Currents (2)

Conditions : VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, when total power (mW) ≥ 1000 − 10 x T_a

Item		Symbol	Max.	Unit
Permissible output low current (average value per 1 pin)	Normal output mode	I_{OL}	2.0	mA
	High-drive output mode		8.0	
Permissible output low current (maximum value per 1 pin)	Normal output mode		2.0	mA
	High-drive output mode		8.0	
Permissible output low current (total)	Total of all output pins	ΣI_{OL}	40	mA
Permissible output high current (average value per 1 pin)	Normal output mode	I_{OH}	-2.0	mA
	High-drive output mode		-4.0	
Permissible output high current (maximum value per 1 pin)	Normal output mode		-2.0	mA
	High-drive output mode		-4.0	
Permissible output high current (total)	Total of all output pins	ΣI_{OH}	-30	mA

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   Table 38.13 Output values of Voltage (1) is corrected as follows

   Table 38.13 Output values of Voltage (1)

   Conditions : VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, when total power (mW) < 1000 − 10 x T_a

Item			Symbol	Min.	Max.	Unit	Test Conditions	
							VCC=2.7 to 4.0V	VCC=4.0 to 5.5V
Output low	All output pins (other than RIIC)	Normal output mode	V_{OL}	-	1.0	V	I_{OL}=3.0mA	I_{OL}=4.0mA
		High-drive output mode		-	1.0		I_{OL}=8.0mA	I_{OL}=16.0mA
	RIIC pins			-	0.4		I_{OL}=3.0mA	
				-	0.6		I_{OL}=6.0mA	
Output high	All output pins	Normal output mode	V_{OH}	VCC–1.0	-	V	I_{OH}=-3.0mA	I_{OH}=-4.0mA
		High-drive output mode		VCC–1.0	-		I_{OH}=-5.0mA	I_{OH}=-8.0mA

Table 38.xx Output values of Voltage (y)

Conditions : VCC=AVCC0=1.62 to 5.5V, VSS=AVSS0=VREFL0=0V, when total power (mW) ≥ 1000 − 10 x T_a

Item			Symbol	Min.	Max.	Unit	Test Conditions	
							VCC=2.7 to 4.0V	VCC=4.0 to 5.5V
Output low	All output pins (other than RIIC)	Normal output mode	V_{OL}	-	1.0	V	I_{OL}=2.0mA	I_{OL}=2.0mA
		High-drive output mode		-	1.0		I_{OL}=8.0mA	I_{OL}=8.0mA
	RIIC pins			-	0.4		I_{OL}=3.0mA	
				-	0.6		I_{OL}=6.0mA	
Output high	All output pins	Normal output mode	V_{OH}	VCC–1.0	-	V	I_{OH}=-2.0mA	I_{OH}=-2.0mA
		High-drive output mode		VCC–1.0	-		I_{OH}=-4.0mA	I_{OH}=-4.0mA

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