RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RX*-A135A/E	Rev.	1.00
Title	Changes to the specification in Electrical Characteristics of the RX110 Group		Information Category	Technical Notification		
Applicable Product	RX110 Group	Lot No.	Reference Document	RX110 Group User's Manual: Hardware Rev.1.10 (R01UH0421EJ0110)		
		All				

This document describes changes to the specification in Electrical Characteristics of RX110 Group.

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Permissible junction temperature in Tables 32.9 and 32.10 are changed to permissible total consumption power as follows.

<u>Before change</u>

Table 32.9   DC Characteristics (7)

Conditions: Products with operating temperature   (Ta) -40 to +105°C
        VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V

item	Symbol	typ	max	Unit	Test Conditions
Permissible junction temperature	Tj	-	120	°C	High-speed operating mode
		-	105		Middle-speed operating mode
		-	120		Low-speed operating mode

Note: ·Make sure that Tj < Ta + 0.1 × total power consumption (mW) , where total power consumption = (VCC - V_{OH}) × ΣI_{OH} + V_{OL} × ΣI_{OL} + Iccmax × VCC.

Table 32.10   DC Characteristics (8)

Conditions: Products with operating temperature   (Ta) -40 to +85°C
        VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V

item	Symbol	typ	max	Unit	Test Conditions
Permissible junction temperature	Tj	-	120	°C	High-speed operating mode
		-	105		Middle-speed operating mode
		-	120		Low-speed operating mode

Note: ·Make sure that Tj < Ta + 0.1 × total power consumption (mW) , where total power consumption = (VCC - V_{OH}) × ΣI_{OH} + V_{OL} × ΣI_{OL} + Iccmax × VCC.

<u>After change</u>

Table 32.9 DC Characteristics (7)

Conditions: VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V

item	Symbol	typ	max	Unit	Test Conditions
Permissible total consumption power [1]	Pd	-	300	mW	D version (Ta = -40 to 85°C)
		-	105	mW	G version (Ta = -40 to 105°C)[2]

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

Note 2. Please contact Renesas Electronics sales office for derating under Ta = +85°C to 105°C. Derating is the systematic reduction of load for the sake of improved reliability

Table 32.10 DC Characteristics (8)

(deleted)

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Table 32.16 is separated to the tables for D version and G version as follows

<u>Before change</u>

Table 32.16 Permissible Output Currents

Conditions: VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V, Ta = -40 to +105°C

item		Symbol	Max.	Unit
Permissible output low current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OL}	0.4	
	Ports other than above		8.0	
Permissible output low current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		0.4	
	Ports other than above		8.0	
Permissible output low current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OL}	2.4	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		30	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		30	
	Total of ports A0, A1, A3, A4, A6, portE		30	
	Total of all output pins		60	mA
Permissible output high current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OH}	-0.1	
	Ports other than above		-4.0	
Permissible output high current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		-0.1	
	Ports other than above		-4.0	
Permissible output high current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OH}	-0.6	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		-10	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		-15	
	Total of ports A0, A1, A3, A4, A6, portE		-15	
	Total of all output pins		-40	

Note: ·Do not exceed the permissible total supply current.

<u>After change</u>

Table 32.16 Permissible Output Currents (1)

Conditions: VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V, Ta = -40 to +85°C (D version)

item		Symbol	Max.	Unit
Permissible output low current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OL}	0.4	mA
	Ports other than above		8.0	
Permissible output low current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		0.4	
	Ports other than above		8.0	
Permissible output low current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OL}	2.4	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		30	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		30	
	Total of ports A0, A1, A3, A4, A6, portE		30	
	Total of all output pins		60	
Permissible output high current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OH}	-0.1	
	Ports other than above		-4.0	
Permissible output high current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		-0.1	
	Ports other than above		-4.0	
Permissible output high current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OH}	-0.6	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		-10	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		-15	
	Total of ports A0, A1, A3, A4, A6, portE		-15	
	Total of all output pins		-40	

Note: ·Do not exceed the permissible total consumption power.

Table 32.16 Permissible Output Currents (2)

Conditions: VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = 0 V, Ta = -40 to +105°C (G version)

item		Symbol	Max.	Unit
Permissible output low current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OL}	0.4	mA
	Ports other than above		8.0	
Permissible output low current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		0.4	
	Ports other than above		8.0	
Permissible output low current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OL}	1.6	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		20	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		20	
	Total of ports A0, A1, A3, A4, A6, portE		20	
	Total of all output pins		40	
Permissible output high current (average value per pin)	Ports 40 to 44,46 , port J6,J7	I_{OH}	-0.1	
	Ports other than above		-4.0	
Permissible output high current (maximum value per pin)	Ports 40 to 44,46 , port J6,J7		-0.1	
	Ports other than above		-4.0	
Permissible output high current	Total of ports 40 to 44, 46 , port J6, J7	ΣI_{OH}	-0.6	
	Total of ports 03, 05, ports 26, 27, ports 30, 31		-10	
	Total of ports 14 to 17, port 32, ports 54, 55, ports C2 to C7, ports B0, B1, B3, B5 to B7, Ports H0 to H3		-15	
	Total of ports A0, A1, A3, A4, A6, portE		-15	
	Total of all output pins		-40	

Note: ·Do not exceed the permissible total consumption power.

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Condition in Table 32.46 is changed as follows.

<u>Before change</u>

Table 32.46 ROM (Flash Memory for Code Storage) Characteristics (3)

Temperature range for the programming/erasure operation: Ta = -40 to 105°C

<u>After change</u>

Table 32.46 ROM (Flash Memory for Code Storage) Characteristics (3)

Temperature range for the programming/erasure operation: Ta = -40 to 85°C

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