

# RENESAS TECHNICAL UPDATE

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Title	Changes to the specification in Electrical Characteristics of the RX111 Group		Information Category	Technical Notification		
Applicable Product	RX111 Group	Lot No.	Reference Document	RX111 Group User's Manual: Hardware Rev.1.20 (R01UH0365EJ0120)		
		All				

This document describes changes to the specification in Electrical Characteristics of RX111 Group.

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Permissible junction temperature in Tables 36.11 and 36.12 are changed to permissible total consumption power as follows.

### Before change

Table 36.11 DC Characteristics (9)

Conditions: Products with operating temperature (Ta) -40 to +105°C

$$VCC = AVCC0 = USB\_VCC = 1.8 \text{ to } 3.6 \text{ V}, VSS = AVSS0 = USB\_VSS = 0 \text{ V}$$

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  $T_j < T_a + 0.1 \times \text{total power consumption (mW)}$ , where total power consumption =  $(VCC - V_{OH}) \times \Sigma I_{OH} + V_{OL} \times \Sigma I_{OL} + I_{ccmax} \times VCC$ .

Table 36.12 DC Characteristics (10)

Conditions: Products with operating temperature (Ta) -40 to +85°C

$$VCC = AVCC0 = USB\_VCC = 1.8 \text{ to } 3.6 \text{ V}, VSS = AVSS0 = USB\_VSS = 0 \text{ V}$$

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  $T_j < T_a + 0.1 \times \text{total power consumption (mW)}$ , where total power consumption =  $(VCC - V_{OH}) \times \Sigma I_{OH} + V_{OL} \times \Sigma I_{OL} + I_{ccmax} \times VCC$ .

# After change

Table 36.11 DC Characteristics (9)

Conditions: VCC = AVCC0 = USB\_VCC = 1.8 to 3.6 V, VSS = AVSS0 = USB\_VSS = 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 36.12 DC Characteristics (10)

(deleted)

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Table 36.18 is separated to the tables for D version and G version as follows

# Before change

Table 36.18 Permissible Output Currents

Conditions: VCC = AVCC0 = USB\_VCC = 1.8 to 3.6 V, VSS = AVSS0 = USB\_VSS = 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 <sub>OL</sub>	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 <sub>OL</sub>	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		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 <sub>OH</sub>	-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 <sub>OH</sub>	-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		-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.

# After change

Table 36.18 Permissible Output Currents (1)

Conditions: VCC = AVCC0 = USB\_VCC = 1.8 to 3.6 V, VSS = AVSS0 = USB\_VSS = 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 <sub>OL</sub>	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	$\Sigma I_{OL}$	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		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 <sub>OH</sub>	-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	$\Sigma I_{OH}$	-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		-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 36.18 Permissible Output Currents (2)

Conditions: VCC = AVCC0 = USB\_VCC = 1.8 to 3.6 V, VSS = AVSS0 = USB\_VSS = 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 <sub>OL</sub>	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	$\Sigma I_{OL}$	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		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 <sub>OH</sub>	-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	$\Sigma I_{OH}$	-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		-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 36.50 is changed as follows.

Before change

Table 36.50 ROM (Flash Memory for Code Storage) Characteristics (3)

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

After change

Table 36.50 ROM (Flash Memory for Code Storage) Characteristics (3)

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

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Condition in Table 36.53 is changed as follows.

Before change

Table 36.53 E2 DataFlash Characteristics (3): middle-speed operating mode

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

After change

Table 36.53 E2 DataFlash Characteristics (3): middle-speed operating mode

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