

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU	Document No.	TN-RX*-A0248A/E	Rev.	1.00
Title	RX65N Group and RX651 Group, Extension of Data Hold Time (Retention) of Flash Memory		Information Category	Technical Notification	
Applicable Product	RX65N Group, RX651 Group	Lot No.	Reference Document	RX65N Group, RX651 Group User's Manual: Hardware Rev.2.30 (R01UH0590EJ0230)	
		All			

This document describes the extension of the data hold time (retention) of the flash memory specified in the “Electrical Characteristics” chapter of User’s Manual: Hardware for the applicable products.

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The specification of the data hold time in Table 60.56, Code Flash Memory Characteristics is changed as follows.

Before correction

Table 60.56 Code Flash Memory Characteristics

Conditions: Omitted.

Item	Symbol	FCLK = 4 MHz			FCLK = 15 MHz			20 MHz ≤ FCLK ≤ 60 MHz			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Omitted.											
Data hold time*3	t _{DRP}	10	—	—	10	—	—	10	—	—	Year

Omitted.

Note 3. This shows the characteristics when reprogramming is performed within the specified range, including the minimum value.

After correction

Table 60.56 Code Flash Memory Characteristics

Conditions: Omitted.

Item	Symbol	FCLK = 4 MHz			FCLK = 15 MHz			20 MHz ≤ FCLK ≤ 60 MHz			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
Omitted.												
Data retention*3, *4	t _{DRP}	20	—	—	20	—	—	20	—	—	Year	T _a ≤ 85°C
		10	—	—	10	—	—	10	—	—		T _a ≤ 105°C

Omitted.

Note 3. This shows the characteristics when a self-programming library provided by Renesas Electronics or a flash programmer is used and the program/erase cycle does not exceed the specified value.

Note 4. This result is obtained from reliability testing.

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The specification of the data hold time in Table 60.57, Data Flash Memory Characteristics is changed as follows.

Before correction

Table 60.57 Data Flash Memory Characteristics

Conditions: Omitted.

Item	Symbol	FCLK = 4 MHz			FCLK = 15 MHz			20 MHz ≤ FCLK ≤ 60 MHz			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Omitted.											
Data hold time*3	t _{DRP}	10	—	—	10	—	—	10	—	—	Year

Omitted.

Note 3. This shows the characteristics when reprogramming is performed within the specified range, including the minimum value.

After correction

Table 60.57 Data Flash Memory Characteristics

Conditions: Omitted.

Item	Symbol	FCLK = 4 MHz			FCLK = 15 MHz			20 MHz ≤ FCLK ≤ 60 MHz			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
Omitted.												
Data retention*3, *4	t _{DRP}	20	—	—	20	—	—	20	—	—	Year	T _a ≤ 85°C
		10	—	—	10	—	—	10	—	—		T _a ≤ 105°C

Omitted.

Note 3. This shows the characteristics when a self-programming library provided by Renesas Electronics or a flash programmer is used and the program/erase cycle does not exceed the specified value.

Note 4. This result is obtained from reliability testing.