

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-16C-A222A/E	Rev.	1.00
Title	Additional functions to Flash Memory Standard Serial I/O Mode		Information Category	Technical Notification		
Applicable Product	M306S0FADGP M306S0F8DGP	Lot No.	Reference Document	M16C/6S Group Datasheet (REJ03B0014-0501)		
		All				

Some functions are added to Flash Memory Standard Serial I/O Mode of M306S0FADGP, M306S0F8DGP.

Except the additional functions are the same specifications as the other M16C/6S Group.

Please refer the data sheet of M16C/6S Group about the specification except the following items.

1. Additional functions to Flash Memory Standard Serial I/O Mode

1.1. ID Code Check Function

The ID code of "ALeRASE" in ASCII code is used for forced erase function. The ID code of "Protect" in ASCII code is used for standard serial I/O mode disable function. Table 1 lists Reserved Word of ID Code. All ID code storage addresses and data must match the combinations listed in Table 1. When the forced erase function or standard serial I/O mode disable function is not used, use another combination of ID codes.

Table 1 Reserved Word of ID Code

ID Code Storage Address		Reserved word of ID Code (ASCII)	
		ALeRASE	Protect
FFFDh	ID1	41h (upper-case A)	50h (upper-case P)
FFFE3h	ID2	4Ch (upper-case L)	72h (lower-case r)
FFFEb	ID3	65h (lower-case e)	6Fh (lower-case o)
FFFEFh	ID4	52h (upper-case R)	74h (lower-case t)
FFFF3h	ID5	41h (upper-case A)	65h (lower-case e)
FFFF7h	ID6	53h (upper-case S)	63h (lower-case c)
FFFFBh	ID7	45h (upper-case E)	74h (lower-case t)

All ID code storage addresses and data must match the combinations listed in Table 1.

1.2 Forced Erase Function

Use the forced erase function in standard serial I/O mode. When the reserved word, "ALeRASE" in ASCII code, are sent from the serial programmer as ID codes, the contents of program ROM 1 and program ROM 2 will be erased at once. However, if the ID codes stored in the ID code storage addresses are set to a reserved word other than "ALeRASE" (other than the combination table listed in Table 1), the ROMCR bit in the OFS1 address is 1 (ROMCP1 bit enabled), and the ROMCP1 bit in the OFS1 address is 0 (ROM code protect enabled), the forced erase function is ignored and ID code check is executed by the ID code check function. Table 2 lists conditions and functions for forced erase function.

When both the ID codes sent from the serial programmer and the ID codes stored in the ID code storage addresses correspond to the reserved word "ALeRASE", program ROM 1 and program ROM 2 will be erased. However, when the serial programmer sends other than "ALeRASE", even if the ID codes stored in the ID code storage addresses are "ALeRASE", there is no ID match and any command is ignored. The flash memory cannot be operated.

Table 2 Forced Erase Function

ID code from serial programmer	Condition		Function
	Code in ID code storage address	ROMCP1 bit in the OFS1 address	
ALeRASE	ALeRASE	—	Program ROM 1 and program ROM 2 all erase (forced erase function)
	Other than ALeRASE (1)	1 (ROM code protect disabled)	
		0 (ROM code protect enabled)	
Other than ALeRASE	ALeRASE	—	ID code check (ID code check function. No ID match)
	Other than ALeRASE (1)	—	ID code check (ID code check function)

Note:

1. For the combination of the stored addresses is "Protect", refer to 1.3 "Standard Serial I/O Mode Disable Function".

1.3 Standard Serial I/O Mode Disable Function

Use the standard serial I/O mode disable function in standard serial I/O mode. When the ID codes in the ID code stored addresses are set to "Protect" in ASCII code (see Table 1 "Reserved Word of ID Code"), the MCU does not communicate with the serial programmer. Therefore, the flash memory cannot be read, written or erased by the serial programmer. User boot mode can be selected, when the ID codes are set to "Protect".

When the ID codes are set to "Protect", the ROMCR bit in the OFS1 address is 1 (ROMCP1 bit enabled), and the ROMCP1 bit in the OFS1 address is set to 0 (ROM code protect enabled), ROM code protection cannot be disabled by the serial programmer. Therefore, the flash memory cannot be read, written or erased by the serial or parallel programmer.

1.4 Not Applicable Product

M306S0FAGP