

Dear customers

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Toshiba Electronic Devices & Storage Corporation

Toshiba Electronic Device Solutions Corporation

Errata notice: protection function on user information area

Thank you very much for using Toshiba microcontrollers usually.

We found one description error in the reference manual, regarding user information area of embedded flash memory. We are really sorry for your inconvenience, but please refer the following errata. Please ask our sales staff if you have any unclear points. Please visit the following web site if you have no idea on your sales contact.

<https://toshiba.semicon-storage.com/ap-en/contact> (Asia-Pacific)

<https://www.toshiba.com/taec/support/techquestions> (Americas)

<https://toshiba.semicon-storage.com/eu/contact> (Europe (FMEA))

1. Applicable products

Family	Group	Products
TXZ	M3H(1)	TMPM3H2FSDUG, TMPM3H2FSQG, TMPM3H2FUDUG, TMPM3H2FUQG, TMPM3H2FWDUG, TMPM3H2FWQG TMPM3H4FSUG, TMPM3H4FUUG, TMPM3H4FWUG TMPM3H5FSFG, TMPM3H5FUFG, TMPM3H5FWFG TMPM3H6FSFG, TMPM3H6FUFG, TMPM3H6FWFG
	M3H(2)	TMPM3HLFDUG, TMPM3HLFYUG, TMPM3HLFZUG TMPM3HMFDFG, TMPM3HMFYFG, TMPM3HMFZFG TMPM3HNFDDFG, TMPM3HNFDFG, TMPM3HNFYDFG, TMPM3HNFYFG, TMPM3HNFZDFG, TMPM3HNFZFG TMPM3HPFDFG, TMPM3HPFYFG, TMPM3HPFZFG TMPM3HQFDFG, TMPM3HQFYFG, TMPM3HQFZFG
	M4K(1)	TMPM4K0FSADUG, TMPM4K1FSAUG, TMPM4K1FUAUG, TMPM4K1FWAUG, TMPM4K1FYAUG TMPM4K2FSADUG, TMPM4K2FUADUG, TMPM4K2FWADUG, TMPM4K2FYADUG TMPM4K4FSAFG, TMPM4K4FSAUG, TMPM4K4FUAFG, TMPM4K4FUAUG TMPM4K4FWAFG, TMPM4K4FWAUG, TMPM4K4FYAFG, TMPM4K4FYAUG
	M4K(2)	TMPM4KLDFDG, TMPM4KLFDUG, TMPM4KLFWFG, TMPM4KLFWUG, TMPM4KLIFYFG, TMPM4KLIFYUG TMPM4KMFDDFG, TMPM4KMFDFG, TMPM4KMFWDFG, TMPM4KMFWFG, TMPM4KMFYDFG, TMPM4KMFYFG TMPM4KNFDDFG, TMPM4KNFDFG, TMPM4KNFWDFG, TMPM4KNFWFG, TMPM4KNFYDFG, TMPM4KNFYFG TMPM4KPFDDFG, TMPM4KPFWDFG, TMPM4KPFYDFG TMPM4KQFDFG, TMPM4KQFWFG, TMPM4KQFYFG
	M4L(1)	TMPM4L1FWUG, TMPM4L2FWDUG

Family	Group	Products
	M4G(1)	TMPM4G6F10FG, TMPM4G6FDFG, TMPM4G6FEFG TMPM4G7F10FG, TMPM4G7FDFG, TMPM4G7FEFG TMPM4G8F10FG, TMPM4G8F10XBG, TMPM4G8F15FG, TMPM4G8F15XBG TMPM4G8FDFG, TMPM4G8FDXBG, TMPM4G8FEFG, TMPM4G8FEXBG TMPM4G9F10FG, TMPM4G9F10XBG, TMPM4G9F15FG, TMPM4G9F15XBG TMPM4G9FDFG, TMPM4G9FDXBG, TMPM4G9FEFG, TMPM4G9FEXBG
TXZ+	M3H(1)	TMPM3HQFDAFG, TMPM3HQFZAFG, TMPM3HQFYAFG TMPM3HPFDAFG, TMPM3HPFZAFG, TMPM3HPFYAFG TMPM3HPFDADFG, TMPM3HPFZADFG, TMPM3HPFYADFG TMPM3HNFDAFG, TMPM3HNFZAFG, TMPM3HNFYAFG TMPM3HNFDAFG, TMPM3HNFZADFG, TMPM3HNFYADFG TMPM3HMFDAFG, TMPM3HMFZAFG, TMPM3HMFYAFG TMPM3HLFDAUG, TMPM3HLFZAUG, TMPM3HLFYAUG
	M4G(1)	TMPM4GNF10FG, TMPM4GNF15FG, TMPM4GNF20FG, TMPM4GNFDFG TMPM4GQF10FG, TMPM4GQF10XBG, TMPM4GQF15FG, TMPM4GQF15XBG TMPM4GQF20FG, TMPM4GQF20XBG, TMPM4GQFDFG, TMPM4GQFDXBG TMPM4GRF10FG, TMPM4GRF10XBG, TMPM4GRF15FG, TMPM4GRF15XBG TMPM4GRF20FG, TMPM4GRF20XBG, TMPM4GRFDFG, TMPM4GRFDXBG
	M4N(1)	TMPM4NNF10FG, TMPM4NNF15FG, TMPM4NNF20FG, TMPM4NNFDFG TMPM4NQF10FG, TMPM4NQF10XBG, TMPM4NQF15FG, TMPM4NQF15XBG TMPM4NQF20FG, TMPM4NQF20XBG, TMPM4NQFDFG, TMPM4NQFDXBG TMPM4NRF10FG, TMPM4NRF10XBG, TMPM4NRF15FG, TMPM4NRF15XBG TMPM4NRF20FG, TMPM4NRF20XBG, TMPM4NRFDFG, TMPM4NRFDXBG
	M4K(2)	TMPM4KHFWAUG, TMPM4KHFYAUG TMPM4KLFWAFG, TMPM4KLFWAUG, TMPM4KLFYAFG, TMPM4KLFYAUG TMPM4KMFWAFG, TMPM4KMFYAFG TMPM4KNFWADFG, TMPM4KNFWAFG, TMPM4KNFYADFG, TMPM4KNFYAFG
	M4M(1)	TMPM4MLFWAFG, TMPM4MLFWAUG, TMPM4MLFYAFG, TMPM4MLFYAUG TMPM4MMFWAFG, TMPM4MMFYAFG TMPM4MNFWDADFG, TMPM4MNFWAFG, TMPM4MNFYADFG, TMPM4MNFYAFG

2. Details

2.1. Details on the description error

There is one description error in the reference manual for the flash memory, "1. Outline" section, regarding the functional description for user information area.

Regarding the protection function, the comments section describes "it is the same as the same address of a code flash.", but actually there is no protection function for user information area. Please let us remove the description.

Table 2.1 Functional description (user information area) (Before correction)

Flash memory	Function classification	Function	Functional Description	Comments
User information area (Code Flash) 4KB	Programming and Erasing	Automatic Programming	Data programming is performed at 4 words (16 bytes).	
		Automatic page erasing	Erasing all the User information area is performed automatically.	Error
	Program/erase protection	Protection	Programming and erasing can be prohibited per block.	It is the same as the same address of a code flash.
	Security	Security	Prohibition of read-out of the flash memory by a flash writer and the usage restrictions of a debugging function can be carried out.	It is controlled by the operation on the code flash side.
	Execute Instruction	-	-	Execution of instruction cannot be performed.

Table 2.2 Functional description (user information area) (After correction)

Flash memory	Function classification	Function	Functional Description	Comments
User information area (Code Flash) 4KB	Programming and Erasing	Automatic Programming	Data programming is performed at 4 words (16 bytes).	
		Automatic page erasing	Erasing all the User information area is performed automatically.	
	Security	Security	Prohibition of read-out of the flash memory by a flash writer and the usage restrictions of a debugging function can be carried out.	It is controlled by the operation on the code flash side.
	Execute Instruction	-	-	Execution of instruction cannot be performed.

2.2. Problems when using user information area

The following figure shows the relationship between code flash area and user information area. Those are physically independent and only one exists on the address map.

In order to access user information area, the procedure for bank switching is necessary. Therefore, even if there is no protection function, it is never happened to write or erase user information area by mistake when using code flash.

Code Flash Area		Program/erase/read address
Block0	PG0	0x5E000000-0x5E000FFF
	PG1	0x5E001000-0x5E001FFF
	PG2	0x5E002000-0x5E002FFF
	PG3	0x5E003000-0x5E003FFF
	PG4	0x5E004000-0x5E004FFF
	PG5	0x5E005000-0x5E005FFF
	PG6	0x5E006000-0x5E006FFF
	PG7	0x5E007000-0x5E007FFF
Block1		0x5E008000-0x5E00FFFF
Block2		0x5E010000-0x5E017FFF
:		:



User Information Area		Program/erase/read address
-	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
Page5		0x5E005000-0x5E005FFF
-	-	-
	-	-
	-	-
:		: