■Self RAM list of Flash Self-Programming Library for RL78 Family

2015/06
R20UT2944EJ0200

This document is a list of self RAM area which are needed when using the following library (European Release/Japanese Release) of RL78 Family.
Target region of "European Release" and "Japanese Release" differs.

●European Release
Target region:
Americas/ Brasil/ Europe/ Middle East Africa/ Russia

Library Note	Representation in List
Flash Self-programming Library Type T01	FSL T01
Data Flash Access Library Type T04 (Pico)	FDL T04
Data Flash Access Library FDL – T01	FDL T01
Data Flash Access Library Type T02 (Tiny)	FDL T02
EEPROM Emulation Library EEL – T01	EEL T01
EEPROM Emulation Library Type T02 (Tiny)	EEL T02

●Japanese Release
Target region:
Japan/ Mainland China/ Hong Kong/ Singapore/ South & Southeast Asia/ Oceania/ India/ South Korea/ Taiwan

Library Note	Representation in List
Flash Self-programming Library (Code Flash Library) Type01	FSL Type01
Data Flash Library Type04	FDL Type04
EEPROM Emulation Library Pack01	EEL Pack01
EEPROM Emulation Library Pack02	EEL Pack02

Note: Do not allocate the stack area, data buffers for use by the flash library, arguments of library functions, branch destinations in the processing of vectored interrupts, or destinations or sources for DMA transfer to the area from FFE20H to FFEDFH when performing self-programming or rewriting of the data flash memory.

–: Since MCU has a dedicated area for Self RAM, reservation of Self RAM area is unnecessary.

MCU Group	Memory size (bytes)			Self RAM areas note1							Target MCU name
	Code flash memory	RAM	Data flash memory	FSL T01 FSL Type01 Self RAM size 1Kbytes		FDL T04 FDL Type04 Self RAM size 136bytes	FDL T01 Self RAM size 192bytes	FDL T02 Self RAM size 160bytes	EEL T01 EEL Pack01 Self RAM size 1022bytes (max) note2	EEL T02 EEL Pack02 Self RAM size 384bytes (max) note3	
RL78/D1A	24K	2K	8K	–		–	–	–	–	–	R5F10CGB
	32K	2K	8K	–		–	–	–	–	–	R5F10CGC, R5F10DGC
	48K	3K	8K	–	note4	–	–	–	–	–	R5F10CxD(x = G, L, M), R5F10DxD(x = G, L, M)
	64K	4K	8K	FEF00H– FF2FFH	note5	FEF00H– FEF87H	FEF00H– FEFBFH	FEF00H– FEF9FH	FEF00H– FF2FDH	FEF00H– FF07FH	R5F10CME, R5F10DxE(x = G, L, M, P)
	96K	6K	8K	–		–	–	–	–	–	R5F10DMF, R5F10DPF
	128K	8K	8K	–		–	–	–	–	–	R5F10DMG, R5F10DPG
	256K	16K	8K	FBF00H– FC2FFH	note5	FBF00H– FBF87H	FBF00H– FBFBFH	FBF00H– FBF9FH	FBF00H– FC2FDH	FBF00H– FC07FH	R5F10DMJ, R5F10TPJ, R5F10DPJ
	256K	16K	8K	–		–	–	–	–	–	R5F10DSJ
	384K	20K	8K	–		–	–	–	–	–	R5F10DPK, R5F10DSK
	512K	24K	8K	F9F00H– FA2FFH	note5	F9F00H– F9F87H	F9F00H– F9FBFH	F9F00H– F9F9FH	F9F00H– FA2FFH	F9F00H– FA07FH	R5F10DPL, R5F10DSL
RL78/F12	8K	512	4K	–		–	–	–	Not supported	–	R5F10968
	16K	1K	4K	–		–	–	–	–	–	R5F109xA(x = 6, A, B, G, L)
	24K	1.5K	4K	–		–	–	–	–	–	R5F109xB(x = 6, A, B, G, L)
	32K	2K	4K	–		–	–	–	–	–	R5F109xC(x = 6, A, B, G, L)
	48K	3K	4K	–	note4	–	–	–	–	–	R5F109xD(x = 6, A, B, G, L)
	64K	4K	4K	FEF00H– FF2FFH	note5	FEF00H– FEF87H	FEF00H– FEFBFH	FEF00H– FEF9FH	FEF00H– FF2FDH	FEF00H– FF07FH	R5F109xE(x = 6, A, B, G, L)
RL78/F13	16K	1K	4K	–		–	–	–	–	–	R5F10AmA(m = 6, A, B, G)
	32K	2K	4K	–		–	–	–	–	–	R5F10AmC(m = 6, A, B, G, L), R5F10BnC(n = A, B, G, L)
	48K	3K	4K	–	note4	–	–	–	–	–	R5F10AmD(m = 6, A, B, G, L), R5F10BnD(n = A, B, G, L)
	64K	4K	4K	FEF00H– FF2FFH	note5	FEF00H– FEF87H	FEF00H– FEFBFH	FEF00H– FEF9FH	FEF00H– FF2FDH	FEF00H– FF07FH	R5F10AmE(m = 6, A, B, G, L)
	64K	4K	4K	–		–	–	–	–	–	R5F10AME, R5F10BmE(m = A, B, G, L, M)
	96K	6K	4K	–		–	–	–	–	–	R5F10AmF(m = G, L, M), R5F10BnF (n = A, B, G, L, M)
	128K	8K	4K	FDF00H– FE2FFH	note5	FDF00H– FDF87H	FDF00H– FDFBFH	FDF00H– FDF9FH	FDF00H– FE2FDH	FDF00H– FE07FH	R5F10AmG(m = G, L, M), R5F10BnG (n = A, B, G, L, M)
RL78/F14	48K	4K	4K	–		–	–	–	–	–	R5F10PmD(m = A, B, G)
	64K	6K	4K	–		–	–	–	–	–	R5F10PmE(m = A, B, G, L, M, P)
	96K	8K	4K	FDF00H– FE2FFH	note5	FDF00H– FDF87H	FDF00H– FDFBFH	FDF00H– FDF9FH	FDF00H– FE2FDH	FDF00H– FE07FH	R5F10PmF(m = G, L, M)
	96K	8K	4K	–		–	–	–	–	–	R5F10PPF
	128K	10K	8K	–		–	–	–	–	–	R5F10PmG(m = G, L, M, P)
	192K	16K	8K	–		–	–	–	–	–	R5F10PmH(m = G, L, M, P)
	256K	20K	8K	FAF00H– FB2FFH	note5	FAF00H– FAF87H	FAF00H– FAFBFH	FAF00H– FAF9FH	FAF00H– FB2FDH	FAF00H– FB07FH	R5F10PmJ(m = G, L, M, P)
RL78/G10	4K	256	None	Not supported							R5F10Yx4(x = 1, 4)
	2K	512	None								R5F10Yx6(x = 1, 4)
	1K	768	None								R5F10Yx7(x = 1, 4)
RL78/G12 note6	2K	256	2K	Not supported		–	Not supported	Not supported	Not supported	Not supported	R5F10266
	4K	512	2K	–		–	–	–			R5F10267, R5F10277, R5F102A7
	8K	768	2K	FFC00H– FFC7FH	note5	–	–	–			R5F10268, R5F10278
	12K	1K	2K	FFB00H– FFC7FH	note5	–	–	–			R5F10269, R5F10279
	16K	1.5K	2K	FF900H– FFC7FH	note5	FF900H– FF987H	FF900H– FF9BFH	FF900H– FF99FH			R5F1026A, R5F1027A
	8K	768	2K	–		–	–	–			R5F102A8
	12K	1K	2K	–		–	–	–			R5F102A9
	16K	2K	2K	–		–	–	–			R5F102AA
	2K	256	None	Not supported							R5F10366
	4K	512	None	–							R5F10367, R5F10377, R5F103A7
	8K	768	None	FFC00H– FFC7FH	note5						R5F10368, R5F10378
	12K	1K	None	FFB00H– FFC7FH	note5						R5F10369, R5F10379
	16K	1.5K	None	FF900H– FFC7FH	note5	Not supported	Not supported	Not supported	Not supported	Not supported	R5F1036A, R5F1037A
	8K	768	None	–							R5F103A8
	12K	1K	None	–							R5F103A9
	16K	2K	None	–							R5F103AA
RL78/G13	16K	2K	4K	–		–	–	–	–	–	R5F100xA(x = 6–8, A–C, E–G)
	32K	2K	4K	–		–	–	–	–	–	R5F100xC(x = 6–8, A–C, E–G, J, L)
	48K	3K	4K	–	note4	–	–	–	–	–	R5F100xD(x = 6–8, A–C, E–G, J, L)
	64K	4K	4K	FEF00H– FF2FFH	note5	FEF00H– FEF87H	FEF00H– FEFBFH	FEF00H– FEF9FH	FEF00H– FF2FFH	FEF00H– FF07FH	R5F100xE(x = 6–8, A–C, E–G, J, L)
	96K	8K	8K	–		–	–	–	–	–	R5F100xF(x = A–C, E–G, J, L, M, P)
	128K	12K	8K	–		–	–	–	–	–	R5F100xG(x = A–C, E–G, J, L, M, P)
	192K	16K	8K	–		–	–	–	–	–	R5F100xH(x = E–G, J, L, M, P, S)
	256K	20K	8K	FAF00H– FB2FFH	note5	FAF00H– FAF87H	FAF00H– FAFBFH	FAF00H– FAF9FH	FAF00H– FB2FFH	FAF00H– FB07FH	R5F100xJ(x = F, G, J, L, M, P)
	256K	20K	8K	–		–	–	–	–	–	R5F100SJ
	384K	24K	8K	–		–	–	–	–	–	R5F100xK(x = F, G, J, L, M, P, S)
	512K	32K	8K	F7F00H– F82FFH	note5	F7F00H– F7F87H	F7F00H– F7FBFH	F7F00H– F7F9FH	F7F00H– F82FFH	F7F00H– F807FH	R5F100xL(x = F, G, J, L, M, P, S)
	16K	2K	None	–							R5F101xA(x = 6–8, A–C, E–G)
	32K	2K	None	–							R5F101xC(x = 6–8, A–C, E–G, J, L)
	48K	3K	None	–	note4						R5F101xD(x = 6–8, A–C, E–G, J, L)
	64K	4K	None	FEF00H– FF2FFH	note5						R5F101xE(x = 6–8, A–C, E–G, J, L)
	96K	8K	None	–							R5F101xF(x = A–C, E–G, J, L, M, P)
	128K	12K	None	–		Not supported	Not supported	Not supported	Not supported	Not supported	R5F101xG(x = A–C, E–G, J, L, M, P)
	192K	16K	None	–							R5F101xH(x = E–G, J, L, M, P, S)
	256K	20K	None	FAF00H– FB2FFH	note5						R5F101xJ(x = F, G, J, L, M, P)
	256K	20K	None	–							R5F101SJ
	384K	24K	None	–							R5F101xK(x = F, G, J, L, M, P, S)
	512K	32K	None	F7F00H– F82FFH	note5						R5F101xL(x = F, G, J, L, M, P, S)

MCU Group	Memory size (bytes)			Self RAM areas note1							Target MCU name
	Code flash memory	RAM	Data flash memory	FSL T01 FSL Type01 Self RAM size 1Kbytes		FDL T04 FDL Type04 Self RAM size 136bytes	FDL T01 Self RAM size 192bytes	FDL T02 Self RAM size 160bytes	EEL T01 EEL Pack01 Self RAM size 1022bytes (max) note2	EEL T02 EEL Pack02 Self RAM size 384bytes (max) note3	
RL78/G14	16K	2.5K	4K	–		–	–	–	–	–	R5F104xA(x = A-C, E-G)
	32K	4K	4K	–		–	–	–	–	–	R5F104xC(x = A-C, E-G, J, L)
	48K	5.5K	4K	FE900H- FECFFH	note5	FE900H- FE987H	FE900H- FE9BFH	FE900H- FE99FH	FE900H- FECFDH	FE900H- FEA7FH	R5F104xD(x = A-C, E-G, J, L)
	64K	5.5K	4K	FE900H- FECFFH	note5	FE900H- FE987H	FE900H- FE9BFH	FE900H- FE99FH	FE900H- FECFDH	FE900H- FEA7FH	R5F104xE(x = A-C, E-G, J, L)
	96K	12K	8K	–		–	–	–	–	–	R5F104xF(x = A-C, E-G, J, L, M, P)
	128K	16K	8K	–		–	–	–	–	–	R5F104xG(x = A-C, E-G, J, L, M, P)
	192K	20K	8K	–		–	–	–	–	–	R5F104xH(x = E-G, J, L, M, P)
	256K	24K	8K	F9F00H- FA2FFH	note5	F9F00H- F9F87H	F9F00H- F9FBFH	F9F00H- F9F9FH	F9F00H- FA2FDH	F9F00H- FA07FH	R5F104xJ(x = F, G, J, L, M, P)
	384K	32K	8K	–		–	–	–	–	–	R5F104xK(x = G, L, M, P)
	512K	48K	8K	F3F00H- F42FFH	note5	F3F00H- F3F87H	F3F00H- F3FBFH	F3F00H- F3F9FH	F3F00H- F42FFH	F3F00H- F407FH	R5F104xL(x = G, L, M, P)
RL78/G1A	16K	2K	4K	–		–	–	–	–	–	R5F10ExA(x = 8, B, G)
	32K	2K	4K	–		–	–	–	–	–	R5F10ExC(x = 8, B, G, L)
	48K	3K	4K	–	note4	–	–	–	–	–	R5F10ExD(x = 8, B, G, L)
	64K	4K	4K	FEF00H- FF2FFH	note5	FEF00H- FEF87H	FEF00H- FEFBFH	FEF00H- FEF9FH	FEF00H- FF2FDH	FEF00H- FF07FH	R5F10ExE(x = 8, B, G, L)
RL78/G1C	32K	5.5K	2K	FE900H- FECFFH	note5	FE900H- FE987H	FE900H- FE9BFH	FE900H- FE99FH	Not supported		R5F10JxC(x = B, G), R5F10KxC(x = B, G)
RL78/G1D	128K	12K	8K	–		–	–	–	–	–	R5F11AGG
	192K	16K	8K	–		–	–	–	–	–	R5F11AGH
	256K	20K	8K	FAF00H- FB2FFH	note5	FAF00H- FAF87H	FAF00H- FAFBFH	FAF00H- FAF9FH	FAF00H- FB2FFH	FAF00H- FB07FH	R5F11AGJ
RL78/G1E	32K	2K	4K	–		–	–	–	–	–	R5F10FxC(x = L, M)
	48K	3K	4K	–	note4	–	–	–	–	–	R5F10FxD(x = L, M)
	64K	4K	4K	FEF00H- FF2FFH	note5	FEF00H- FEF87H	FEF00H- FEFBFH	FEF00H- FEF9FH	FEF00H- FF2FDH	FEF00H- FF07FH	R5F10FxE(x = L, M)
RL78/G1F	32K	5.5K	4K	FE900H- FECFFH	note5	FE900H- FE987H	FE900H- FE9BFH	FE900H- FE99FH	FE900H- FECFFH	FE900H- FEA7FH	R5F11BxC (x = 7, B, C, G, L)
	64K	5.5K	4K	FE900H- FECFFH	note5	FE900H- FE987H	FE900H- FE9BFH	FE900H- FE99FH	FE900H- FECFFH	FE900H- FEA7FH	R5F11BxE (x = 7, B, C, G, L)
RL78/G1G note6	8K	1.5K	None	FF900H- FFC7FH	note5	Not supported					R5F11Ex8 (x = A, B, F)
	16K	1.5K	None	FF900H- FFC7FH	note5						R5F11ExA (x = A, B, F)
RL78/I1A	32K	2K	4K	–		–	–	–	–	–	R5F1076C, R5F107AC
	64K	4K	4K	FEF00H- FF2FFH	note5	FEF00H- FEF87H	FEF00H- FEFBFH	FEF00H- FEF9FH	FEF00H- FF2FDH	FEF00H- FF07FH	R5F107AE, R5F107DE
RL78/I1D	8K	768	2K	–		–	–	–	Not supported		R5F117x8(x = 6, 7, A)
	16K	2K	2K	–	note4	–	–	–			R5F117xA(x = 6, 7, A, B, G)
	32K	3K	2K	FF300H- FF6FFH	note5	FF300H- FF387H	FF300H- FE3BFH	FF300H- FF39FH			R5F117xC(x = A, B, G)
RL78/L12 note6	8K	1K	2K	FFB00H- FFC7FH	note5	–	–	–	Not supported		R5F10Rx8(x = B, F, G, J)
	16K	1K	2K	FFB00H- FFC7FH	note5	–	–	–			R5F10RxA(x = B, F, G, J, L)
	32K	1.5K	2K	FF900H- FFC7FH	note5	FF900H- FF987H	FF900H- FF9BFH	FF900H- FF99FH			R5F10RxC(x = B, F, G, J, L)
RL78/L13	16K	1K	4K	–		–	–	–	–	–	R5F10WLA, R5F10WMA
	32K	1.5K	4K	–		–	–	–	–	–	R5F10WLC, R5F10WMC
	48K	2K	4K	–		–	–	–	–	–	R5F10WLD, R5F10WMD
	64K	4K	4K	–		–	–	–	–	–	R5F10WLE, R5F10WME
	96K	6K	4K	–		–	–	–	–	–	R5F10WLF, R5F10WMF
	128K	8K	4K	FDF00H- FE2FFH	note5	FDF00H- FDF87H	FDF00H- FDFBFH	FDF00H- FDF9FH	FDF00H- FE2FDH	FDF00H- FE07FH	R5F10WLG, R5F10WMG
RL78/L1C	64K	8K	8K	–		–	–	–	–	–	R5F110xE(x = M, N, P), R5F111xE(x = M, N, P)
	96K	10K	8K	–		–	–	–	–	–	R5F110xF(x = M, N, P), R5F111xF(x = M, N, P)
	128K	12K	8K	–		–	–	–	–	–	R5F110xG(x = M, N, P), R5F111xG(x = M, N, P)
	192K	16K	8K	FBF00H- FC2FFH	note5	FBF00H- FBF87H	FBF00H- FBFBFH	FBF00H- FBF9FH	FBF00H- FC2FDH	FBF00H- FC07FH	R5F110xH(x = M, N, P), R5F111xH(x = M, N, P)
	256K	16K	8K	FBF00H- FC2FFH	note5	FBF00H- FBF87H	FBF00H- FBFBFH	FBF00H- FBF9FH	FBF00H- FC2FDH	FBF00H- FC07FH	R5F110xJ(x = M, N, P), R5F111xJ(x = M, N, P)

note1
The start address of Self RAM areas is fixed, and the total size of Self RAM is reserved in the direction of upper address.

note2
The Self RAM size used by EEL T01 and EEL Pack01 is dependent on the number of "EEL variables (DataID)" to be used.
Please find size of Self RAM using the following calculating formula.
512 + N * 2 byte, where N=1~255: number of the EEL variables(Data ID)

note3
The Self RAM size used by EEL T02 and EEL Pack02 is dependent on the number of "EEL variables (DataID)" to be used.
Please find size of Self RAM using the following calculating formula.
256 + N * 2 byte, where N=1~64: number of the EEL variables(Data ID)

note4
In case of using less than V2.20 of FSL T01 and FSL Type01, Self RAM area is "FF300H-FF309H".

note5
In case of using less than V2.20 of FSL T01 and FSL Type01, the 10 bytes addition is necessary for the upper address direction for Self RAM area.
ex.> RL78/G13 ROM:64KB, RAM:4KB : FEF00H-FF2FFH+10 bytes → FEF00H-FF309H
In case of using less than V2.20 of FSL T01 and FSL Type01, Self RAM area is "FEF00H-FF309H".

note6
Functions supported in FSL T01 and FSL Type01 are only basic functions.
Other functions are not supported.
Basic function:FSL_Init,FSL_Open,FSL_Close,FSL_PrepareFunctions,FSL_BlankCheck,FSL_Erase,FSL_IVerify,FSL_Write,FSL_StatusCheck

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