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## Key Features of Renesas Electronics' New RL78/G12 and RL78/G13 MCUs

Group name	RL78/G12						
Pin count	20-pin		24-pin		30-pin		
Part No.	R5F1026	R5F1036	R5F1027	R5F1037	R5F102A	R5F103A	
Flash ROM (Bytes)	2K~16K		4K~16K				
Data Flash (Bytes)	2K	–	2K	–	2K	–	
RAM (Bytes)	256~1.5K		512~1.5K		512~2K		
Clock Generator	<ul style="list-style-type: none"> <li>• Crystal/Ceramic 1MHz~20MHz</li> <li>• High-Speed OCO 24/16/12/8/4/1 MHz</li> <li>• Low-Speed OCO 15KHz</li> </ul>						
I/O	16		22		26		
Timer <sup>Note 1</sup>	16-bit 2ch 8/16-bit 2ch 12-bit 1ch				16-bit 6ch 8/16-bit 2ch 12-bit 1ch		
10-bit A/D	11ch				8ch		
Serial Interface	CSI	2	1	2	1	3	1
	UART	1	1	1	1	3	1
<sup>Note 2</sup>	Simple I <sup>2</sup> C	2	0	2	0	3	0
I <sup>2</sup> C	1ch						
Ext. Interrupt	5ch				6ch		
DMA	2ch	–	2ch	–	2ch	–	
Other peripherals	Multiplier/Divider/MAC, Voltage Detector (LVD), Power-On Reset (POR), Key Return <sup>Note 3</sup> , Safety Function <sup>Note 4</sup>						
Power supply voltage	1.8V~5.5V						
Operating ambient temperature	–40°C~85°C						

Group name	RL78/G13					
Pin count	20-pin	24-pin	25-pin	30-pin	32-pin	36-pin
Part No.	R5F1006	R5F1007	R5F1008	R5F100A	R5F100B	R5F100C
*Without Data Flash	R5F1016*	R5F1017*	R5F1018*	R5F101A*	R5F101B*	R5F101C*
Flash ROM (Bytes)	16K~64K			16K~128K		
Data Flash (Bytes)	4K					
RAM (Bytes)	2K~4K			2K~12K		
Clock Generator	<ul style="list-style-type: none"> <li>• Crystal/Ceramic 1MHz~20MHz</li> <li>• High-Speed OCO 32/24/16/12/8/4/1 MHz</li> <li>• Low-Speed OCO 15KHz</li> </ul>					
I/O	16	20	20	26	28	28
TimerNote 1	16-bit 6ch 8/16-bit 2ch 12-bit 1ch					
10-bit A/D	6ch			8ch		
Serial Interface Note 2	CSI	2		3		
	UART	2		3		
	Simple I <sup>2</sup> C	2		3		
I <sup>2</sup> C	–	1ch				
Ext. Interrupt	3ch	4ch	5ch	6ch		
DMA	2ch					
Other peripherals	Multiplier/Divider/MAC, Voltage Detector (LVD), Power-On Reset (POR), Key ReturnNote 3, Safety FunctionNote 4					
Power supply voltage	1.6V~5.5V					
Operating ambient temperature	–40°C~85°C					

Group name	RL78/G13			
Pin count	40-pin	44-pin	48-pin	52-pin
Part No.	R5F100E	R5F100F	R5F100G	R5F100J
*Without Data Flash	R5F101E*	R5F101F*	R5F101G*	R5F101J*
Flash ROM (Bytes)	16K~192K	16K~512K		32K~512K
Data Flash (Bytes)	4K			
RAM (Bytes)	2K~16K	2K~32K		
Clock Generator	<ul style="list-style-type: none"> <li>• Crystal/Ceramic 1MHz~20MHz, 32.768KHz</li> <li>• High-Speed OCO 32/24/16/12/8/4/1 MHz <ul style="list-style-type: none"> <li>• Low-Speed OCO 15KHz</li> </ul> </li> </ul>			
I/O	36	40	44	48
TimerNote 1	16-bit 6ch 8/16-bit 2ch 12-bit 1ch			
10-bit A/D	9ch	10ch		12ch
Serial Interface Note 2	CSI	4		5
	UART	3		3
	Simple I <sup>2</sup> C	4		5
I <sup>2</sup> C	1ch			
Ext. Interrupt	6ch		9ch	11ch
DMA	2ch			
Other peripherals	Multiplier/Divider/MAC, Voltage Detector (LVD), Power-On Reset (POR), Key Return, Safety Function, Real-Time Clock			
Power supply voltage	1.6V~5.5V			
Operating ambient temperature	-40°C~85°C			

Group name	RL78/G13			
Pin count	64-pin	80-pin	100-pin	128-pin
Part No.	R5F100L	R5F100M	R5F100P	R5F100S
*Without Data Flash	R5F101L*	R5F101M*	R5F101P*	R5F101S*
Flash ROM (Bytes)	32K~512K	96K~512K		192K~512K
Data Flash (Bytes)	4K	8K		
RAM (Bytes)	2K~32K	8K~32K		16K~32K
Clock Generator	<ul style="list-style-type: none"> <li>• Crystal/Ceramic 1MHz~20MHz, 32.768KHz</li> <li>• High-Speed OCO 32/24/16/12/8/4/1 MHz <ul style="list-style-type: none"> <li>• Low-Speed OCO 15KHz</li> </ul> </li> </ul>			
I/O	58	74	94	120
TimerNote 1	16-bit 6ch 8/16-bit 2ch 12-bit 1ch	16-bit 8ch 8/16-bit 4ch 12-bit 1ch		16-bit 12ch 8/16-bit 4ch 12-bit 1ch
10-bit A/D	12ch	17ch	20ch	26ch
Serial Interface Note 2	CSI UART Simple I <sup>2</sup> C	6 3 6	8 4 8	
I <sup>2</sup> C	1ch	2ch		
Ext. Interrupt	12ch			
DMA	2ch	4ch		
Other peripherals	Multiplier/Divider/MAC, Voltage Detector (LVD), Power-On Reset (POR), Key Return, Safety Function, Real-Time Clock			
Power supply voltage	1.6V~5.5V			
Operating ambient temperature	-40°C~85°C			

Note 1. 8/16-bit timer can be used as 8-bit timer × 2ch or 16-bit timer × 1ch. 12-bit timer is only for interval timer.

Note 2. Maximum value when used by itself. For example, UART and simplified I2C can not be used when R5F1026 is used with CSI x 2ch.

Note 3. R5F102A and R5F103A are not supported.

Note 4. As for R5F1036, R5F1037 and R5F103A, only a part of the function is supported.