



IC

微控制器

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微控制器

► 高性能、高性能 & 低功耗强化微控制器(高抗噪性能) ► 16bit ML621000系列

高性能、高性能 & 低功耗强化微控制器(高抗噪性能)

16bit ML621000系列

标准型 1200组 16bit低功耗强化微控制器													
Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM				Functions / Features		
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port		
		Low Speed	High Speed								Input	Output	Input/Output
☆ML62Q1223	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	16K	2K	2K	—	—	12
☆ML62Q1224	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	24K	2K	2K	—	—	12
☆ML62Q1225	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	2K	—	—	12
☆ML62Q1233	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	16K	2K	2K	—	—	16
☆ML62Q1234	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	24K	2K	2K	—	—	16
☆ML62Q1235	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	2K	—	—	16
☆ML62Q1245	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	20
☆ML62Q1246	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	20
☆ML62Q1247	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	20
☆ML62Q1265	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	28
☆ML62Q1266	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	28
☆ML62Q1267	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	28
标准型 1400组 16bit低功耗强化微控制器													
☆ML62Q1430	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	44
☆ML62Q1431	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	44
☆ML62Q1432	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	44
☆ML62Q1440	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	48
☆ML62Q1441	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	48
☆ML62Q1442	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	48
☆ML62Q1450	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	60
☆ML62Q1451	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	60
☆ML62Q1452	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	60
搭载LCD驱动器 段码式 1600组 16bit低功耗强化微控制器													
☆ML62Q1600	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	31
☆ML62Q1601	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	31
☆ML62Q1602	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	31
☆ML62Q1610	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	35
☆ML62Q1611	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	35
☆ML62Q1612	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	35
☆ML62Q1620	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	32K	2K	4K	—	—	47
☆ML62Q1621	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	48K	2K	4K	—	—	47
☆ML62Q1622	1.6 to 5.5	32kHz (Internal RC oscillation)	24MHz (PLL oscillation)	41ns/ 30.5μs	(TBD) (Internal RC oscillation)	-40 to +85 (-40 to +105)	Flash	64K	2K	4K	—	—	47

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低功耗强化微控制器(高抗噪性能)

8bit ML6101xx

标准型 8bit低功耗强化微控制器													
Part No.	Operating Conditions						ROM/RAM				Functions / Features		
	Operating Voltage (V)	Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port		
		Low Speed	High Speed								Input	Output	Input/Output
ML610Q101	2.7 to 5.5	32.768kHz (Internal RC oscillation)	8.192MHz	0.122μs/ 30.5μs	—	−40 to +85	Flash	4K	—	256	—	—	11
ML610Q102	2.7 to 5.5	32.768kHz (Internal RC oscillation)	8.192MHz	0.122μs/ 30.5μs	—	−40 to +85	Flash	6K	—	256	—	—	11
ML610Q111	2.7 to 5.5	32.768kHz (Internal RC oscillation)	8.192MHz	0.122μs/ 30.5μs	—	−40 to +105	Flash	24K	4K	2K	—	—	15
ML610Q112	2.7 to 5.5	32.768kHz (Internal RC oscillation)	8.192MHz	0.122μs/ 30.5μs	—	−40 to +105	Flash	32K	4K	4K	—	—	25
搭载LCD驱动器 段码式 8bit低功耗强化微控制器													
ML610Q172	2.2 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.0μA	−40 to +85	Flash	128K	2K	4K	6	2	37
ML610Q173	2.2 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.0μA	−40 to +85	Flash	128K	2K	4K	6	2	37
ML610Q174	2.2 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.0μA	−40 to +85	Flash	128K	2K	4K	6	6	49
ML610Q178	2.2 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.0μA	−40 to +85	Flash	128K	—	4K	7	8	59

16bit ML6201xx

标准型 16bit低功耗强化微控制器													
Part No.	Operating Conditions						ROM/RAM				Functions / Features		
	Operating Voltage (V)	Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port		
		Low Speed	High Speed								Input	Output	Input/Output
ML620Q131/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	8K	2K	2K	1	—	10
ML620Q132/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	16K	2K	2K	1	—	10
ML620Q133/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	24K	2K	2K	1	—	10
ML620Q134/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	8K	2K	2K	1	—	14
ML620Q135/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	16K	2K	2K	1	—	14
ML620Q136/B	1.6 to 5.5	32.768kHz (Internal RC oscillation)	16MHz	62.5 ns/ 30.5μs	3.5μA (Internal RC oscillation)	−40 to +105	Flash	24K	2K	2K	1	—	14
ML620Q151A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	32K	2K	2K	5 (Use crystal oscillation) 6 (Not use crystal oscillation)	4	30 (Use crystal oscillation) 31 (Not use crystal oscillation)
ML620Q152A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	48K	2K	2K	5 (Use crystal oscillation) 6 (Not use crystal oscillation)	4	30 (Use crystal oscillation) 31 (Not use crystal oscillation)
ML620Q153A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	64K	2K	2K	5 (Use crystal oscillation) 6 (Not use crystal oscillation)	4	30 (Use crystal oscillation) 31 (Not use crystal oscillation)
ML620Q154A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	32K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	33 (Use crystal oscillation) 34 (Not use crystal oscillation)
ML620Q155A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	48K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	33 (Use crystal oscillation) 34 (Not use crystal oscillation)
ML620Q156A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	64K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	33 (Use crystal oscillation) 34 (Not use crystal oscillation)
ML620Q157A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	32K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	45 (Use crystal oscillation) 46 (Not use crystal oscillation)
ML620Q158A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	48K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	45 (Use crystal oscillation) 46 (Not use crystal oscillation)
ML620Q159A/B	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/ 30.5μs	2.5 (Crystal oscillation) 3.5 (Internal RC oscillation)	−40 to +105	Flash	64K	2K	2K	6 (Use crystal oscillation) 7 (Not use crystal oscillation)	4	45 (Use crystal oscillation) 46 (Not use crystal oscillation)

(LAPIS Semiconductor产品)

Functions / Features																Industrial Equipment	Notes	Package	Chip Support
8bit Timer	16bit Timer	PWM	WDT	ADC(method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others								
					I ² C	SSIO	UART												
6 (16bit×3)	—	16bit×1 (with dead time)	1	10bit×6 (SA type)	—	—	1	VLS×2	—	5	Analog comparator×2	✓	—	P-SSOP16-0225-0.65 P-WQFN16-0404-0.50	—				
6 (16bit×3)	—	16bit×1 (with dead time)	1	10bit×6 (SA type)	—	—	1	VLS×2	—	5	Analog comparator×2	✓	—	P-SSOP16-0225-0.65 P-WQFN16-0404-0.50	—				
6 (16bit×3)	—	16bit×4 (Complementary type)	1	10bit×6 (SA type)	1	1	2	VLS×2	—	7	Analog comparator×2	✓	—	P-TSSOP20-0225-0.65	—				
6 (16bit×3)	—	16bit×4 (Complementary type)	1	10bit×8 (SA type)	1	1	2	VLS×2	—	7	Analog comparator×2	✓	—	P-LQFP32-0707-0.80	—				
6 (16bit×3)	—	16bit×3 (Supports IGBT control)	1	10bit×12(SA type)	1	2	2 (Half Duplex×2)	BLD×1	Max. 96dot 24seg. ×4com.	4	Low speed frequency correction	—	—	QFP64-P-1414-0.80	—				
6 (16bit×3)	—	16bit×3 (Supports IGBT control)	1	10bit×8(SA type)	1	2	2 (Half Duplex×2)	BLD×1	Max. 96dot 24seg. ×4com.	4	Low speed frequency correction/ Analog comparator	—	—	QFP64-P-1414-0.80	—				
6 (16bit×3)	—	16bit×3 (Supports IGBT control)	1	10bit×12(SA type)	1	2	2 (Half Duplex×2)	BLD×1	Max. 128dot 32seg. ×4com.	4	Low speed frequency correction/ Analog comparator	—	—	QFP80-P-1420-0.80	—				
6 (16bit×3)	—	16bit×2 (Supports IGBT control)	1	10bit×16(SA type)	1	2	2 (Half Duplex×2)	BLD×1	Max. 160dot 40seg. ×4com.	5	Low speed frequency correction	—	—	P-QFP100-1420-0.65	—				

(LAPIS Semiconductor产品)

Functions / Features																Industrial Equipment	Notes	Package	Chip Support
8bit Timer	16bit Timer	PWM	WDT	ADC(method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others								
					I ² C	SSIO	UART												
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×6 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-SSOP16-0225-0.65 P-WQFN16-0404-0.50	—				
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×6 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-SSOP16-0225-0.65 P-WQFN16-0404-0.50	—				
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×6 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-SSOP16-0225-0.65 P-WQFN16-0404-0.50	—				
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×8 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-TSSOP20-0225-0.65	—				
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×8 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-TSSOP20-0225-0.65	—				
10 (16bit×5)	—	16bit×1 (with dead time)	1	10bit×8 (SA type)	Master×1 Slave×1	1	1	VLS×1	—	5	Analog comparator×2	✓	—	P-TSSOP20-0225-0.65	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	7	Analog comparator	—	—	P-TQFP48-0707-0.50	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	7	Analog comparator	—	—	P-TQFP48-0707-0.50	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	7	Analog comparator	—	—	P-TQFP48-0707-0.50	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-TQFP52-1010-0.65	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-TQFP52-1010-0.65	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-TQFP52-1010-0.65	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-QFP64-1414-0.80	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-QFP64-1414-0.80	—				
2 (16bit×1)	4	16bit×4 (Complementary type)	1	10bit×12 (SA type)	1	1	2 (Half Duplex×2, Full Duplex×1)	LLD×1	—	8	Analog comparator	—	—	P-QFP64-1414-0.80	—				

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高性能&超低功耗微控制器

16bit ML6205xx/ML6204xx

标准型 16bit低功耗微控制器

Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM				Functions / Features					
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Co-processor for Multiplication and Division	Port			8bit Timer	16bit Timer
		Low Speed	High Speed									Input	Output	Input/Output		
ML620Q503H	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation/ External input)	16MHz (Internal RC oscillation/ Crystal oscillation/ External input)	62.5 ns 30.5µs	0.45µA	-40 to +85	Flash	32K	2K	2K	✓	2	—	36	8 (16bit×4)	4
ML620Q504H	1.8 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation/ External input)	16MHz (Internal RC oscillation/ Crystal oscillation/ External input)	62.5 ns 30.5µs	0.45µA	-40 to +85	Flash	64K	2K	6K	✓	2	—	36	8 (16bit×4)	4

搭载LCD驱动器 点阵式 16bit低功耗微控制器

ML620Q416A	1.8 to 3.6	32.768kHz (Internal RC oscillation/ Crystal oscillation)	16MHz (Internal RC oscillation/PLL)	62.5 ns 30.5µs	0.38µA	-40 to +85	Flash	128K	4K	16K	✓	—	—	52	8 (16bit×4)	4
ML620Q418A	1.8 to 3.6	32.768kHz (Internal RC oscillation/ Crystal oscillation)	16MHz (Internal RC oscillation/PLL)	62.5 ns 30.5µs	0.38µA	-40 to +85	Flash	256K	4K	16K	✓	—	—	52	8 (16bit×4)	4

32bit ML6304xx (Cortex-M)

搭载LCD驱动器 点阵式 32bit低功耗微控制器

Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM				Functions / Features					
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Co-processor for Multiplication and Division	Port			8bit Timer	16bit Timer
		Low Speed	High Speed									Input	Output	Input/Output		
☆ML630Q464	1.8 to 3.6	32.768kHz (Internal RC oscillation/ Crystal oscillation)	16MHz(Internal RC oscillation) 24MHz(PLL)	41.7ns 30.5µs	T.B.D.	-40 to +85	Flash	64K	2K	8K	32bit multiplier	—	—	38	8	4
☆ML630Q466	1.8 to 3.6	32.768kHz (Internal RC oscillation/ Crystal oscillation)	16MHz(Internal RC oscillation) 24MHz(PLL)	41.7ns 30.5µs	T.B.D.	-40 to +85	Flash	128K	2K	16K	32bit multiplier	—	—	38	8	4

超低工作电压&超低功耗微控制器

8bit ML6104xx

标准型 8bit低功耗微控制器

Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM				Functions / Features							
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			8bit Timer	1kHz Timer	PWM	Capture	WDT
		Low Speed	High Speed								Input	Output	Input/Output					
ML610482	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Mask	64K	—	4K	6	4	22	4 (16bit×2)	—	16bit×1	—	1
ML610482P	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-40 to +85	Mask	64K	—	4K	6	4	22	4 (16bit×2)	—	16bit×1	—	1
ML610Q482	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	64K	—	4K	6	4	22	4 (16bit×2)	—	16bit×1	—	1
ML610Q482P	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-40 to +85	Flash	64K	—	4K	6	4	22	4 (16bit×2)	—	16bit×1	—	1
搭载LCD驱动器 点阵式 8bit低功耗微控制器																		
ML610421	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Mask	32K	—	2K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q421	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	32K	—	2K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q421P	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-40 to +85	Flash	32K	—	2K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q422	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	32K	—	2K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610Q422P	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-40 to +85	Flash	32K	—	2K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610426	1.1 to 3.6	32.768kHz (Crystal oscillation)	1MHz	1μs/ 30.5μs	0.5μA	-20 to +70	Mask	40K	—	2K	5	—	7	4 (16bit×2)	1	16bit×1	—	1
ML610Q426	1.1 to 3.6	32.768kHz (Crystal oscillation)	1MHz	1μs/ 30.5μs	0.5μA	-20 to +70	Flash	40K	—	2K	5	—	7	4 (16bit×2)	1	16bit×1	—	1
ML610Q426C	1.1 to 3.6	32.768kHz (Crystal oscillation)	1MHz	1μs/ 30.5μs	0.5μA	-20 to +70	Flash	40K	—	2K	7	—	13	4 (16bit×2)	1	16bit×1	—	1
ML610Q428	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-20 to +70	Flash	48K	—	4K	6	3	14	2 (16bit×1)	1	16bit×3	—	1
ML610429	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-20 to +70	Mask	48K	—	4K	10	3	20	2 (16bit×1)	1	16bit×3	—	1
ML610Q429	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-20 to +70	Flash	48K	—	4K	10	3	20	2 (16bit×1)	1	16bit×3	—	1
ML610Q431	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	64K	—	3K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q431A	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	64K	—	3K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q432	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	64K	—	3K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610Q432A	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	64K	—	3K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610Q435	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	96K	—	3K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q435A	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	96K	—	3K	6	3	22	4 (16bit×2)	1	16bit×1	2	1
ML610Q436	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	96K	—	3K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610Q436A	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.5μA	-20 to +70	Flash	96K	—	3K	6	3	14	4 (16bit×2)	1	16bit×1	2	1
ML610Q438	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-20 to +70	Flash	128K	—	7K	10	3	20	4 (16bit×2)	1	16bit×3	2	1
ML610Q439	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-20 to +70	Flash	128K	—	7K	10	3	20	4 (16bit×2)	1	16bit×3	2	1
ML610Q439P	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 2MHz	0.244μs/0.5μs/ 30.5μs	0.5μA	-40 to +85	Flash	128K	—	7K	10	3	20	4 (16bit×2)	1	16bit×3	2	1

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Functions / Features																	Industrial Equipment	Notes	Package	Chip Support
PWM	Capture	WDT	ADC (method)	Serial Port				Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others									
				I ² C	SSIO (SPI)	UART	USB													
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	2	2	2	—	VLS×1 LLD×1	—	8	Low speed frequency correction/ Analog comparator×2/Melody : Buzzer	✓	—	P-TQFP48-0707-0.50	✓					
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	2	2	2	—	VLS×1 LLD×1	—	8	Low speed frequency correction/ Analog comparator×2/Melody : Buzzer	✓	—	P-TQFP48-0707-0.50	✓					
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	3	2	3	—	VLS×1 LLD×1	max 2048dot 64seg.×32com.	8	Low speed frequency correction/ Analog comparator×2/ Melody : Buzzer/1KHz Timer	—	—	—	✓					
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	3	2	3	—	VLS×1 LLD×1	max 2048dot 64seg.×32com.	8	Low speed frequency correction/ Analog comparator×2/ Melody : Buzzer/1KHz Timer	—	—	—	✓					

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Functions / Features																Industrial Equipment	Notes	Package	Chip Support
PWM	Capture	WDT	ADC (method)	Serial Port				Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others								
				I ² C	SSIO (SPI)	UART	USB												
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	2	2	2	1	VLS×1 LLD×1	max 400dot 50seg.×8com.	8	AES/Random generator/DMA/RTC/ Analog comparator×2/1KHz timer	✓	—	P-TQFP100-1414-0.50	—				
16bit×4 (use 16bit timer)	16bit×4 (use 16bit timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	2	2	2	1	VLS×1 LLD×1	max 400dot 50seg.×8com.	8	AES/Random generator/DMA/RTC/ Analog comparator×2/1KHz timer	✓	—	P-TQFP100-1414-0.50	—				

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Functions / Features														Industrial Equipment	Notes	Package	Chip Support
ADC (method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others										
	FC	SSIO	UART														
24bit×2 (RC type)	1	1	1	BLD×1	—	5	Low speed frequency correction /Buzzer	—	—	—	✓						
24bit×2 (RC type)	1	1	1	BLD×1	—	5	Low speed frequency correction /Buzzer	✓	—	—	✓						
24bit×2 (RC type)	1	1	1	BLD×1	—	5	Low speed frequency correction /Buzzer	—	—	P-TQFP48-0707-0.50	✓						
24bit×2 (RC type)	1	1	1	BLD×1	—	5	Low speed frequency correction /Buzzer	✓	—	P-TQFP48-0707-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.400dot 50seg.×8com.	5	Low speed frequency correction/ Melody : Buzzer	—	—	—	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.400dot 50seg.×8com.	5	Low speed frequency correction/ Melody : Buzzer	—	—	P-TQFP120-1414-0.40	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.400dot 50seg.×8com.	5	Low speed frequency correction/ Melody : Buzzer	✓	—	P-TQFP120-1414-0.40	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.800dot 50seg.×16com.	5	Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : enable	P-TQFP120-1414-0.40	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.800dot 50seg.×16com.	5	Low speed frequency correction/ Melody : Buzzer	✓	Low-speed scillation stop detect reset : enable	P-TQFP120-1414-0.40	✓						
16bit×1 (RC type)	1	1	1	BLD×1	Max.800dot 50seg.×16com.	5	Low speed frequency correction/Melody : Buzzer/ EL Driver/External input voltage detection	—	—	—	✓						
16bit×1 (RC type)	1	1	1	BLD×1	Max.800dot 50seg.×16com.	5	Low speed frequency correction/Melody : Buzzer/ EL Driver/External input voltage detection	—	—	—	✓						
16bit×1 (RC type)	1	1	1	BLD×1	Max.672dot 42seg.×16com.	8	Low speed frequency correction/Melody : Buzzer/ EL Driver/External input voltage detection	—	—	—	✓						
24bit×2 (RC type)	1	1	1	BLD×1	Max.1392dot 58seg.×24com.	5	Low speed frequency correction/ Melody : Buzzer	—	Selectable oscillation stop detection reset : function enable/disable according to software	TQFP128-P-1414-0.40	✓						
24bit×2 (RC type)	1	1	1	BLD×1	Max.512dot 64seg.×8com.	9	Low speed frequency correction/ Melody : Buzzer	—	Selectable oscillation stop detection reset : function enable/disable according to software	—	✓						
24bit×2 (RC type)	1	1	1	BLD×1	Max.512dot 64seg.×8com.	9	Low speed frequency correction/ Melody : Buzzer	—	Selectable oscillation stop detection reset : function enable/disable according to software	TQFP128-P-1414-0.40	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : enable	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : disable	—	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1536dot 64seg.×24com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : enable	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1536dot 64seg.×24com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : disable	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : enable	—	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : disable	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1536dot 64seg.×24com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : enable	—	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1536dot 64seg.×24com.	5	RTC/Low speed frequency correction/ Melody : Buzzer	—	Low-speed scillation stop detect reset : disable	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1344dot 56seg.×24com.	9	Low speed frequency correction/ Melody : Buzzer	—	Selectable oscillation stop detection reset : function enable/disable according to software	P-LQFP144-2020-0.50	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	9	Low speed frequency correction/ Melody : Buzzer	—	Selectable oscillation stop detection reset : function enable/disable according to software	—	✓						
24bit×2 (RC type) 12bit×2 (SA type)	1	1	1	BLD×1	Max.1024dot 64seg.×16com.	9	Low speed frequency correction/ Melody : Buzzer	✓	Selectable oscillation stop detection reset : function enable/disable according to software	P-LQFP144-2020-0.50	—						

8bit ML6104xx

搭载LCD驱动器 段码式 8bit低功耗微控制器																			
Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM				Functions / Features								
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			8bit Timer	1kHz Timer	PWM	Capture		WDT
		Low Speed	High Speed								Input	Output	Input/Output						
ML610401	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-20 to +70	Mask	6K	—	192	4	12	18	2 (16bit×1)	—	—	2	1	
ML610401P	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-40 to +85	Mask	6K	—	192	4	12	18	2 (16bit×1)	—	—	2	1	
ML610402	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-20 to +70	Mask	6K	—	192	4	8	18	2 (16bit×1)	—	—	2	1	
ML610402P	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-40 to +85	Mask	6K	—	192	4	8	18	2 (16bit×1)	—	—	2	1	
ML610403	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-20 to +70	Mask	6K	—	192	4	4	18	2 (16bit×1)	—	—	2	1	
ML610403P	1.25 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.9μA	-40 to +85	Mask	6K	—	192	4	4	18	2 (16bit×1)	—	—	2	1	
ML610404	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	8K	—	256	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610404P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	8K	—	256	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610405	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	8K	—	256	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610405P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	8K	—	256	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610406	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	8K	—	256	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610406P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	8K	—	256	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610407	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610407P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q407	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q407P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Flash	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q407A	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q407PA	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Flash	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q407D	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	12	22	4 (16bit×2)	—	16bit×1	2	1	
ML610408	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	16K	—	1K	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610408P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	16K	—	1K	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q408	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q408P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Flash	16K	—	1K	5	8	22	4 (16bit×2)	—	16bit×1	2	1	
ML610409	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Mask	16K	—	1K	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610409P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Mask	16K	—	1K	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q409	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q409P	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-40 to +85	Flash	16K	—	1K	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q409A	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz	0.5μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	4	22	4 (16bit×2)	—	16bit×1	2	1	
ML610Q411	1.1 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.5μA	-20 to +70	Flash	16K	—	1K	6	3	22	4 (16bit×2)	1	16bit×1	2	1	
ML610Q411P	1.1 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.5μA	-40 to +85	Flash	16K	—	1K	6	3	22	4 (16bit×2)	1	16bit×1	2	1	
ML610Q411PA	1.1 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.5μA	-40 to +85	Flash	16K	—	1K	6	3	22	4 (16bit×2)	1	16bit×1	2	1	
ML610Q412	1.1 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.5μA	-20 to +70	Flash	16K	—	1K	6	3	14	4 (16bit×2)	1	16bit×1	2	1	
ML610Q412P	1.1 to 3.6	32.768kHz (Crystal oscillation)	500kHz	2μs/ 30.5μs	0.5μA	-40 to +85	Flash	16K	—	1K	6	3	14	4 (16bit×2)	1	16bit×1	2	1	
ML610Q418	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	1.1μA	-20 to +70	Flash	128K	4K	4K	6	3	18	4 (16bit×2)	—	16bit×1	2	1	
☆ML610Q418C	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	1.1μA	-20 to +70	Flash	128K	4K	4K	6	3	26	4 (16bit×2)	—	16bit×1	2	1	
ML610Q419	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.9μA	-20 to +70	Flash	64K	4K	2K	6	3	18	4 (16bit×2)	—	16bit×1	2	1	
ML610Q419C	1.1 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz 500kHz	0.244μs/2μs/ 30.5μs	0.9μA	-20 to +70	Flash	64K	4K	2K	6	3	26	4 (16bit×2)	—	16bit×1	2	1	
ML610Q461	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz 500kHz	0.5μs/2μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	10	14	4 (16bit×2)	—	16bit×1	2	1	
ML610Q462	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz 500kHz	0.5μs/2μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	6	14	4 (16bit×2)	—	16bit×1	2	1	
ML610Q463	1.25 to 3.6	32.768kHz (Crystal oscillation)	2MHz 500kHz	0.5μs/2μs/ 30.5μs	0.9μA	-20 to +70	Flash	16K	—	1K	5	2	14	4 (16bit×2)	—	16bit×1	2	1	

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微控制器

☆:开发中

搭载语音输出功能的微控制器

8bit ML6103xx

标准型 8bit低功耗微控制器														
Part No.	Operating Voltage (V)	Operating Conditions					ROM/RAM					Functions / Features		
		Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	Memory for Sound	RAM Capacity (Byte)	Port		
		Low Speed	High Speed									Input	Output	Input/Output
ML610Q304	2.0 to 5.5	32.768kHz (Internal RC oscillation)	8.192MHz	0.122μs/30.5μs	2.7μA	−40 to +85	Flash	96K	2K	Flash ROM	1K	1	3	11
ML610Q359	2.2 to 3.6	32.768kHz (Crystal oscillation)	8.192MHz	0.122μs/30.5μs	1.7μA	−40 to +85	Flash	160K	3K	Flash ROM	2K	8	3	29
ML610Q360	2.2 to 3.6	32.768kHz (Crystal oscillation)	8.192MHz	0.122μs/30.5μs	1.7μA	−40 to +85	Flash P2ROM	160K	3K	P2ROM: 16M bit	2K	8	3	29
搭载LCD驱动器 段码式 8bit低功耗微控制器														
ML610Q380	2.2 to 5.5	32.768kHz (Internal RC oscillation/ Crystal oscillation)	8.192MHz	0.122μs/30.5μs	2.0μA	−40 to +70	Flash	128K	—	Flash ROM	2K	7	4	34

传感器控制用微控制器

8bit ML61079x

搭载U8内核 标准型 8bit低功耗微控制器														
Part No.	Operating Conditions						ROM/RAM				Functions / Features			
	Operating Voltage (V)	Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@HALT)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			
		Low Speed	High Speed								Input	Output	Input/Output	
ML610Q793	VDD:1.7 to 1.9 AVDD:2.5 to 3.6	32.768kHz (External clock)	4.096MHz	0.25μs/ 30.5μs	0.6μA	−30 to +85	Flash	64K	—	4K	—	—	21	
ML610Q794G	2.5 to 3.6	32.768kHz (Crystal oscillation)	4.096MHz	0.25μs/ 30.5μs	1.1μA	−30 to +85	Flash	64K	—	4K	—	—	21	

32bit ML63079x

搭载ARM Cortex-M0 标准型 32bit低功耗微控制器														
Part No.	Operating Conditions						ROM/RAM				Functions / Features			
	Operating Voltage (V)	Operating Frequency (Max.)		Minimum Instruction Execution Time	Current Consumption (Typ.@SLEEPDEEP)	Operating Temperature (°C)	ROM Type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			
		Low Speed	High Speed								Input	Output	Input/Output	
ML630Q791	VDD:1.7 to 1.9	32.768kHz (External clock)	32MHz	—	2.5μA	−40 to +85	Flash	128K	—	16K	—	—	7	

搭载ARM的微控制器

32bit微控制器ML674xxx/ML675xxx

面向通用应用									
Part No.	Built-in Memory			CPU Core	Operating Frequency (Max.)	Operating Condition			
	ROM/Flash	RAM	Cash			Supply Voltage (V)	Operating Temperature (°C)	Supply Currenncy (Typ.)	
ML674001	—	32KByte	—	ARM7TDMI	33MHz	I/O:3.0 to 3.6 core:2.25 to 2.75	−40 to 85	52mA (33MHz, when using external ROM)	
ML675001			8KByte unified		60MHz			92mA (60MHz, when using external ROM)	

▶搭载语音输出功能的微控制器 ▶▶8bit ML6103xx
▶传感器控制用微控制器 ▶▶8bit ML61079x
▶▶32bit ML63079x
▶搭载ARM的微控制器 ▶▶32bit MCU ML674xxx/ML675xxx

(LAPIS Semiconductor产品)

	Functions / Features												Industrial Equipment	Notes	Package	Chip Support
	8bit Timer	PWM	WDT	ADC (method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	SP Amp Output(W)/Class	Others				
	4 (16bit×2)	—	1	10bit×3 (SA type)	1	2	1	—	—	9	1.0 (@5V) /D class	Speech function/ ADPCM decoder/ Built-in speaker amp	✓	—	P-VQFN28-0505-0.50	—
	8 (16bit×4)	—	1	12bit×4 (SA type)	—	2	2	VLS×1	—	7	0.5 (@3V) /AB class	Speech function/ ADPCM decoder/ Built-in speaker amp	✓	—	P-TQFP64-1010-0.50	—
	8 (16bit×4)	—	1	12bit×4 (SA type)	—	2	2	VLS×1	—	7	0.5 (@3V) /AB class	Speech function/ ADPCM decoder/ Built-in speaker amp	✓	—	P-TQFP64-1010-0.50	—
	6 (16bit×3)	16bit×2	1	10bit×8 (SA type)	1	2	2	BLD×1	Max. 96dot 24seg. ×4com.	5	0.6 (@5V) /AB class	Speech function/ ADPCM decoder/ Built-in speaker amp	—	—	P-QFP80-1414-0.65	—

(LAPIS Semiconductor产品)

	Functions / Features									Industrial Equipment	Notes	Package	Chip Support	
	8bit Timer	PWM	WDT	ADC (method)	Serial Port			External Interrupt Sources	Others					
					I ² C	SSIO	UART							I ² C/SPI (for Host Communication)
	6 (16bit×3)	—	1	12bit×3 (SA type)	1	1	2	1	16	16bit Square Root, Multiply, Divider, Host I/F (SPI/I ² C/Logging RAM:8KB)	—	—	S-UFLGA48-3.06×2.96-0.40 (WCSP48)	—
	6 (16bit×3)	—	1	12bit×2 (SA type)	1	1	2	1	16	16bit Square Root, Multiply, Divider, Host I/F (SPI/I ² C/Logging RAM:8KB)	—	—	P-TQFP48-0707-0.50	—

(LAPIS Semiconductor产品)

	Functions / Features									Industrial Equipment	Notes	Package	Chip Support	
	8bit Timer	PWM	WDT	ADC (method)	Serial Port			External Interrupt Sources	Others					
					I ² C	SSIO	UART	I ² C/SPI (for Host Communication)						
	8 (16bit×4)	1	1	—	2	—	1	1	7	Square Root, Division operations,Host I/F (Built-in 512 byte communication register)	—	—	(WCSP)	—

(LAPIS Semiconductor产品)

	Peripherals								Package
	General-purpose Ports	Timer	PWM	WDT	A/D	Serial Ports	Interrupt Internal/ External	Additional Peripheral Functions	
	42	7	16bit×2	16bit×1	10bit A/D 4ch	UART 2ch SSIO 2ch I ² C 1ch	23/5	DMA controller 2ch External memory controller [ROM (Flash), SRAM, DRAM (EDO/SDRAM), IO] STOP mode	LQFP144-P-2020-0.50 P-LFBGA144-1111-0.8

