

Microcontroller			
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## General-purpose MCU (16bit)

16bit ML62Q2000 series (U16 Core)

Normal type ML62Q2500 Group 16bit MCU (Industrial Grade)													
Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
☆ML62Q2502	1.8 to 5.5	Flash	64K	4K	8K	3	-	24	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ External oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2503			96K										
☆ML62Q2504			128K										
☆ML62Q2522	1.8 to 5.5	Flash	64K	4K	8K	3	-	32	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ External oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2523			96K										
☆ML62Q2524			128K										
☆ML62Q2532	1.8 to 5.5	Flash	64K	4K	8K	3	-	40	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ External oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2533			96K										
☆ML62Q2534			128K										

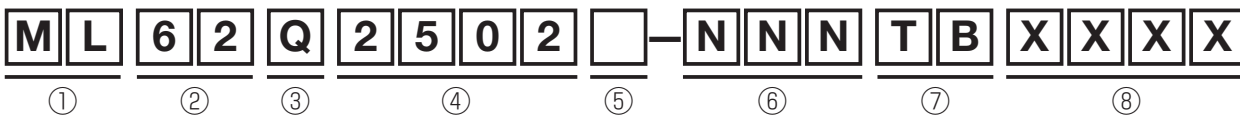
Built-in LCD Driver Segments type ML62Q2700 Group 16bit MCU (Industrial Grade)													
Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
☆ML62Q2724	1.8 to 5.5	Flash	128K	4K	16K	3	-	51	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2725			160K										
☆ML62Q2726			192K										
☆ML62Q2727			256K										
☆ML62Q2734	1.8 to 5.5	Flash	128K	4K	16K	3	-	65	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2735			160K										
☆ML62Q2736			192K										
☆ML62Q2737			256K										
☆ML62Q2744	1.8 to 5.5	Flash	128K	4K	16K	3	-	85	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	(TBD)	-40 to +105
☆ML62Q2745			160K										
☆ML62Q2746			192K										
☆ML62Q2747			256K										

\*1 A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

\*2 For use of industrial equipment, please inquire to the sales.

☆: Under Development. The contents are subject to change without notice for improvement.

### ML62Q2000 series Part Number Explanation



#### Part Number

- |   |  |   |
|---|--|---|
| <p>① Device type<br/>ML: Bipolar Logic</p> <p>② CPU Core type<br/>62: 16bit CPU nX-U16/100</p> <p>③ ROM type<br/>Q: Flash ROM</p> <p>④ Part Code<br/>25xx: ML62Q2500 Group<br/>0x: 32pin<br/>2x: 40pin<br/>3x: 48pin<br/><br/>x2: ROM 64KB<br/>x3: ROM 96KB<br/>x4: ROM 128KB</p> | <p>⑤ Option Code<br/>None to x: Set for product</p> <p>⑥ ROM Code<br/>NNN : Blank<br/>001 to xxx: Custom Code Number</p> | <p>⑦ Package Code<br/>GD: WQFN<br/>TB: TQFP<br/>GA: QFP</p> <p>⑧ Company's Code in LAPIS Technology</p> |
|---|--|---|

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
						IC	SSIO	UART									
	6 (8bitx12)	2 (TMR, PWM, IGBT, Capture)	1	12bitx14 (SA type)	-	Master/Slavex1, Masterx1	2	Full Duplex x3	VLSx1	-	8	Safety function, Multiplier/Divider	-	P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63	-	✓	✓
	6 (8bitx12)	2 (TMR, PWM, IGBT, Capture)	1	12bitx14 (SA type)	-	Master/Slavex1, Masterx1	2	Full Duplex x3	VLSx1	-	8	Safety function, Multiplier/Divider	-	P-WQFN40-0606-0.50-63 P-WQFN40-0606-0.50-63 P-WQFN40-0606-0.50-63	-	✓	✓
	6 (8bitx12)	2 (TMR, PWM, IGBT, Capture)	1	12bitx14 (SA type)	-	Master/Slavex1, Masterx1	2	Full Duplex x3	VLSx1	-	8	Safety function, Multiplier/Divider	-	P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63 P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63 P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63	-	✓	✓
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	12bitx12 (SA type)	-	Master/Slavex1, Masterx2	7	Full Duplex x6	VLSx1	Max 280dot 35segx 8com	9	Safety function, Multiplier/Divider, Speech function/ADPCM2 decoder	-	P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6	-	✓	✓
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	12bitx16 (SA type)	-	Master/Slavex1, Masterx2	7	Full Duplex x6	VLSx1	Max 360dot 45segx 8com	9	Safety function, Multiplier/Divider, Speech function/ADPCM2 decoder	-	P-QFP80-1414-0.65-ZK6 P-QFP80-1414-0.65-ZK6 P-QFP80-1414-0.65-ZK6	-	✓	✓
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	12bitx16 (SA type)	-	Master/Slavex1, Masterx2	7	Full Duplex x6	VLSx1	Max 480dot 60segx 8com	9	Safety function, Multiplier/Divider, Speech function/ADPCM2 decoder	-	P-QFP100-1420-0.65-BK6 P-TQFP100-1414-0.50-ZK6 P-QFP100-1420-0.65-BK6 P-TQFP100-1414-0.50-ZK6 P-QFP100-1420-0.65-BK6 P-TQFP100-1414-0.50-ZK6 P-QFP100-1420-0.65-BK6 P-TQFP100-1414-0.50-ZK6	-	✓	✓

Microcontroller

## General-purpose MCU (16bit)

16bit ML62Q1000 series (U16 Core)

### Normal type ML62Q1300 Group 16bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
ML62Q1323	1.6 to 5.5	Flash	16K	2K	2K	-	-	12	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5µs	4.3µA (Internal RC oscillation)	-40 to +105
ML62Q1324			24K										
ML62Q1325			32K										
ML62Q1333	1.6 to 5.5	Flash	16K	2K	2K	-	-	16	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5µs	4.3µA (Internal RC oscillation)	-40 to +105
ML62Q1334			24K										
ML62Q1335			32K										
ML62Q1345	1.6 to 5.5	Flash	32K	2K	4K	-	-	20	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5µs	4.3µA (Internal RC oscillation)	-40 to +105
ML62Q1346			48K										
ML62Q1347			64K										
ML62Q1365	1.6 to 5.5	Flash	32K	2K	4K	-	-	28	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5µs	4.3µA (Internal RC oscillation)	-40 to +105
ML62Q1366			48K										
ML62Q1367			64K										

### Normal type ML62Q1500 Group 16bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
ML62Q1530	1.6 to 5.5	Flash	32K	4K	8K	2	-	42	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.7/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1531			48K										
ML62Q1532			64K										
ML62Q1533			96K										
ML62Q1534			128K										
ML62Q1540	1.6 to 5.5	Flash	32K	4K	8K	2	-	46	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.7/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1541			48K										
ML62Q1542			64K										
ML62Q1543			96K										
ML62Q1544			128K										
ML62Q1550	1.6 to 5.5	Flash	32K	4K	8K	2	-	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.7/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1551			48K										
ML62Q1552			64K										
ML62Q1553			96K										
ML62Q1554			128K	16K	2	-	-	-	-	-	-	-	-
ML62Q1555			160K										
ML62Q1556			192K										
ML62Q1557			256K										
ML62Q1563	1.6 to 5.5	Flash	96K	4K	16K	2	-	72	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	5.5/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1564			128K										
ML62Q1565			160K										
ML62Q1566			192K										
ML62Q1567			256K										
ML62Q1573	1.6 to 5.5	Flash	96K	4K	16K	2	-	92	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	5.5/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1574			128K										
ML62Q1575			160K										
ML62Q1576			192K										
ML62Q1577			256K										
ML62Q1543C	1.6 to 5.5	Flash	96K	4K	8K	2	-	46	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1544C			128K										
ML62Q1553C	1.6 to 5.5	Flash	96K	4K	8K	2	-	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1554C			128K										
ML62Q1563C	1.6 to 5.5	Flash	96K	4K	8K	2	-	74	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1564C			128K										

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\*2 For use of industrial equipment, please inquire to the sales.

(LAPIS Technology products)

16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
					PC	SSIO	UART									
4 (8bitx8)	4 (TMR, PWM, IGBT, Capture)	1	10bitx6 (SA type)	-	Master/Slavex1, Masterx1	UART Full Duplex/SSIOx2	VLSx1	-	8	Safety function, Multiplier/Divider, Comparatorx1, DMA	-	P-SSOP16-0225-0.65-TK6	-	✓	✓	
												P-WQFN16-0404-0.50-63	-	✓	✓	
												P-SSOP16-0225-0.65-TK6	-	✓	✓	
4 (8bitx8)	4 (TMR, PWM, IGBT, Capture)	1	10bitx8 (SA type)	-	Master/Slavex1, Masterx1	UART Full Duplex/SSIOx2	VLSx1	-	8	Safety function, Multiplier/Divider, Comparatorx1, DMA	-	P-TSSOP20-0225-0.65-TK6	-	✓	✓	
												P-TSSOP20-0225-0.65-TK6	-	✓	✓	
												P-TSSOP20-0225-0.65-TK6	-	✓	✓	
6 (8bitx12)	4 (TMR, PWM, IGBT, Capture)	1	10bitx8 (SA type)	8bitx1	Master/Slavex1, Masterx1	UART Full Duplex/SSIOx2	VLSx1	-	8	Safety function, Multiplier/Divider, Comparatorx1, DMA	-	P-WQFN24-0404-0.50-A63	-	✓	✓	
												P-WQFN24-0404-0.50-A63	-	✓	✓	
												P-WQFN24-0404-0.50-A63	-	✓	✓	
6 (8bitx12)	4 (TMR, PWM, IGBT, Capture)	1	10bitx8 (SA type)	8bitx1	Master/Slavex1, Masterx1	UART Full Duplex/SSIOx2	VLSx1	-	8	Safety function, Multiplier/Divider, Comparatorx1, DMA	-	P-WQFN32-0505-0.50-A63	-	✓	✓	
												P-TQFP32-0707-0.80-ZK6	-	✓	✓	
												P-WQFN32-0505-0.50-A63	-	✓	✓	

16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
					PC	SSIO	UART									
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx2	VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP48-0707-0.50-ZK6	-	✓	✓	
												P-TQFP48-0707-0.50-ZK6	-	✓	✓	
												P-TQFP48-0707-0.50-ZK6	-	✓	✓	
												P-TQFP48-0707-0.50-ZK6	-	✓	✓	
												P-TQFP48-0707-0.50-ZK6	-	✓	✓	
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx2	VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP52-1010-0.65-ZK6	-	✓	✓	
												P-TQFP52-1010-0.65-ZK6	-	✓	✓	
												P-TQFP52-1010-0.65-ZK6	-	✓	✓	
												P-TQFP52-1010-0.65-ZK6	-	✓	✓	
												P-TQFP52-1010-0.65-ZK6	-	✓	✓	
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx2	VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
												P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
												P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
												P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
												P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
P-TQFP64-1010-0.50-ZK6	-	✓	✓													
8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx6	VLSx1	-	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-QFP80-1414-0.65-ZK6	-	✓	✓	
												P-QFP80-1414-0.65-ZK6	-	✓	✓	
												P-QFP80-1414-0.65-ZK6	-	✓	✓	
												P-QFP80-1414-0.65-ZK6	-	✓	✓	
												P-QFP80-1414-0.65-ZK6	-	✓	✓	
8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx6	VLSx1	-	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP100-1414-0.50-ZK6	-	✓	✓	
												P-QFP100-1420-0.65-BK6	-	✓	✓	
												P-TQFP100-1414-0.50-ZK6	-	✓	✓	
												P-QFP100-1420-0.65-BK6	-	✓	✓	
												P-TQFP100-1414-0.50-ZK6	-	✓	✓	
												P-QFP100-1420-0.65-BK6	-	✓	✓	
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx3	VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP52-1010-0.65-ZK6	-	✓	✓	
												P-TQFP52-1010-0.65-ZK6	-	✓	✓	
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx4	VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	
6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx4	VLSx1	-	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓	
												P-QFP64-1414-0.80-ZK6	-	✓	✓	

Microcontroller

## 16bit ML62Q1000 series (U16 Core)

### Built-in LCD Driver Segments type ML62Q1700 Group 16bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
ML62Q1700	1.6 to 5.5	Flash	32K	4K	8K	2	-	37	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.9/3.3µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1701			48K										
ML62Q1702			64K										
ML62Q1703			96K										
ML62Q1704			128K										
ML62Q1710	1.6 to 5.5	Flash	32K	4K	8K	2	-	41	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.9/3.3µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1711			48K										
ML62Q1712			64K										
ML62Q1713			96K										
ML62Q1714			128K										
ML62Q1720	1.6 to 5.5	Flash	32K	4K	8K	2	-	53	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.9/3.3µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1721			48K										
ML62Q1722			64K										
ML62Q1723			96K										
ML62Q1724			128K										
ML62Q1725			160K	16K									
ML62Q1726			192K										
ML62Q1727			256K	8K	32K								
ML62Q1728			384K										
ML62Q1729			512K										
ML62Q1733	1.6 to 5.5	Flash	96K	4K	16K	2	-	67	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	5.7/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1734			128K										
ML62Q1735			160K										
ML62Q1736			192K	8K	32K								
ML62Q1737			256K										
ML62Q1738			384K										
ML62Q1739			512K										
ML62Q1743	1.6 to 5.5	Flash	96K	4K	16K	2	-	87	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	5.7/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1744			128K										
ML62Q1745			160K										
ML62Q1746			192K	8K	32K								
ML62Q1747			256K										
ML62Q1748			384K										
ML62Q1749			512K										
ML62Q1713C	1.6 to 5.5	Flash	96K	4K	8K	2	-	41	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1714C			128K										
ML62Q1723C	1.6 to 5.5	Flash	96K	4K	8K	2	-	53	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1724C			128K										
ML62Q1733C	1.6 to 5.5	Flash	96K	4K	8K	2	-	69	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	4.3/3.0µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1734C			128K										

\*1 A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

\*2 For use of industrial equipment, please inquire to the sales.

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
						PC	SSIO	UART									
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx2	VLSx1	Max 192dot 24segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP48-0707-0.50-ZK6	-	✓	✓	
P-TQFP48-0707-0.50-ZK6													-	✓	✓		
P-TQFP48-0707-0.50-ZK6													-	✓	✓		
P-TQFP48-0707-0.50-ZK6													-	✓	✓		
P-TQFP48-0707-0.50-ZK6													-	✓	✓		
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx2	VLSx1	Max 216dot 27segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP52-1010-0.65-ZK6	-	✓	✓	
P-TQFP52-1010-0.65-ZK6													-	✓	✓		
P-TQFP52-1010-0.65-ZK6													-	✓	✓		
P-TQFP52-1010-0.65-ZK6													-	✓	✓		
P-TQFP52-1010-0.65-ZK6													-	✓	✓		
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx2	VLSx1	Max 280dot 35segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓	
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-TQFP64-1010-0.50-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-TQFP64-1010-0.50-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-TQFP64-1010-0.50-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-TQFP64-1010-0.50-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-TQFP64-1010-0.50-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
P-QFP64-1414-0.80-ZK6													-	✓	✓		
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx6	VLSx1	Max 360dot 45segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-QFP80-1414-0.65-ZK6	-	✓	✓	
P-QFP80-1414-0.65-ZK6													-	✓	✓		
P-QFP80-1414-0.65-ZK6													-	✓	✓		
P-QFP80-1414-0.65-ZK6													-	✓	✓		
P-QFP80-1414-0.65-ZK6													-	✓	✓		
P-QFP80-1414-0.65-ZK6													-	✓	✓		
P-QFP80-1414-0.65-ZK6													-	✓	✓		
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx6	VLSx1	Max 480dot 60segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP100-1414-0.50-ZK6	-	✓	✓	
P-QFP100-1420-0.65-BK6													-	✓	✓		
P-TQFP100-1414-0.50-ZK6													-	✓	✓		
P-QFP100-1420-0.65-BK6													-	✓	✓		
P-TQFP100-1414-0.50-ZK6													-	✓	✓		
P-QFP100-1420-0.65-BK6													-	✓	✓		
P-TQFP100-1414-0.50-ZK6													-	✓	✓		
P-QFP100-1420-0.65-BK6	-	✓	✓														
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx3	VLSx1	Max 216dot 27segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP52-1010-0.65-ZK6	-	✓	✓	
P-TQFP52-1010-0.65-ZK6													-	✓	✓		
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx4	VLSx1	Max 280dot 35segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓	
P-QFP64-1414-0.80-ZK6													-	✓	✓		
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIOx4	VLSx1	Max 360dot 45segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-QFP80-1414-0.65-ZK6	-	✓	✓	
P-QFP80-1414-0.65-ZK6													-	✓	✓		

## 16bit ML62Q1000 series (U16 Core)

### Normal type ML62Q1800 Group 16bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
ML62Q1858	1.6 to 5.5	Flash	384K	8K	32K	2	-	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	6.0/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1859			512K										
ML62Q1868	1.6 to 5.5	Flash	384K	8K	32K	2	-	72	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	6.0/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1869			512K										
ML62Q1878	1.6 to 5.5	Flash	384K	8K	32K	2	-	92	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/30.5µs	6.0/4.5µA (Internal RC oscillation/ Crystal oscillation)	-40 to +105
ML62Q1879			512K										

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\*2 For use of industrial equipment, please inquire to the sales.

## Low Power MCU (16bit)

### 16bit ML620Q500 (U16 Core)

#### Normal type 16bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	Co-processor for Multiplication and Division	8bit Timer	16bit Multi Functions Timer
						Input	Output	Input/Output	High Speed	Low Speed						
ML620Q503H	1.8 to 5.5	Flash	32K	2K	2K	2	-	36	16MHz (Internal RC oscillation/ Crystal oscillation/ External input)	32.768kHz (Internal RC oscillation/ Crystal oscillation/ External input)	62.5ns/30.5µs	0.45µA (Crystal oscillation)	-40 to +85	✓	8 (16bitx4)	4
ML620Q504H			64K		6K											

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## USB Interface & Security function MCU (32bit)

### 32bit ML630Q400 (ARM® Cortex®-M0+)

#### Built-in LCD Driver Dot Matrix type 32bit MCU (Industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	Co-processor for Multiplication and Division	8bit Timer	16bit Multi Functions Timer
						Input	Output	Input/Output	High Speed	Low Speed						
ML630Q464	1.8 to 3.6	Flash	64K	2K	8K	-	-	38	16MHz (Internal RC oscillation) 24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41.7ns/30.5µs	0.8µA (Crystal oscillation)	-40 to +85	32bit multiplier	8 (16bitx4)	4
ML630Q466			128K		16K											

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	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
						IC	SSIO	UART									
	6 (8bitx12)	6 (TMR, PWM, IGBT, Capture)	1	10bitx12 (SA type)	8bitx1	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx2		VLSx1	-	10	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP64-1010-0.50-ZK6	-	✓	✓
														P-QFP64-1414-0.80-ZK6	-	✓	✓
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx6		VLSx1	-	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-QFP80-1414-0.65-ZK6	-	✓	✓
														P-QFP80-1414-0.65-ZK6	-	✓	✓
	8 (8bitx16)	8 (TMR, PWM, IGBT, Capture)	1	10bitx16 (SA type)	8bitx2	Master/Slavex1, Masterx2	UART Full Duplex/SSIOx6		VLSx1	-	12	Safety function, Multiplier/Divider, Comparatorx2, DMA	-	P-TQFP100-1414-0.50-ZK6	-	✓	✓
														P-QFP100-1414-0.50-ZK6	-	✓	✓

(LAPIS Technology products)

	PWM	Capture	WDT	ADC (method)	Serial Port				Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
					IC	SSIO (SPI)	UART	USB									
	16bitx4 (use 16bit Timer)	16bitx4 (use 16bit Timer)	1	24bitx2 (RC type) 12bitx12 (SA type)	Masterx2	2	Full Duplexx2	-	VLSx1, LLDx1	-	8	Low speed frequency correction, Analog comparatorx2, Melody: Buzzer	-	P-TQFP48-0707-0.50-ZK6	✓	✓	✓
														P-TQFP48-0707-0.50-ZK6	✓	✓	✓

(LAPIS Technology products)

	PWM	Capture	WDT	ADC (method)	Serial Port				Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
					IC	SSIO (SPI)	UART	USB									
	16bitx4 (use 16bit Timer)	16bitx4 (use 16bit Timer)	1	24bitx2 (RC type) 12bitx12 (SA type)	Master/Slavex2	2	Full Duplexx2	1	VLSx1, LLDx1	Max 400dot 50segx 8com	8	AES 128bit HW accelerator (CBC, CTR, CTR), Random generator, DMA, RTC, Analog comparatorx2, 1kHz Timer	-	P-TQFP100-1414-0.50-ZK6	-	✓	✓
														P-TQFP100-1414-0.50-ZK6	-	✓	✓



## Low Voltage Operation MCU (8bit)

8bit ML610400/ML610Q400 (U8 Core)

Normal type 8bit MCU																		
Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	8bit Timer	1kHz Timer	PWM	Capture	WDT
						Input	Output	Input/Output	High Speed	Low Speed								
ML610Q482	1.1 to 3.6	Flash	64K	—	4K	6	4	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	—	16bit×1	—	1
Normal type 8bit MCU (Industrial Grade)																		
ML610Q482P	1.1 to 3.6	Flash	64K	—	4K	6	4	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-40 to +85	4 (16bit×2)	—	16bit×1	—	1
Built-in LCD Driver Dot Matrix type 8bit MCU																		
ML610Q421	1.1 to 3.6	Flash	32K	—	2K	6	3	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	1	16bit×1	2	1
ML610Q422								14		32.768kHz (Crystal oscillation)								
ML610Q429	1.1 to 3.6	Flash	48K	—	4K	10	3	20	4.096MHz 2MHz	32.768kHz (Crystal oscillation)	0.244µs/ 0.5µs/ 30.5µs	0.5µA	-20 to +70	2 (16bit×1)	1	16bit×3	—	1
ML610Q431	1.1 to 3.6	Flash	64K	—	3K	6	3	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	1	16bit×1	2	1
ML610Q432								14										
ML610Q435	1.1 to 3.6	Flash	96K	—	3K	6	3	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	1	16bit×1	2	1
ML610Q436								14										
ML610Q438	1.1 to 3.6	Flash	128K	—	7K	10	3	20	4.096MHz 2MHz	32.768kHz (Crystal oscillation)	0.244µs/ 0.5µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	1	16bit×3	2	1
Built-in LCD Driver Dot Matrix type 8bit MCU (Industrial Grade)																		
ML610Q421P	1.1 to 3.6	Flash	32K	—	2K	6	3	22	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.5µA	-40 to +85	4 (16bit×2)	1	16bit×1	2	1
ML610Q422P								14										
ML610Q439P								20										
Built-in LCD Driver Segments type 8bit MCU																		
ML610Q407	1.25 to 3.6	Flash	16K	—	1K	5	12	22	2MHz	32.768kHz (Crystal oscillation)	0.5µs/ 30.5µs	0.9µA	-20 to +70	4 (16bit×2)	—	16bit×1	2	1
ML610Q407A								14										
ML610Q408	1.25 to 3.6	Flash	16K	—	1K	5	8	22	2MHz	32.768kHz (Crystal oscillation)	0.5µs/ 30.5µs	0.9µA	-20 to +70	4 (16bit×2)	—	16bit×1	2	1
ML610Q411	1.1 to 3.6	Flash	16K	—	1K	6	3	22	500kHz	32.768kHz (Crystal oscillation)	2µs/ 30.5µs	0.5µA	-20 to +70	4 (16bit×2)	1	16bit×1	2	1
ML610Q412								14										
ML610Q419	1.1 to 3.6	Flash	64K	4K	2K	6	3	18	4.096MHz 500kHz	32.768kHz (Crystal oscillation)	0.244µs/ 2µs/ 30.5µs	0.9µA	-20 to +70	4 (16bit×2)	—	16bit×1	2	1
ML610Q419C								26										
Built-in LCD Driver Segments type 8bit MCU (Industrial Grade)																		
ML610Q407P	1.25 to 3.6	Flash	16K	—	1K	5	12	22	2MHz	32.768kHz (Crystal oscillation)	0.5µs/ 30.5µs	0.9µA	-40 to +85	4 (16bit×2)	—	16bit×1	2	1
ML610Q407PA								14										
ML610Q408P	1.25 to 3.6	Flash	16K	—	1K	5	8	22	2MHz	32.768kHz (Crystal oscillation)	0.5µs/ 30.5µs	0.9µA	-40 to +85	4 (16bit×2)	—	16bit×1	2	1
ML610Q411P	1.1 to 3.6	Flash	16K	—	1K	6	3	22	500kHz	32.768kHz (Crystal oscillation)	2µs/ 30.5µs	0.5µA	-40 to +85	4 (16bit×2)	1	16bit×1	2	1
ML610Q411PA								14										
ML610Q412P								14										

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\*2 For use of industrial equipment, please inquire to the sales.

(LAPIS Technology products)

	ADC (method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
		PC	SSIO	UART									
	24bit×2 (RC type)	Master x1	1	Half Duplex x1	BLD×1	—	5	Low speed frequency correction/ Buzzer	—	P-TQFP48-0707-0.50-ZK6	✓	✓	—
	24bit×2 (RC type)	Master x1	1	Half Duplex x1	BLD×1	—	5	Low speed frequency correction/ Buzzer	—	P-TQFP48-0707-0.50-ZK6	✓	✓	✓
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 400dot 50seg×8com	5	Low speed frequency correction/ Melody: Buzzer	—	P-TQFP120-1414-0.40-ZK6	✓	✓	—
									Low-speed scillation stop detect reset: enable	P-TQFP120-1414-0.40-ZK6	✓	✓	—
	24bit×2 (RC type)	Master x1	1	Half Duplex x1	BLD×1	Max 512dot 64seg×8com	9	Low speed frequency correction/ Melody: Buzzer	Selectable oscillation stop detection reset: function enable/ disable according to mask option	P-TQFP128-1414-0.40-ZK6	✓	✓	—
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 1024dot 64seg×16com	5	RTC/ Low speed frequency correction/ Melody: Buzzer	Low-speed oscillation stop detect reset: enable	P-LQFP144-2020-0.50-QK6	✓	✓	—
									Low-speed oscillation stop detect reset: enable	P-LQFP144-2020-0.50-QK6	✓	✓	—
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 1024dot 64seg×16com	5	RTC/ Low speed frequency correction/ Melody: Buzzer	Low-speed oscillation stop detect reset: enable	—	✓	✓	—
									Low-speed oscillation stop detect reset: enable	—	✓	✓	—
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	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-QK6	✓	✓	—
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 400dot 50seg×8com	5	Low speed frequency correction/ Melody: Buzzer	—	P-TQFP120-1414-0.40-ZK6	✓	✓	✓
									Low-speed scillation stop detect reset: enable	P-TQFP120-1414-0.40-ZK6	✓	✓	✓
									Selectable oscillation stop detection reset: function enable/ disable according to software	P-LQFP144-2020-0.50-QK6	—	✓	✓
	16bit×2 (RC type)	—	2	Half Duplex x1	—	Max 145dot 29seg×5com	13 (include 8bit-OR input)	Low speed frequency correction/ Melody: Buzzer	Low-speed scillation stop detect reset: enable LCD bias: 1/3	P-TQFP100-1414-0.50-ZK6	✓	✓	—
	16bit×2 (RC type)	—	2	Half Duplex x1	—	Max 165dot 33seg×5com	13 (include 8bit-OR input)	Low speed frequency correction/ Melody: Buzzer	Low-speed scillation stop detect reset: disable LCD bias: 1/2, 1/3	—	✓	✓	—
	24bit×2 (RC type) 12bit×2 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 144dot 36seg×4com	5	Low speed frequency correction/ Buzzer	Low-speed scillation stop detect reset: enable	TQFP120-1414-0.40-ZK6	✓	✓	—
									—	TQFP120-1414-0.40-ZK6	✓	✓	—
	24bit×2 (RC type) 12bit×4 (SA type)	Master x1	2	Half Duplex x1	BLD×1	Max 192dot 48seg×4com	5	Low speed frequency correction/ Melody: Buzzer	—	P-TQFP100-1414-0.50-ZK6	✓	✓	—
									—	P-TQFP100-1414-0.50-ZK6	✓	✓	—
	16bit×2 (RC type)	—	2	Half Duplex x1	—	Max 145dot 29seg×5com	13 (include 8bit-OR input)	Low speed frequency correction/ Melody: Buzzer	Low-speed scillation stop detect reset: enable LCD bias: 1/3	P-TQFP100-1414-0.50-ZK6	✓	✓	✓
	16bit×2 (RC type)	—	2	Half Duplex x1	—	Max 165dot 33seg×5com	13 (include 8bit-OR input)	Low speed frequency correction/ Melody: Buzzer	Low-speed scillation stop detect reset: disable LCD bias: 1/2, 1/3	—	✓	✓	✓
	24bit×2 (RC type) 12bit×4 (SA type)	Master x1	1	Half Duplex x1	BLD×1	Max 144dot 36seg×4com	5	Low speed frequency correction/ Buzzer	Low-speed oscillation stop detect reset: enable	TQFP120-1414-0.40-ZK6	✓	✓	✓
									Low-speed oscillation stop detect reset: disable	TQFP120-1414-0.40-ZK6	✓	✓	✓
									—	TQFP120-1414-0.40-ZK6	✓	✓	✓

## Speech Play Back MCU (8bit)

8bit ML610Q300 (U8 Core)

### Normal type 8bit MCU (industrial Grade)

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	Memory for Sound	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	
							Input	Output	Input/Output	High Speed	Low Speed				
<b>New</b> ML610Q305	2.0 to 5.5	Flash	96K	2K	Flash ROM	1K	1	3	12	8.192MHz	32.768kHz (Internal RC oscillation)	0.122µs/ 30.5µs	2.0µA	-40 to +85	
<b>New</b> ML610Q306															15
☆ ML610Q317	2.0 to 5.5	Flash	160K	2K	Flash ROM	4K	0 (TBD)	6 (TBD)	26 (TBD)	8.192MHz	32.768kHz (Internal RC oscillation)	0.122µs/ 30.5µs	(TBD)	-40 to +85	
☆ ML610Q318															30 (TBD)
☆ ML610Q327	2.0 to 5.5	Flash	192K	2K	Flash ROM	4K	0 (TBD)	6 (TBD)	26 (TBD)	8.192MHz	32.768kHz (Internal RC oscillation)	0.122µs/ 30.5µs	(TBD)	-40 to +85	
☆ ML610Q328															30 (TBD)
☆ ML610Q329															42 (TBD)
☆ ML610Q338	2.0 to 5.5	Flash	256K	2K	Flash ROM	4K	0 (TBD)	6 (TBD)	30 (TBD)	8.192MHz	32.768kHz (Internal RC oscillation)	0.122µs/ 30.5µs	(TBD)	-40 to +85	
☆ ML610Q339															42 (TBD)

\*1 A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

\*2 For use of industrial equipment, please inquire to the sales.

☆: Under Development. The contents are subject to change without notice for improvement.

### ML610/ML610Q/ML620Q/ML630Q Part Number Explanation

<b>M</b>	<b>L</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>Q</b>	<b>4</b>	<b>1</b>	<b>9</b>	<b>C</b>	<b>-</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>T</b>	<b>B</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>
①	②	③	④	⑤	⑥	⑦	⑧												

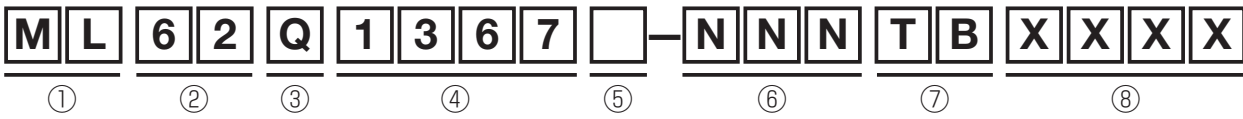
#### Part Name

- |  |   |  |
|--|---|--|
| ① Device type<br>ML: Bipolar Logic   | ④ Part Code<br>3xx: Speech Play Back<br>4xx: Low Power or Low Voltage Operation<br>5xx: Low Power | ⑦ Package Code<br>GD: VQFN, WQFN<br>MB: SSOP<br>TD: TSSOP<br>TB: TQFP<br>GA: QFP<br>WA: Chip |
| ② CPU Core type<br>610: 8bit CPU nX-U8/100<br>620: 16bit CPU nX-U16/100<br>630: 32bit CPU ARM® Cortex® M0+ | ⑤ Option Code<br>None to x: Set for product   | ⑧ Company's Code in LAPIS Technology   |
| ③ ROM type<br>None: Mask ROM<br>Q: Flash ROM   | ⑥ ROM Code<br>NNN: Blank<br>001 to xxx: Custom Code Number  |  |

(LAPIS Technology products)

8bit Timer	PWM	WDT	ADC (method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	SP Amp Output (W)/ Class	Others	Notes	Package	Chip Support	Halogen Free Support*1	Industrial Grade*2
				IC	SSIO	UART										
4 (16bitx2)	-	1	10bitx3 (SA type)	Master/ Slave x1	2	Half Duplex x1	LLDx1	-	9	1.0 (@5V)/ D class	Speech function/ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	-	P-WQFN32-0505-0.50-A63	-	✓	✓
			10bitx4 (SA type)										P-TQFP32-0707-0.80-ZK6			
4 (16bitx2)	3	1	10bitx8 (SA type)	Master/ Slave x1	2	Half Duplex x1	LLDx1	-	8	1.0 (@5V)/ D class	Speech function/ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	-	P-TQFP48-0707-0.50-ZK6	-	✓	✓
			P-TQFP52-1010-0.65-ZK6													
4 (16bitx2)	3	1	10bitx8 (SA type)	Master/ Slave x1	2	Half Duplex x1	LLDx1	-	8	1.0 (@5V)/ D class	Speech function/ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	-	P-TQFP48-0707-0.50-ZK6	-	✓	✓
													P-TQFP52-1010-0.65-ZK6			
													P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6			
4 (16bitx2)	3	1	10bitx8 (SA type)	Master/ Slave x1	2	Half Duplex x1	LLDx1	-	8	1.0 (@5V)/ D class	Speech function/ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	-	P-TQFP52-1010-0.65-ZK6	-	✓	✓
													P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6			

ML62Q1000 series Part Number Explanation



Part Number

- ① Device type  
ML: Bipolar Logic
- ② CPU Core type  
62: 16bit CPU nX-U16/100
- ③ ROM type  
Q: Flash ROM
- ④ Part Code  
13xx: ML62Q1300 Group  
2x: 16pin  
3x: 20pin  
4x: 24pin  
6x: 32pin  
  
x3: ROM 16KB  
x4: ROM 24KB  
x5: ROM 32KB  
x6: ROM 48KB  
x7: ROM 64KB
- ⑤ Option Code  
None to x: Set for product
- ⑥ ROM Code  
NNN : Blank  
001 to xxx: Custom Code Number
- ⑦ Package Code  
GD: WQFN  
MB: SSOP  
TD: TSSOP  
TB: TQFP  
GA: QFP
- ⑧ Company's Code in LAPIS Technology

- 15xx: ML62Q1500 Group  
3x: 48pin  
4x: 52pin  
5x: 64pin  
6x: 80pin  
7x: 100pin  
  
x0: ROM 32KB  
x1: ROM 48KB  
x2: ROM 64KB  
x3: ROM 96KB  
x4: ROM 128KB  
x5: ROM 160KB  
x6: ROM 192KB  
x7: ROM 256KB
- 17xx: ML62Q1700 Group (Built-in LCD Driver)  
0x: 48pin  
1x: 52pin  
2x: 64pin  
3x: 80pin  
4x: 100pin  
  
x0: ROM 32KB  
x1: ROM 48KB  
x2: ROM 64KB  
x3: ROM 96KB  
x4: ROM 128KB  
x5: ROM 160KB  
x6: ROM 192KB  
x7: ROM 256KB  
x8: ROM 384KB  
x9: ROM 512KB
- 18xx: ML62Q1800 Group  
5x: 64pin  
6x: 80pin  
7x: 100pin  
  
x8: ROM 384KB  
x9: ROM 512KB