

MN102LP36K / L36K / LP36Z / L36Z / LP36G / L36G / LP36D / L36D / L360C

Type	MN102LP36K / L36K / LP36Z / L36Z / LP36G / L36G / LP36D / L36D / L360C (ES samples are available for the LP36Z and L36Z. The others are under development.)
ROM (x8-bit / x16-bit)	256K (OTP) / 256K / 128K (OTP) / 128K / 128K (OTP) / 128K / 64K(OTP) / 64K / External
RAM (x8-bit / x16-bit)	10K / 10K / 10K / 10K / 5K / 5K / 3K / 3K / 5K
Minimum Instruction Execution Time	100ns (at 4.5 to 5.5V, 20MHz) 200ns (at 2.7 to 3.6V, 10MHz)
Interrupts	• RESET • Watchdog • Timer Counter 0 to 5 • Fixed-length, Serial ch 0,1 Transmission • Fixed-length Serial Ch 0,1 Reception • Timer Counter 6 to 7 • Timer Counter 6 to 7 Compare Capture A • Timer Counter 6 to 7 Compare Capture B • ACT Transfer Finish • External 0 to 7 • Serial ch 0,1 Transmission • Serial ch 0,1 Reception • NMI Pin • A/D Conversion Finish
Timer Counter	Timer Counter 0: 8-bit x 1 (Timer Output, Event Count) Clock Source.....1/1, 1/128 of System Clock, 1/4 of Low Speed Clock, External Clock Interrupt Source.....Timer Counter 0 Underflow Timer Counter 1: 8-bit x 1 (Timer Output, Even Count, A/D Conversion Start) Clock Source.....System Clock, 1/4 of Low Speed Clock, External Clock, Timer Counter 0 Output Interrupt Source.....Timer Counter 1 Underflow Timer Counter 2 to 3: 8-bit x 1 (Timer Output, Event Count, UART Baud Rate Generation) Clock Source.....System Clock, External Clock, Timer Counter 0 Output, Timer Counter 1, 2 Output Interrupt Source.....Timer Counter 2, 3 Underflow Timer Counter 4,5: 8-bit x 1 (Timer Output, Event Count) Clock Source.....1/4 of Low Speed Clock, External Clock, Timer Counter 0 Output, Timer Counter 3, 4 Output Interrupt Source.....Timer Counter 4, 5 Underflow Timer Counter 6, 7: 16-bit x 1 (Timer Output, Event Count, Input Capture, Output Compare, PWM Output, 2-phase Encoder Input) Clock Source.....System Clock, External Clock, Timer Counter 4, 5 Output Interrupt Source.....Coincidence with Compare Capture A or at Capture, Coincidence with Compare Capture B or at Capture, Underflow of Timer Counter 6, 7 Connectable Timer Counter 0 to 5
Serial Interface	Serial 0: 7, 8-bit x 1 (Common use with UART, Transfer Direction of MSB/LSB Selectable) Clock Source.....1/16 of Timer Counter 2, 1/16 of Timer Counter 3, External Clock, 1/2 of Timer Counter 2 I²C Mode (Master Transmission/Reception is Possible in The Single Master System.) Serial 1: 7, 8-bit x 1 (Common use with UART, Transfer Direction of MSB/LSB Selectable) Clock Source.....1/16 of Timer Counter 2, 1/16 of Timer Counter 3, External Clock, 1/2 of Timer Counter 3) I²C Mode (Master Transmission/Reception is Possible in The Single Master System.) Fixed-length, serial 0: 8-bit x 1 Clock Source.....External Clock Sending DirectionLSB Fixed-length serial 1: 8-bit x 1 Clock Source.....External Clock Sending DirectionLSB

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I/O Pins	I/O	104 83	- Common use: 16 (by 8-bits), 8 (by 4-bits), 80 (by-bit) (all models except MN102L360C) - Common use: 8 (by 4-bits), 75 (by-bit) (MN102L360C)
A/D Inputs			8-bit x 8ch (with S/H)
D/A Inputs			8-bit x 2ch
PWM			16-bit x 2ch
Notes			Burst ROM interface support, ATC (support between serial 0 ch and built-in RAM)
Package			LQFP128-P-1818B

Electrical Characteristics

A/D Converter Characteristics (at VDD=5V)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
A/D Conversion Relative Error		VDD=5V, VSS=0V ch0 to 7			±3	LSB
A/D Conversion Time			4.8			μs
Analog Input Voltage	VIA		VSS		VDD	V

(Ta= 25°C, VDD=5.0V, VSS=0V)

A/D Converter Characteristics (at VDD=3V)

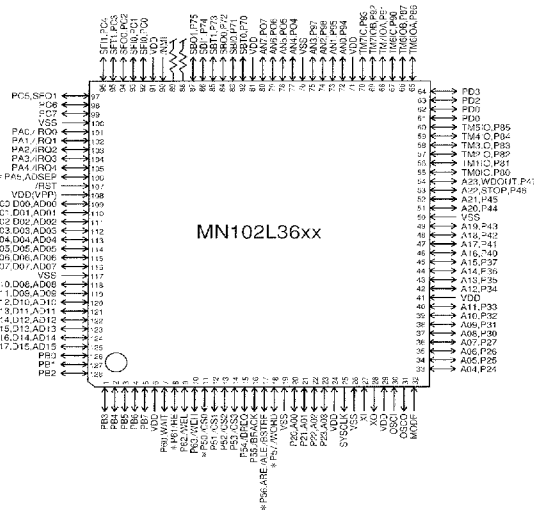
Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
A/D Conversion Relative Error		VDD=3V, VSS=0V ch0 to 7			±3	LSB
A/D Conversion Time			9.6			μs
Analog Input Voltage	VIA		VSS		VDD	V

(Ta= 25°C, VDD=3.0V, VSS=0V)

Support Tool

In-Circuit Emulator	PX-ICE102L00 + PX-PRB102L36
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Pin Assignment



LQFP128-P-1818B

* Port unusable in MN102L360C

MN102L36xx (128-pin version) series

