

□ MN102L59D

Type	MN102L59D	MN102LF59D
Internal ROM type	Mask ROM	FLASH
ROM (byte)	64K	
RAM (byte)	2K	
Package (Lead-free)	LQFP064-P-1414	LQFP064-P-1414 (ES (Engineering Sample) available)
Minimum Instruction Execution Time	[With main clock operated] 100 ns (at 4.5 V to 5.5 V, 5 MHz externally, multiplied by 4 internally)	

■ Interrupts

RESET, Watchdog, Timer counter 0 to 11, External 0 to 5, Serial ch.0 tra nsfer finish, Serial ch.1 tra nsfer finish, /NMI pin, A/D conversion finish

■ Timer Counter

Timer counter 0 : 8-bit × 1 (timer output, event count)

Clock source..... 1/1, 1/64, 1/128 of system clock frequency; external clock

Interrupt source underflow of timer counter 0

Timer counter 1 : 8-bit × 1 (timer output, event count, A/D conversion start up)

Clock source..... 1/1, 1/64 of system clock frequency; external clock; timer counter 0 output

Interrupt source underflow of timer counter 1

Timer counter 2 : 8-bit × 1 (timer output, event count)

Clock source..... system clock; external clock; timer counter 0, 1 output

Interrupt source underflow of timer counter 2

Timer counter 3 : 8-bit × 1 (interval timer, UART baud rate generator)

Clock source..... 1/1, 1/2, 1/64 of system clock frequency; timer counter 0 output

Interrupt source underflow of timer counter 3

Timer counter 4 : 8-bit × 1 (interval timer)

Clock source..... 1/1, 1/64, 1/128 of system clock frequency; timer counter 0 output

Interrupt source underflow of timer counter 4

Timer counter 5 : 8-bit × 1 (interval timer)

Clock source..... 1/1, 1/64 of system clock frequency; timer counter 0, 4 output

Interrupt source underflow of timer counter 5

Timer counter 6 : 16-bit × 1 (timer output, event count)

Clock source..... 1/1, 1/128 of system clock frequency; external clock; timer counter 0 output

Interrupt source underflow of timer counter 6

Timer counter 7 : 16-bit × 1 (timer output, event count)

Clock source..... 1/1, 1/128 of system clock frequency; external clock; timer counter 0 output

Interrupt source underflow of timer counter 7

Timer counter 8 : 8-bit × 1 (timer output, event count, simple PWM output)

Clock source..... 1/2, 1/8 of system clock frequency; external clock; timer counter 0 output

Interrupt source underflow of timer counter 8

Timer counter 9 : 8-bit × 1 (timer output, event count, simple PWM output)

Clock source..... 1/2, 1/8 of system clock frequency; external clock; timer counter 0 output

Interrupt source underflow of timer counter 9

Timer counter 10 : 8-bit × 1

(timer output, simple inverter control [simple 6-phase PWM output])

Clock source..... high-speed clock (after multiplication); 1/1, 1/2, 1/8 of system clock frequency

Interrupt source overflow of timer counter 10

Timer counter 11 : 16-bit updown counter × 1

(highly functional inverter control [simple 6-phase PWM output], A/D conversion start)

Clock source..... high-speed clock (after multiplication); 1/1 of system clock frequency

Interrupt source overflow of timer counter 11; underflow of timer counter 11

Connectable timer counter 0, 1, 2 timer counter 0, 4, 5

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Serial interface

Serial 0, 1 : 1 to 8-bit × 1 (common use with half-duplex UART, transfer direction of MSB/LSB selectable)

Clock source..... 1/2, 1/4, 1/16 of system clock, 1/2 of timer counter 3, external clock

Half-duplex UART × 2 (common use with serial 0, 1)

I/O Pins

I/O	52	Common use : 52 (by bit)
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A/D converter

10-bit × 12-ch. (with S/H) : 4 channels for common use

PWM

16-bit × 2-ch. (common use with timer counter 6,7)

simple 6-phase PWM output 8-bit × 1-ch.(common use with timer counter 10)

6-phase PWM output 16-bit × 1ch. (timer counter 11)

Notes

6-phase PWM output support

Electrical Characteristics (Supply current)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDDopr	VI = VDD or VSS, output open f = 5 MHz, VDD = 5.0 V			75	mA
Supply current at STOP	IDDS	Pin with pull-up resistor is open all other input pins and Hi-Z state input/output pins are simultaneously applied			50	μA
Supply current at HALT0	IDDH	VDD or VSS level f = 5 MHz, VDD = 5.0 V, output open			30	mA

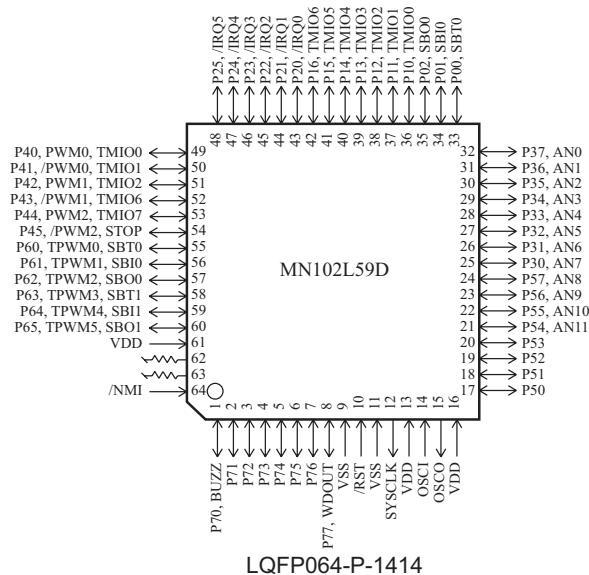
(Ta = -20°C to +85°C, VDD = 5.0V, VSS = 0V)

Development tools

In-circuit Emulator

PX-ICE102L00 + PX-PRB102L59-LQFP064-P-1414

Pin Assignment



Note) The MN102LF59D is manufactured and sold under license agreement with BULL CP8 Inc. Note that MN102LF59D cannot be used as the IC card.

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