

# □ MN103SB9N

Type	MN103SB9N	MN103SFB9R
Internal ROM type	Mask ROM	FLASH
ROM (byte)	512K	1024K
RAM (byte)	32K	
Package (Lead-free)	TQFP128-P-1414A (ES (Engineering Sample) available)	
Minimum Instruction Execution Time	16.7 ns (at 2.7 V to 3.6 V, 60 MHz)	

## ■ Interrupts

RESET, IRQ × 9, NMI, Timer × 28, SIF × 10, I<sup>2</sup>C × 3, Time base timer × 2, DMA × 12, WDT, A/D, System error

## ■ Timer Counter

8-bit timer × 10

Reload-down count, Cascade connection possible (usable as a 16-bit to 32-bit timer)

16-bit timer × 6

Up-down count, Input capture function, PWM generating function, Compare/capture register 2-ch.

Time base timer × 1

Watchdog timer × 1

## ■ Serial interface

UART/synchronous/multi-master I<sup>2</sup>C interface selective : 3

UART/synchronous interface selective : 2

## ■ DMA controller

Number of channels : 4

Unit of transfer : 8/16/32 bits

Max. Transfer cycles : 65535

Starting factor : external interrupt, timer factor, serial transmission/reception factor, I<sup>2</sup>C transmission/reception factor, external transmission request factor, A/D conversion finish, software factor

Transfer method : 2-bus cycle transfer

Addressing modes : fixed, increment, decrement

Transfer modes : word transfer, burst transfer, intermittent transfer

## ■ Expanded Calculation Functions

Multiply-and-accumulate; Multiply saturation

## ■ I/O Pins

I/O	104	Common use
-----	-----	------------

## ■ A/D converter

10-bit × 12-ch.

## ■ ROM Correction

8-ch.

## ■ Electrical Characteristics (A/D converter characteristics)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Resolution					10	Bits
Non-linear error		AVDD = 3.3 V, VSS = 0 V			±4	LSB
Differential non-linearity error					±4	LSB

■ Development tools

In-circuit Emulator  
PX-ICE-103SB9

On-board Development Tools  
PX-ODB103S-D0

■ Pin Assignment

