❑ MN103S52 Series

Type	MN103S52G	MN103SF52G
Internal ROM type	Mask ROM	FLASH
ROM (byte)	128K	
RAM (byte)	4K	
Package (Lead-free)	QFP100-P-1818B	QFP100-P-1818F
Minimum Instruction Execution Time	25 ns (at 4.3 V to 5.5 V, 10 MHz internal regulator used) 25 ns (at 3.0 V to 3.6 V, 10 MHz)	

■ Interrupts

9 external interrupts
42 internal interrupts: Watchdog timer. Timer. Serial I/F. PWM. A/D conversion finish. System error

■ Timer Counter

8-bit timer × 8
Timer 0 to 7 .....Interval timer. Event count. Cascading connectable
16-bit timer × 4
Timer 8 .....Interval timer. Event count. PWM output (6 pins simultaneous output are available). Double buffer
Timer 9, 10 .....Interval timer. Event count. PWM output. Double buffer
Timer 11 .....Interval timer. Double buffer. Start synchronized with 3-phase PWM are available
Watchdog timer × 1

■ Serial interface

UART (full duplex) /Synchronous interfaces selective × 3
Serial 0, 1.....7-bit, 8-bit transmission
Serial 2.....1-bit to 8-bit transmission (synchronous). 2 and 3 channel type selectable (synchronous)

■ Extended Calculation

Multiply and accumulate arithmetic. Multiplication. Saturated arithmetic

■ I/O Pins

I/O 56 : Exclusive × 8. Common use × 48
Input 16 : Common use × 16

■ A/D converter

10-bit × 3 unit. 2 channels × 2. 12 channels × 1
Simultaneous conversion of 3 series are available. With S/H
Conversion start synchronized with 3-phase PWM or timer 11 are available

■ Motor Control PWM

16-bit 3-phase PWM × 1
Minimum resolution: 50 ns
Triangular waveform or jigsaw waveform. Dead time setup. Double buffer. Output polar switching is available. PWM output pin protect function

■ Notes

5 V single power supply (internal regulator)

■ ROM Correction

Correcting address designation: Up to 4 addresses possible

■ Electrical Charactreistics (A/D converter characteristics)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Non-linear error		10-bit			±3	LSB
A/D conversion time	TAD		1.5			µs
Analog input voltage	VIA		VREF-		VREF+	V

Ta = 25 °C. VDD = 5.0 V. VSS = 0 V

Maintenance/Discontinued includes following four Product lifecycle stage.
planed maintenance type
maintenance type
planed discontinued type
discontinued type
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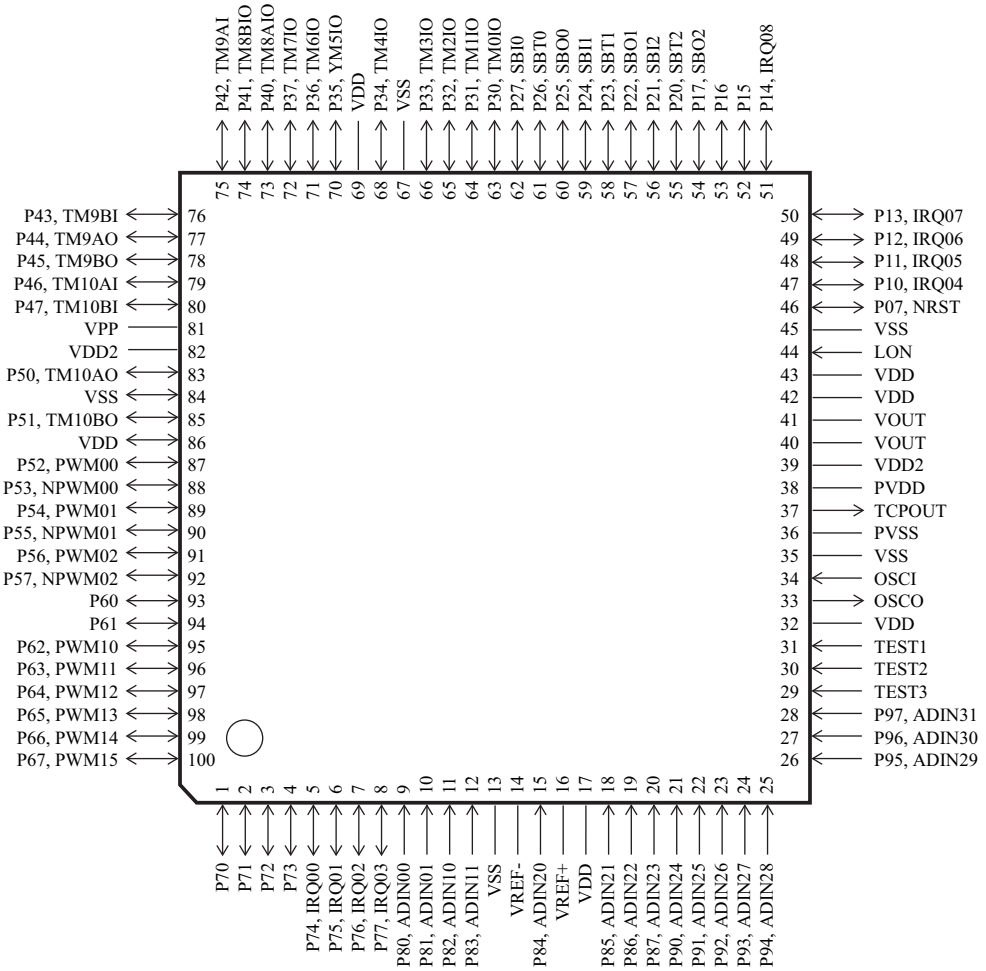
■ Development tools

In-circuit Emulator

PX-ICE-103S52

■ Pin Assignment

QFP100-P-1818B, QFP100-P-1818F



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