

□ MN101C67 Series

Type	MN101C67D	MN101C67G	MN101CF67G
Internal ROM type	Mask ROM		FLASH
ROM (byte)	64K	128K	
RAM (byte)	6K	10K	
Package (Lead-free)	TQFP080-P-1212D		
Minimum Instruction Execution Time	[Standard] 0.1 μs (at 2.5 V to 3.6 V, 20 MHz)* 0.2 μs (at 2.1 V to 3.6 V, 10 MHz)* 0.5 μs (at 1.8 V to 3.6 V, 4 MHz)* 62.5 μs (at 1.8 V to 3.6 V, 32 kHz)* [Double speed] 0.119 μs (at 2.5 V to 3.6 V, 8.39 MHz)* * The operation guarantee range for flash memory built-in type is 2.7 V to 3.6 V.		

■ Interrupts

RESET. Watchdog. External 0 to 5. Timer 0 to 6. Timer 7 (2 systems). Time base. Serial 0 reception. Serial 0 transmission. Serial 1 reception. Serial 1 transmission. Serial 2 to 4. Automatic transfer finish. A/D conversion finish. Key interrupts (8 lines)

■ Timer Counter

8-bit timer × 7

Timer 0Square-wave/8-bit PWM output. Event count. Remote control carrier output. Pulse width measurement

Timer 1Square-wave output. Event count. Synchronous output event

Timer 2Square-wave/8-bit PWM output. Event count. Synchronous output event. Pulse width measurement

Timer 3Square-wave output. Event count. Remote control carrier output

Timer 4Square-wave/8-bit PWM output. Event count. Pulse width measurement. Serial 1 baud rate timer

Timer 5Square-wave/8-bit PWM output. Event count. Pulse width measurement. Serial 0 baud rate timer

Timer 68-bit freerun timer

Timer 0, 1 can be cascade-connected

Timer 2, 3 can be cascade-connected

16-bit timer × 1

Timer 7Square-wave/16-bit PWM output (cycle/duty continuous variable). Event count. Synchronous output event. Pulse width measurement. Input capture

Time base timer: One-minute count setting

Watchdog timer × 1

■ Serial interface

Synchronous type/UART (full-duplex) × 2: Serial 0, 1

Synchronous type × 1: Serial 2

Synchronous type/Single-master I²C × 1: Serial 3

I²C slave × 1: Serial 4

Serial 4.....I²C high-speed transfer mode. 7-bit/10-bit address setting. General call

■ DMA controller

Maximum transfer cycles: 255

Starting factor: External request. Various types of interrupt. Software

Transfer mode: 1-byte transfer. Word transfer. Burst transfer

■ I/O Pins

I/O 62 : Common use. Specified pull-up resistor available. Input/output selectable (bit unit)

Input 7 : Common use. Specified pull-up resistor available

■ A/D converter

10-bit × 7 channels (with S/H)

■ Special Ports

Buzzer output. Remote control carrier output. High-current drive port

■ ROM Correction

Correcting address designation: Up to 3 addresses possible

■ Electrical Characteristics (Supply current)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	fosc = 20 MHz (fs = fosc/2). VDD = 3 V		5	12	mA
	IDD2	fosc = 8.39 MHz (fs = fosc/2). VDD = 3 V		2	5	mA
	IDD3	fx = 32.768 kHz (fs = fx/2). VDD = 3 V			40	μA
Supply current at HALT	IDD4	fx = 32.768 kHz. VDD = 3 V. Ta = 25 °C		4	8	μA
	IDD5	fx = 32.768 kHz. VDD = 3 V			30	μA
Supply current at STOP	IDD6	VDD = 3 V. Ta = 25 °C			2	μA
	IDD7	VDD = 3 V. Ta = 85 °C			30	μA

Ta = -40 °C to +85 °C. VDD = 1.8 V to 3.6 V. VSS = 0 V

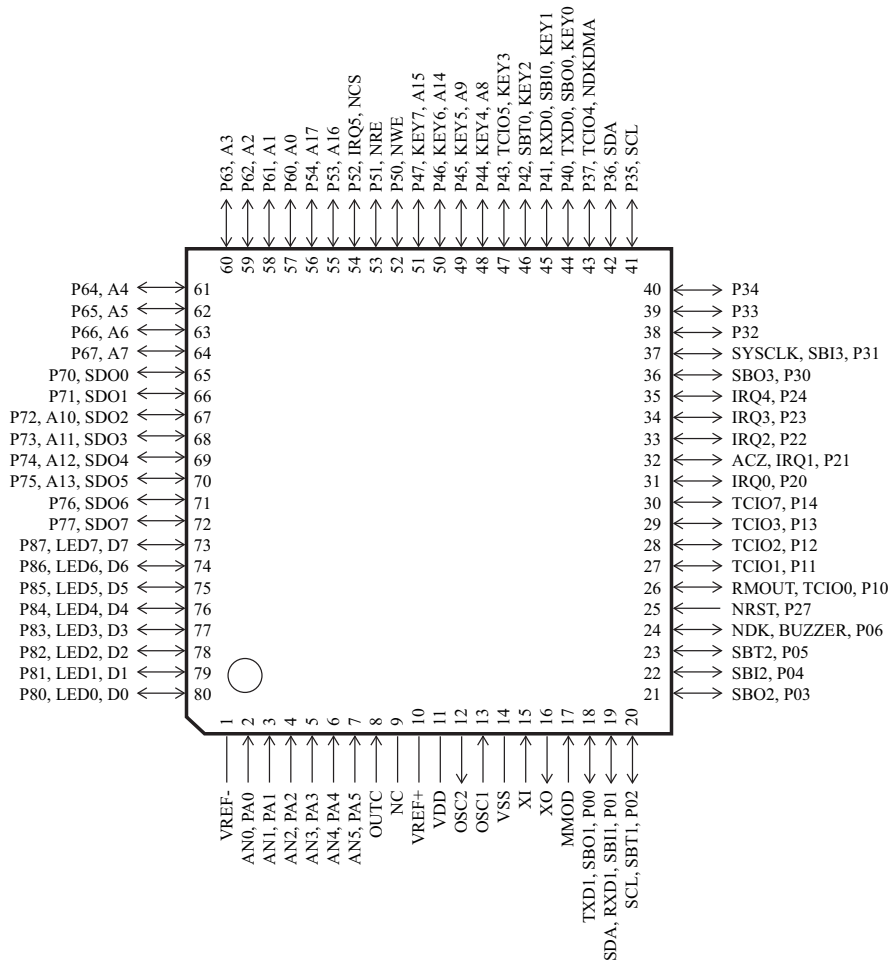
■ Development tools

In-circuit Emulator

PX-ICE101C/D + PX-PRB101C67-TQFP080-P-1212-M

■ Pin Assignment

TQFP080-P-1212D



Note) Pin 9 serves as the VPP pin in the MN101CF67G, and cannot be used as a user pin.

Request for your special attention and precautions in using the technical information and semiconductors described in this book

- (1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.
- (2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products, and no license is granted under any intellectual property right or other right owned by our company or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.
- (3) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (4) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment.
 - Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.
- (7) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.