

Notification about the transfer of the semiconductor business

The semiconductor business of Panasonic Corporation was transferred on September 1, 2020 to Nuvoton Technology Corporation (hereinafter referred to as "Nuvoton"). Accordingly, Panasonic Semiconductor Solutions Co., Ltd. became under the umbrella of the Nuvoton Group, with the new name of Nuvoton Technology Corporation Japan (hereinafter referred to as "NTCJ").

In accordance with this transfer, semiconductor products will be handled as NTCJ-made products after September 1, 2020. However, such products will be continuously sold through Panasonic Corporation.

Publisher of this Document is NTCJ.

If you would find description "Panasonic" or "Panasonic semiconductor solutions", please replace it with NTCJ.

※ Except below description page

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

Nuvoton Technology Corporation Japan

□ MN101E46 Series

Type	MN101E46G	MN101E46N	MN101E46R	MN101EF46R
Internal ROM type	Mask ROM			FLASH
ROM (byte)	128K	508K	928K	
RAM (byte)	4K		6K	8K
Package (Lead-free)	TQFP128-P-1414C			TQFP128-P-1414A
Minimum Instruction Execution Time	0.1 μ s (at 2.2 V to 3.6 V, 10 MHz) 0.125 μ s (at 1.8 V to 3.6 V, 8 MHz) 61 μ s (at 1.8 V to 3.6 V, 32.768 kHz)			

■ Interrupts

RESET. Watchdog. External 0 to 3. Timer 0 to 3. Timer 6. Timer 7 (2 systems). Timer 8 (2 systems). Time base. Serial 0. Serial 1 (2 systems). A/D conversion finish. Automatic transfer finish. LCD frame finish

■ Timer Counter

8-bit timer \times 5

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

Timer 1Square-wave output. Event count. Serial transfer clock output

Timer 2Square-wave/8-bit PWM output. Serial transfer clock output. Event count. Simple pulse width measurement

Timer 3Square-wave output. Event count. Serial transfer clock output

Timer 68-bit freerun timer

Timer 0, 1 can be cascade-connected

Timer 2, 3 can be cascade-connected

16-bit timer \times 2

Timer 7, 8Square-wave output. 16-bit PWM output (cycle/duty continuous variable). Event count. Pulse width measurement.
Input capture

Time base timer: One-minute count setting

Watchdog timer \times 1

■ Serial interface

Synchronous type/Single-master I²C \times 1: Serial 0

Synchronous type/UART (full-duplex) \times 1: Serial 1

■ 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 67 : Common use

Output 40 : LCD drive output exclusive use

■ A/D converter

10-bit \times 3 channels (External input 2 channels, Internal 1.8 V input 1 channel)

■ Display control function

Dot Matrix type LCD control function

Display size up to 2048 pixels (32 COM \times 64 SEG)

LCD drivers: COM output maximum 32 pins / SEG output maximum 67 pins (3 pins has dual function for COM/SEG)

1/8, 1/16, 1/24, 1/32 duty

1/5, 1/6 bias

LCD panel drive voltage maximum 5.5 V

Built-in LCD voltage booster and LCD voltage dividing resistor

16-level contrast control

Bright and dark 2-step level display function

Monochrome inversion function

■ Special Ports

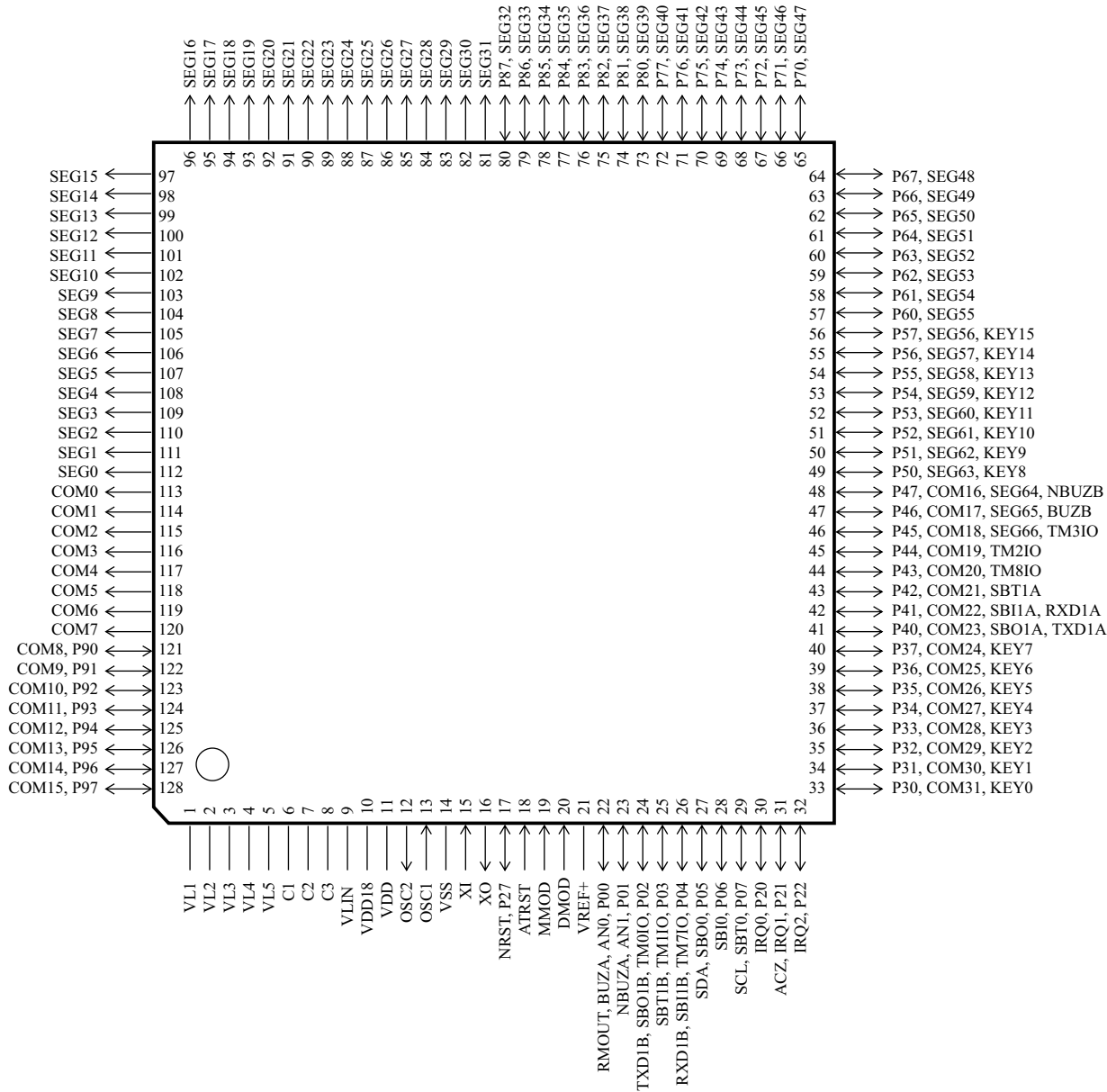
Buzzer output. Remote control carrier output

■ ROM Correction

Correcting address designation: Up to 7 addresses possible

■ Pin Assignment

TQFP128-P-1414A, TQFP128-P-1414C



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