

8-bit Microcontroller

KM101E59R/EF59R Datasheet

The information described in this document is the exclusive intellectual property of Nuvoton Technology Corporation Japan and shall not be reproduced without permission from Nuvoton.

*Nuvoton is providing document only for reference purposes of
KM101EF59R/EF59R based system design.
Nuvoton assumes no responsibility for errors or omissions.
All data and specifications are subject to change without notice.*

For additional information or question, please contact Nuvoton Technology Corporation Japan.

www.nuvoton.co.jp

Type	KM101E59R	KM101EF59R
Internal ROM type	Mask ROM	FLASH
ROM (byte)	928K	
RAM (byte)	8K	
Package (Lead-free)	QFP100-P-1818B	
Minimum Instruction Execution Time	50 ns (at 2.2 V to 5.5 V, 20 MHz) *: at internal 2, 3, 4, 5, 6, 8, 10 times oscillation used	

■ Interrupts

6 external interrupts. 30 internal interrupts

RESET. NMI. External 0 to 4. Timer 0 to 4. Timer 6. Timer 7 (2 systems). Timer 8 (2 systems). Timer 9 (2 systems). Time base. Serial 0 (2 systems). Serial 1 (2 systems). Serial 2 (2 systems). Serial 3 (2 systems). Serial 4. Serial 5. A/D conversion. Automatic transfer (2 systems). Key interrupt. End of single tone. End of phrase

■ Timer Counter

8-bit timer × 7

Timer 0Timer pulse output. Event count. Added pulse (2-bit) type PWM output. Remote control carrier output. Simple pulse width measurement. Real time output control

Timer 1Timer pulse output. Event count. 16-bit cascade connected (timer 0, 1). Timer synchronous output

Timer 2Timer pulse output. Event count. Added pulse (2-bit) type PWM output. Simple pulse width measurement. 24-bit cascade connected (timer 0, 1, 2). Timer synchronous output. Real time output control

Timer 3Timer pulse output. Event count. Remote control carrier output. 16-bit cascade connected (timer 2, 3). 32-bit cascade connected (timer 0, 1, 2, 3)

Timer 4Timer pulse output. Added pulse (2-bit) type PWM output. Event count. Serial transfer clock output. Simple pulse width measurement

Timer 68-bit freerun timer. Time base timer

Timer A.....Event count. Baud rate timer. Clock output for peripheral function

16-bit timer × 3

Timer 7Timer pulse output. Event count. High accuracy PWM. High performance IGBT output (cycle/duty continuous variable). Timer synchronous output. Input capture (both edge available). Real time output control. Double buffer compare register

Timer 8Timer pulse output. Event count. High accuracy PWM output (cycle/duty continuous variable). Pulse width measurement. Input capture (both edge available). 32-bit cascade connected (timer 7, 8). 32-bit PWM output. Synchronous output event. Double buffer compare register

Timer 9Timer pulse output. Event count. High accuracy PWM output (cycle/duty continuous variable). Pulse width measurement. Input capture (both edge available). Real time output control. Double buffer compare register

Watchdog timer × 1

■ Serial interface

Synchronous type/UART (full-duplex) × 4: Serial 0 to 3

Synchronous type/Multi-master I²C × 1: Serial 4

I²C slave × 1: Serial 5

■ DMA controller

2 systems. Maximum transfer cycles are 255

Starting factor: External request. Internal event. Software

■ I/O Pins

I/O 85 : Common use. Specified pull-up/pull-down resistor available. Input/output selectable (bit unit)

■ A/D converter

10-bit × 12 channels

■ D/A converter

8-bit × 4 channels. 20-bit × 2 channels. (Sound reproduction:digital output, analog output)

■ Display control function

LCD: 55 segments × 4 commons (Static, 1/2, 1/3, or 1/4 duty) 1/3 bias
Usable if VLC1 ≤ VDD

■ Special Ports

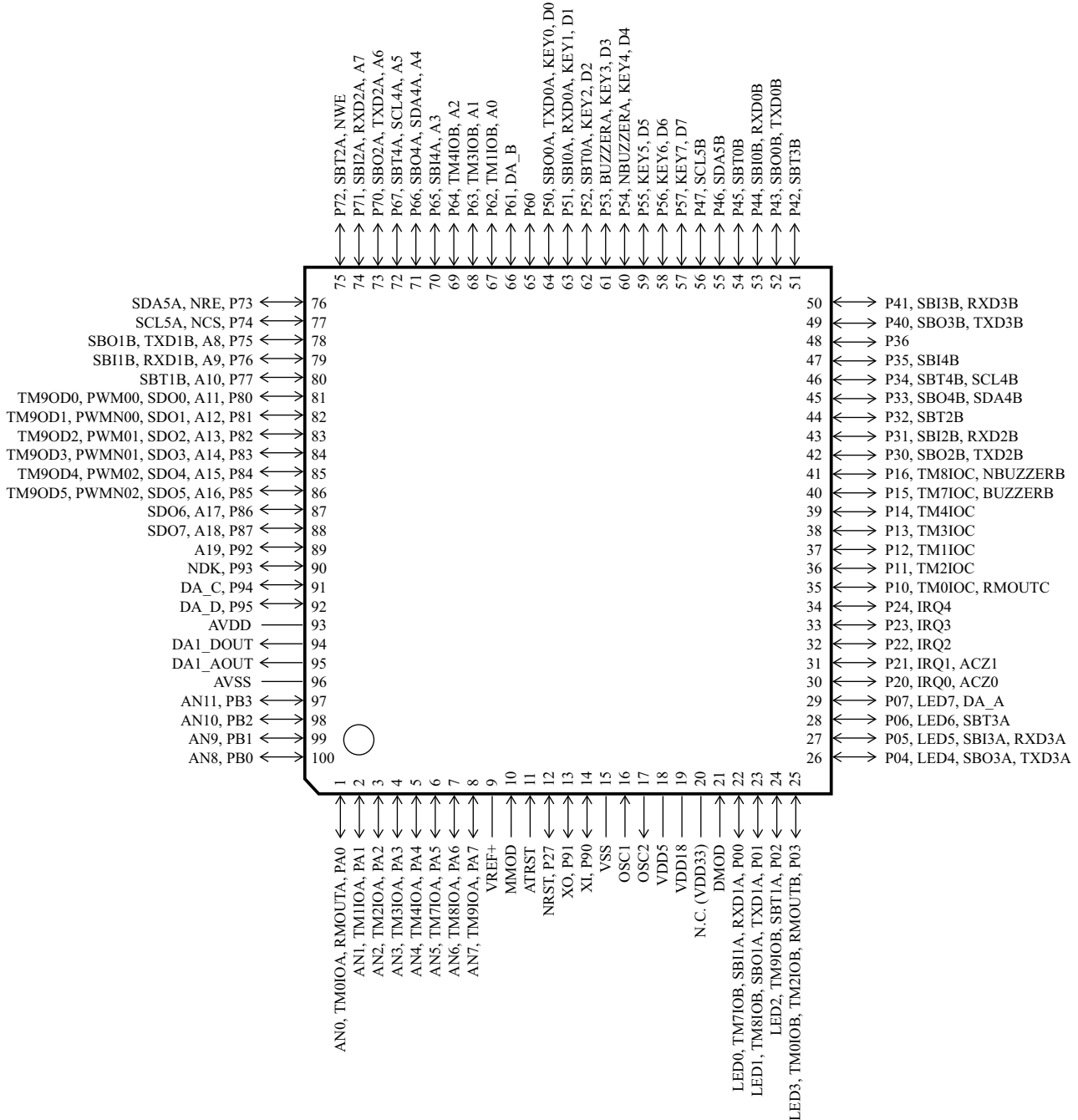
Buzzer output. Inverted buzzer output. Remote control carrier output. High-current drive port

■ ROM Correction

Correcting address designation: Up to 7 addresses possible

■ Pin Assignment

QFP100-P-1818B



Note) (): Flash memory built-in type

Important Notice

Nuvoton Products are neither intended nor warranted for usage in systems or equipment, any malfunction or failure of which may cause loss of human life, bodily injury or severe property damage. Such applications are deemed, "Insecure Usage".

Insecure usage includes, but is not limited to: equipment for surgical implementation, atomic energy control instruments, airplane or spaceship instruments, the control or operation of dynamic, brake or safety systems designed for vehicular use, traffic signal instruments, all types of safety devices, and other applications intended to support or sustain life.

All Insecure Usage shall be made at customer's risk, and in the event that third parties lay claims to Nuvoton as a result of customer's Insecure Usage, customer shall indemnify the damages and liabilities thus incurred by Nuvoton.

*Please note that all data and specifications are subject to change without notice.
All the trademarks of products and companies mentioned in this datasheet belong to their respective owners.*