Maintenance/Discontinued

Maintenance/Discontinued includes the following four product lifecycle stages:
- Planned Maintenance Type
- Maintenance Type
- Planned Discontinued Type
- Discontinued Type

ROM (×8-Bit)
16K / 24K / 32K / 32K / 48K (External memory can be expanded)

RAM (×8-Bit)
1024 / 1536 / 1536 / 1536 / 2048 (External memory can be expanded)

Minimum Instruction Execution Time
- 8.25 μs (at 2.7 V to 5.5 V, 8 MHz)
- 125 μs (at 2.0 V to 5.5 V, 32 kHz)

Interrupts
- RESET
- Watchdog
- External 0
- External 1
- External 2
- External 3
- External 4
- Timer 2
- Timer 3
- Timer 4
- Timer 5
- Time Base
- Serial 0
- Serial 1
- A/U Conversion Finish

Timer Counter
- Timer Counter 2: 8-Bit × 1 (Square-Wave/8-Bit PWM Output, Event Count, Synchronous Output Event)
  Clock Source: 1/4, 1/16 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input
  Interrupt Source: Coincidence with Compare Register 2

- Timer Counter 3: 8-Bit × 1 (Square-Wave Output, Event Count, Generation of Remote Control Carrier, Serial D Baud Rate Timer)
  Clock Source: 1/4, 1/16 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input
  Interrupt Source: Coincidence with Compare Register 3

- Timer Counter 2, 3 can be cascade-connected

- Timer Counter 4: 16-Bit × 1 (Square-Wave/16-Bit PWM Output, Event Count, Synchronous Output Event, Input Capture)
  Clock Source: 1/4, 1/16 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input
  Interrupt Source: Coincidence with Compare Register 4

- Time Base Timer (One-Minute Count Setting, Independently operable 8-Bit Timer Counter 5)
  Clock Source: 1/4 of System Clock, 1/1, 1/8192 of OSC Oscillation Clock, 1/1, 1/8192 of Xi Oscillation Clock
  Interrupt Source: Coincidence with Compare Register 5, 1/8192 Prescaler Overflow

- Watchdog Timer
  Interrupt Source: 1/65536, 1/262144, 1/1048576 of System Clock (Mask Option)

Serial Interface
- Serial 0: 8-Bit × 1 (Synchronous Type/Simple UART [Half-Duplex])
  Clock Source: 1/2, 1/4, 1/16 of System Clock, 1/2 of Timer Counter 3

- Serial 1: 8-Bit × 1 (Synchronous Type)
  Clock Source: 1/2, 1/8, 1/64 of System Clock, 1/2 of Timer Counter 3

I/O Pins
- I/O: 44
  - Common use
  - Specified pull-up resistor available
  - Input/Output selectable (bit unit)
  - Specified pull-down resistor partially selectable

- Input: 13
  - Common use
  - Specified pull-up resistor available
  - Specified pull-down resistor partially selectable

A/D Inputs
10-Bit × 8ch (with S/H)

LCD
- 52 segment
- 4 common
- Static
- 1/2, 1/3 or 1/4 duty

Special Ports
- Buzzer Output, Remote Control Carrier Signal Output, High-Current Drive Port

Package
QFP100-P-1818B, LQFP100-P-1414
Maintenance/Discontinued includes following four Product lifecycle stage.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>Limit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Supply Current</td>
<td>IDD1</td>
<td>( f_{OSC} = 8 \text{ MHz}, V_{DD} = 5 \text{ V} )</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td></td>
<td>IDD2</td>
<td>( f_x = 32 \text{ kHz}, V_{DD} = 3 \text{ V} )</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Supply Current at HALT</td>
<td>IDD3</td>
<td>( f_x = 32 \text{ kHz}, V_{DD} = 3 \text{ V}, T_a = 25 \text{ °C} )</td>
<td>8</td>
<td>( \mu \text{A} )</td>
</tr>
<tr>
<td></td>
<td>IDD4</td>
<td>( f_x = 32 \text{ kHz}, V_{DD} = 3 \text{ V}, T_a = -40 \text{ °C} )</td>
<td>24</td>
<td>( \mu \text{A} )</td>
</tr>
<tr>
<td>Supply Current at STOP</td>
<td>IDD5</td>
<td>( V_{DD} = 5 \text{ V}, T_a = 25 \text{ °C} )</td>
<td>1</td>
<td>( \mu \text{A} )</td>
</tr>
<tr>
<td></td>
<td>VDD = 5 V, T_a = -40 °C to +85 °C</td>
<td>20</td>
<td>( \mu \text{A} )</td>
<td></td>
</tr>
</tbody>
</table>

Support Tool

- **In-Circuit Emulator**: PX-ICE101C/D + PX-PRB101C16-C/D

**EPROM built-in Type**

- **Type**: MN101CP03D, MN101CP38C [ES (Engineering Sample) available]
- **ROM (× 8-Bit)**: 64 K / 48 K
- **RAM (× 8-Bit)**: 2 048 / 2 048
- **Minimum Instruction Time**: 0.25 \( \mu \text{s} \) (at 4.5 V to 5.5 V, 3 MHz)
- **Execution Time**: 125 \( \mu \text{s} \) (at 2.7 V to 5.5 V, 32 kHz)

**Package**: QFP100-P-1818B, LQFP100-P-1414

**Pin Assignment**

- MN101C167
- MN101C169
- MN101C16A
- MN101C38A
- MN101C38C

QFP100-P-1818B, LQFP100-P-1414
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