

MN102L36K / L360C

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| Type | MN102L36K [ES (Engineering Sample) available] / L360C |
| ROM (×8-Bit / ×16-Bit) | 256 K / External |
| RAM (×8-Bit / ×16-Bit) | 10 K / 5 K |
| Minimum Instruction Execution Time | 100 ns (at 4.5 V to 5.5 V, 20 MHz) 200 ns (at 2.7 V to 3.6 V, 10 MHz) |
| Interrupts | <ul style="list-style-type: none"> • RESET • Watchdog • Timer Counter 0 to 5 • Fixed-Length Serial ch 0,1 Transmission • Fixed-Length Serial Ch 0,1 Reception • Timer Counter 6 to 7 • Timer Counter 6 to 7 Compare Capture A • Timer Counter 6 to 7 Compare Capture B • ACT Transfer Finish • External 0 to 7 • Serial ch 0,1 Transmission • Serial ch 0,1 Reception • NMI Pin • A/D Conversion Finish |
| Timer Counter | <p>Timer Counter 0: 8-Bit × 1 (Timer Output, Event Count)</p> <p>Clock Source . . . 1/1, 1/128 of System Clock, 1/4 of Low Speed Clock, External Clock</p> <p>Interrupt Source . . . Timer Counter 0 Underflow</p> <p>Timer Counter 1: 8-Bit × 1 (Timer Output, Even Count, A/D Conversion Start)</p> <p>Clock Source . . . System Clock, 1/4 of Low Speed Clock, External Clock, Timer Counter 0 Output</p> <p>Interrupt Source . . . Timer Counter 1 Underflow</p> <p>Timer Counter 2 to 3: 8-Bit × 1 (Timer Output, Event Count, UART Baud Rate Generation)</p> <p>Clock Source . . . System Clock, External Clock, Timer Counter 0 Output, Timer Counter 1, 2 Output</p> <p>Interrupt Source . . . Timer Counter 2, 3 Underflow</p> <p>Timer Counter 4,5: 8-Bit × 1 (Timer Output, Event Count)</p> <p>Clock Source . . . 1/4 of Low Speed Clock, External Clock, Timer Counter 0 Output, Timer Counter 3, 4 Output</p> <p>Interrupt Source . . . Timer Counter 4, 5 Underflow</p> <p>Timer Counter 6, 7: 16-Bit × 1 (Timer Output, Event Count, Input Capture, Output Compare, PWM Output, 2-Phase Encoder Input)</p> <p>Clock Source . . . System Clock, External Clock, Timer Counter 4, 5 Output</p> <p>Interrupt Source . . . Coincidence with Compare Capture A or at Capture, Coincidence with Compare Capture B or at Capture, Underflow of Timer Counter 6, 7</p> <p style="text-align: center;">Connectable . . . Timer Counter 0 to 5</p> |
| Serial Interface | <p>Serial 0: 7, 8-Bit × 1 (Common use with UART, Transfer Direction of MSB/LSB Selectable)</p> <p>Clock Source . . . 1/16 of Timer Counter 2, 1/16 of Timer Counter 3, External Clock, 1/2 of Timer Counter 2</p> <p>I²C Mode (Master Transmission/Reception is Possible in The Single Master System)</p> <p>Serial 1: 7, 8-Bit × 1 (Common use with UART, Transfer Direction of MSB/LSB Selectable)</p> <p>Clock Source . . . 1/16 of Timer Counter 2, 1/16 of Timer Counter 3, External Clock, 1/2 of Timer Counter 3)</p> <p>I²C Mode (Master Transmission/Reception is Possible in The Single Master System)</p> <p>Fixed-Length serial 0: 8-Bit × 1</p> <p>Clock Source . . . External Clock</p> <p>Sending Direction . . . LSB</p> <p>Fixed-Length serial 1: 8-Bit × 1</p> <p>Clock Source . . . External Clock</p> <p>Sending Direction . . . LSB</p> |

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|-----------------------------------|------------|-------------------------|---|
| I/O Pins | I/O | 104 83 | <ul style="list-style-type: none"> • Common use 16 (by 8-Bits), 8 (by 4-Bits), 80 (by-bit) (MN102L36K) • Common use 8 (by 4-Bits), 75 (by-bit) (MN102L360C) |
| A/D Inputs | | | 8-Bit × 8ch (with S/H) |
| D/A Inputs | | | 8-Bit × 2ch |
| PWM | | | 16-Bit × 2ch |
| Notes | | | Burst ROM interface support, ATC (support between serial 0 ch and built-in RAM) |
| Package | | | LQFP128-P-1818C |
| Electrical Characteristics | | | |

A/D Converter Characteristics (at VDD = 5 V)

| Parameter | Symbol | Condition | Limit | | | Unit |
|-------------------------------|--------|---------------------------------|-------|-----|-----|------|
| | | | min | typ | max | |
| A/D Conversion Relative Error | | VDD = 5 V, VSS = 0 V ch0 to 7 | | | ±3 | LSB |
| A/D Conversion Time | | | 4 | 8 | | μs |
| Analog Input Voltage | VIA | | VSS | | VDD | V |

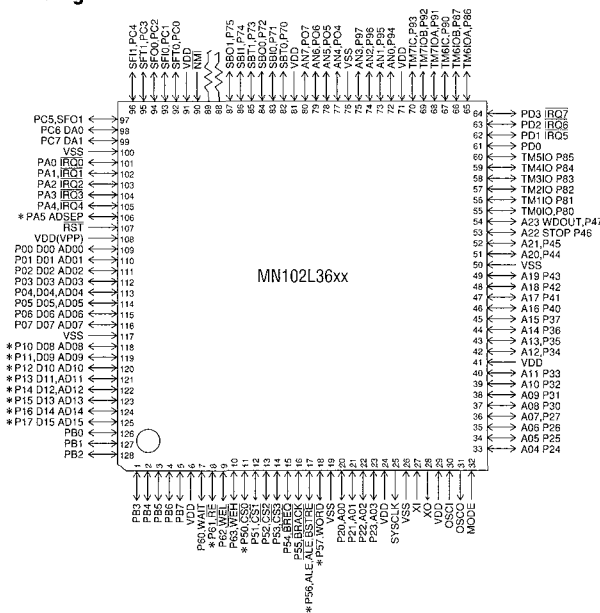
(Ta = 25 °C, VDD = 5.0 V, VSS = 0 V)

A/D Converter Characteristics (at VDD = 3 V)

| Parameter | Symbol | Condition | Limit | | | Unit |
|-------------------------------|--------|---------------------------------|-------|-----|-----|------|
| | | | min | typ | max | |
| A/D Conversion Relative Error | | VDD = 3 V, VSS = 0 V ch0 to 7 | | | ±3 | LSB |
| A/D Conversion Time | | | 9 | 6 | | μs |
| Analog Input Voltage | VIA | | VSS | | VDD | V |

(Ta = 25 °C, VDD = 3.0 V, VSS = 0 V)

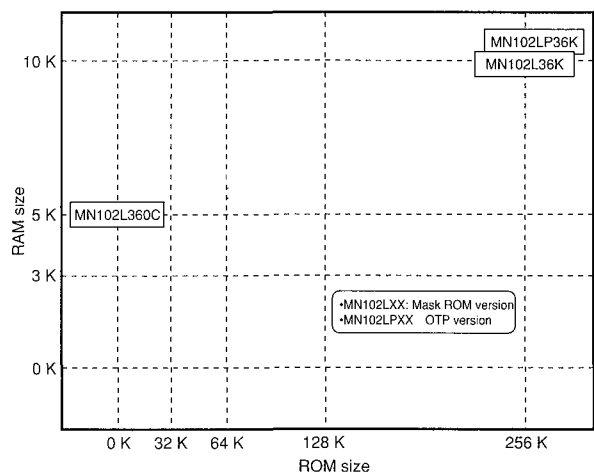
Pin Assignment



LQFP128-P-1818C

* Port unusable in MN102L360C

MN102L36xx (128pin version) series



See the next page for support tool.

Support Tool

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|----------------------------|---|--|
| In-Circuit Emulator | PX-ICE102L00 + PX-PRB102L36 | |
| EPROM built-in Type | Type | MN102LP36K [ES (Engineering Sample) available] / LP36Z |
| | ROM (× 8-Bit / × 16-Bit) | 256 K / 128 K |
| | RAM (× 8-Bit / × 16-Bit) | 10 K / 10 K |
| | Minimum Instruction Execution Time | 100 μs (at 4.5 V to 5.5 V, 20 MHz) 200 μs (at 2.7 V to 3.6 V, 10 MHz) |
| | Package | LQFP128-P-1818C |
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