

MN1A7T0200

Type			MN1A7T0200
ROM (×8-Bit / ×16-Bit / ×32-Bit)			Max 16 M in total
RAM (×8-Bit / ×16-Bit / ×32-Bit)			External ROM and RAM
Minimum Instruction Execution Time			100 ns (at 2.3 V to 2.7 V, 20 MHz)
Interrupts			<ul style="list-style-type: none"> • RESET • IRQ0 to 5 • NMI • Timer 0 to 9 Underflow • Timer 8 to 9 Compare Capture A • Timer 8 to 9 Compare Capture B • Serial ch 0 to 2 Transmission • Serial ch 0 to 2 Reception • Serial ch 0 to 2 in Communication State • Serial ch 0 to 2 Modem Status • Serial ch 0 to 2 Character • Serial ch 3 to 4 Transmission • Serial ch 3 to 4 Reception • WDT • A/D Conversion finish
Timer Counter			<p>Timer Counter 0 : 16-Bit × 1 (Interval Timer, Event Count, Interrupt, A/D Conversion Trigger)</p> <p>Clock Source PS0 Underflow, PS1 Underflow, External Clock</p> <p>Interrupt Source Timer Counter 0 Underflow</p> <p>Timer Counter 1 to 6. 16-Bit × 1 (Interval Timer, Event Count, Timer Output, Interrupt)</p> <p>Clock Source PS0 Underflow, PS1 Underflow, External Clock</p> <p>Interrupt Source Timer Counter 1, 2, 3, 4, 5 or 6 Underflow</p> <p>Timer Counter 7: 16-Bit × 1 (Interval Timer, Event Count, Timer Output, Interrupt)</p> <p>Clock Source PS0 Underflow, PS1 Underflow, External Clock Input, Timer 6 Cascade Input</p> <p>Interrupt Source Timer Counter 7 Underflow</p> <p>* Timer Counter 6 or 7 can be Changed in Configuration into a 32-Bit Timer Counter</p> <p>Timer Counter 8: 16-Bit × 1 (Interval Timer, Event Count, Output Compare, PWM Output, One-Shot Output, Input Capture, Interrupt)</p> <p>Clock Source PS0 Underflow, PS1 Underflow and External Clock Input</p> <p>Interrupt Source Timer Counter 8 Underflow, Agreement with Compare Capture A (or Capture), Agreement with Compare Capture B (or Capture)</p> <p>Timer Counter 9: 16-Bit × 1 (Interval Timer, Event Count, Output Compare, PWM Output, One-Shot Output)</p> <p>Clock Source PS0 Underflow, PS1 Underflow, External Clock Input</p> <p>Interrupt Source Timer Counter 9 Underflow, Agreement with Compare Capture A (or Capture), Agreement with Compare Capture B (or Capture)</p> <p>Two pre-scaler counters</p>
Serial Interface			<p>Serial 0, 1, 2 (UART): 5-, 6-, 7-, 8-Bit × 3</p> <p>Clock Source Baud Rate Generator, IOCLKH, External Clock</p> <p>Serial 3, 4 (SSI): 4- to 16-Bit × 2</p> <p>Clock Source IOCLKH, External Clock</p>
I/O Pins	I/O	40	• Common use 40
A/D			10-Bit × 8ch
PWM			16-Bit × 2ch
ICR			16-Bit × 2ch
OCR			16-Bit × 2ch
Package			FLGA152-C-1111

Electrical Characteristics

A/D Characteristic

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Resolution					10	Bits
A/D Conversion Absolute Precision		VREFH = 3.0 V VREFL = 0.0 V A/D Conversion Clock = 6 MHz			±5	LSB
A/D Conversion Relative Precision					±5	LSB
A/D conversion time			20		24	μs

(Ta = 25 °C, AVDD = 3.0 V, AVSS = 0.0 V)

Support Tool

In-Circuit Emulator

Multi-ICE (ARM product), Partner ET-II (KMC product) (applicable to 16- or 8-Bit pass mode),
Advice (YDC product) (applicable to 16- or 8-Bit pass mode)

Pin Assignment

Perspective view
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NC		82 TDO	86 D2	90 D5	94 D8	102 D15	106 D18	110 D21	118 D28	122 D31	NC	
		84 D0	96 D10	92 D7	104 D16	108 D20	112 D23	114 D25	119 D29	123 BS1		
69 OSCO	80 TDI	76 JMOD	91 D6	99 D12	100 D13	111 D22	107 D19	116 D26	121 D30	125 A0	126 A1	124 BS0
70 OSCI	79 TMS	87 D3	85 D1	95 D9	97 D11	105 D17	113 D24	117 D27	131 A5	129 A3	130 A4	128 A2
75 TMOD	73 TREQA	74 TREQB	89 D4	101 D14	VDD3	VDD	VDD	135 A8	137 A10	134 A7	133 A6	136 A9
71 TACK	65 VRESET	64 N3KP	58 TM91A	VDD3	GND	GND	GND	VDD	139 A11	141 A13	142 A14	140 A12
53 TM81A	61 TM80B	62 TM80A	60 TM20	VDD3	GND	GND	GND	VDD	147 A18	145 A16	146 A17	144 A15
59 TM10	52 TM81B	54 TM90B	56 TM91B	VDD3	VDD3	VDD	VDD	153 A23	151 A21	149 A19	150 A20	152 A22
55 TM90A	47 TM70	49 TM11	48 TM01	44 TM50	24 NRTS2	22 SIN2	12 NRTS0	155 NCS0	163 NWE2	157 NCS2	158 NCS3	156 N3S1
67 XI	50 TM21	39 VREFL	37 AN0	33 AN4	28 NADTRG	18 NRTS1	16 SIN1	8 NCTS0	165 NWE3	161 NWE0	162 NWE1	160 NRE
66 XO	45 TM60	35 AN2	31 AN6	29 AVDD	23 SCLKIN2	19 SOUT1	14 NCTS1	10 SIN0	2 NIRQ4	6 NIRQ1	3 NIRQ3	
NC		38 VREFH	34 AN3	30 AN7	25 SOUT2	21 NCTS2	11 SCLKIN0	7 NIRQ0	5 NIRQ2	1 NNMI	NC	
		40 AVSS	36 AN1	32 AN5	81 TCK	77 NTRST	17 SCLKIN1	13 SOUT0	41 TM30	43 TM40		
13	12	11	10	9	8	7	6	5	4	3	2	1

13 12 11 10 9 8 7 6 5 4 3 2 1

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