

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		• 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		Timer Counter 0 : 16-Bit × 1 (Interval Timer, Event Count, Interrupt, A/D Conversion Trigger) Clock Source PS0 Underflow, PS1 Underflow, External Clock Interrupt Source Timer Counter 0 Underflow Timer Counter 1 to 6. 16-Bit × 1 (Interval Timer, Event Count, Timer Output, Interrupt) Clock Source PS0 Underflow, PS1 Underflow, External Clock Interrupt Source Timer Counter 1, 2, 3, 4, 5 or 6 Underflow Timer Counter 7: 16-Bit × 1 (Interval Timer, Event Count, Timer Output, Interrupt) Clock Source PS0 Underflow, PS1 Underflow, External Clock Input, Timer 6 Cascade Input Interrupt Source Timer Counter 7 Underflow * Timer Counter 6 or 7 can be Changed in Configuration into a 32-Bit Timer Counter Timer Counter 8: 16-Bit × 1 (Interval Timer, Event Count, Output Compare, PWM Output, One-Shot Output, Input Capture, Interrupt) Clock Source PS0 Underflow, PS1 Underflow and External Clock Input Interrupt Source Timer Counter 8 Underflow, Agreement with Compare Capture A (or Capture), Agreement with Compare Capture B (or Capture) Timer Counter 9: 16-Bit × 1 (Interval Timer, Event Count, Output Compare, PWM Output, One-Shot Output) Clock Source PS0 Underflow, PS1 Underflow, External Clock Input Interrupt Source Timer Counter 9 Underflow, Agreement with Compare Capture A (or Capture), Agreement with Compare Capture B (or Capture) Two pre-scaler counters	
Serial Interface		Serial 0, 1, 2 (UART): 5-, 6-, 7-, 8-Bit × 3 Clock Source Baud Rate Generator, IOCLKH, External Clock Serial 3, 4 (SSI): 4- to 16-Bit × 2 Clock Source IOCLKH, External Clock	
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

NC		82 TDO	86 D2	90 D5	94 D8	102 D15	106 D18	110 D21	118 D28	122 D31	NC		N
		84 D0	96 D10	92 D7	104 D16	108 D20	112 D23	114 D25	119 D29	123 BS1			M
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	L
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	K
75 TMOD	73 TREQA	74 TREQB	89 D4	101 D14	VDD3	VDD	VDD	135 A8	137 A10	134 A7	133 A6	136 A9	J
71 TACK	65 VRESET	64 N3KP	58 TM9IA	VDD3	GND	GND	GND	VDD	139 A11	141 A13	142 A14	140 A12	H
53 TM8IA	61 TM8OB	62 TM8OA	60 TM2O	VDD3	GND	GND	GND	VDD	147 A18	145 A16	146 A17	144 A15	G
59 TM1O	52 TM8IB	54 TM9OB	56 TM9IB	VDD3	VDD3	VDD	VDD	153 A23	151 A21	149 A19	150 A20	152 A22	F
55 TM9OA	47 TM7O	49 TM11	48 TM0I	44 TM5O	24 NRTS2	22 SIN2	12 NRTS0	155 NCS0	163 NWE2	157 NCS2	158 NCS3	156 NCS1	E
67 XI	50 TM2I	39 VREFL	37 AN0	33 AN4	28 NADTRG	18 NRTS1	16 SIN1	8 NCTS0	165 NWE3	161 NWE0	162 NWE1	160 NRE	D
66 XO	45 TM6O	35 AN2	31 AN6	29 AVDD	23 SCLKIN2	19 SOUT1	14 NCTS1	10 SIN0	2 NIRQ4	6 NIRQ1	3 NIRQ3		C
NC		38 VREFH	34 AN3	30 AN7	25 SOUT2	21 NCTS2	11 SCLKIN0	7 NIRQ0	5 NIRQ2	1 NNMI	NC		B
		40 AVSS	36 AN1	32 AN5	81 TCK	77 NTRST	17 SCLKIN1	13 SOUT0	41 TM3O	43 TM4O			A

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

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