

Microcomputers

4-Bit Single Chip Microcomputers, MN1500 Family

Category	Type No.	Process	ROM (K Byte)	RAM (× 4 bit)	Input/ Output (Lines)	Speed (μs)	Supply Voltage (typ.) (V)	Package		Piggy- back	Remarks
									No.		
General purpose	MN1551A	CMOS	1	96	23	1 6	4.5 ~ 5.5 2.5 ~ 5.5	28-SDIP/SO-28D	120 140	EP1551A	LED driver
	MN15514		1	48	14	2 8	4.5 ~ 5.5 2.5 ~ 5.5	18-DIP(a)/ SO-18D	110 134	—	
	MN15522		2	128	23	2 6	4.5 ~ 5.5 2.5 ~ 5.5	28-SDIP/SO-28D	120 140	EP15522	LED driver
	MN1554		4	256	51	19 6	4.5 ~ 5.5 3 ~ 5.5	64-SDIP/QFP(a)	124 151	EP1554	
	MN15542		4	256	34	2 8	4.5 ~ 5.5 2.5 ~ 5.5	42-SDIP/QFP	122 145	EP15542	
	MN150402		4	320	32	191 4	2.6 ~ 5.5 2.2 ~ 5.5	44-QFP/42-SDIP 48-QFH	146, 122 147	EP150402	
	▲ MN150401		4	320	46	191 4	2.6 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
	▲ MN150602		6	320	24	191 4	2.6 ~ 5.5 2.2 ~ 5.5	44-QFP/42-SDIP	146 122		OTP available (ES)
	▲ MN15P0802		8	320	24	1.91	4.5 ~ 5.5	44-QFP/42-SDIP	146 122	※	One time version (ES)
	▲ MN155101		1	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	28-SDIP	120	—	Without A/D
	▲ MN155101		1	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	SO-28D	140	—	Without A/D
	MN155201		2	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	28-SDIP	120	—	Without A/D
	MN155201		2	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	SO-28D	140	—	Without A/D
	MN155102		1	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	28-SDIP	120	—	10 bit A/D input
	MN155102		1	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	SO-28D	140	—	10 bit A/D input
	MN155202		2	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	28-SDIP	120		10 bit A/D input
	MN155202		2	128	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	SO-28D	140		10 bit A/D input
	▲ MN155402		4	192	23	4 1	2.0 ~ 5.5 4.5 ~ 5.5	28-SDIP	120		10 bit A/D input
	MN15P5402		4	256	23	1 ~ 4	4.5 ~ 5.5	28-SDIP	120		One time version
	MN15P5402		4	256	23	1 ~ 4	4.5 ~ 5.5	SO-28D	140		One time version
Analog input comparator & A/D converter	MN158281	CMOS	2	128	17	191 8	4.5 ~ 5.5 2.5 ~ 5.5	28-SDIP/SO-28D	120 140	EP158281	
	MN158486		4	128	21	191 8	4.5 ~ 5.5 4.5 ~ 5.5	28-SDIP	120	EP158281	
	MN150404		4	256	32	191 4	2.6 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
	MN150804		8	384	32	191 4	2.6 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
	▲ MN150412		4	256	32	2 8	2.6 ~ 5.5 2.2 ~ 5.5	44-QFP/ 42-SDIP	146 122	※	LED driver OTP available (ES)
LCD driver	MN158614	CMOS	6	256 + 1024	36	2 8	4.5 ~ 5.5 2.5 ~ 5.5	84-QFP	159	EP158614	LCD driver for tel. DTMF
	MN1584532		4	256	22	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	EP1584531	Remote control output
	MN158655		6	320	26	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	▲ EP158855	Remote control output
	MN158855		8	384	26	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	▲ EP158855	Remote control output
	MN158851		8	432	32	2 8	4.2 ~ 6.5 2.5 ~ 6.5	84-QFP	159	EP158851	
	MN158416		4	128	39	4	2.0 ~ 5.5	48-QFH	147	EP158416	LED driver
	MN150404		4	256	32	191 4	2.6 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
	MN150804		8	384	32	191 4	2.6 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
LED driver	MN1551A	CMOS	1	96	23	1	4.5 ~ 5.5	28-SDIP/SO-28D	120 140	EP1551A	
	MN15522		2	128	23	2	4.5 ~ 5.5	28-SDIP/SO-28D	120 140	EP15522	
	MN158614		6	1280	36	2 8	4.5 ~ 5.5 2.5 ~ 5.5	84-QFP	159	EP158814	LCD driver DTMF
FLP driver	MN158418	CMOS	4	256	56	2	4.5 ~ 5.5	64-SDIP	124	EP158418	
	MN158882		8	320	44	2	4.5 ~ 6.0	52-SDIP	123	EP158882	A/D input
Remote control	MN158417	CMOS	4	256	22	2 4	2.4 ~ 5.5 2.0 ~ 5.5	SO-28D	140	EP158417	Ordinary port
	MN1584532		4	256	22	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	EP1584531	LCD driver
	MN158655		6	320	26	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	▲ EP158855	LCD driver
	MN158855		8	384	26	2 4	2.4 ~ 5.5 2.0 ~ 5.5	64-QFP(b)	152	▲ EP158855	LCD driver
	MN158810		8	256	19	8	2.0 ~ 3.6	42-QFP	145	EP158810	
Telephone	MN158614	CMOS	6	1280	36	2 8	4.5 ~ 5.5 2.5 ~ 5.5	84-QFP	159	EP158614	LCD driver
	MN150609		6	512	24	1.1 17.8	4.5 ~ 5.5 2.2 ~ 5.5	42-SDIP	122		OTP available (ES)
	▲ MN150808		8	512	40	1.1 17.8	4.5 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	152		OTP available (ES)
Channel selection	MN15151	CMOS	5	208	24	2	4.5 ~ 5.5	52-SDIP	123	EP15151	
	MN152810		8	320	24	2	4.5 ~ 5.5	52-SDIP	123	EP152810	
	MN152121		12	448	38	2	4.5 ~ 5.5	52-SDIP/64-SDIP	123 124	EP152121	

▲ Under development ※ Piggy-back is substituted by EPROM built-in type (Ceramic package with window type).

(Package Symbol) DIP = Dual-In-Line Plastic Package, SDIP = Shrunk Dual-In-Line Plastic Package

QFP = Quad Flat Package, SO = Small Outline (PANAFAT PACKAGE)

Microcomputers

4-Bit Single Chip Microcomputers, MN1700 Family

Category	Type No.	Process	ROM (× 10 bit)	RAM* (× 4 bit)	Input/ Output (Lines)	Speed (μs)	Supply Voltage (typ.) (V)	Package	No.	Piggy- back	Remarks
General purpose	MN170401	CMOS	4K	256 + (S96)	57	0.5	4.5 ~ 5.5	64-SDIP	L24	※	One time version
	MN170801		8K	512 + (S96)		91.6	2.7 ~ 5.5	64-QFP(a)	L51		
	MN171601		16K	896 + (S96)		0.5	4.5 ~ 5.5	64-SDIP/ QFI/QFP(a)	L24, L50, L51		
	MN17P1601		16K	896 + (S96)		91.6	2.7 ~ 5.5	64-SDIP/ QFI/QFP(a)	L24, L50, L51		
A/D input FLP driver	MN171202	CMOS	12K	896 + (S96)	24 + 32 (FL use as well)	0.5	4.5 ~ 5.5	64-SDIP	L24	※	One time version
	MN171602		16K	896 + (S96)		91.6	2.7 ~ 5.5	64-SDIP	L24		
	MN17P1602		16K	896 + (S96)		0.5	4.5 ~ 5.5	64-SDIP	L24		
LCD driver	MN170803A	CMOS	8K	512 + (S96)	52	0.5	4.5 ~ 5.5	84-QFP	L59	※ (84-pin)	A/D input
	MN171603		16K	896 + (S96)		91.6	2.7 ~ 5.5				One time version
	▲MN17P1603		16K	896 + (S96)		0.5	4.5 ~ 5.5				One time version
A/D input	MN170804	CMOS	8K	512 + (S96)	55	0.5	4.5 ~ 5.5	64-SDIP/ QFH(b)/QFP(a)	L24, L49, L51	※	One time version
	MN171604		16K	896 + (S96)		91.6	2.7 ~ 5.5	64-SDIP/QFH(b)	L24, L49		
	MN17P1604		16K	896 + (S96)		0.5	4.5 ~ 5.5	64-SDIP/ QFH(b)/QFP(a)	L24, L49, L51		
DTMF built-in	MN170805	CMOS	8K	1536 + (S96)	73	0.84	3.6 ~ 5.5	84-QFP	L59	※	A/D input DTMF
	MN171605		16K	1920 + (S96)		1.68 91.6	2.5 ~ 5.5				One time version
	MN17P1605		16K	1920 + (S96)		0.84 1.68 91.6	4.5 ~ 5.5	84-QFP	L59		One time version

※ Piggy-back is substituted by EPROM built-in type (Ceramic package with window type). * S: Resistor stack

▲ Under development

8-Bit Single Chip Microcomputers, MN1870 Family

Category	Type No.	Process	ROM (K Byte)	RAM (× 8 bit)	Input/ Output (Lines)	Speed (μs)	Supply Voltage (typ.) (V)	Package	No.	Piggy- back	Remarks
Remote control (transmit/ receive)	MN187818	CMOS	8	1536	53	1 244	3.3 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	L52	EP1873218	
	MN1871618		8	786	53	1 244	3.3 ~ 5.5 2.2 ~ 5.5	64-QFP(b)	L52	EP1873218	
A/D input FLP driver	MN1870822	CMOS	8	320	58	0.95 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(b)	L24 L52	EP1873222	
	MN1871622		16	320	58	0.95 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(b)	L24 L52	EP1873222	
	MN1873222		32	320	57	0.95 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(b)	L24 L52	EP1873222	
	▲MN18P73222		32	320	58	0.95 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP	L24	EP1873222	One time version
	MN1872423		24	512	73	0.475 122	4.3 ~ 5.5 2.2 ~ 5.5	84-QFP	L59	EP1873223	
	MN1873223		32	1024	73	0.475 122	4.3 ~ 5.5 2.2 ~ 5.5	84-QFP	L59	EP1873223	
	MN1874023		40	1024	73	0.475 122	4.3 ~ 5.5 2.2 ~ 5.5	84-QFP	L59	EP1873223	
	MN1871616		16	640	73	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873216	
A/D input FLP driver Remote control (receive)	MN1872416	CMOS	24	768	73	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873216	
	MN1873216		32	1024	73	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873216	
	▲MN18P73216		32	1024	73	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	84-QFP	L59	EP1873216	One time version
	▲MN18P76423		64	2048	73	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	84-QFP	L59	※	One time version
A/D input LCD driver Remote control (transmit/ receive)	MN1871215	CMOS	12	384	56	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873215	
	MN18P73215		32	1024	57	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	84-QFP	L59	※	One time version
	MN1871610		16	1024	56	0.478 122	4.5 ~ 5.5 2.7 ~ 5.5	100-QFP(a)	L61	EP1873210	
	MN1872410		24	1536	56	0.667 122	4.5 ~ 5.5 2.7 ~ 5.5	100-QFP(a)	L61	EP1873210	
	MN1873210		32	1536	56	0.667 122	4.5 ~ 5.5 2.7 ~ 5.5	100-QFP(a)	L61	EP1873210	
	MN18P73210		32	2048	57	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	100-QFP(a)	L61	※	One time version
FLP driver Remote control (receive)	MN187124	CMOS	12	384	55	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(a)	L24 L51	EP187324	
	MN187164		16	512	55	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(a)	L24 L51	EP187324	
	MN187204		20	640	55	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(a)	L24 L51	EP187324	
	▲MN187244		24	768	55	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(a)	L24 L51	EP187324	
	MN187324		32	960	55	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	64-SDIP/QFP(a)	L24 L51	EP187324	

※ Piggy-back is substituted by EPROM built-in type (Ceramic package with window type). * indicates RAM data holding voltage range of under stop processing.

▲ Under development

(Package Symbol) SDIP = Shrink Dual-In-Line Plastic Package, QFP = Quad Flat Package, QFI = Quad Flat J-Leaded Package

Microcomputers

■ 8-Bit Single Chip Microcomputers, MN1870 Family (continued)

Category	Type No.	Process	ROM (K Byte)	RAM* (× 8 bit)	Input/ Output (Lines)	Speed (μs)	Supply Voltage (typ.) (V)	Package		Piggy- back	Remarks
									No.		
FLP driver Remote control (receive)	MN18P7324	CMOS	32	1024	21	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	64SDIP/ QFP(a)	L24 L51	※	One time version
	▲MN18P73217		32	1024	43	0.475 122	4.5 ~ 5.5 3.5 ~ 5.5	84-QFP	L59	EP1873217	
	MN1871617		16	512	75	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873217	
	MN1872417		24	768	75	0.475 122	4.5 ~ 5.5 2.7 ~ 5.5	84-QFP	L59	EP1873217	
Tuning OSD	MN1872012A	CMOS	20	320	29	0.667	4.5 ~ 5.5	64-SDIP	L24	MN18EP71612	23 characters × 14 lines 256 kinds 12 × 18 dots
	MN1872013		20	320	39	1.00	4.5 ~ 5.5	64-SDIP	L24	EP1873213	22 characters × 7 lines (14) 193 kinds 10 × 126 × 9 dots
	MN1872432		24	640	31	0.667	4.5 ~ 5.5	64-SDIP	L24	MN18EP73233	12 × 18 dots, 256 kinds 23 × 14 lines
	▲MN1872037		20	800	50	0.667	4.5 ~ 5.5	64-SDIP	L24		Closed caption version
	MN1873234		32	928	36	0.667	4.5 ~ 5.5	52-SDIP	L23		Closed caption version
	MN1873237		32	928	50	0.667	4.5 ~ 5.5	64-SDIP	L24		Closed caption version

※ Piggy-back is substituted by EPROM built-in type (Ceramic package with window type).

▲ Under development

■ 8-Bit Single Chip Microcomputers, MN1880 Family

Category	Type No.	Process	ROM (K Byte)	RAM* (× 8 bit)	Input/ Output (Lines)	Speed (μs)	Supply Voltage (typ.) (V)	Package		Piggy- back	Remarks
									No.		
General purpose	MN18881	CMOS	8	256	56	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	64-SDIP/ QFP(a) (b)	L24 L51, L52	EP188321	
	MN188161		16	640	56	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	64-SDIP/ QFP(a) (b)	L24 L51, L52		
	MN188321		32	448	56	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	64-SDIP/ QFP(a) (b)	L24 L51, L52	EP188321	
	MN18P8321		32	960	56	0.5 122	4.5 ~ 5.5	64-SDIP/ QFP(a) (b)	L24 L51, L52	※	One time version
A/D input	MN188412	CMOS	4	128	56	0.5	4.5 ~ 5.5	64-SDIP/ QFP(a)	L24 L51	EP1883212	A/D input, D/A output Slave I/F
	MN18884		8	256	45	0.5	4.5 ~ 5.5	64-SDIP/ QFP(b)	L24 L52	EP18884	A/D input, D/A output
	MN18P884		8	256	45	0.5	4.5 ~ 5.5	64-SDIP/ QFP(b)	L24 L52	※	One time version
	MN18885		8	256	60	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP	L59	EP188325	A/D input
	MN18888		8	256	45	0.5	4.5 ~ 5.5	64-SDIP 64QFH(b)	L24 L49 L52	EP18888	A/D input, D/A output PWM
	MN18P888		8	256	45	0.5	4.5 ~ 5.5	64-QFP(b)		※	One time version
A/D input Timer upgraded	▲MN1881217	CMOS	12	416	67	0.333 122	4.5 ~ 5.5 3.0 ~ 5.5	80-QFH(a)	L54	※	
	▲MN1881617		16	672	67	0.333 122	4.5 ~ 5.5 3.0 ~ 5.5	80-QFH(a)	L54	※	
	▲MN1882417		24	800	67	0.333 122	4.5 ~ 5.5 3.0 ~ 5.5	80-QFH(a)	L54	※	
	▲MN1883217		32	928	67	0.333 122	4.5 ~ 5.5 3.0 ~ 5.5	80-QFH(a)	L54	※	
	▲MN18P83217		32	928	66	0.333 122	4.5 ~ 5.5 3.0 ~ 5.5	80-QFH(a)	L54	※	
	MN188166		16	384	69/66	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP 80-QFH(a)	L59 L54	EP188326	A/D input
	MN18P8326	CMOS	32	656	69	0.5	4.5 ~ 5.5			※	One time version
	MN1882010		20	512	65	0.5 122	3.3 ~ 3.0 ~ 3.6			EP1883210	A/D input
	MN1882410		24	432	69	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP	L59	EP1883210	A/D input
	▲MN18P82410		24	580	65	0.5	4.5 ~ 5.5			※	One time version
	MN1883210		32	528	69	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP	L59	EP1883210	A/D input
	MN18P83210		32	656	69	0.5 122	4.5 ~ 5.5	84-QFP	L59	※	One time version
	▲MN1882414		24	448	71	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP	L59	EP1883214	A/D input
	▲MN1883214		32	928	71	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	84-QFP	L59	※	A/D input
	▲MN18P83214		32	928	71	0.5 122	4.5 ~ 5.5	84-QFP	L59		One time version
	▲MN1882421		24	800	66	0.4	2.5 ~ 5.5			▲18EV83221	A/D input
	▲MN18P83221		32	928	66	0.4	2.5 ~ 5.5			※	One time version
Memory space expansion	MN18801A	CMOS	2MB ext.	2MB ext.	64	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	100-QFP(a)	L61	—	A/D input
	MN18806		2MB ext.	2MB ext.	64	0.5 122	4.5 ~ 5.5 3.0 ~ 5.5	100-QFP(a)	L61	-	

※ Piggy-back is substituted by EPROM built-in type (Ceramic package with window type).

▲ Under development

■ 16-Bit Microprocessor, MN1600

Category	Type No.	Process	Functions		Package	
						No.
High speed, high performance	MN1617A	CMOS	16 bit CPU, Memory space 8M byte, Instruction execution speed: 167ns		64-QFP(a)	L51
	MN1617X		16 bit CPU, Memory space 8M byte, Instruction execution speed: 143ns		64-QFP(a)	L51

(Package Symbol) SDIP = Shrunk Dual-In-Line Plastic Package, QFP = Quad Flat Package, QFH = Quad Flat L-Leaded High Package

Microcomputers

■ 32-Bit Microprocessor, MN10400

Category	Type No.	Process	Functions	Package	
					No.
General purpose	MN10400	CMOS	32 bit MPU, Instruction cash 1KB built-in, Speed 20MHz/16MHz	144-PGA	L76

■ Digital Signal Processors (DSP), MN1900/1910/1920 Family

Category	Type No.	Process	ROM (K × 32 bit)	RAM1 (× 16 bit)	RAM2 (× 16 bit)	Speed (μs)	Supply Voltage (typ.) (V)	Package		Evaluator	Remarks
									No.		
MN1900 series	MN19041A	CMOS	4	258 built-in	512 built-in, 4K ext.	0.1 160	4.75 ~ 5.25 3.5 ~ 5.25	84-QFP	L59	MN19091A	
	MN19091A		External 8	258 built-in	512 built-in 4K ext.	0.1 160	4.75 ~ 5.25 3.5 ~ 5.25	144-PGA	L76	—	Evaluator
	MN1900003		External 64	514 built-in	2k built-in, 64K ext.	0.1 160	4.75 ~ 5.25 3.5 ~ 5.25	144-PGA	L76	—	Evaluator MN19091A RAM expanded version
	MN1900402		4	514 built-in	1k built-in, 4K ext.	0.1 160	4.75 ~ 5.25 3.5 ~ 3.5	84-QFP	L59	MN1900003	MN19041A RAM expanded version
MN1910 series	MN1910812	CMOS	8 built-in ^{*1} 64 ext.	256 built-in	288 built-in, 64K ext.	0.1	4.5 ~ 5.5	84-QFP	L59	—	
	MN199001		2 built-in ^{*1} 64 ext.	96 built-in	64 built-in, 64K ext.	0.1	4.75 ~ 5.25	100-QFP(a)	L61	—	A/D, D/A built-in
MN1920 series	MN1920001	CMOS	External 64 ^{*2}	514 ^{*3} built-in	25k built-in ^{*3} , 16M ext.	0.08 160	4.75 ~ 5.25 3.5 ~ 5.25	208-QFP 280-PGA	L70 L80	—	Evaluator
	MN1920802		8 ^{*2}	514 ^{*3} built-in	2k built-in ^{*1} , 16M ext.	0.08 160	4.75 ~ 5.25 3.5 ~ 5.25	124-QFP	L63	MN1920001	

*1(K × 16 bit) *2(K × 40 bit) *3(× 24 bit)

(Package Symbol) QFP = Quad Flat Package, PGA = Pin-Grid Array