

4-BIT SINGLE-CHIP MICROCOMPUTER



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<LCD Driver Series for Multi-Segment LCD>

Model No.	Memory (bit)		Port					Duty ratio	Instruction cycle (μs) MIN.	Supply current [TYP.]		OSC	Supply voltage (V)	Operating temperature (°C)	Package
	ROM	RAM	Input	Out-put	Input/output	LCD drive				Operating (μA)	Standby (μA)				
						Segment	Common								
SM3503	6 144 × 23	1 024 × 8 256 × 4	7	1	—	60	8	1/8 duty 1/3.75 bias	12	85	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	100QFP
SM3504	6 144 × 23	512 × 8 256 × 4	7	1	—	60	8	1/8 duty 1/3.75 bias	12	85	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	80QFP
SM3507	6 144 × 23	512 × 8 256 × 4	7	3	8	48	8	1/8 duty 1/3.75 bias	12	85	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	80QFP
SM3517	8 192 × 23	2 048 × 8 256 × 4	7	3	8	60	9	1/9 duty 1/4 bias	12	85	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	100QFP ^{*3}
SM3512	8 192 × 23	8 192 × 8 256 × 4	7	3	8	60	9	1/9 duty 1/4 bias	12	85	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	100QFP
SM3514	8 192 × 23	512 × 8 256 × 4	7	1	—	60	8	1/8 duty 1/3.75 bias	10	100	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	100QFP
SM3515	12 288 × 23	512 × 8 256 × 4	7	1	—	60	8	1/8 duty 1/3.75 bias	10	100	20 ^{*1}	Built-in OSC ^{*2}	2.5 to 3.4	-10 to 60	100QFP
SM3518	12 288 × 23	3 072 × 8 256 × 4	8	3	8	74	16	1/16 duty 1/2 to 1/5 bias	3	270 (at 3V)	40 (at 3V) ^{*1}	Built-in OSC ^{*2} / Ceramic	2.7 to 5.5	-10 to 60	128QFP ^{*3}
SM3511	24 576 × 23	512 × 8 256 × 4	8	4	8	98	32	1/32 duty 1/6.65 bias	3	600 (at 5V)	50 (at 5V) ^{*1}	Built-in OSC ^{*2} / Ceramic	3.8 to 6.0	-10 to 60	208QFP ^{*3}
SM3513	24 576 × 23	512 × 8 256 × 4	8	4	8	74	32	1/32 duty 1/6.65 bias	3	600 (at 5V)	50 (at 5V) ^{*1}	Built-in OSC ^{*2} / Ceramic	3.8 to 6.0	-10 to 60	160QFP ^{*3}

RAM (Upper: Data RAM) (Lower: Work RAM) *1 Specifications at LCD displaying conditions *2 Usable with a crystal oscillator (32.768 kHz) for clocks *3 Test sample only

<LCD Driver Series for Remote Control>

Model No.	Memory (bit)		Port					Duty ratio	Instruction cycle (μs) MIN.	Supply current [TYP.]		OSC	Supply voltage (V)	Operating temperature (°C)	Package
	ROM	RAM	Input	Out-put	Input/output	LCD drive				Operating (μA)	Standby (μA)				
						Segment	Common								
SM3903	2 772 × 8	96 × 4 32 × 4	6	10	—	33	4	1/4 duty 1/3 bias	52.8	40	15 ^{*2}	Crystal	2.6 to 3.2	0 to 50	60QFP
SM3905	4 096 × 8	128 × 4 32 × 4	4	—	11 + 15 ^{*1}	17 + 15 ^{*1}	4	1/4 duty 1/3 bias	8.79	160	15 ^{*2}	Ceramic	2.4 to 3.6	-20 to 70	64QFP
SM565	8 192 × 8	192 × 4 64 × 4	4	—	11 + 16 ^{*1}	48 + 16 ^{*1}	4	1/4 duty 1/3 bias	8.79 (at 3V)	160 (at 3V)	8 (at 3V)	Ceramic	2.4 to 5.5	-20 to 70	100QFP

RAM (Upper: Data RAM) (Lower: Display RAM (Usable for Data RAM)) *1 Available for I/O and segment output *2 Specifications at LCD displaying conditions