

MM5311 Series—Digital Clocks

REFERENCE TABLE

Code	Stock No.	
MM5311N	33163E	4/6 digit output
MM5312N	33164C	4 digit output +1 P.P.S. output
MM5313N	33165A	4/6 digit output +1 P.P.S. output
MM5314N	33166X	4/6 digit output. No BCD outputs

GENERAL DESCRIPTION

The MM5311 series of digital clocks are monolithic MOS integrated circuits utilizing P-channel enhancement mode low threshold technology containing all the logic required to give a four or six digit 12 or 24 hour display from a 50 or 60Hz input. Inputs include time setting, 50/60 Hz operation, 4/6 digit select, 50/60 Hz input, segment strobe control, and multiplex oscillator frequency control. Outputs consist of multiplexed 7-segment selects, multiplexed BCD outputs and digit enables.

APPLICATIONS

- Desk clocks
- Industrial clocks
- Automobile clocks
- Time base for computer system

FEATURES

- 12 or 24 hour operation
- 50 or 60 Hz input
- 4 or 6 digit display
- Internal digit multiplex oscillator
- BCD outputs
- Leading zero blanking in 12 hr mode
- High output currents for simplified display interfacing (minimum number of external components required)
- Single power supply

ABSOLUTE MAXIMUM RATINGS

Voltage at any pin	$V_{SS} + 0.3$ to $V_{SS} - 22$
Operating temperature	-25°C to $+70^{\circ}\text{C}$
Storage temperature	-65°C to $+150^{\circ}\text{C}$
Lead temperature (soldering, 10 sec)	300°C

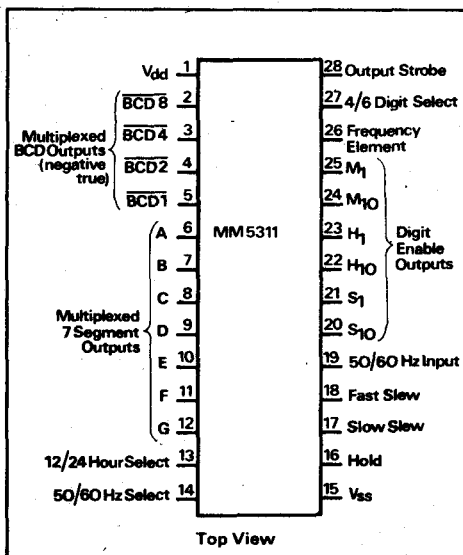
ELECTRICAL CHARACTERISTICS

$V_{SS} = +14\text{V}$, $V_{DD} = \text{GND}$ (POS True Logic) -25°C to 70°C

Parameter	Conditions	Min.	Typ.	Max.	Units
Power supply, voltage	$V_{SS}, V_{DD} = \text{GND}$	11	14	19	V
Power supply, current	$V_{SS} = +14\text{V}$, $V_{DD} = \text{GND}$	4	8	15	mA
50/60Hz input frequency		DC	50 or 60	60000	Hz
50/60Hz input voltage Logic '1' Logic '0'		12 -2	13 0	14 4	
Multiplex frequency	Determined by external R & C	DC	1	60	kHz
Logic inputs Logic '1' Logic '0'	Internal 20k resistor to V_{SS}	-2	14 0	+4	V V
BCD & 7-segment outputs Logic '1' Logic '0'	Load resistor of 2k to GND	2	5	20 0.01	mA Source mA Source
Digit enable outputs Logic '1' Logic '0'	Load resistor of 100Ω to V_{SS}	5	10	0.1 25	mA Source mA Sink

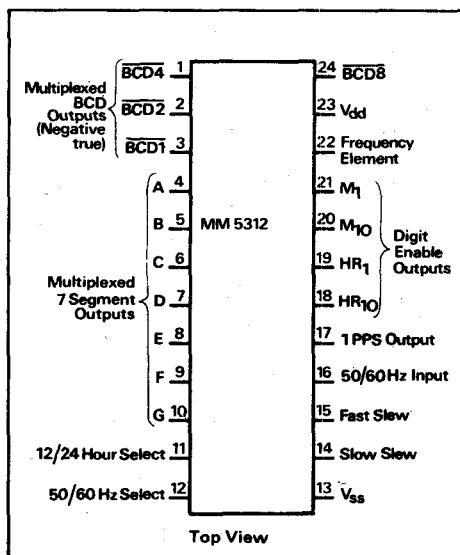
PLEASE QUOTE STOCK NO. AND MANUFACTURER'S CODE WHEN ORDERING

CONNECTION DIAGRAM



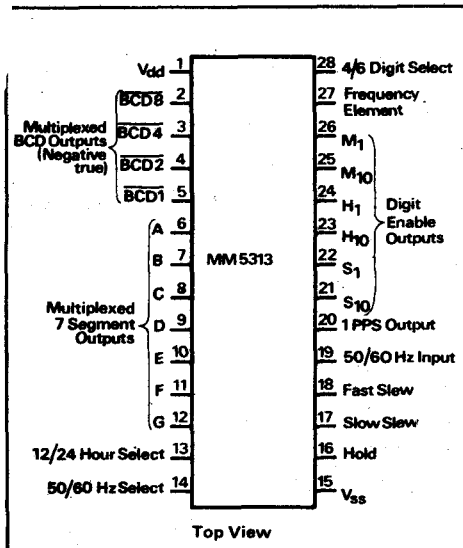
See outline drawing No. 115 for dimensions.

CONNECTION DIAGRAM



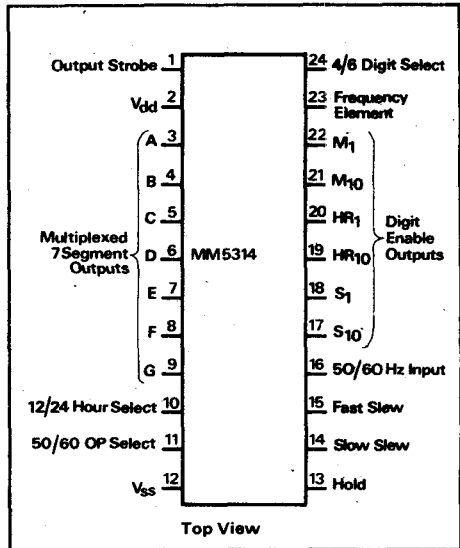
See outline drawing No. 114 for dimensions.

CONNECTION DIAGRAM



See outline drawing No. 115 for dimensions.

CONNECTION DIAGRAM



See outline drawing No. 114 for dimensions.

MANUFACTURER'S CURRENT LIST PRICES ARE ALWAYS CHARGED