EC2

low profile

T²L COMPATIBLE Mini DIP MICRO PROCESSOR CLOCK MODULE

- **T²L input and output (NMOS compatible)**
- **Output wavetrain can be delayed by enable (wait) line**
- **8-pin DIP package (.250 high)**
- **Available in frequencies from 2 Mhz to 50 Mhz**
- **Output frequencies controlled to within ±2%**
- **10 Schottky T²L fan-out capacity**

design notes

The "Mini DIP Series" Micro Processor Clock Modules developed by Engineered Components Company have been designed to provide a T²L level square wave output at frequencies from 2 Mhz to 50 Mhz. These Micro Processor Clock Modules minimize the time penalty of slow memory. With this device, the "wait" information from the slower memory operation is fed to the clock rather than the micro processor. If this "wait" signal is still present when the next rising edge is due out of the clock, this edge will be delayed until the "wait" request is removed. The next rising edge will emerge from the clock approximately 6ns after the "wait" has been cleared and normal clock signals will resume. The module is designed to prevent short output states; no evidence of "wait" requests in the input will be evident at the output, unless the unit is not enabled when the next clock cycle is ready to start. All clock signals, once started, will be completed. A Constant low on the enable line will result in a constant low at the output. When the enable line is raised, the output will go high (starting approximately 6ns later). The clock will continue to run until the enable input goes low at which time it will stop after completion of the cycle in process.

These Micro Processor Clock Modules are of hybrid construction utilizing the proven technologies of active integrated circuitry and of passive networks utilizing capacitive inductive and resistive elements. The ICs utilized in these modules are burned-in to Level B of MIL-STD-883 to ensure a high MTBF. The MTBF on these modules, when calculated per MIL-HDBK-217 for a 50°C ground fixed environment, is in excess of 3 million hours.

The MDMPCM–TTL is offered in twenty-five (25) different frequencies from 2 Mhz to 50 Mhz. Output frequencies are controlled to within ±2% and have a temperature coefficient of less than −500 ppm/°C over the operating temperature range of 0 to 70°C.

These "Mini DIP Series" modules are packaged in an 8-pin DIP housing, molded of flame-proof Diallyl Phthalate per MIL-M-14, Type SDG-F, and are fully encapsulated in epoxy resin. Leads meet the solderability requirements of MIL-STD-202, Method 208. Corner standoffs on the housing provide positive standoff from the printed circuit board to permit solder-fillet formation and flush cleaning of solder-flux residues for improved reliability.

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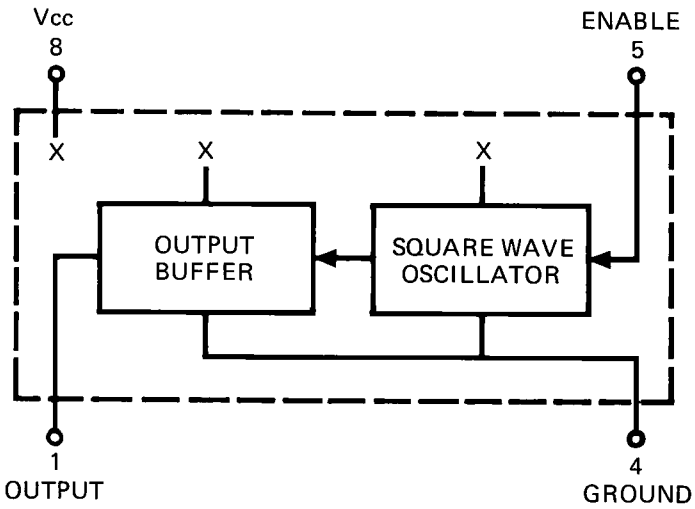
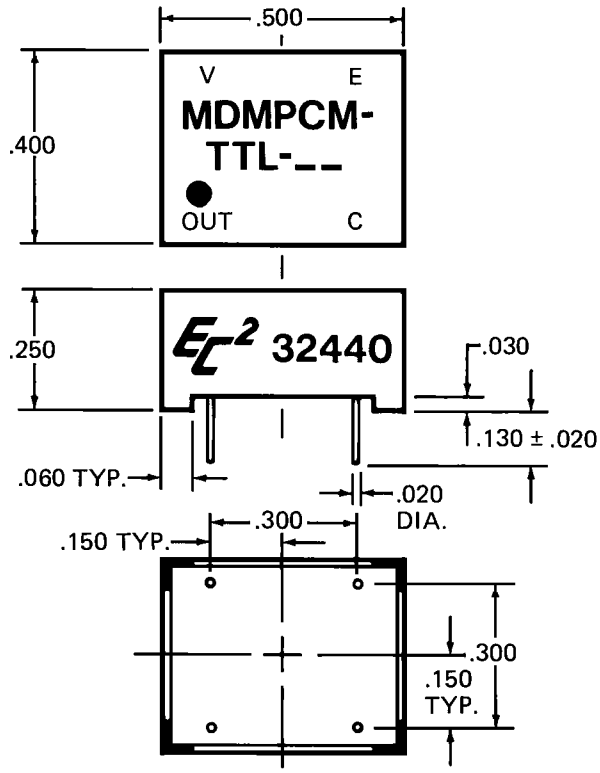
DESIGN NOTES (continued)

Marking consists of manufacturer's logo (EC^2), Federal Supply Code, part number, terminal identification and date code of manufacture. All marking is applied by silk screen process using white epoxy paint in accordance with MIL-STD-130, to meet the permanency of identification required by MIL-STD-202, Method 215.

BLOCK DIAGRAM IS SHOWN BELOW



MECHANICAL DETAIL IS SHOWN BELOW



TEST CONDITIONS

1. All measurements are made at 25°C.
2. V_{CC} supply voltage is maintained at 5.0V DC.
3. All units are tested using a Schottky toggle-type gate driving the input and one Schottky T^2L load at the output.

OPERATING SPECIFICATIONS

*V_{CC} supply voltage: . . . . . 4.75 to 5.25V DC

V_{CC} supply current:

MDMPCM-TTL-2 . . . . . 38ma typical

MDMPCM-TTL-50 . . . . . 50ma typical

(Current increases with operating frequency)

Logic 1 input:

Voltage . . . . . 2V min.; 5.5V max.

Current . . . . . 2.4V = 50ua max.

5.5V = 1ma max.

Logic 0 input:

Voltage . . . . . .8V max.

Current . . . . . −2ma max.

Logic 1 Voltage out: . . . . . 2.4V min.

Logic 0 Voltage out: . . . . . .5V max.

Operating temperature range: . . . . . 0 to 70°C.

Storage temperature: . . . . . −55 to +125°C.

*Output frequency will increase or decrease less than 1% for a respective increase or decrease of 5% in supply voltage.

PART NUMBER TABLE

Part Number	Output Frequency	Part Number	Output Frequency
MDMPCM-TTL-2	2 Mhz	MDMPCM-TTL-11	11 Mhz
MDMPCM-TTL-2.5	2.5 Mhz	MDMPCM-TTL-12	12 Mhz
MDMPCM-TTL-3	3 Mhz	MDMPCM-TTL-13	13 Mhz
MDMPCM-TTL-3.5	3.5 Mhz	MDMPCM-TTL-14	14 Mhz
MDMPCM-TTL-4	4 Mhz	MDMPCM-TTL-15	15 Mhz
MDMPCM-TTL-4.5	4.5 Mhz	MDMPCM-TTL-20	20 Mhz
MDMPCM-TTL-5	5 Mhz	MDMPCM-TTL-25	25 Mhz
MDMPCM-TTL-5.5	5.5 Mhz	MDMPCM-TTL-30	30 Mhz
MDMPCM-TTL-6	6 Mhz	MDMPCM-TTL-35	35 Mhz
MDMPCM-TTL-7	7 Mhz	MDMPCM-TTL-40	40 Mhz
MDMPCM-TTL-8	8 Mhz	MDMPCM-TTL-45	45 Mhz
MDMPCM-TTL-9	9 Mhz	MDMPCM-TTL-50	50 Mhz
MDMPCM-TTL-10	10 Mhz		

Special modules can be readily manufactured to improve accuracies and/or provide customer specified random frequencies for specific applications.