

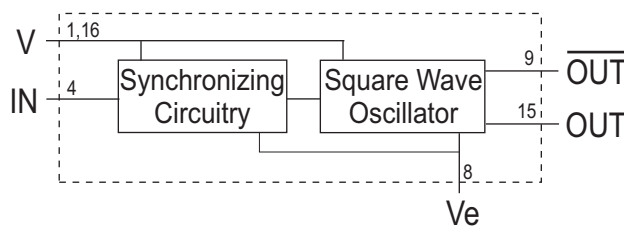
10K ECL Digital Frequency Multiplier Module

The 10K ECL Digital Frequency Multiplier Modules manufactured by Engineered Components Company are designed to provide a square wave output at a given frequency which can be synchronized by square wave inputs at sub-harmonic frequencies. The falling edge of the output waveform is synchronized to the falling edge of the input waveform. If no synchronizing input is present, the unit will free-run producing a continuous output square wave. Phase jitter at the output will increase as higher orders of multiplication are used. An inverted output is also supplied.

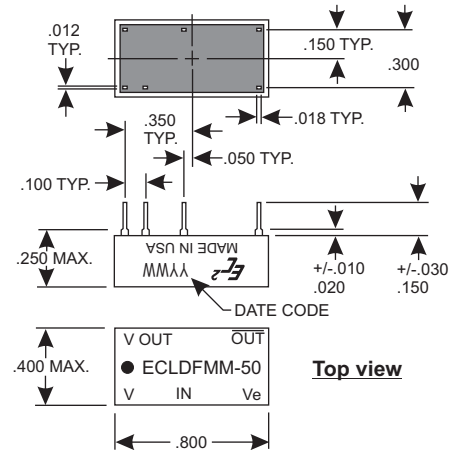
The MTBF on these modules, when calculated per MIL-HDBK-217, for a 50 deg.C ground fixed environment and with 50VDC applied, is in excess of 2.5 million hours. The temperature coefficient of delay is less than +/-200 ppm/deg.C over the operating temperature range of -30 to +85 deg. C.

The module is provided in a 16-pin DIP package, fully encapsulated in epoxy resin and is housed in a Diallyl Phthalate case, blue in color. The case marking is applied by silkscreen using white epoxy paint. The 6 copper leads are tin-lead plated and meet the solderability requirements of MIL-STD-202, Method 208.

BLOCK DIAGRAM



MECHANICAL DIAGRAM



Product Selection Table

Part Number	Nominal Output Frequency	Output Frequency Tolerance
ECLDFMM-2	2.0 MHz	+/-2%
ECLDFMM-3	3.0 MHz	+/-2%
ECLDFMM-4	4.0 MHz	+/-2%
ECLDFMM-5	5.0 MHz	+/-2%
ECLDFMM-6	6.0 MHz	+/-2%
ECLDFMM-10	10.0 MHz	+/-2%
ECLDFMM-12	12.0 MHz	+/-2%
ECLDFMM-14	14.0 MHz	+/-2%
ECLDFMM-15	15.0 MHz	+/-2%
ECLDFMM-16	16.0 MHz	+/-2%
ECLDFMM-20	20.0 MHz	+/-2%
ECLDFMM-25	25.0 MHz	+/-2%
ECLDFMM-30	30.0 MHz	+/-2%
ECLDFMM-35	35.0 MHz	+/-2%
ECLDFMM-40	40.0 MHz	+/-2%
ECLDFMM-45	45.0 MHz	+/-2%
ECLDFMM-50	50.0 MHz	+/-2%
ECLDFMM-60	60.0 MHz	+/-2%
ECLDFMM-70	70.0 MHz	+/-2%
ECLDFMM-80	80.0 MHz	+/-2%
ECLDFMM-90	90.0 MHz	+/-2%
ECLDFMM-100	100.0 MHz	+/-2%

Special modules can often be manufactured to provide for customer specific applications.

Operating Specifications:

All measurements made at 25 deg. C
 All measurements made with Vee = -5.2VDC, Vcc = 0VDC
 All measurements made with (1) 10K ECL output load
 All measurements made with a 100 ohm pulldown resistor to -2VDC at the input and output

Operating Temperature: -30 to +85 deg. C
 Storage Temperature: -55 to +125 deg. C

Vee Supply Voltage: -5.2 +/-5% VDC
 Vee Supply Current: 50mA typical
 Logic "High" Input:
 Voltage: -0.98VDC min.
 Current: 530uA max.
 Logic "Low" Input:
 Voltage: -1.63VDC max.
 Current: 1.0uA min.
 Logic "High" Voltage Out: -0.96VDC min.
 Logic "Low" Voltage Out: -1.65VDC max.



engineered components company

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