

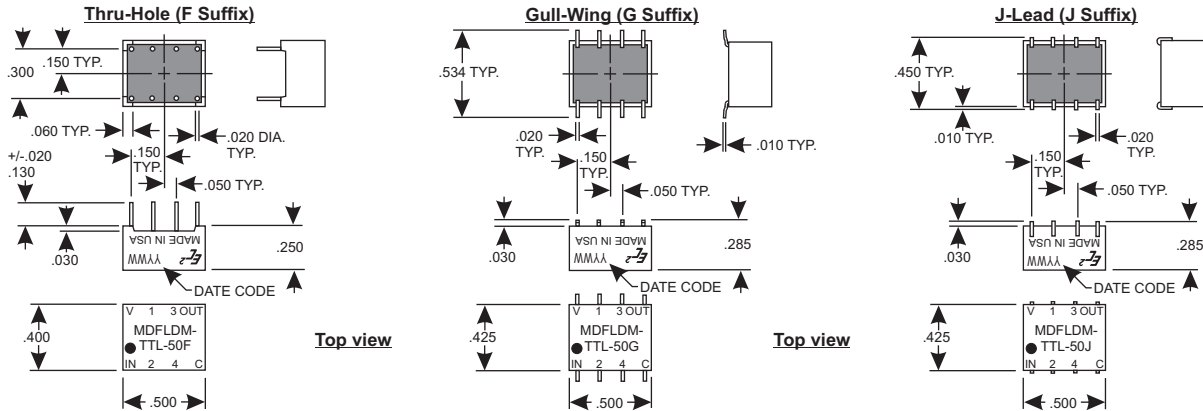
# Mini DIP FAST TTL Logic Delay Module

The Mini DIP FAST TTL Logic Delay Modules manufactured by Engineered Components Company are designed to provide output waveforms that reproduce the input waveform after a set amount of delay time has elapsed. The five output waveforms are delay line taps provided at 20% increments of the total delay (20, 40, 60, 80, and 100%). These delay modules are non-inverting. The delay times are calibrated to the listed tolerances on the rising edge delays. The products with a total delay of less than 25ns have additional delay present at tap 1 due to internal propagation delays (see the Product Selection Table).

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 million hours. The temperature coefficient of delay is less than 500 ppm/deg.C over the operating temperature range of 0 to +70 deg. C.

The module is provided in a 8-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 8 copper leads are tin-lead plated and meet the solderability requirements of MIL-STD-202, Method 208.

## MECHANICAL DIAGRAM

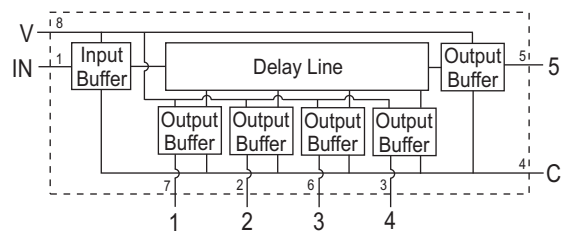


Product Selection Table (Add F suffix for Thru-Hole Leads, G suffix for Gull-Wing Leads, or J suffix for J-Leads)

Part Number	Output Delay and Tolerances (in ns)				
	Tap 1 (20%)	Tap 2 (40%)	Tap 3 (60%)	Tap 4 (80%)	Tap 5 (100%)
MDFLDM-TTL-10	6.0+/-1.0	7.0+/-1.0	8.0+/-1.0	9.0+/-1.0	10.0+/-1.0
MDFLDM-TTL-12	6.0+/-1.0	7.5+/-1.0	9.0+/-1.0	10.5+/-1.0	12.0+/-1.0
MDFLDM-TTL-14	6.0+/-1.0	8.0+/-1.0	10.0+/-1.0	12.0+/-1.0	14.0+/-1.0
MDFLDM-TTL-16	6.0+/-1.0	8.5+/-1.0	11.0+/-1.0	13.5+/-1.0	16.0+/-1.0
MDFLDM-TTL-18	6.0+/-1.0	9.0+/-1.0	12.0+/-1.0	15.0+/-1.0	18.0+/-1.0
MDFLDM-TTL-22	6.0+/-1.0	10.0+/-1.0	14.0+/-1.0	18.0+/-1.0	22.0+/-1.0
MDFLDM-TTL-25	5.0+/-1.0	10.0+/-1.0	15.0+/-1.0	20.0+/-1.0	25.0+/-1.0
MDFLDM-TTL-30	6.0+/-1.0	12.0+/-1.0	18.0+/-1.0	24.0+/-1.0	30.0+/-1.0
MDFLDM-TTL-35	7.0+/-1.0	14.0+/-1.0	21.0+/-1.0	28.0+/-1.5	35.0+/-1.5
MDFLDM-TTL-40	8.0+/-1.0	16.0+/-1.0	24.0+/-1.0	32.0+/-1.5	40.0+/-1.5
MDFLDM-TTL-45	9.0+/-1.0	18.0+/-1.0	27.0+/-1.0	36.0+/-1.5	45.0+/-2.0
MDFLDM-TTL-50	10.0+/-1.0	20.0+/-1.0	30.0+/-1.0	40.0+/-2.0	50.0+/-2.0
MDFLDM-TTL-55	11.0+/-1.0	22.0+/-1.0	33.0+/-1.5	44.0+/-2.0	55.0+/-2.0
MDFLDM-TTL-60	12.0+/-1.0	24.0+/-1.0	36.0+/-1.5	48.0+/-2.0	60.0+/-2.0
MDFLDM-TTL-65	13.0+/-1.0	26.0+/-1.5	39.0+/-1.5	52.0+/-2.0	65.0+/-2.5
MDFLDM-TTL-70	14.0+/-1.0	28.0+/-1.5	42.0+/-2.0	56.0+/-2.0	70.0+/-2.5
MDFLDM-TTL-75	15.0+/-1.0	30.0+/-1.5	45.0+/-2.0	60.0+/-2.5	75.0+/-2.5
MDFLDM-TTL-80	16.0+/-1.0	32.0+/-1.5	48.0+/-2.0	64.0+/-2.5	80.0+/-3.0
MDFLDM-TTL-85	17.0+/-1.0	34.0+/-1.5	51.0+/-2.0	68.0+/-2.5	85.0+/-3.0
MDFLDM-TTL-90	18.0+/-1.0	36.0+/-1.5	54.0+/-2.0	72.0+/-2.5	90.0+/-3.0
MDFLDM-TTL-95	19.0+/-1.0	38.0+/-1.5	57.0+/-2.0	76.0+/-2.5	95.0+/-3.0
MDFLDM-TTL-100	20.0+/-1.0	40.0+/-1.5	60.0+/-2.0	80.0+/-3.0	100.0+/-3.0
MDFLDM-TTL-125	25.0+/-1.0	50.0+/-2.0	75.0+/-2.5	100.0+/-3.0	125.0+/-4.0
MDFLDM-TTL-150	30.0+/-1.5	60.0+/-2.0	90.0+/-3.0	120.0+/-4.0	150.0+/-5.0
MDFLDM-TTL-175	35.0+/-1.5	70.0+/-2.5	105.0+/-4.0	140.0+/-5.0	175.0+/-5.0
MDFLDM-TTL-200	40.0+/-1.5	80.0+/-2.5	120.0+/-4.0	160.0+/-5.0	200.0+/-6.0
MDFLDM-TTL-225	45.0+/-2.0	90.0+/-3.0	135.0+/-4.0	180.0+/-6.0	225.0+/-7.0
MDFLDM-TTL-250	50.0+/-2.0	100.0+/-3.0	150.0+/-5.0	200.0+/-6.0	250.0+/-8.0
MDFLDM-TTL-300	60.0+/-2.0	120.0+/-4.0	180.0+/-5.0	240.0+/-7.0	300.0+/-9.0
MDFLDM-TTL-350	70.0+/-2.0	140.0+/-4.5	210.0+/-7.0	280.0+/-9.0	350.0+/-11.0
MDFLDM-TTL-400	80.0+/-3.0	160.0+/-5.0	240.0+/-7.0	320.0+/-10.0	400.0+/-12.0
MDFLDM-TTL-450	90.0+/-3.0	180.0+/-6.0	270.0+/-8.0	360.0+/-11.0	450.0+/-14.0
MDFLDM-TTL-500	100.0+/-3.0	200.0+/-6.0	300.0+/-9.0	400.0+/-12.0	500.0+/-15.0

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

## BLOCK DIAGRAM



## Operating Specifications:

All measurements made at 25 deg. C  
 All measurements made with Vcc = +5VDC  
 All measurements made with (1) FAST TTL output load

Operating Temperature: 0 to +70 deg. C  
 Storage Temperature: -55 to +125 deg. C

Vcc Supply Voltage: 4.75 to 5.25VDC

Vcc Supply Current:

Constant "0" in = 40mA typical

Constant "1" in = 7mA typical

Logic "High" Input:

Voltage: 2.0VDC min. ; Vcc max.

Current: 2.7VDC = 20uA max. ; 5.5VDC = 1mA max.

Logic "Low" Input:

Voltage: 0.8 VDC max.

Current: -0.6mA max.

Logic "High" Voltage Out: 2.7VDC min.

Logic "Low" Voltage Out: 0.5VDC max.



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