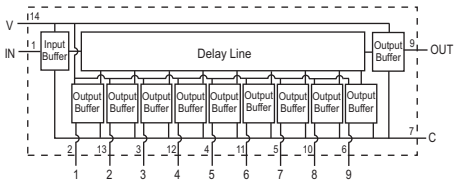
10-Tap FAST TTL Logic Delay Module

The 10-Tap 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 ten output waveforms are delay line taps provided at 10% increments of the total delay (10, 20, 30, 40, 50, 60, 70, 80, 90, 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 50ns 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 400 ppm/deg.C over the operating temperature range of 0 to +70 deg. C.

The module is provided in a 14-pin Space Saver 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 13 copper leads are tin-lead plated and meet the solderability requirements of MIL-STD-202, Method 208.

BLOCK DIAGRAM



Operating Specifications:

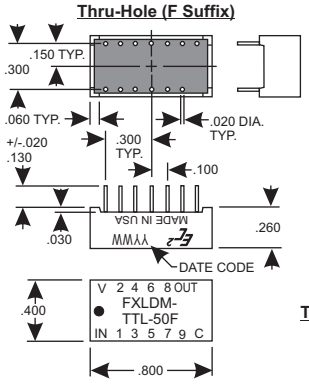
All measurements made at 25 deg. C
All measurements made with Vcc = +5VDC
All measurements made with (1) FAST TTL output load

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 = 45mA typical
Constant "1" in = 15mA 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.

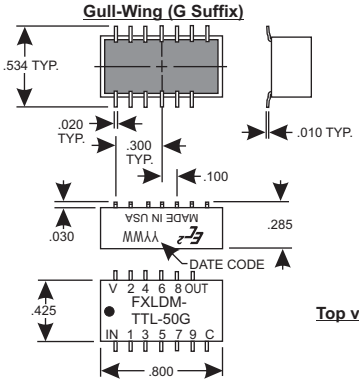
MECHANICAL DIAGRAM

Thru-Hole (F Suffix)



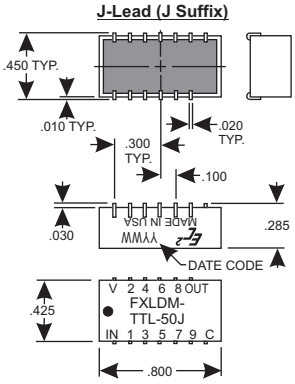
Top view

Gull-Wing (G Suffix)



Top view

J-Lead (J Suffix)



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 (10%)	Tap 2 (20%)	Tap 3 (30%)	Tap 4 (40%)	Tap 5 (50%)	Tap 6 (60%)	Tap 7 (70%)	Tap 8 (80%)	Tap 9 (90%)	Tap 10 (100%)
FXLDM-TTL-15	6.0+/-1.0	7.0+/-1.0	8.0+/-1.0	9.0+/-1.0	10.0+/-1.0	11.0+/-1.0	12.0+/-1.0	13.0+/-1.0	14.0+/-1.0	15.0+/-1.0
FXLDM-TTL-19.5	6.0+/-1.0	7.5+/-1.0	9.0+/-1.0	10.5+/-1.0	12.0+/-1.0	13.5+/-1.0	15.0+/-1.0	16.5+/-1.0	18.0+/-1.0	19.5+/-1.0
FXLDM-TTL-24	6.0+/-1.0	8.0+/-1.0	10.0+/-1.0	12.0+/-1.0	14.0+/-1.0	16.0+/-1.0	18.0+/-1.0	20.0+/-1.0	22.0+/-1.0	24.0+/-1.0
FXLDM-TTL-28.5	6.0+/-1.0	8.5+/-1.0	11.0+/-1.0	13.5+/-1.0	16.0+/-1.0	18.5+/-1.0	21.0+/-1.0	23.5+/-1.0	26.0+/-1.5	28.5+/-1.5
FXLDM-TTL-33	6.0+/-1.0	9.0+/-1.0	12.0+/-1.0	15.0+/-1.0	18.0+/-1.0	21.0+/-1.0	24.0+/-1.0	27.0+/-1.5	30.0+/-1.5	33.0+/-1.5
FXLDM-TTL-42	6.0+/-1.0	10.0+/-1.0	14.0+/-1.0	18.0+/-1.0	22.0+/-1.0	26.0+/-1.5	30.0+/-1.5	34.0+/-1.5	38.0+/-2.0	42.0+/-2.0
FXLDM-TTL-50	5.0+/-1.0	10.0+/-1.0	15.0+/-1.0	20.0+/-1.0	25.0+/-1.5	30.0+/-1.5	35.0+/-1.5	40.0+/-2.0	45.0+/-2.0	50.0+/-2.0
FXLDM-TTL-60	6.0+/-1.0	12.0+/-1.0	18.0+/-1.0	24.0+/-1.0	30.0+/-1.5	36.0+/-1.5	42.0+/-2.0	48.0+/-2.0	54.0+/-2.0	60.0+/-2.5
FXLDM-TTL-70	7.0+/-1.0	14.0+/-1.0	21.0+/-1.0	28.0+/-1.5	35.0+/-1.5	42.0+/-2.0	49.0+/-2.0	56.0+/-2.0	62.0+/-2.5	70.0+/-2.5
FXLDM-TTL-80	8.0+/-1.0	16.0+/-1.0	24.0+/-1.0	32.0+/-1.5	40.0+/-2.0	48.0+/-2.0	56.0+/-2.0	64.0+/-2.5	72.0+/-2.5	80.0+/-3.0
FXLDM-TTL-90	9.0+/-1.0	18.0+/-1.0	27.0+/-1.5	36.0+/-1.5	45.0+/-2.0	54.0+/-2.0	63.0+/-2.5	72.0+/-2.5	81.0+/-3.0	90.0+/-3.0
FXLDM-TTL-100	10.0+/-1.0	20.0+/-1.0	30.0+/-1.5	40.0+/-2.0	50.0+/-2.0	60.0+/-2.5	70.0+/-2.5	80.0+/-3.0	90.0+/-3.0	100.0+/-3.0
FXLDM-TTL-125	12.5+/-1.0	25.0+/-1.5	37.5+/-2.0	50.0+/-2.0	62.5+/-2.5	75.0+/-2.5	87.5+/-3.0	100.0+/-3.0	112.5+/-4.0	125.0+/-4.0
FXLDM-TTL-150	15.0+/-1.0	30.0+/-1.5	45.0+/-2.0	60.0+/-2.5	75.0+/-2.5	90.0+/-3.0	105.0+/-4.0	120.0+/-4.0	135.0+/-4.0	150.0+/-5.0
FXLDM-TTL-175	17.5+/-1.0	35.0+/-2.0	52.5+/-2.0	70.0+/-2.5	87.5+/-3.0	105.0+/-4.0	122.5+/-4.0	140.0+/-5.0	157.5+/-5.0	175.0+/-5.0
FXLDM-TTL-200	20.0+/-1.0	40.0+/-2.0	60.0+/-2.5	80.0+/-3.0	100.0+/-3.0	120.0+/-4.0	140.0+/-5.0	160.0+/-5.0	180.0+/-6.0	200.0+/-6.0
FXLDM-TTL-250	25.0+/-1.5	50.0+/-2.0	75.0+/-2.5	100.0+/-3.0	125.0+/-4.0	150.0+/-5.0	175.0+/-5.0	200.0+/-5.0	225.0+/-7.0	250.0+/-8.0
FXLDM-TTL-300	30.0+/-1.5	60.0+/-2.0	90.0+/-3.0	120.0+/-4.0	150.0+/-5.0	180.0+/-6.0	210.0+/-7.0	240.0+/-7.0	270.0+/-8.0	300.0+/-9.0
FXLDM-TTL-350	35.0+/-1.5	70.0+/-2.5	105.0+/-4.0	140.0+/-5.0	175.0+/-5.0	210.0+/-7.0	245.0+/-8.0	280.0+/-9.0	315.0+/-10.0	350.0+/-11.0
FXLDM-TTL-400	40.0+/-2.0	80.0+/-3.0	120.0+/-4.0	160.0+/-5.0	200.0+/-6.0	240.0+/-7.0	280.0+/-9.0	320.0+/-10.0	360.0+/-11.0	400.0+/-12.0
FXLDM-TTL-450	45.0+/-2.0	90.0+/-3.0	135.0+/-4.0	180.0+/-6.0	225.0+/-7.0	270.0+/-8.0	315.0+/-10.0	360.0+/-11.0	405.0+/-12.0	450.0+/-14.0
FXLDM-TTL-500	50.0+/-2.0	100.0+/-3.0	150.0+/-5.0	200.0+/-6.0	250.0+/-8.0	300.0+/-9.0	350.0+/-11.0	400.0+/-12.0	450.0+/-14.0	500.0+/-15.0
FXLDM-TTL-600	60.0+/-2.5	120.0+/-4.0	180.0+/-5.0	240.0+/-7.0	300.0+/-9.0	360.0+/-11.0	420.0+/-13.0	480.0+/-15.0	540.0+/-16.0	600.0+/-18.0
FXLDM-TTL-700	70.0+/-2.5	140.0+/-5.0	210.0+/-7.0	280.0+/-9.0	350.0+/-11.0	420.0+/-13.0	490.0+/-15.0	560.0+/-17.0	630.0+/-19.0	700.0+/-20.0
FXLDM-TTL-800	80.0+/-3.0	160.0+/-5.0	240.0+/-7.0	320.0+/-10.0	400.0+/-12.0	480.0+/-15.0	560.0+/-17.0	640.0+/-19.0	720.0+/-20.0	800.0+/-20.0
FXLDM-TTL-900	90.0+/-3.0	180.0+/-6.0	270.0+/-8.0	360.0+/-11.0	450.0+/-14.0	540.0+/-16.0	630.0+/-19.0	720.0+/-20.0	810.0+/-20.0	900.0+/-22.0
FXLDM-TTL-1000	100.0+/-3.0	200.0+/-6.0	300.0+/-9.0	400.0+/-12.0	500.0+/-15.0	600.0+/-18.0	700.0+/-20.0	800.0+/-20.0	900.0+/-22.0	1000.0+/-22.0

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

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