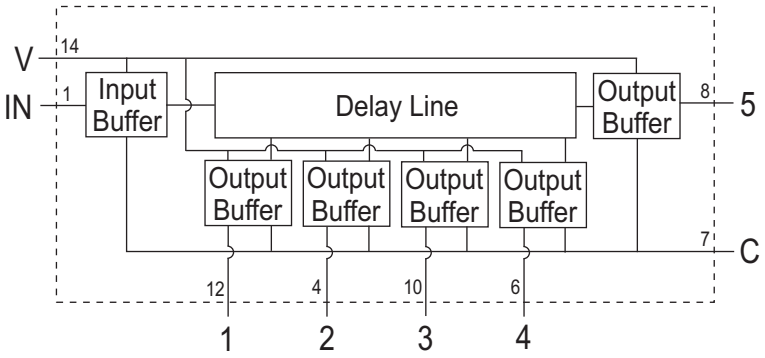
TTL Military Logic Delay Module

The TTL Military 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 (see the Product Selection Table).

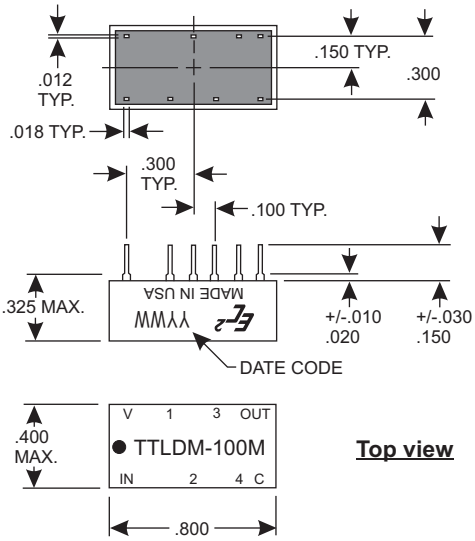
The MTBF on these modules, when calculated per MIL-HDBK-217, for a 50 deg.C ground fixed environment and with 50VDC applied, is in excess of 3 million hours. The temperature coefficient of delay is less than 500 ppm/deg.C over a temperature range of -55 to +100 deg. C. These modules are designed to operate over the full military temperature range of -55 to +125 deg. C.

The module is provided in a 14-pin DIP package, fully encapsulated in epoxy resin and is housed in a Diallyl Phthalate case, red 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.

BLOCK DIAGRAM



MECHANICAL DIAGRAM



Top view

Product Selection Table

Part Number	Output Delay and Tolerances (in ns)				
	Tap 1 (20%)	Tap 2 (40%)	Tap 3 (60%)	Tap 4 (80%)	Tap 5 (100%)
TTLDM-25M	5.0+/-1.0	10.0+/-1.0	15.0+/-1.0	20.0+/-1.0	25.0+/-1.0
TTLDM-30M	6.0+/-1.0	12.0+/-1.0	18.0+/-1.0	24.0+/-1.0	30.0+/-1.5
TTLDM-35M	7.0+/-1.0	14.0+/-1.0	21.0+/-1.0	28.0+/-1.5	35.0+/-1.5
TTLDM-40M	8.0+/-1.0	16.0+/-1.0	24.0+/-1.0	32.0+/-1.5	40.0+/-2.0
TTLDM-45M	9.0+/-1.0	18.0+/-1.0	27.0+/-1.5	36.0+/-1.5	45.0+/-2.0
TTLDM-50M	10.0+/-1.0	20.0+/-1.0	30.0+/-1.5	40.0+/-2.0	50.0+/-2.0
TTLDM-75M	15.0+/-1.0	30.0+/-1.5	45.0+/-2.0	60.0+/-2.0	75.0+/-2.5
TTLDM-100M	20.0+/-1.0	40.0+/-1.5	60.0+/-2.0	80.0+/-3.0	100.0+/-3.0
TTLDM-125M	25.0+/-1.0	50.0+/-2.0	75.0+/-2.5	100.0+/-3.0	125.0+/-4.0
TTLDM-150M	30.0+/-1.5	60.0+/-2.0	90.0+/-3.0	120.0+/-4.0	150.0+/-5.0
TTLDM-175M	35.0+/-1.5	70.0+/-2.5	105.0+/-4.0	140.0+/-4.5	175.0+/-5.0
TTLDM-200M	40.0+/-1.5	80.0+/-3.0	120.0+/-4.0	160.0+/-5.0	200.0+/-6.0
TTLDM-225M	45.0+/-2.0	90.0+/-3.0	135.0+/-4.0	180.0+/-6.0	225.0+/-7.0
TTLDM-250M	50.0+/-2.0	100.0+/-3.0	150.0+/-5.0	200.0+/-6.0	250.0+/-8.0
TTLDM-300M	60.0+/-1.5	120.0+/-2.0	180.0+/-3.0	240.0+/-4.0	300.0+/-5.0
TTLDM-350M	70.0+/-1.5	140.0+/-2.5	210.0+/-4.0	280.0+/-4.5	350.0+/-5.0
TTLDM-400M	80.0+/-1.5	160.0+/-3.0	240.0+/-4.0	320.0+/-5.0	400.0+/-6.0
TTLDM-450M	90.0+/-2.0	180.0+/-3.0	270.0+/-4.0	360.0+/-6.0	450.0+/-7.0
TTLDM-500M	100.0+/-2.0	200.0+/-3.0	300.0+/-5.0	400.0+/-6.0	500.0+/-8.0

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 Vcc = +5VDC
All measurements made with (1) TTL output load

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

Vcc Supply Voltage: 4.75 to 5.25VDC
Vcc Supply Current:
  Constant “0” in = 60mA typical
  Constant “1” in = 20mA typical
Logic “High” Input:
  Voltage: 2.0VDC min. ; Vcc max.
  Current: 2.4VDC = 50uA max. ; 5.5VDC = 1mA max.
Logic “Low” Input:
  Voltage: 0.8 VDC max.
  Current: -2.0mA max.
Logic “High” Voltage Out: 2.7VDC min.
Logic “Low” Voltage Out: 0.4VDC max.

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