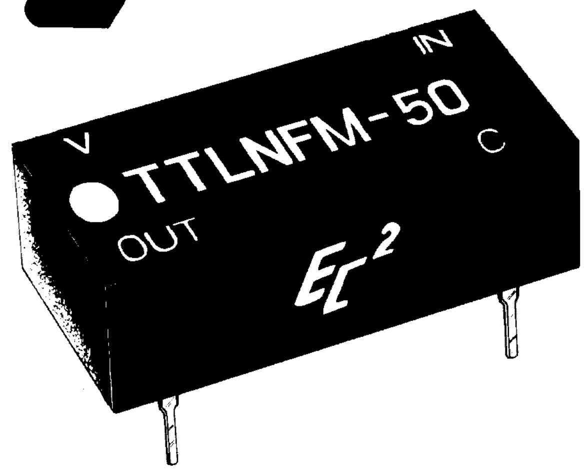
low profile T^2L COMPATIBLE LOGIC NOISE FILTER MODULE



- T^2L input and output
- Pulse width detection stable and precise
- 14-pin DIP package (.250 high)
- Available in pulse widths from 5ns to 500ns
- 8 T^2L fan-out capacity

design notes

The "DIP Series" Logic Noise Filter Modules developed by Engineered Components Company have been designed for use in T^2L systems employing data pulses of either a fixed width or a minimum width. The filter module will produce a "1" at the output, without significant change in width, only when a "1" appears at the input for greater than the specified pulse width; all shorter pulses will be suppressed. This operation will effectively eliminate sources of stray noise pulses and should prove particularly effective in eliminating transients created by cross-talk from leading edges of fast rise time pulses.

The TTLNFM is offered in 24 pulse widths from 5ns to 500ns, for optimum noise pulse rejection in various systems. Tolerance on pulse width recognition is maintained as shown in the accompanying part number table, when tested under the "Test Conditions" shown. Temperature coefficient is less than ±800 ppm/°C over the operating temperature range of 0 to +70°C.

These noise filter 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 3.5 million hours.

These "DIP Series" modules are packaged in a 14-pin DIP housing, molded of flame-proof Diallyl Phthalate per MIL-M-14, type SDG-F, and are fully encapsulated in epoxy resin. Flat metal leads meet the solderability requirements of MIL-STD-202, Method 208. Leads provide positive stand off from the printed circuit board to permit solder-fillet formation and flush cleaning of solderflux residues for improved reliability.

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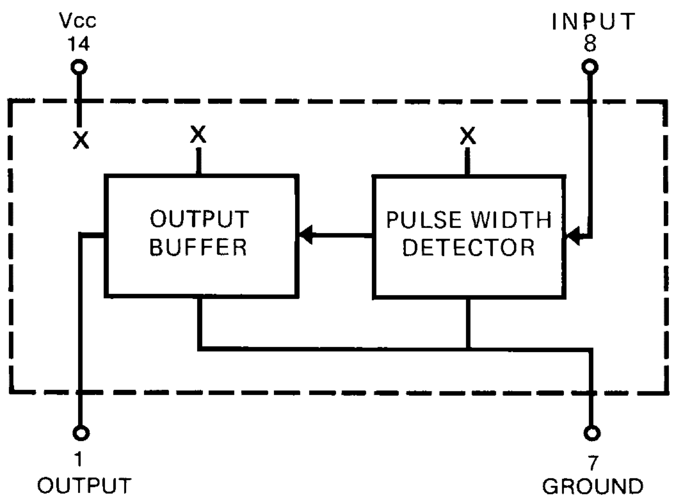
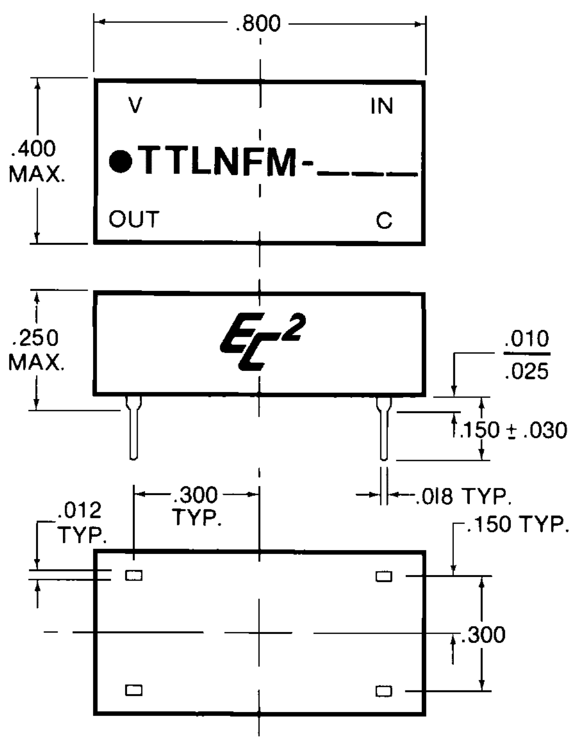
DESIGN NOTES (continued)

Marking consists of manufacturer's name, logo (EC^2), 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 positive input pulse and one Schottky T^2L load at the output.

ϕ 4. All units are tested to verify suppress and pass pulse widths, as tabulated in the part number table.

OPERATING SPECIFICATIONS

* V_{CC} supply voltage:	4.75 to 5.25V DC
V_{CC} supply current:	
Constant "0" in	45ma typical
Constant "1" in	24ma typical
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:	.4V max.
Fan out	8 T^2L loads
Operating temperature range:	0 to 70°C.
Storage temperature:	−55 to +125°C.

* Pulse width suppression times increase or decrease approximately 2% for a respective increase or decrease of 5% in supply voltage.

PART NUMBER TABLE

TIMES AND TOLERANCES (in ns)			
PART NO.	ϕ Pulse Widths		
	Nominal	Suppress	Pass
TTLNFM-5	5	≤4	≥6
TTLNFM-10	10	≤9	≥11
TTLNFM-15	15	≤14	≥16
TTLNFM-20	20	≤19	≥21
TTLNFM-25	25	≤24	≥26
TTLNFM-30	30	≤29	≥31
TTLNFM-35	35	≤34	≥36
TTLNFM-40	40	≤39	≥41
TTLNFM-45	45	≤43.5	≥46.5
TTLNFM-50	50	≤48.5	≥51.5
TTLNFM-60	60	≤58	≥62
TTLNFM-70	70	≤68	≥72
TTLNFM-75	75	≤73	≥77
TTLNFM-80	80	≤78	≥82
TTLNFM-90	90	≤88	≥92
TTLNFM-100	100	≤98	≥102
TTLNFM-125	125	≤123	≥127
TTLNFM-150	150	≤147	≥153
TTLNFM-175	175	≤172	≥178
TTLNFM-200	200	≤196	≥204
TTLNFM-250	250	≤245	≥255
TTLNFM-300	300	≤294	≥306
TTLNFM-400	400	≤392	≥408
TTLNFM-500	500	≤490	≥510

The output of the module will remain at state "0" for any transient input pulses shorter than suppress times and will change to state "1" for pulses longer than pass times. Input pulse width is measured at the +1.5 level.

Special modules can be readily manufactured to provide customer specified times for specific applications.