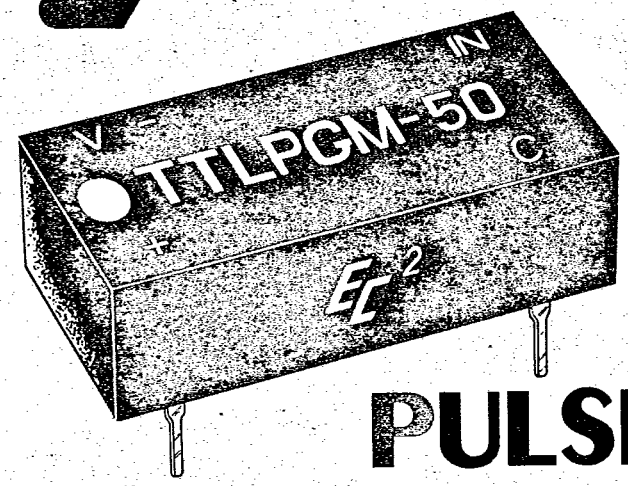
EC²



low profile

T²L COMPATIBLE PULSE GENERATOR MODULE

- T²L input and output
- Pulse widths stable and precise
- 14-pin DIP package (.250 high)
- Available in pulse widths from 5 to 100ns

design notes

The "DIP Series" Pulse Generator Modules developed by Engineered Components Company have been designed to provide precise output pulse widths when triggered by variable width inputs. All required driving and output circuitry, as well as timing components, are contained in a 14-pin DIP package. These Pulse Generator 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 4 million hours. These modules are compatible with T²L Schottky circuits and require no external components in order to obtain the specified output pulse.

The TTLPGM is available in 20 pulse widths from 5 to 100ns. These modules provide a stable T²L output pulse of the specified width for each positive input step. The generated pulse is inverted internally to provide a negative pulse as an additional output. It is necessary only that the input step be held positive for at least 10ns in order to obtain the desired output pulse. The duration of the positive input pulse, after this time, has no effect on output pulse width. No output pulse will occur on the negative input pulse transition. Pulse width tolerance is maintained as shown in the accompanying part number table, when tested under the "Test Conditions" shown. Pulse width is measured at the +1.5V level on both leading and trailing edge. Rise and fall times are less than 3ns, when measured from .8V to 2.0V. These modules are capable of driving 8 normal T²L loads. Temperature coefficient of pulse width is approximately +1200 ppm/°C over the operating temperature range of 0 to +70°C.

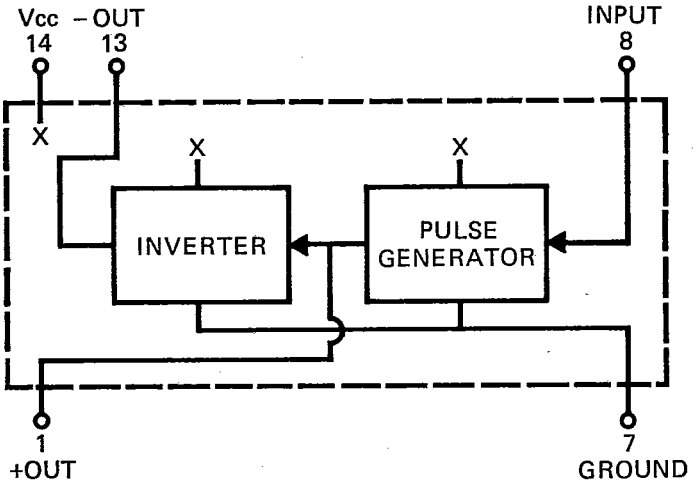
These "DIP Series" modules are packaged in a 14-pin DIP housing, molded of flame-proof Diallyl Phthalate per MIL-M-14, type SDG-F, and are fully encapsulated in epoxy resin. Flat metal leads meet the solderability requirements of MIL-STD-202, Method 208. Leads provide positive stand off from the printed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

EC² **engineered components company**
3580 Sacramento Drive, P. O. Box Y, San Luis Obispo, CA 93406
Phone: (805) 544-3800

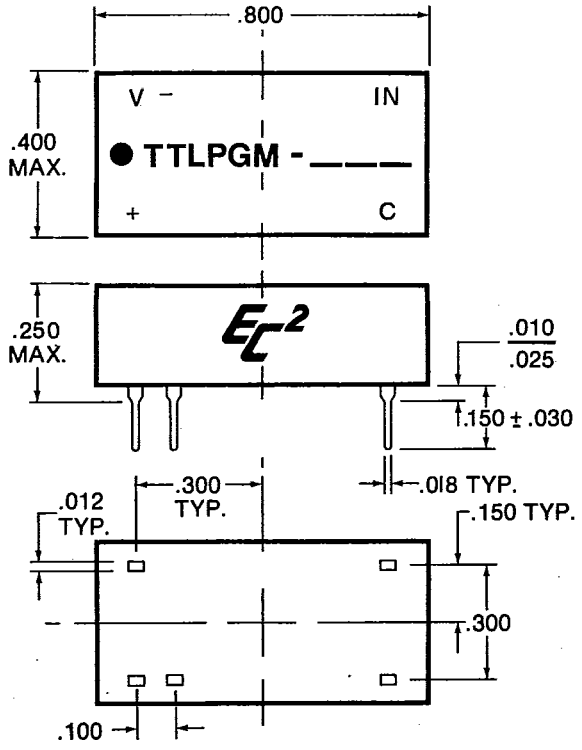
DESIGN NOTES (continued)

Marking consists of manufacturer's name, logo (EC²), 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.
4. Input pulse width used is 10ns for all modules; repetition rate is in accordance with the data specified in the part number table.

OPERATING SPECIFICATIONS

* V_{CC} supply voltage:	4.75 to 5.25V DC
V_{CC} supply current:	
Constant "0" in	26ma typical
Constant "1" in	10ma 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.
Operating temperature range:	0 to 70°C.
Storage temperature:	-55 to +125°C.

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

PART NUMBER TABLE

Part Number	Pulse Width (in ns)	Maximum Pulse Rate (in Mhz)
TTLPGM-5	5 ±1	98
TTLPGM-6	6 ±1	80
TTLPGM-7	7 ±1	70
TTLPGM-8	8 ±1	60
TTLPGM-9	9 ±1	54
TTLPGM-10	10 ±1	49
TTLPGM-15	15 ±1	32
TTLPGM-20	20 ±1	24
TTLPGM-25	25 ±1	19
TTLPGM-30	30 ±1	15
TTLPGM-35	35 ±1.5	13
TTLPGM-40	40 ±1.5	11
TTLPGM-45	45 ±1.5	10
TTLPGM-50	50 ±1.5	9
TTLPGM-60	60 ±1.5	8
TTLPGM-70	70 ±2	7
TTLPGM-75	75 ±2	6
TTLPGM-80	80 ±2	6
TTLPGM-90	90 ±3	5
TTLPGM-100	100 ±3	4

Special modules can be readily manufactured to improve accuracies and/or provide customer specified random pulse widths for specific applications.