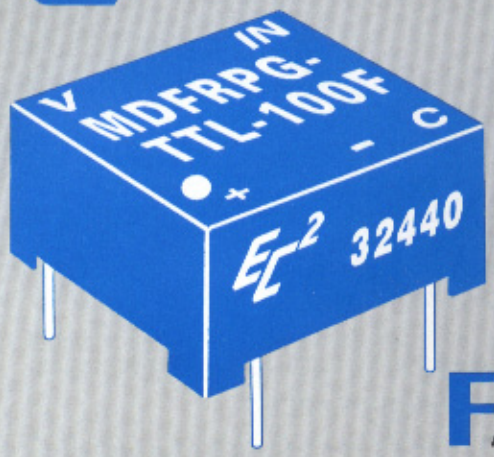
EC²



low profile

T²L COMPATIBLE Mini DIP FAST RECOVERY PULSE GENERATOR

- T²L FAST input and outputs
- Pulse widths stable and precise
- High output duty cycle
- 8-pin DIP package
- Leads — Thru-hole, J, Gull Wing or Tucked
- Available in pulse widths from 10 to 1000ns
- 10 T²L fan-out capacity

design notes

The "Mini 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 an 8-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 MTBF on these modules, when calculated per MIL-HDBK-217 for a 50°C ground fixed environment, is in excess of 3 million hours. These modules are compatible with T²L FAST circuits and require no external components in order to obtain the specified output pulse.

The MDFRPG-TTL is available in 38 pulse widths from 10 to 1000ns. 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 be held low for at least 10ns, then high for at least 10ns to obtain the desired output pulse. The duration of the positive input pulse, after this time, has no effect on the 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 edges. Rise and fall times are less than 4ns, when measured from .8V to 2.0V. These modules are capable of driving 10 T²L loads. Temperature coefficient of delay is approximately +100ppm/° C over the operating temperature range of 0 to +70° C.

These "Mini DIP Series" modules are packaged in an 8-pin DIP housing, molded of flame-proof Diallyl Phthalate per MIL-M-14, Type SDG-F, and are fully encapsulated in epoxy resin. Thru-hole, J, Gull Wing or Tucked Lead configurations are available on these modules (see Part Number Table note to specify). Leads meet the solderability requirements of MIL-STD-202, Method 208. Corner standoffs on the housing of the thru-hole lead version and lead design of the surface mount versions provide positive standoff from the printed circuit board to permit solder-fillet formation and flush cleaning of solder-flux residues for improved reliability.

Marking consists of manufacturer's logo (EC²), Federal Supply Code, part number, pin one (1) 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.

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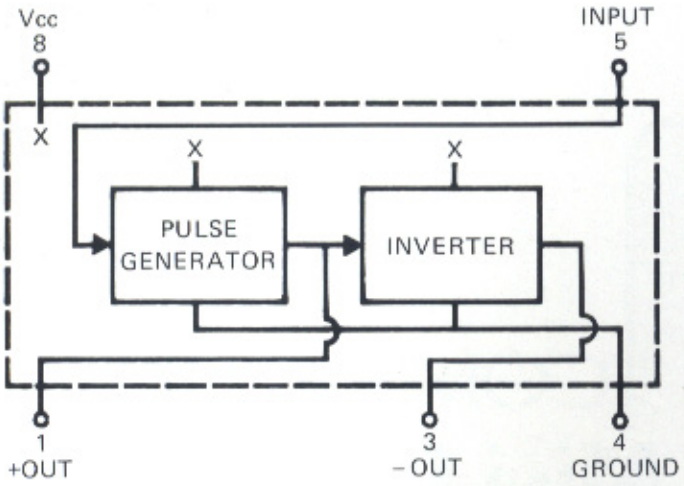
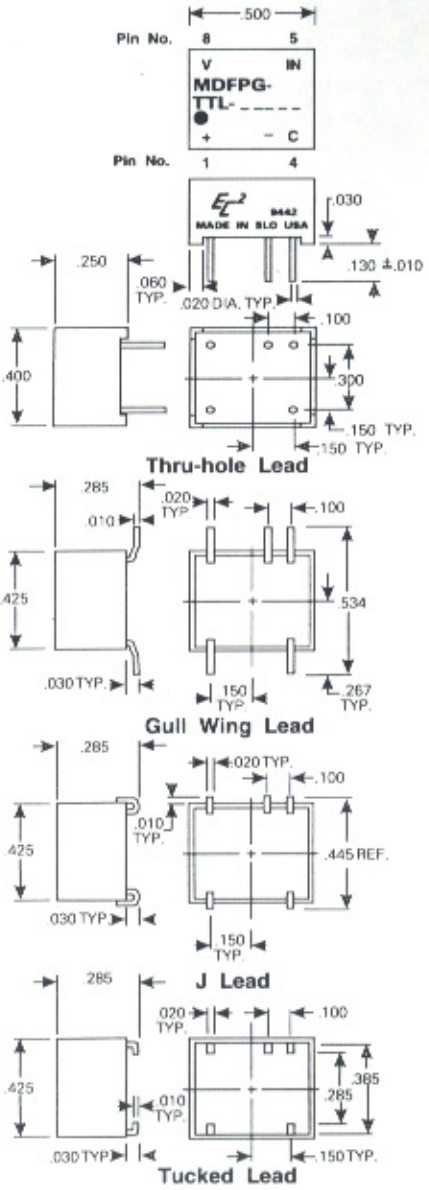
BLOCK DIAGRAM IS SHOWN BELOW



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 FAST toggle-type positive input pulse and one FAST T^2L load at the output.
4. Input pulse width used is 10ns for all modules; repetition rate is approximately 200kHz.

OPERATING SPECIFICATIONS

* V_{CC} supply voltage:	4.75 to 5.25V DC
V_{CC} supply current:	
Constant "0" in	40mA typical
Constant "1" in	40mA typical
Logic 1 Input:	
Voltage	2V min.; V_{CC} max.
Current	2.7V = 20uA max.
	5.5V = 100mA max.
Logic 0 Input:	
Voltage	.8V max.
Current	–.6mA max.
	@ V_I = .5v.
Logic 1 Voltage out:	2.7V min.
Logic 0 Voltage out:	.5V max.
Operating temperature range:	0 to 70°C.
Storage temperature:	–55 to +125°C.

* Pulse width increases or decreases approximately 1% for a respective decrease or increase of 5% in supply voltage.

PART NUMBER TABLE

Suffix Part Number with G (for Gull Wing Lead), J (for J Lead), F (for Thru-hole Lead) or T (for Tucked Lead). Examples: MDFRPG-TTL-10G (Gull Wing), MDFRPG-TTL-25J (J Lead), MDFRPG-TTL-70F (Thru-hole Lead) or MDFRPG-TTL-100T (Tucked Lead).

Part Number	Pulse Width (in ns)	Maximum Rep. Rate (in Mhz)
MDFRPG-TTL-10	10 ±1	60.0
MDFRPG-TTL-11	11 ±1	56.0
MDFRPG-TTL-12	12 ±1	53.0
MDFRPG-TTL-13	13 ±1	51.0
MDFRPG-TTL-14	14 ±1	48.0
MDFRPG-TTL-15	15 ±1	46.0
MDFRPG-TTL-16	16 ±1	44.0
MDFRPG-TTL-17	17 ±1	42.0
MDFRPG-TTL-18	18 ±1	40.0
MDFRPG-TTL-19	19 ±1	38.0
MDFRPG-TTL-20	20 ±1	37.0
MDFRPG-TTL-21	21 ±1	35.0
MDFRPG-TTL-22	22 ±1	34.0
MDFRPG-TTL-23	23 ±1	33.0
MDFRPG-TTL-24	24 ±1	32.0
MDFRPG-TTL-25	25 ±1	31.0
MDFRPG-TTL-30	30 ±1	26.0
MDFRPG-TTL-35	35 ±1.5	23.0
MDFRPG-TTL-40	40 ±1.5	20.0
MDFRPG-TTL-45	45 ±1.5	18.0
MDFRPG-TTL-50	50 ±1.5	17.0
MDFRPG-TTL-60	60 ±1.5	14.5
MDFRPG-TTL-70	70 ±2	12.5
MDFRPG-TTL-75	75 ±2	11.5
MDFRPG-TTL-80	80 ±2	11.0
MDFRPG-TTL-90	90 ±3	9.5
MDFRPG-TTL-100	100 ±3	8.5
MDFRPG-TTL-150	150 ±4	6.0
MDFRPG-TTL-200	200 ±6	4.5
MDFRPG-TTL-250	250 ±7	3.5
MDFRPG-TTL-300	300 ±9	3.0
MDFRPG-TTL-400	400 ±10	2.2
MDFRPG-TTL-500	500 ±10	1.8
MDFRPG-TTL-600	600 ±14	1.5
MDFRPG-TTL-700	700 ±16	1.3
MDFRPG-TTL-800	800 ±18	1.1
MDFRPG-TTL-900	900 ±20	1.0
MDFRPG-TTL-1000	1000 ±22	0.9

All modules can be operated up to the maximum pulse rate specified in the Part Number Table with pulse widths as low as 10ns and pulse spacing as low as 10ns. Since pulse width accuracies may be somewhat degraded at high pulse rates, it is suggested that the module be evaluated under the specific operating conditions. Special modules can be readily manufactured to improve accuracies and/or provide customer specified pulse widths for specific applications.