

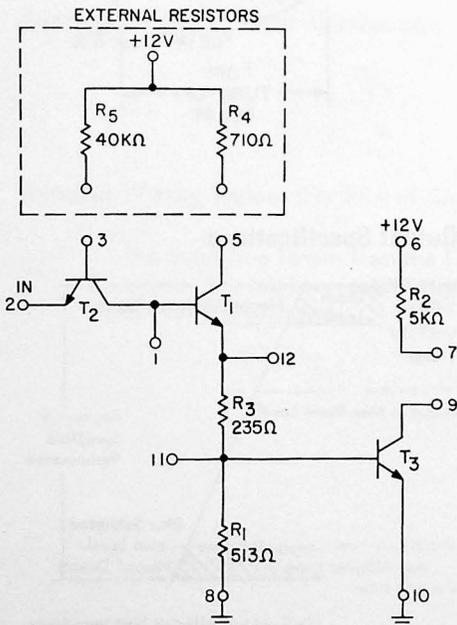
Functional Description

The Transmission Line Receiver, TLR-1C, is used to sense signals from a transmission line which has been terminated at both ends. The termination network will depend upon the impedance of the line, as an example a 93Ω transmission line will require a 393Ω resistor to +12 volts and a 124Ω resistor to ground.

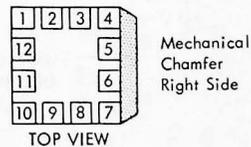
The first transistor, T_2 , is heavily saturated, which has a very low V_{CE} drop. The second transistor, T_1 is on, regardless of the input line level. When the input is up, T_3 is on and the output is down. When the input is down, T_3 is cut off and the output is up. When the power is turned off on a transmission line receiver, it presents a high input impedance which will not load down the transmission line driver.

The OR function can be accomplished by dotting collectors (parallel connected collectors) with other circuits or modules. However, only one collector resistor is required.

Schematic

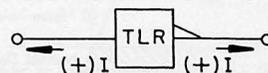


Terminal Configuration



PINS 1, 11 AND 12 SHOULD BE LEFT OPEN

Block Diagram



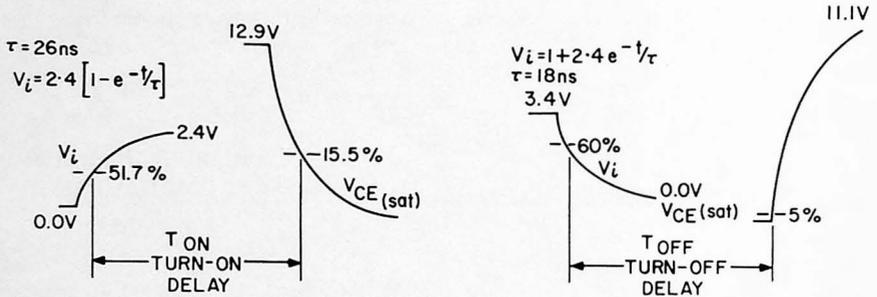
Maximum Ratings

Input Voltage = 13V
 Output Voltage = 13V
 $I_E = 15$ Milliamps

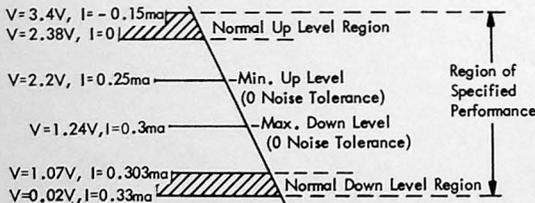
TLR-1C Module Functional Tests

TESTS	TERMINAL CONDITIONS												°C	ADDITIONAL LOAD REQUIREMENTS	VARIABLE	LIMITS		UNITS
	1	2	3	4	5	6	7	8	9	10	11	12				MIN	MAX	
DC ON	-	+2.2V	43K Ω To 11.16V	-	649 Ω To 11.16V	+12.84V	V _O	GND	V _O	GND	-	-	25	10.5ma CURRENT INTO TERMINALS 7&9	V _{OUT}	-0.29	V	
DC ON	-	+2.2V	43K Ω To 11.16V	-	649 Ω To 11.16V	+12.84V	V _O	GND	V _O	GND	-	-	25		V _{OUT}	+0.28	V	
DC OFF	-	+1.24V	37K Ω To 12.84V	-	768 Ω To 12.84V	+11.16V	V _O	GND	V _O	GND	-	-	75		V _{OUT}	+2.0	V	
$t_{d\ on}$	-	INPUT	43K Ω To 11.16V	-	649 Ω To 11.16V	+12.84V	20 PF TO GND	GND	V _O	GND	-	-	25	1.1K RESISTOR BETWEEN 12.84V AND TERM 7&9	$t_{d\ on}$	115	ns	
$t_{d\ off}$	-	INPUT	37K Ω To 12.84V	-	768 Ω To 12.84V	+11.16V	28 PF TO GND	GND	V _O	GND	-	-	25		$t_{d\ off}$	400/480	ns	

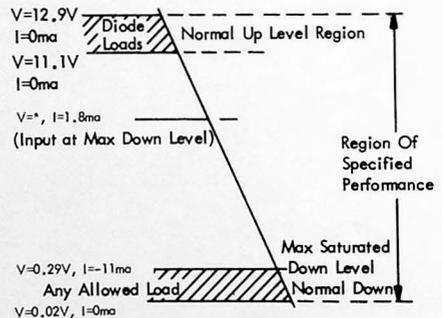
Test Waveforms



Input Requirements



Output Specifications



*Defined by collector load impedance.

Fan Out

Total collector current for the Transmission line receiver is 13ma

$$13\text{ma} \geq I_{RC} + N_1 K_1 + N_2 K_2 + \dots$$

I_{RC} = Total collector load current

N_1 = Number of AOI-2C loads

N_2 = Number of AOI-1C loads

K_1 = 1.15ma AOI-2C loading constant

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K_2 = 2.3ma AOI-1C loading constant

Maximum Power Supply Current Requirements

	<u>ON</u>	<u>OFF</u>
+12V	12.5ma	1.0ma

Maximum Power Dissipation

<u>ON</u>	<u>OFF</u>
108.0mw	11.0mw

$$\text{Average Normal Power Dissipation} = \frac{\text{NOMINAL ON} + \text{NOMINAL OFF}}{2} = 43\text{mw}$$

General Wiring Rules (For Printed Circuit Wiring, 10 Mil Width Lines)

The input line length from the TLR-1C to the terminated transmission line must not exceed 3 inches. The maximum total length at the output should not exceed 60 inches unless longer delays can be tolerated.