



Card Code	Part No. 37----	Cplg Network		Circuit Used as		Input Levels		In \emptyset Output		Out \emptyset Output		Ma. Output		musec Block Delay		
		In \emptyset	Out \emptyset			Min.	Max.	Min.	Max.	Min.	Max.	In \emptyset	Out \emptyset	Turn On	Turn Off	
DFZJ	1332	Yes	Yes	+O	-A	-5.6	See driver for max. Output Levels	+0.4	+0.5	+0.4	+0.5					
DFZH	1333	Yes	No	+OA	-AO	-6.4		-0.4	-0.8	-0.4	-0.9	Min.	5.97	6.04	7	5
DGZG	1334	No	Yes	+TO	-TA							Nom.	6.56	6.69	15	10
DFZF	1335	No	No									Max.	7.14	7.34	26	16

Diffused Junction Four-Way OR, Type B

The four-way P-type logic block is an OR circuit to positive logic and an AND circuit to negative logic. As an OR circuit, any positive input produces a positive in-phase output. As an AND circuit, all inputs must be negative to obtain a negative in-phase output.

The OR circuit logic block shows that any +P input produces a +N in-phase output and -N out-of-phase output. Output A is an extender exit for extender card use.

Circuit Description

This circuit uses four transistors (T5, T3, T6, and T2) in an OR configuration similar to diode circuitry; i.e., the base-to-emitter of each transistor is a PN diode with the N region commoned and returned to a negative supply (-36v). The emitter output of this OR circuit drives into a grounded base amplifier T4 which is referenced to -6v. All inputs are -P as shown and the emitter line attempts to fall to the -P level. When the emitter of T4 falls below -6v it becomes forward-biased and clamps to -6v.

Output G is at a -N level of -0.6v because of current flow (6.6ma) through T4 into its coupling network. Output B is at a +N level of +0.5v because of divider current through its coupling network.

When any input rises above -6v (see input C) the emitter line follows it and T4 is reverse-biased and cuts off. In this state, output G rises to a +N level because of divider current through its coupling network and output B falls to a -N level because of current flow (6.7ma) through an input transistor into its coupling network. The peaking coils compensate for output capacitance, so that optimum square-wave response is realized. The 82 ohm base resistor is an oscillation suppressor which is necessary because of the inductive coupling networks used. The type B block provides a better input current source (4.53K to -36v) than the type A (909 ohms to -12v) so that transistor parameters are less critical than in type A.

Application

For some applications, the circuit driven by this logic block requires a coupling network other than the 187 ohm and 2.15K resistors shown. In such cases cap codes ZF, ZG and ZH are used as required (see chart). This circuit is also combined with an AND circuit to make up a trigger and with other OR circuit blocks to obtain NOR functions.