



Card Code	Part No. 37L---	Cplg Network		Circuit Used as	Input Levels		In $\emptyset$ Output		Out $\emptyset$ Output		Ma Output			usec Delay Per		
		In $\emptyset$	Out $\emptyset$		Min.	Max.	Min.	Max.	Min.	Max.	In $\emptyset$	Out $\emptyset$	Block	100u Load	Driven Base	
ADZJ	1232	Yes	Yes	+O -A	-5.6	See driver for max. Output Levels	+0.4	+1.2	+0.4	+1.2	Min.	4.82	5.31	.03	.02	.03
ADZH	1233	Yes	No	+OA -AO	-6.4		-0.4	-2.5	-0.4	-3.0	Nom.	6.0	7.6	.06	.025	.035
ADZG	1234	No	Yes	+TO -TA							Max.	7.3	10.2*	.1	.03	.04
ADZF	0235	No	No													

\* Plus the number of inputs times .044 ma

### Current Mode Four-Way OR

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 a -N out-of-phase output. Output A is an extender exit for extender card use.

#### Circuit Description

This circuit utilizes four transistors (T5, T3, T2, and T6) in an OR configuration similar to diode circuitry (the base-to-emitter of each transistor is a PN diode with the N region commoned and returned to a negative supply, -12v). The emitter output of this OR circuit drives into a grounded base amplifier T4 referenced to -6v. In this state, 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 the base potential of -6v. Output G is at a -N level of -1.1v because of current flow (6ma) through T4 to its coupling network. Output B is at a +N level of +0.8v 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. Output G rises to a +N level because of divider current through its coupling network, and output B falls to a -N level of -1.6v because of current flow (7.6ma) through an input transistor into its coupling network.

#### Application

For some applications, the circuit driven by this logic block requires a coupling network other than the 360 ohm and 2.4K 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. NOR functions are obtained by connecting similar output pins together to share a common collector load.