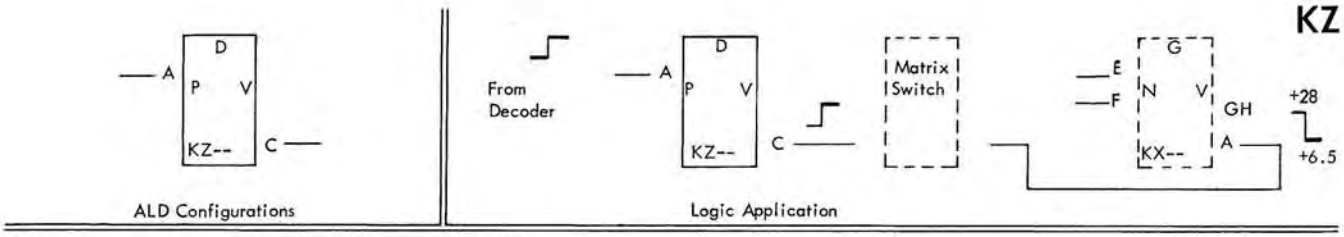

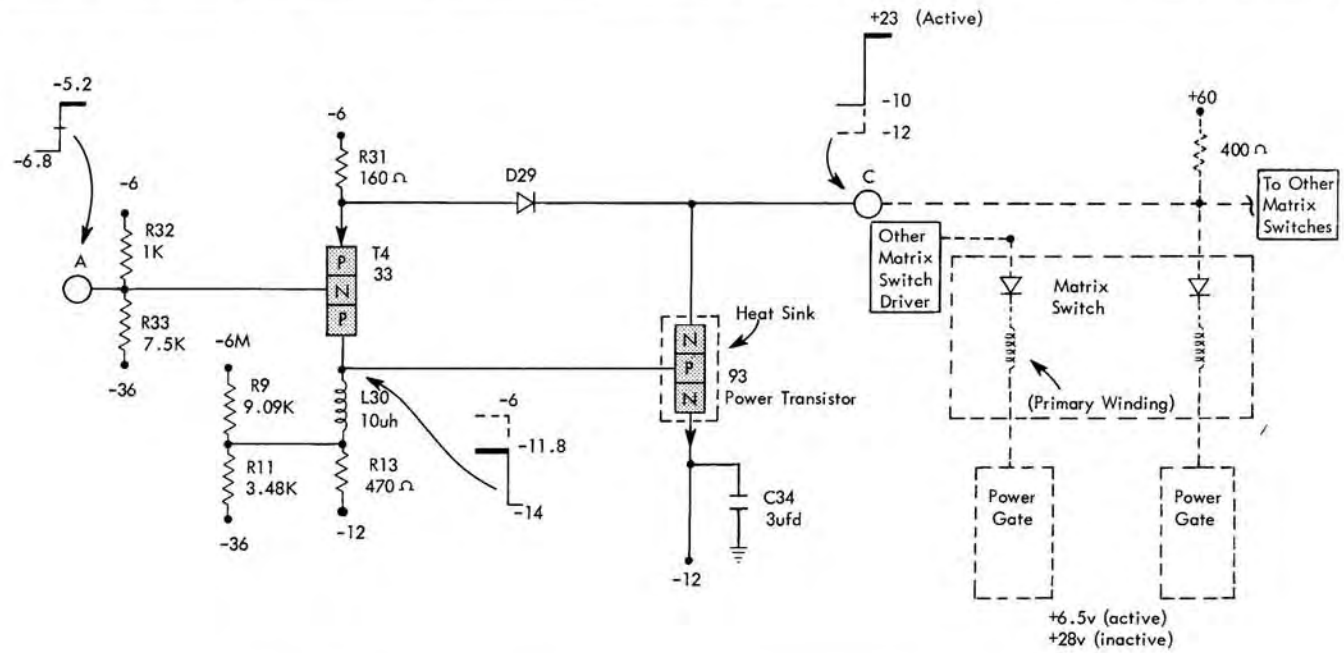

KZ---371482

Input Levels		Output Levels		Delays			Current		
							Input		Output
Min	Max	Min	Max			(usec)	On	Off	
-5.4 / 0 / -6.4	-3.0 / -7.1	+23 / -10	+23 / -11.5	Turn On	Min	—	150 ma (Max)	≅0	+23 / -10
					Max	0.05			
				Turn Off	Min	—			
					Max	0.05			

Matrix Switch Driver

The KZ--card consists of a special driver used in the X and Y line address circuitry of core storage. Each driver controls the status of a matrix switch used with power gates to properly select or address a X or Y line. A +P input to the driver is required to place the circuit in the active condition and to allow current to flow through the gated primary winding. A −P input inhibits the flow of current in the X or Y primary windings of the matrix switch.

Circuit Description

In the quiescent state, conduction from −12 volts through R13 to the coupling network of R9 and R11 sets the bias level of the power transistor to approximately −14 volts.

Inactive State: A −P input (−6.8v) applied to pin A forward-biases T4 on. Conduction through T4 causes the base voltage of the power transistor to increase toward −6v, but this voltage clamps at −11.8v when the power transistor is forward-biased on. Current flows through the 400 ohm resistor to the +60v supply and provides an output at pin C near −10v. The isolation diodes in the matrix switch are reverse-biased regardless of the status of the power gates, and prevent current from flowing in the primary windings. Dropping the voltage at pin C to −10v, causes D29 to be forward-biased and allows current to flow through R31. This action results in a degenerative feedback that reduces the forward bias of T4, which in turn causes a decrease in the forward bias of the power transistor. Because of this action, the power transistor is prevented from operating in saturation and faster switching action from the inactive to the active status results.

Active Status: If a +P input (−5.2v) is applied to pin A, T4 is reverse-biased off. The base voltage of the power diffused transistor drops to −14v. The power transistor is reverse-biased off; its collector output increases toward +60v and permits the matrix switch to be in an active state. Assume that one of the power gates is on (+6.5v): current then flows through the primary winding, the isolation diode, and the 400 ohm resistor to +60v to give an output at pin C of about +23v.

Application

This driver is used in core storage of the IBM 7070 system. Typical circuit application for the driver is shown.