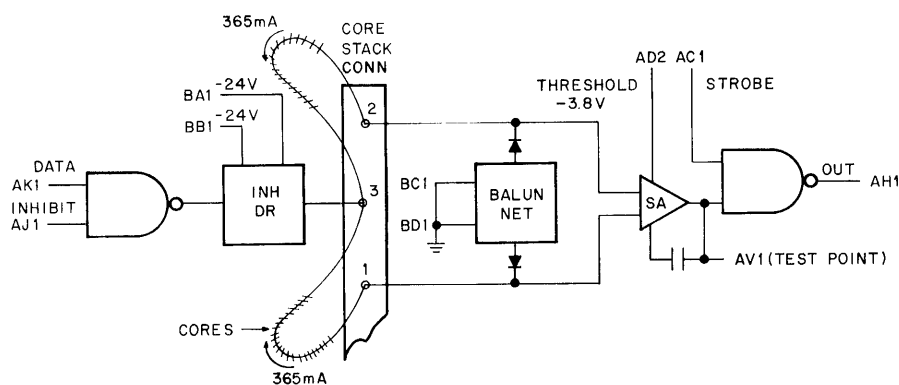


G100 Sense Amplifier and Inhibit Driver

The G100 module contains four sense amplifiers and four inhibit drivers. Five of these modules are used in the PDP-15 for each 4K memory stack. (Refer to Engineering Drawings D-BS-MM15-0-10 through D-BS-MM15-0-15). Each inhibit driver consists of a two-input NAND gate and a high-speed current switch. One driver is used for each bit plane of the memory array. An inhibit signal is received by all inhibit drivers only during a write operation.



G100 Simplified Diagram.

Each driver also receives a signal indicating the state of the corresponding bit in the MB. Inhibit drivers that receive a signal indicating a 0 state in the MB bit are gated on and cause inhibit current to be applied to the associated bit plane of the memory array. Each inhibit driver employs a discharge network to speed up inhibit current cut-off. The output of the inhibit driver is connected to the middle of one core sensing string, which represents one bit plane of the memory array. The balun network at the front end of the sense amplifier ensures equal current at all times through both sides of the core string. In addition to the balun network, the sense amplifier consists of a differential amplifier and output driver. One sense amplifier is used for each bit plane of the memory array. During a read operation only the signal induced on the sense winding of a core plane by a core-changing state is received by the differential amplifier. The differential amplifier has a nominal threshold of 17 mV. Output pulses of standard amplitude and duration are supplied by the output driver when the sense amplifier reads a logic 1 from the associated core, which in turn is strobed by a standard positive going pulse at AC1. Propagation delay from the input to the sense amplifier to the buffered output is 25 ns (maximum) and from strobe input to buffered output is 15 ns (maximum). These output pulses are used to direct set the MB register.

The following are the input, output, and power characteristics of the G100 module.

- INPUTS:** Inhibit driver DATA inputs present 1.25 TTL unit loads and INHIBIT inputs present 5 unit loads. Sense amplifier inputs are 0-9 mV for a logic 0 and 31-35 mV for a logic 1.
- OUTPUTS:** Inhibit driver inhibit current is 730 mA.
- POWER:** Power dissipation of the G100 module is +5V at 130 mA (maximum), -6V at 60 mA (maximum), and -24V at 800 mA (maximum).