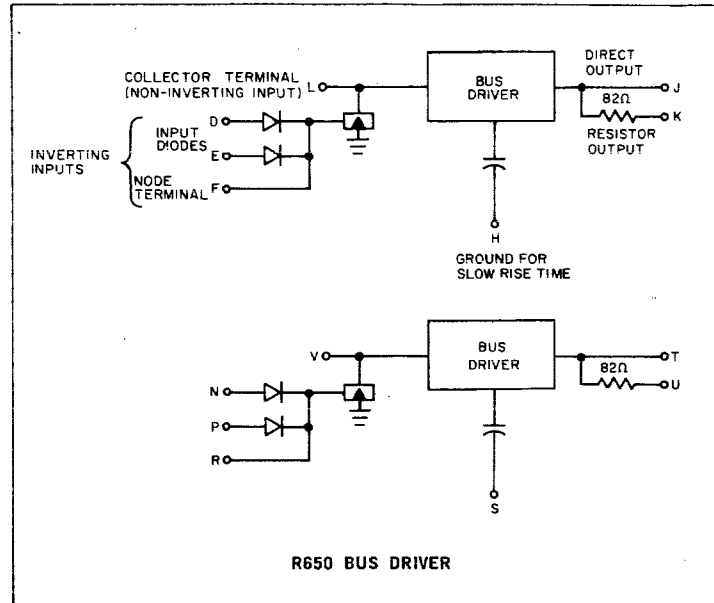# BUS DRIVER
TYPE R650

R650 BUS DRIVER

The R650 contains two inverting bus drivers for driving heavy current loads to either ground or negative voltages. The four input terminals make the R650 a versatile logic element as well. The diode inputs D and E (N and P) are the principal inputs. They form a NAND gate for negative inputs or a NOR gate for ground inputs. Gate inputs, such as the R001 or R002, can be added through the node terminal F (R). Other gating sources may be mixed with the gate inputs by using collector terminal L (V).

The bus drivers operate at frequencies up to 2 mc with typical rise and fall times of 25 nsec. The typical total transition times are 60 nsec for output rise and 65 nsec for output fall.

By grounding pin H (S) the rise and fall time can be increased to avoid ringing on exceptionally long lines. The driver then operates at frequencies up to 500 kc with typical rise delay of 50 nsec, fall delay of 50 nsec, and total transition time of 800 nsec for output rise and 700 nsec for output fall. Terminal K (U) can be used for driving coaxial cable.

INPUT: Standard levels at frequencies up to 2 mc (up to 500 kc with H or S grounded). The diode inputs, including any diodes attached to the node terminal, represent 1 ma of load, shared by all grounded inputs. Collector terminal L (V) represents 10 ma of load at ground. External clamped loads should not be connected to this terminal. The combined length of all leads attached to the node terminal should not exceed 6 in. The combined length of all leads attached to the collector terminal should not exceed 18 in.

OUTPUT: Direct — Standard levels. The output can drive 20 ma of external load at either ground or 3v. **Resistor** — Standard levels. The resistor output drives 90-ohm coaxial cable such as RG-62-U. The output can drive 5 ma of external load at either ground or —3v.

POWER: +10 v(A)/50 ma; —15 v(B)/81 ma.