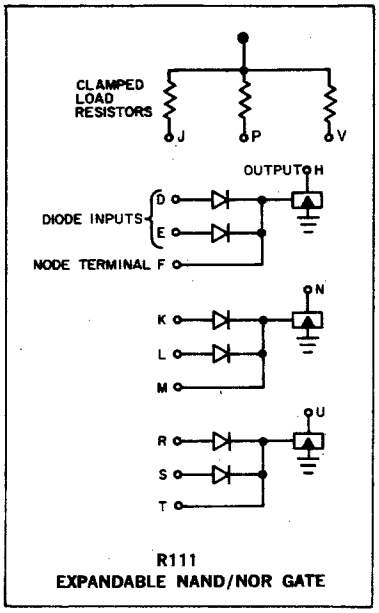
EXPANDABLE NAND/NOR GATE
TYPE R111

R SERIES



R111
EXPANDABLE NAND/NOR GATE

The R111 contains three diode gates, each connected to a transistor inverter. The gate operates as a NAND for negative inputs, and as a NOR for ground inputs. Each gate has three input terminals: two are connected to diodes, a third is connected directly to the node point of the diode gate. The third terminal allows the number of input diodes to be increased by adding external diode networks such as the R001 or R002. External diodes must be connected in the same direction as the diodes in the R111. Unused inputs may be left open.

INPUT: Diodes — Standard levels of —3v and ground, 100-nsec minimum duration. Input load is 1 ma, shared among the inputs that are at ground. **Node Terminal** — Accepts only R001 or R002 networks or their equivalent. The combined length of all leads attached to the node terminal must not be greater than 6 in. Input signal and load characteristics for the diode networks are the same as those given for the diode above.

OUTPUT: Standard levels of —3v and ground. Each output can drive 20 ma of load at ground. Clamped load resistors are included in the module. Each clamped load resistor represents 2 ma of load. The output terminals of diode gates may be connected in parallel. Two gates in parallel (driven by the same signal) can drive 38 ma at ground (20 ma each, less the 2-ma clamped load). If they are not driven by the same signal, gates in parallel drive 20 ma at ground minus 2 ma for each clamped load used. Some typical propagation delays are shown below. High frequency logic designs may benefit from the application note "Estimating Propagation Delays."

Fan-out	4	10	16
Output Rise	30 nsec	35 nsec	40 nsec
Output Fall	60 nsec	100 nsec	140 nsec

POWER: +10 v(A)/0.3 ma, —15 v(B)/18 ma.

R111 — $14.00