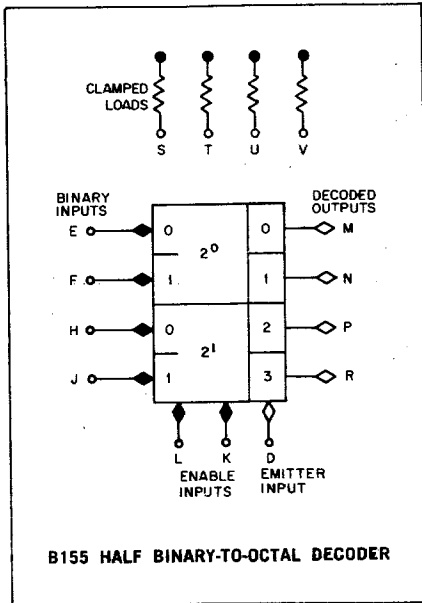


HALF BINARY-TO-OCTAL DECODER TYPE B155

**B
SERIES**



TRUTH TABLE

INPUTS							OUTPUTS			
H	J	E	F	D	K	L	M	N	P	R
-3v	0v	-3v	0v	0v	-3v	-3v	0v	-3v	-3v	-3v
-3v	0v	0v	-3v	0v	-3v	-3v	-3v	0v	-3v	-3v
0v	-3v	-3v	0v	0v	-3v	-3v	-3v	-3v	0v	-3v
0v	-3v	0v	-3v	-3v	-3v	-3v	-3v	-3v	-3v	0v
				-3v			-3v	-3v	-3v	-3v
					0v		-3v	-3v	-3v	-3v
						0v	-3v	-3v	-3v	-3v
-3v	-3v	0v	-3v	0v	-3v	-3v	-3v	0v	-3v	0v
-3v	-3v	-3v	0v	0v	-3v	-3v	0v	-3v	0v	-3v
0v	-3v	-3v	-3v	0v	-3v	-3v	-3v	-3v	0v	0v
-3v	0v	-3v	-3v	0v	-3v	-3v	0v	0v	-3v	-3v

The B155 module is used alone as a 2-bit decoder with two enable inputs, or it is used with another B155 to form a full 3-bit (binary-to-octal) decoder, using one combined enable line. Either way, each binary input combination results in one selected output held at ground if the decoder is enabled. No output will be selected if an enable input is held at ground. The decoder consists of four 4-input diode gates with appropriate input interconnections. All of the output transistor emitters are connected to pin D, providing a third enabling point. Also included are four standard 10-ma clamped loads.

INPUT: Diode Inputs — The input load is $1\frac{1}{4}$ ma per negative output, shared among the grounded inputs. When the inputs are binary, as in the first 4 lines of the truth table, the current at ground is $2 (1\frac{1}{4}) \div 2$, or 2 ma. When a pair of B155s are connected as a binary-to-octal decoder the input load would be $7 (1\frac{1}{4}) \div 3$, or 3 ma per grounded input. When four B155s are connected as a sixteen-state decoder, the input load is $15 (1\frac{1}{4}) \div 4$, or $4\frac{3}{4}$ ma per grounded input. Similarly, the input load for the last 4 lines of the truth table is $3\frac{3}{4}$ ma for the grounded input. If the only grounded input is an enable input such as pin L or K, the load will be 5 ma.

Emitter Input — If both enable inputs are at -3v, one of the output transistors will saturate if the emitter input is brought to ground by any conducting

path. The circuit that establishes this path (an inverter, flip-flop, another diode gate, etc.) is loaded with whatever external load may be present at the selected output, plus the internal load of $1\frac{1}{4}$ ma.

Clamped Load — Each clamped load draws 10 ma from any circuit that brings it to ground.

When the two B155 modules are used together, each of the four binary inputs on one module is tied to the corresponding input on the other module and these four lines are driven by the least significant two bits. One enable input on each module is driven by the third bit so that only one of the two modules has an output selected. The second enable input allows four modules to be combined to form a 16-state decoder, and the emitter input allows further expansion to 32 states using 8 modules.

OUTPUT: Each decoder output can drive 16 ma at ground. Each clamped load can drive 7 ma at -3 v. If the emitter input is not directly grounded, the maximum output load is limited to $1\frac{1}{4}$ ma less than the maximum current available at the emitter input.

Note: Simultaneous switching of B155 outputs is not assured. If adjacent B155 outputs are ORED together, for example, the gate output may contain spikes.

POWER: +10(A)/0.6 ma; -15(B)/53 ma.

B155 — \$25.00