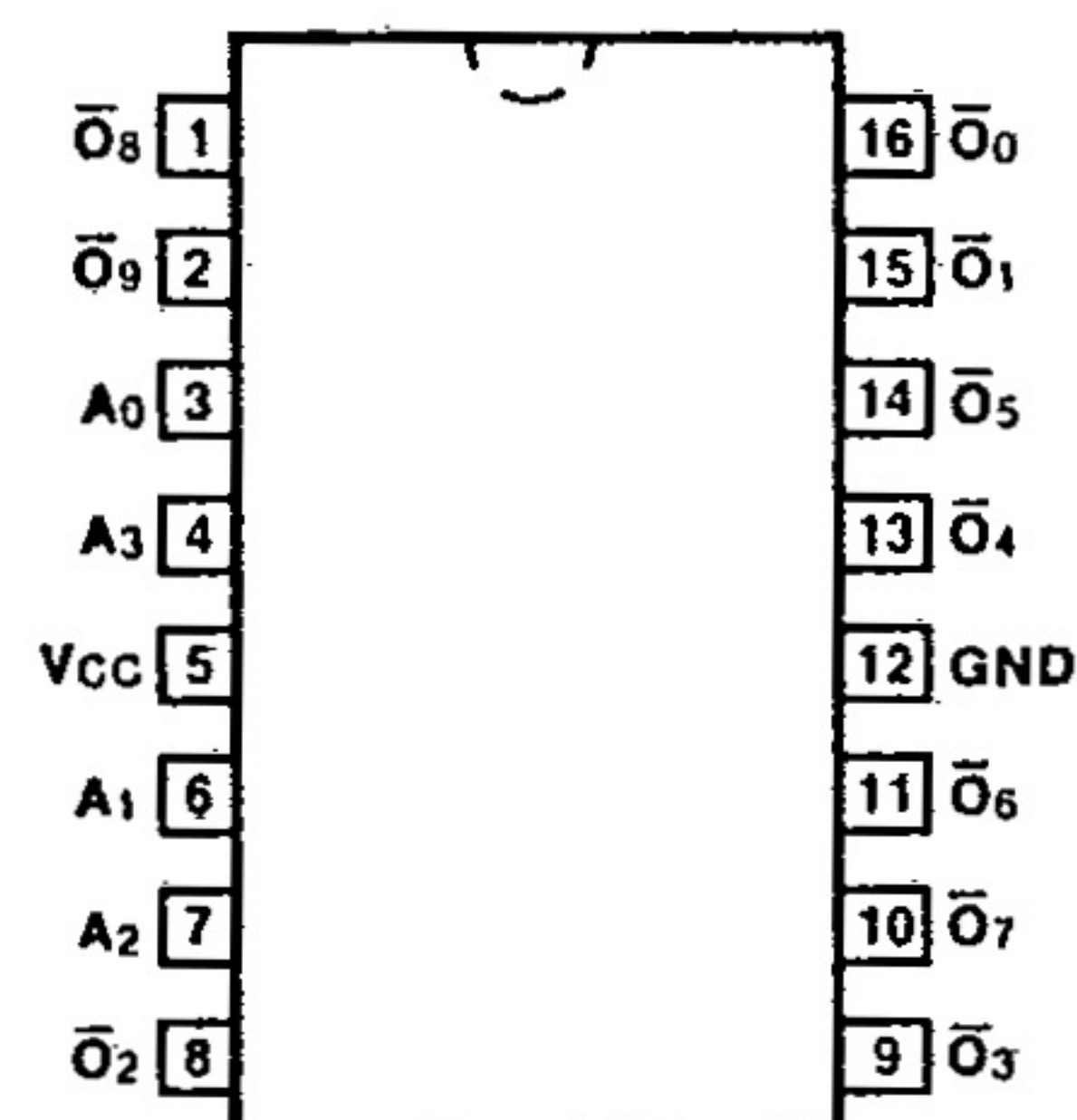


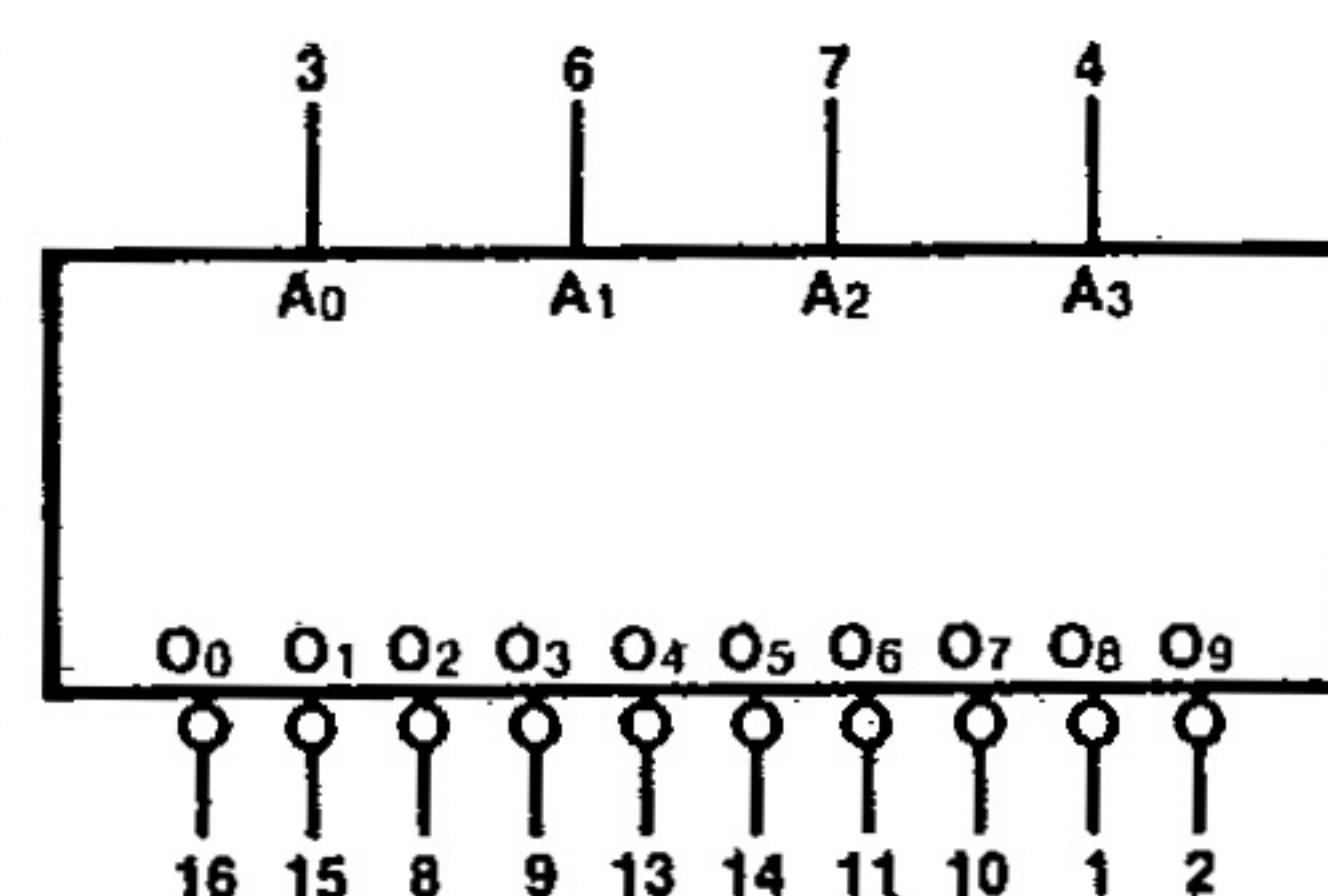
74141

1-OF-10 DECODER/DRIVER (NIXIE) (With Open-Collector Outputs)

CONNECTION DIAGRAM PINOUT A



LOGIC SYMBOL



V_{CC} = Pin 5
GND = Pin 12

DESCRIPTION — The '141 is a BCD-to-decimal decoder driver that is designed to accept a 4-bit BCD code input and drive cold-cathode indicator tubes. This decoder utilizes design improvements that minimize switching transients in order to maintain a stable display. The segments and numeric designations chosen to represent the decimal numbers are shown in the Truth Table. For binary inputs 10 through 15, the outputs are OFF. These invalid codes can be used in blanking leading or trailing-edge zeroes in a display. The ten high performance, npn output transistors have a maximum reverse current of 50 μ A at 55 V. Typical power dissipation is 55 mW.

ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	PKG TYPE
		$V_{CC} = +5.0 \text{ V} \pm 5\%$, $T_A = 0^\circ \text{C to } +70^\circ \text{C}$	
Plastic DIP (P)	A	74141PC	9B
Ceramic DIP (D)	A	74141DC	6B

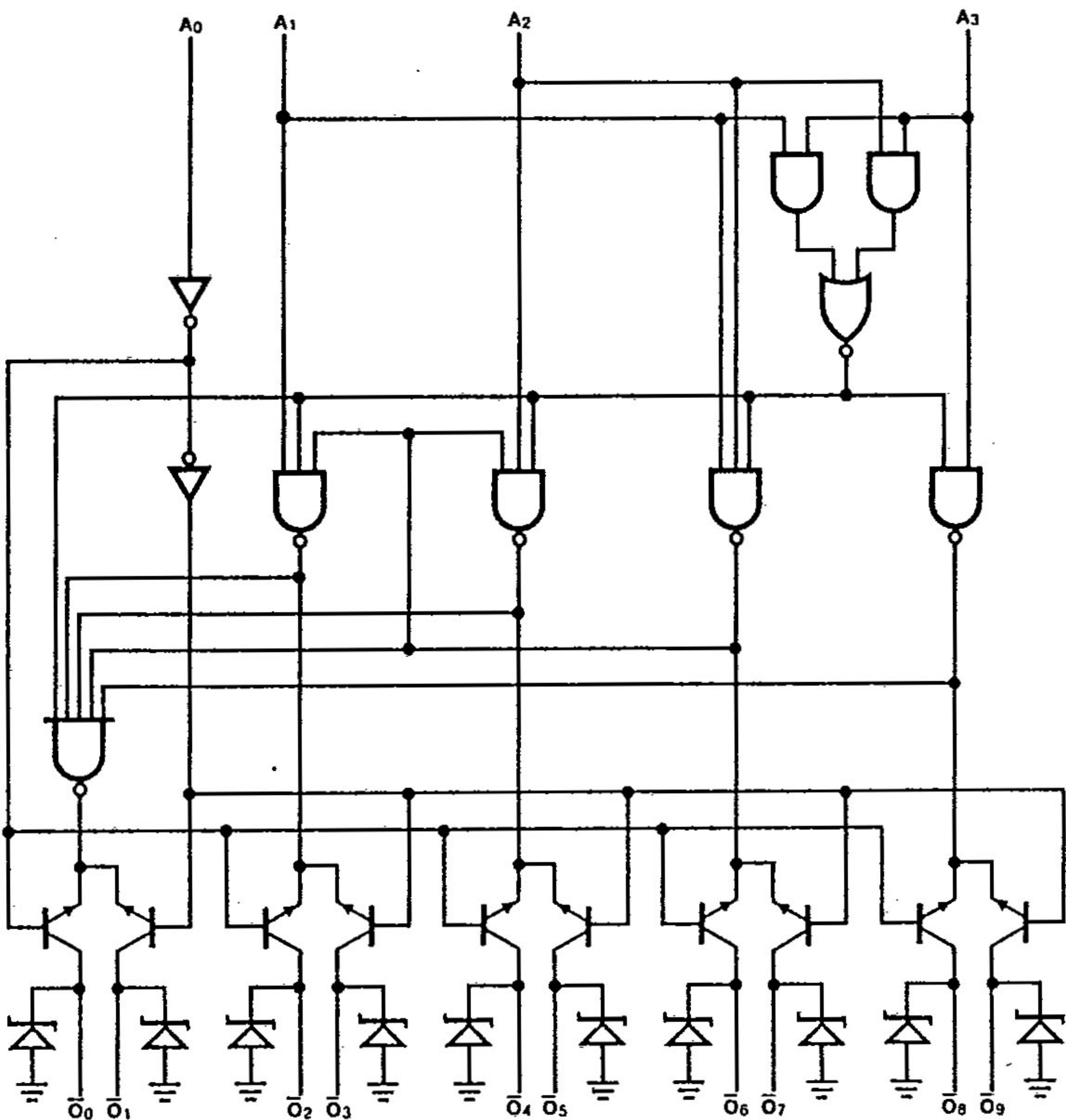
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	74XX (U.L.) HIGH/LOW
A_0	BCD Input	1.0/1.0
$A_1 - A_3$	BCD Inputs	2.0/2.0
$\bar{O}_0 - \bar{O}_9$	Outputs (Active LOW)	OC*/7.0 mA

*OC — Open Collector

FUNCTIONAL DESCRIPTION — The 1-of-10 decoder/driver accepts BCD inputs from all TTL circuits and produces the correct output selection to directly drive gas filled cold cathode indicator tubes. The outputs are selected as shown in the Truth Table. It is capable of driving all known available cold cathode indicator tubes having 7.0 mA or less cathode current.

LOGIC DIAGRAM



TRUTH TABLE

INPUTS				OUTPUT ON†
A3	A2	A1	A0	
L	L	L	L	0
L	L	L	H	1
L	L	H	L	2
L	L	H	H	3
L	H	L	L	4
L	H	L	H	5
L	H	H	L	6
L	H	H	H	7
H	L	L	L	8
H	L	L	H	9
H	X	H	X	NONE
H	H	X	X	NONE

†All other outputs are off
H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	74XX		UNITS	CONDITIONS	
		Min	Max			
VOL	Output LOW Voltage		2.5	V	Vcc = Min Io = 7.0 mA	
VOH	Output HIGH Voltage (for Input Counts 0 thru 9)	60		V	Vcc = Max Io = 0.5 mA	
IOH	Output HIGH Current		50	μA	Vcc = Max Vo = 55 V	
IOH	Output HIGH Current (for Input Counts 10 thru 15)		5.0 15	μA	TA = 55°C TA = 70°C	Vcc = Max Vo = 30 V
ICC	Power Supply Current		25	mA	Vcc = Max All Inputs = Gnd	