

# 54/7445

## 1-OF-10 DECODER/DRIVER

(With Open-Collector Outputs)

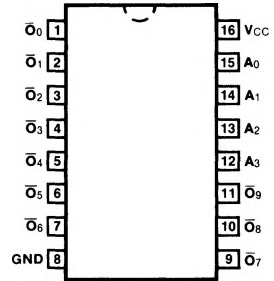
**DESCRIPTION** — The '45 decoder/drivers are designed to accept BCD inputs and provide appropriate outputs to drive 10-digit numerical displays. All outputs remain OFF for all invalid binary input conditions. These devices are designed for use as indicator/relay drivers or as open-collector logic circuit drivers. Each of the high breakdown (30 V) output transistors will sink up to 80 mA of current.

- OPEN-COLLECTOR OUTPUTS
- 80 mA CURRENT SINKING
- 30 V GUARANTEED BREAKDOWN

**ORDERING CODE:** See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		$V_{CC} = +5.0\text{ V} \pm 5\%$ , $T_A = 0^\circ\text{ C to } +70^\circ\text{ C}$	$V_{CC} = +5.0\text{ V} \pm 10\%$ , $T_A = -55^\circ\text{ C to } +125^\circ\text{ C}$	
Plastic DIP (P)	A	7445PC		9B
Ceramic DIP (D)	A	7445DC	5445DM	7B
Flatpak (F)	A	7445FC	5445FM	4L

### CONNECTION DIAGRAM PINOUT A

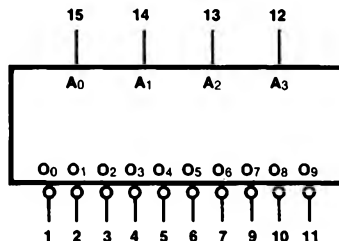


**INPUT LOADING/FAN-OUT:** See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	54/74 (U.L.) HIGH/LOW
$A_0 - A_3$ $\bar{O}_0 - \bar{O}_9$	BCD Inputs Outputs (Active LOW)	1.0/1.0 OC*/12.5

\*OC — Open Collector

### LOGIC SYMBOL



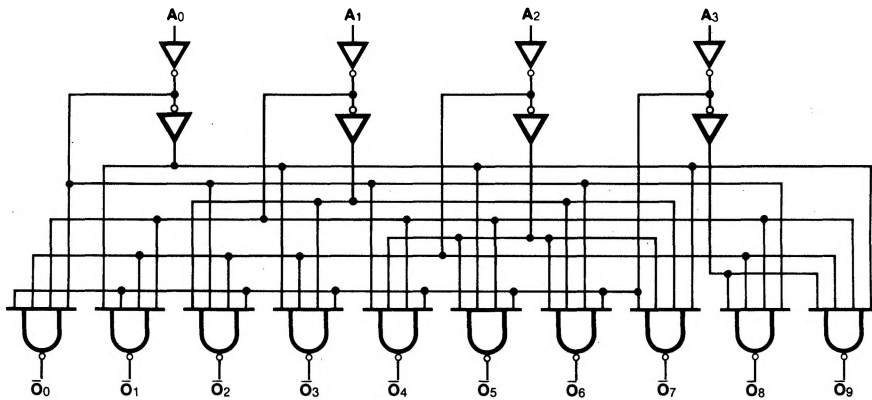
$V_{CC} = \text{Pin } 16$   
 $\text{Gnd} = \text{Pin } 8$

TRUTH TABLE

INPUTS				OUTPUTS									
A <sub>0</sub>	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	$\bar{O}_0$	$\bar{O}_1$	$\bar{O}_2$	$\bar{O}_3$	$\bar{O}_4$	$\bar{O}_5$	$\bar{O}_6$	$\bar{O}_7$	$\bar{O}_8$	$\bar{O}_9$
L	L	L	L	L	H	H	H	H	H	H	H	H	H
H	L	L	L	H	L	H	H	H	H	H	H	H	H
L	H	L	L	H	H	L	H	H	H	H	H	H	H
H	H	L	L	H	H	H	L	H	H	H	H	H	H
L	L	H	L	H	H	H	H	L	H	H	H	H	H
H	L	H	L	H	H	H	H	H	L	H	H	H	H
L	H	H	L	H	H	H	H	H	H	L	H	H	H
H	H	H	L	H	H	H	H	H	H	H	L	H	H
L	L	L	H	H	H	H	H	H	H	H	H	L	H
H	L	L	H	H	H	H	H	H	H	H	H	H	L
L	H	L	H	H	H	H	H	H	H	H	H	H	H
H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	L	H	H	H	H	H	H	H	H	H	H	H	H
H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H

H = HIGH Voltage Level  
L = LOW Voltage Level

LOGIC DIAGRAM



**DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE** (unless otherwise specified)

SYMBOL	PARAMETER	54/74		UNITS	CONDITIONS
		Min	Max		
V <sub>OL</sub>	Output LOW Voltage		0.9	V	V <sub>CC</sub> = Min, I <sub>OL</sub> = 80 mA
I <sub>OH</sub>	Output HIGH Current		250	μA	V <sub>CC</sub> = Max, V <sub>OH</sub> = 30 V
I <sub>CC</sub>	Power Supply Current	XC	70	mA	V <sub>CC</sub> = Max
		XM	62		

**AC CHARACTERISTICS:** V<sub>CC</sub> = +5.0 V, T<sub>A</sub> = +25° C (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	54/74		UNITS	CONDITIONS
		C <sub>L</sub> = 15 pF R <sub>L</sub> = 100 Ω			
		Min	Max		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay A <sub>n</sub> to $\bar{O}_n$		50 50	ns	Figs. 3-2, 3-20