

---

**PART NUMBER****74141PC-ROCS**

---

**Rochester Electronics****Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

**Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
  - Class Q Military
  - Class V Space Level

**Qualified Suppliers List of Distributors (QSLD)**

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

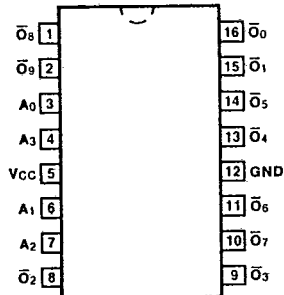
---

*The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.*

# 74141

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

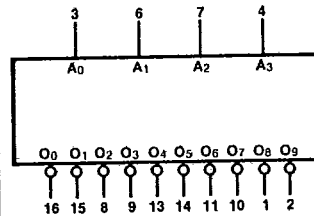
### CONNECTION DIAGRAM PINOUT A



4

**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  $\mu$ A at 55 V. Typical power dissipation is 55 mW.

### LOGIC SYMBOL



Vcc = Pin 5  
GND = Pin 12

**ORDERING CODE:** See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	PKG TYPE
		Vcc = +5.0 V $\pm$ 5%, TA = 0°C to +70°C	
Plastic DIP (P)	A	74141PC	9B
Ceramic DIP (D)	A	74141DC	6B

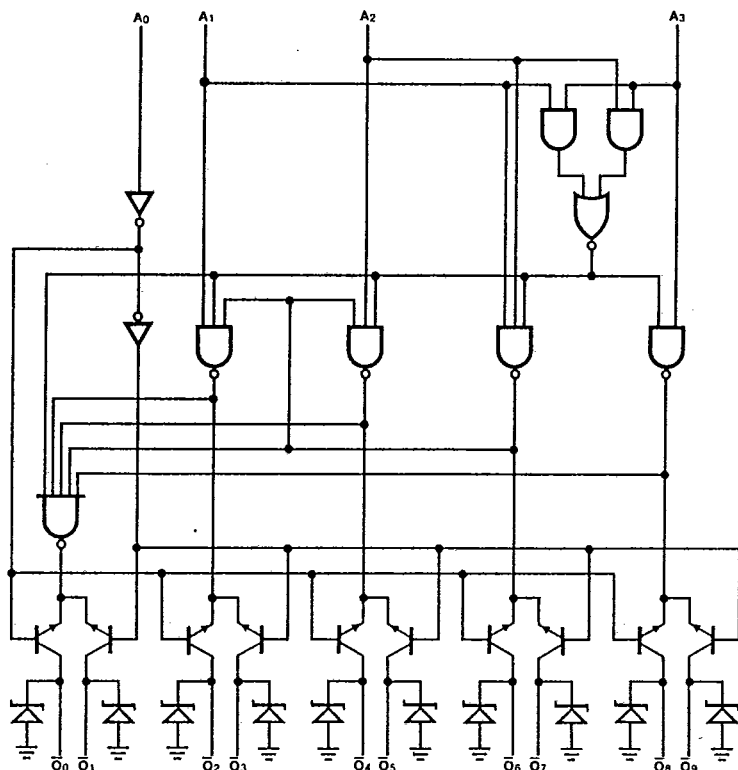
**INPUT LOADING/FAN-OUT:** See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	74XX (U.L.) HIGH/LOW
A <sub>0</sub>	BCD Input	1.0/1.0
A <sub>1</sub> — A <sub>3</sub>	BCD Inputs	2.0/2.0
O <sub>0</sub> — O <sub>9</sub>	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
A3	A2	A1	A0	ON†
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	V <sub>CC</sub> = Min I <sub>O</sub> = 7.0 mA
VoH	Output HIGH Voltage (for Input Counts 0 thru 9)	60		V	V <sub>CC</sub> = Max I <sub>O</sub> = 0.5 mA
I <sub>OH</sub>	Output HIGH Current		50	μA	V <sub>CC</sub> = Max V <sub>O</sub> = 55 V
I <sub>OH</sub>	Output HIGH Current (for Input Counts 10 thru 15)		5.0 15	μA	T <sub>A</sub> = 55°C T <sub>A</sub> = 70°C V <sub>CC</sub> = Max V <sub>O</sub> = 30 V
I <sub>CC</sub>	Power Supply Current		25	mA	V <sub>CC</sub> = Max All Inputs = Gnd