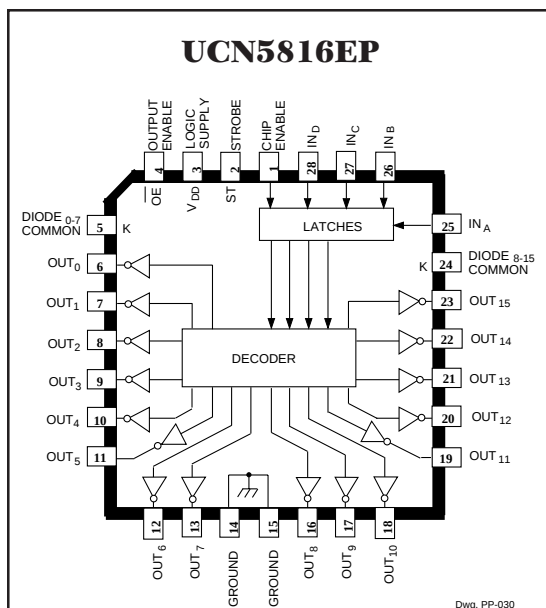


4-TO-16 LINE LATCHED DECODER/DRIVERS



ABSOLUTE MAXIMUM RATINGS at $T_A = 25^\circ\text{C}$

Output Voltage, V_{CE}	60 V
Logic Supply Voltage, V_{DD}	15 V
Input Voltage Range, V_{IN}	-0.3 V to $V_{DD} + 0.3$ V
Output Current, I_C	500 mA
Package Power Dissipation, P_D	See Graph
Operating Temperature Range, T_A	-20°C to $+85^\circ\text{C}$
Storage Temperature Range, T_S	-55°C to $+150^\circ\text{C}$

Caution: CMOS devices have input static protection but are susceptible to damage when exposed to extremely high static electrical charges.

The UCN5816A and UCN5816EP 4-to-16 line latched decoder/drivers combine low-power CMOS inputs and logic with 16 high-current, high-voltage bipolar outputs. The CMOS inputs cause minimal loading and are compatible with standard CMOS, PMOS, and NMOS logic. TTL or DTL circuits may require the use of appropriate pull-up resistors to ensure an input logic high. The logic operates over a supply range of 5 V to 12 V. A CHIP ENABLE function can be used with two devices for 5-to-32 line decoding applications.

The 16 bipolar power outputs are open-collector 60 V Darlington drivers capable of sinking 350 mA continuously. Internal transient-suppression diodes provide protection for use with inductive loads. For ink-jet printer applications, the A5817SEP addressable 28-line decoder/driver is recommended.

The UCN5816A is supplied in a 28-pin dual in-line plastic package with 0.600" (15.24 mm) row spacing. The UCN5816EP is furnished in a 28-lead plastic chip carrier (quad pack) for minimum-area surface-mount applications. Both devices will drive 350 mA loads continuously over the full operating temperature range.

FEATURES

- Addressable Data Entry
- 60 V Minimum Output Breakdown
- CMOS, PMOS, NMOS, TTL Compatible Inputs
- Low-Power CMOS Logic and Latches
- Output Transient Protection
- Output Enable and Strobe Functions

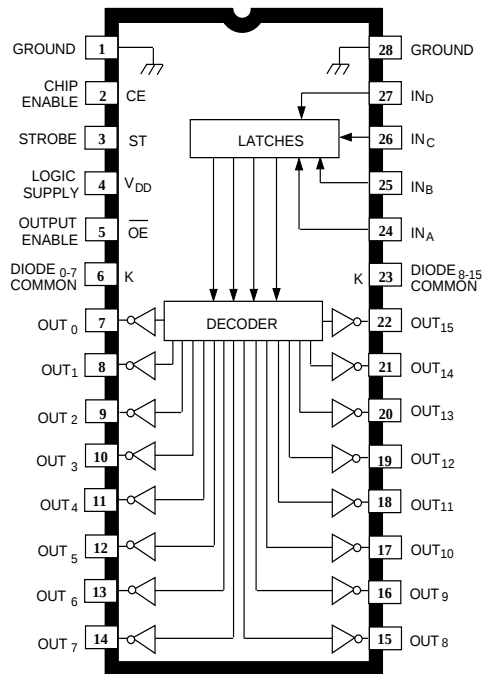
Always order by complete part number:

Part Number	Package
UCN5816A	28-Pin DIP
UCN5816EP	28-Lead PLCC

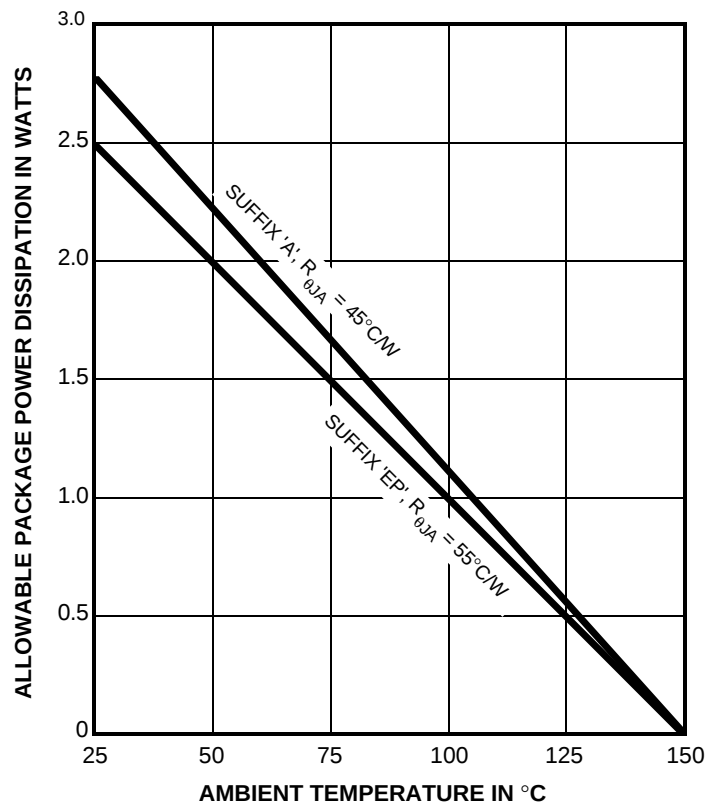
5816

4-TO-16 LINE LATCHED DECODER/DRIVERS

UCN5816A

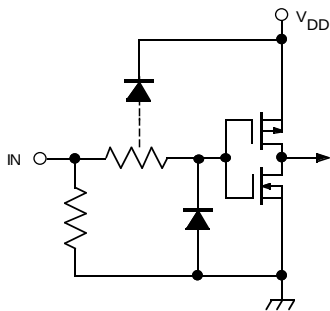


Dwg. PP-031

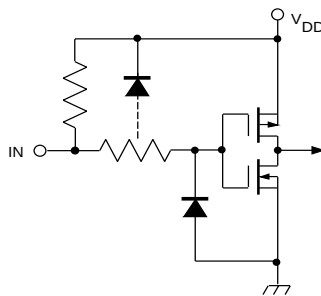


Dwg. GP-028-1A

TYPICAL INPUT CIRCUITS

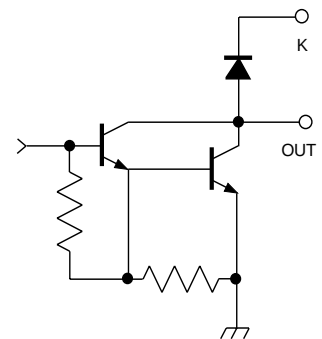


Dwg. EP-010-4A



Dwg. EP-010-3

TYPICAL OUTPUT DRIVER



Dwg. EP-021-4

5816

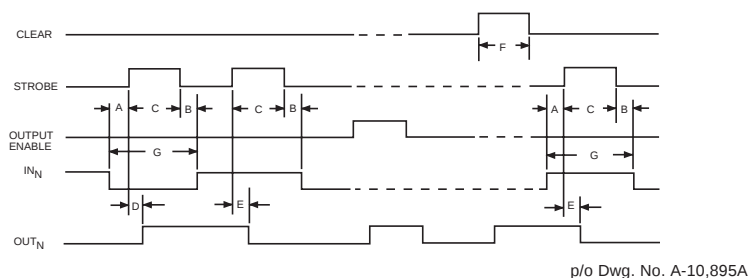
4-TO-16 LINE LATCHED DECODER/DRIVERS

ELECTRICAL CHARACTERISTICS at $T_A = 25^\circ\text{C}$, $V_{DD} = 5\text{ V}$ (unless otherwise specified).

Characteristic	Symbol	Test Conditions	Limits			Units
			Min.	Typ.	Max.	
Output Leakage Current	I_{CEX}	$V_{CE} = 60\text{ V}$, $T_A = +25^\circ\text{C}$	—	—	50	μA
Output Saturation Voltage	$V_{CE(SAT)}$	$I_C = 100\text{ mA}$	—	0.9	1.1	V
		$I_C = 200\text{ mA}$	—	1.1	1.3	V
		$I_C = 350\text{ mA}$, $V_{DD} = 7.0\text{ V}$	—	1.3	1.6	V
Input Voltage	$V_{IN(0)}$		-0.3	—	0.8	V
	$V_{IN(1)}$	$V_{DD} = 12\text{ V}$	10.5	—	—	V
		$V_{DD} = 5.0\text{ V}$	3.5	—	5.3	V
Input Resistance	R_{IN}	$V_{DD} = 12\text{ V}$	50	200	—	$\text{k}\Omega$
		$V_{DD} = 5.0\text{ V}$	100	600	—	$\text{k}\Omega$
Supply Current	$I_{DD(ON)}$	$V_{DD} = 12\text{ V}$, Outputs Open	—	2.0	3.0	mA
		$V_{DD} = 5.0\text{ V}$, Outputs Open	—	1.0	1.5	mA
	$I_{DD(OFF)}$	All Drivers OFF, All Inputs = 0 V, OE = $V_{DD} = 5.0\text{ V}$	—	—	100	μA
		All Drivers OFF, All Inputs = 0 V, OE = $V_{DD} = 12\text{ V}$	—	—	200	μA
Clamp Diode Leakage Current	I_R	$V_R = 60\text{ V}$, $T_A = +25^\circ\text{C}$	—	—	50	μA
		$V_R = 60\text{ V}$, $T_A = +70^\circ\text{C}$	—	—	100	μA
Clamp Diode Forward Voltage	V_F	$I_F = 350\text{ mA}$	—	1.5	2.0	V

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4-TO-16 LINE LATCHED DECODER/DRIVERS



TIMING CONDITIONS (Logic Levels are V_{DD} and Ground)

- A. Minimum Data Active Time Before Strobe Enabled (Data Set-Up Time) **50 ns**
- B. Minimum Data Active Time After Strobe Disabled (Data Hold Time) **50 ns**
- C. Minimum Strobe Pulse Duration **125 ns**
- D. Typical Time Between Strobe Activation and Output On to Off Transition **500 ns**
- E. Typical Time Between Strobe Activation and Output Off to On Transition **500 ns**
- G. Minimum Data Pulse Duration **225 ns**

TRUTH TABLE

STROBE	CHIP ENABLE	IN_D (MSB)	IN_C	IN_B	IN_A (LSB)	OUTPUT ENABLE	OUTPUTS (OFF unless otherwise specified)
1	1	0	0	0	0	0	OUT ₀ ON
1	1	0	0	0	1	0	OUT ₁ ON
1	1	0	0	1	0	0	OUT ₂ ON
1	1	0	0	1	1	0	OUT ₃ ON
1	1	0	1	0	0	0	OUT ₄ ON
1	1	0	1	0	1	0	OUT ₅ ON
1	1	0	1	1	0	0	OUT ₆ ON
1	1	0	1	1	1	0	OUT ₇ ON
1	1	1	0	0	0	0	OUT ₈ ON
1	1	1	0	0	1	0	OUT ₉ ON
1	1	1	0	1	0	0	OUT ₁₀ ON
1	1	1	0	1	1	0	OUT ₁₁ ON
1	1	1	1	0	0	0	OUT ₁₂ ON
1	1	1	1	0	1	0	OUT ₁₃ ON
1	1	1	1	1	0	0	OUT ₁₄ ON
1	1	1	1	1	1	0	OUT ₁₅ ON
0	1	X	X	X	X	0	Q _O
X	0	X	X	X	X	X	All OFF
X	X	X	X	X	X	1	All OFF

Q_O = The output condition prior to the high-to-low transition of the STROBE input.

X = Irrelevant



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