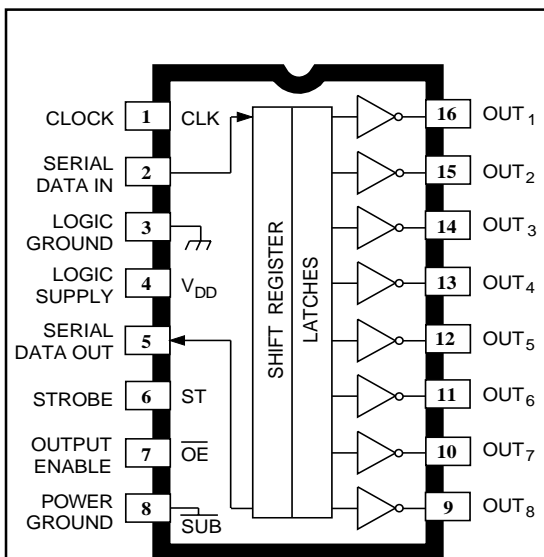


5821

BiMOS II 8-BIT SERIAL-INPUT, LATCHED DRIVERS



Dwg. PP-026A

Note the DIP package and the SOIC package are electrically identical and share common terminal number assignments.

ABSOLUTE MAXIMUM RATINGS at 25°C Free-Air Temperature

Output Voltage, V_{OUT}	50 V
Logic Supply Voltage, V_{DD}	15 V
Input Voltage Range, V_{IN}	-0.3 V to $V_{DD} + 0.3$ V
Continuous Output Current, I_{OUT}	500 mA
Package Power Dissipation, P_D	
Package Code 'A'	2.1 W
Package Code 'LW'	1.5 W
Operating Temperature Range, T_A	-20°C to +85°C
Storage Temperature Range, T_S	-55°C to +150°C

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

A merged combination of bipolar and MOS technology gives these devices an interface flexibility beyond the reach of standard logic buffers and power driver arrays. The UCN5821A and UCN5821LW each have an eight-bit CMOS shift register and CMOS control circuitry, eight CMOS data latches, and eight bipolar current-sinking Darlington output drivers.

BiMOS II devices have much higher data-input rates than the original BiMOS circuits. With a 5 V logic supply, they will typically operate at better than 5 MHz. With a 12 V supply, significantly higher speeds are obtained. The CMOS inputs are compatible with standard CMOS and NMOS logic levels. TTL circuits may require the use of appropriate pull-up resistors. By using the serial data output, the drivers can be cascaded for interface applications requiring additional drive lines.

The UCN5821A are furnished in a standard 16-pin plastic DIP; the UCN5821LW are in a 16-lead wide-body SOIC for surface-mount applications. The UCN5821A is also available for operation from -40°C to +85°C. To order, change the prefix from 'UCN' to 'UCQ'.

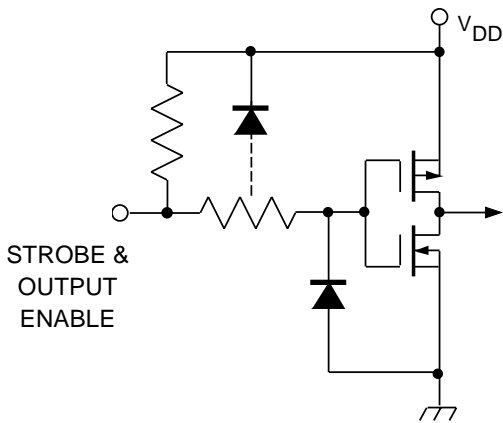
FEATURES

- To 3.3 MHz Data Input Rate
- CMOS, NMOS, TTL Compatible
- Internal Pull-Down Resistors
- Low-Power CMOS Logic & Latches
- High-Voltage Current-Sink Outputs
- Automotive Capable

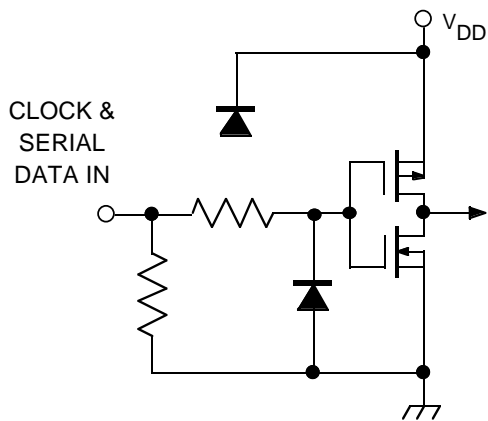
Always order by complete part number, e.g., **UCN5821A**.

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TYPICAL INPUT CIRCUITS

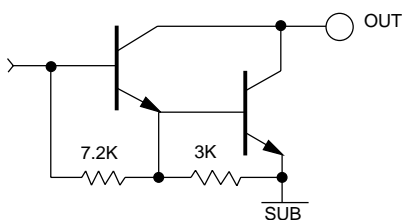


Dwg. EP-010-3



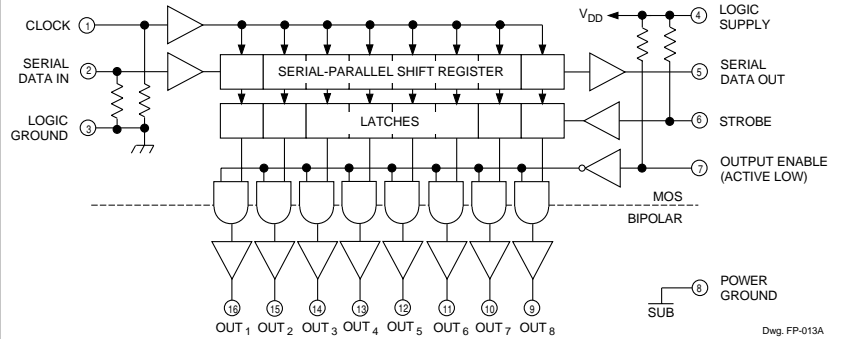
Dwg. EP-010-4A

TYPICAL OUTPUT DRIVER



Dwg. No. A-14,314

FUNCTIONAL BLOCK DIAGRAM



NOTE — There is an indeterminate resistance between logic ground and power ground. For proper operation, these terminals must be externally connected together.

Number of Outputs ON UCN5821A **Max. Allowable Duty Cycle**
($I_{OUT} = 200\text{ mA}$ **at Ambient Temperature of**
 $V_{DD} = 12\text{ V}$) **25°C 40°C 50°C 60°C 70°C**

8	90%	79%	72%	65%	57%
7	100%	90%	82%	74%	65%
6	100%	100%	96%	86%	76%
5	100%	100%	100%	100%	91%
4	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%
2	100%	100%	100%	100%	100%
1	100%	100%	100%	100%	100%

Number of Outputs ON UCN5821LW **Max. Allowable Duty Cycle**
($I_{OUT} = 200\text{ mA}$ **at Ambient Temperature of**
 $V_{DD} = 12\text{ V}$) **25°C 40°C 50°C 60°C 70°C**

8	67%	59%	54%	49%	43%
7	77%	68%	62%	56%	49%
6	90%	79%	72%	65%	57%
5	100%	95%	86%	78%	68%
4	100%	100%	100%	98%	86%
3	100%	100%	100%	100%	100%
2	100%	100%	100%	100%	100%
1	100%	100%	100%	100%	100%

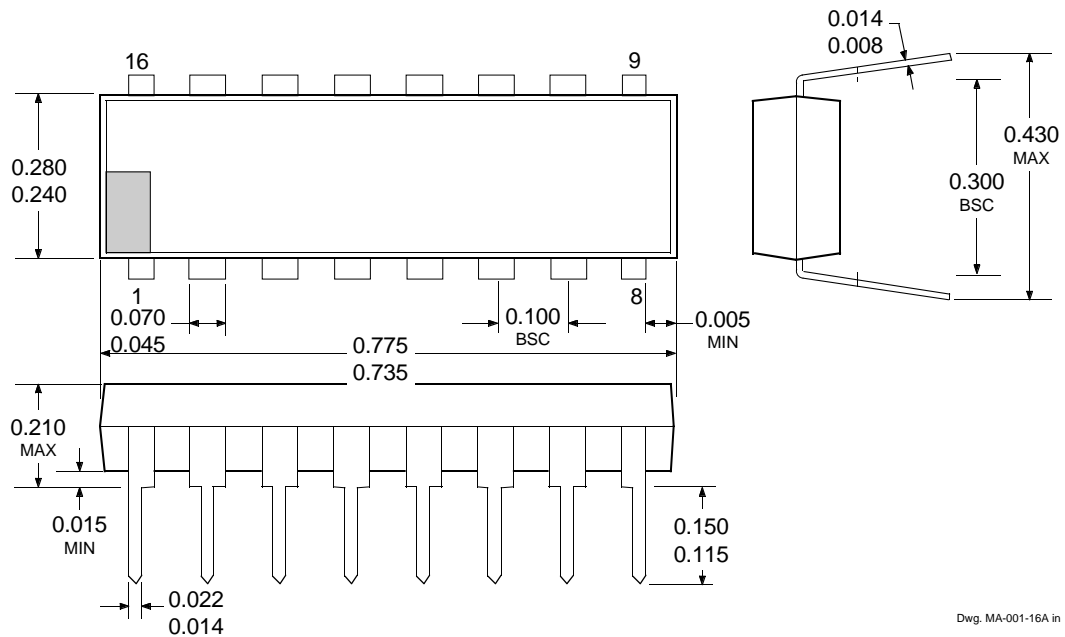
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8-BIT SERIAL-INPUT,
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ELECTRICAL CHARACTERISTICS at $T_A = +25^\circ\text{C}$, $V_{DD} = 5\text{ V}$ (unless otherwise specified).

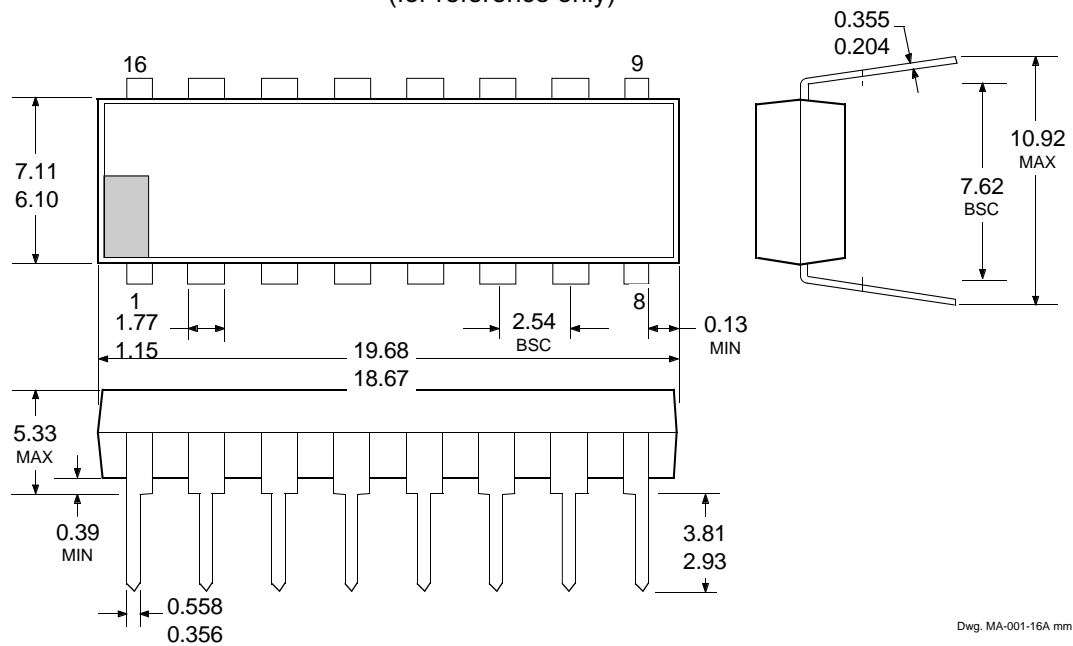
Characteristic	Symbol	Test Conditions	Limits		
			Min.	Max.	Units
Output Leakage Current	I_{CEX}	$V_{OUT} = 50\text{ V}$	—	50	μA
		$V_{OUT} = 50\text{ V}$, $T_A = +70^\circ\text{C}$	—	100	μA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_{OUT} = 100\text{ mA}$	—	1.1	V
		$I_{OUT} = 200\text{ mA}$	—	1.3	V
		$I_{OUT} = 350\text{ mA}$, $V_{DD} = 7.0\text{ V}$	—	1.6	V
Input Voltage	$V_{IN(0)}$		—	0.8	V
		$V_{DD} = 12\text{ V}$	10.5	—	V
	$V_{IN(1)}$	$V_{DD} = 5.0\text{ V}$	3.5	—	V
Input Resistance	r_{IN}	$V_{DD} = 12\text{ V}$	50	—	$\text{k}\Omega$
		$V_{DD} = 5.0\text{ V}$	50	—	$\text{k}\Omega$
Supply Current	$I_{DD(ON)}$	One Driver ON, $V_{DD} = 12\text{ V}$	—	4.5	mA
		One Driver ON, $V_{DD} = 10\text{ V}$	—	3.9	mA
		One Driver ON, $V_{DD} = 5.0\text{ V}$	—	2.4	mA
	$I_{DD(OFF)}$	$V_{DD} = 5.0\text{ V}$, All Drivers OFF, All Inputs = 0 V	—	1.6	mA
		$V_{DD} = 12\text{ V}$, All Drivers OFF, All Inputs = 0 V	—	2.9	mA

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UCN5821A Dimensions in Inches (controlling dimensions)



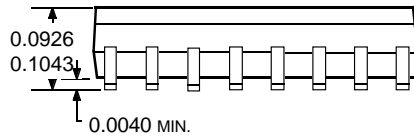
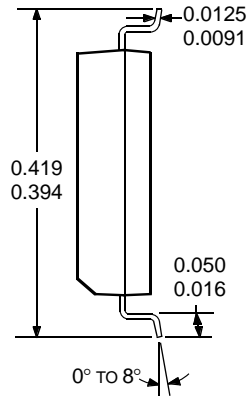
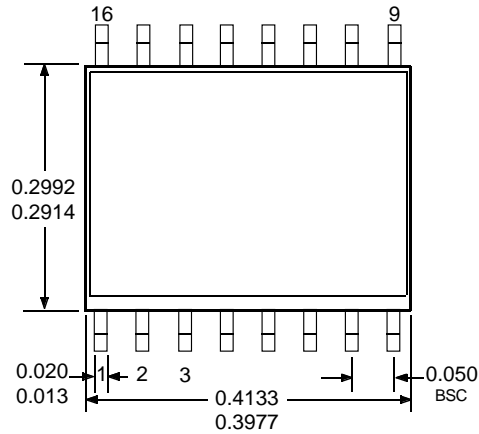
Dimensions in Millimeters (for reference only)



- NOTES: 1. Lead thickness is measured at seating plane or below.
2. Lead spacing tolerance is non-cumulative.
3. Exact body and lead configuration at vendor's option within limits shown.

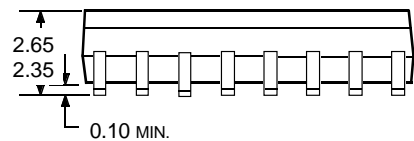
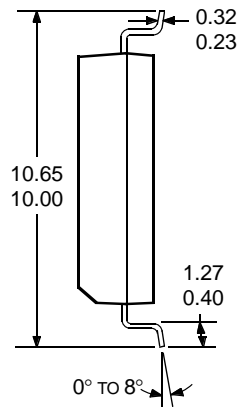
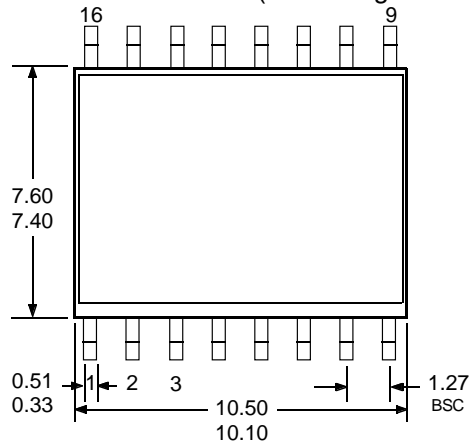
5821
8-BIT SERIAL-INPUT,
LATCHED DRIVERS

UCN5821LW
Dimensions in Inches
 (for reference only)



Dwg. MA-008-16A in

Dimensions in Millimeters
 (controlling dimensions)



Dwg. MA-008-16A mm

- NOTES: 1. Lead spacing tolerance is non-cumulative.
 2. Exact body and lead configuration at vendor's option within limits shown.

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8-BIT SERIAL-INPUT,
LATCHED DRIVERS

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