CA3161

BCD to Seven Segment Decoder/Driver

Features

- **TTL Compatible Input Logic Levels**
- **25mA (Typ) Constant Current Segment Outputs**
- **Eliminates Need for Output Current Limiting Resistors**
- **Pin Compatible with Other Industry Standard Decoders**
- **Low Standby Power Dissipation . . . . 18mW (Typ)**

Description

The CA3161E is a monolithic integrated circuit that performs the BCD to seven segment decoding function and features constant current segment drivers. When used with the CA3162E A/D Converter the CA3161E provides a complete digital readout system with a minimum number of external parts.
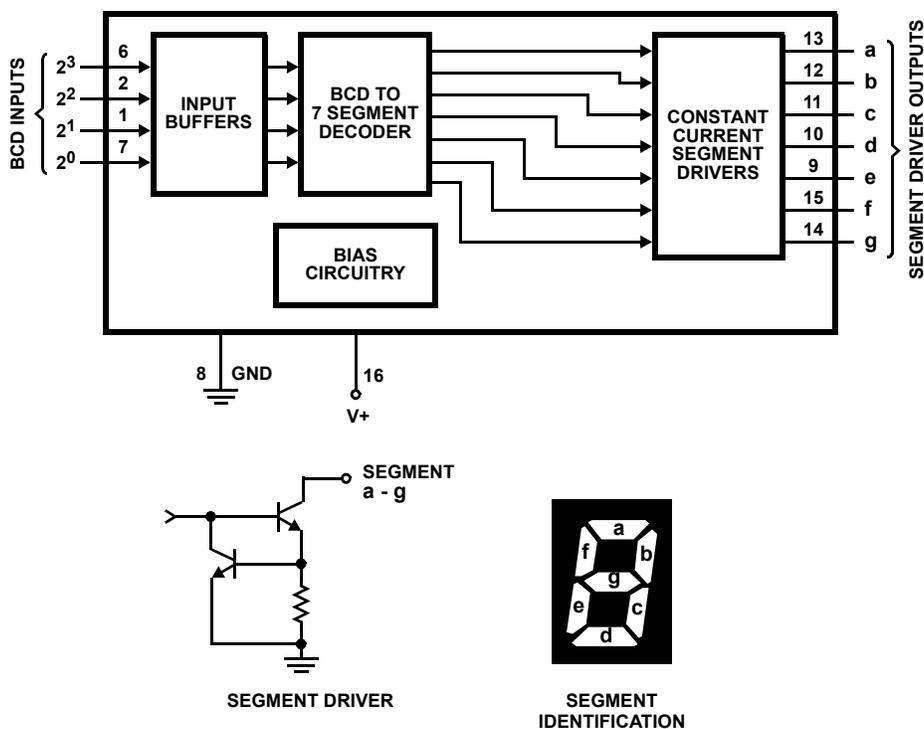
Ordering Information

PART NUMBER	TEMP. RANGE (ºC)	PACKAGE	PKG. NO.
CA3161E	0 to 70	16 Ld PDIP	E16.3

Pinout
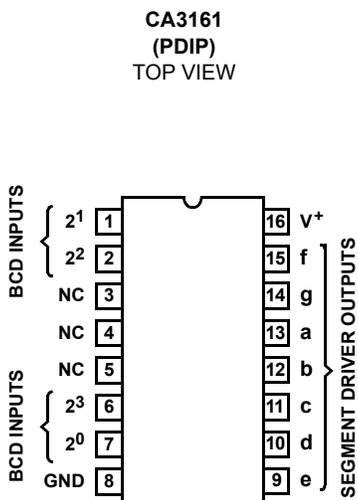
Functional Block Diagram

CA3161 (PDIP) TOP VIEW

SEGMENT DRIVER

SEGMENT IDENTIFICATION

Absolute Maximum Ratings

DC V_{SUPPLY} (Between Terminals 1 and 10) . . . . +7.0V
Input Voltage (Terminals 1, 2, 6, 7) . . . . +5.5V
Output Voltage
   Output "Off" . . . . +7V
   Output "On" (Note 1) . . . . +10V

Operating Conditions

Temperature Range . . . . .0°C to 75°C

Thermal Information

Thermal Resistance (Typical, Note 2)	θ_{JA} (°C/W)
PDIP Package.	100

Maximum Junction Temperature. . . . . 150°C
Maximum Storage Temperature Range . . . . -65°C to 150°C
Maximum Lead Temperature (Soldering 10s). . . . . 300°C

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

NOTES:

1. This is the maximum output voltage for any single output. The output voltage must be consistent with the maximum dissipation and derating curve for worst case conditions. Example: All segments "ON", 100% duty cycle.

2. θ_{JA} is measured with the component mounted on an evaluation PC board in free air.

Electrical Specifications $T_A = 25×°C$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{SUPPLY} Operating Range, V^+			4.5	5	5.5	V
Supply Current, I^+ (All Inputs High)			-	3.5	8	mA
Output Current Low (V_O = 2V)			18	25	32	mA
Output Current High (V_O = 5.5V)			-	-	250	μA
Input Voltage High (Logic "1" Level)			2	-	-	V
Input Voltage Low (Logic "0" Level)			-	-	0.8	V
Input Current High (Logic "1")		2V	-30	-	-	μA
Input Current Low (Logic "0")		0V	-40	-	-	μA
Propagation Delay Time,	t_{PHL}		-	2.6	-	μs
	t_{PLH}		-	1.4	-	μs

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TRUTH TABLE

BINARY STATE	INPUTS				OUTPUTS							DISPLAY
	2^3	2^2	2^1	2^0	a	b	c	d	e	f	g	
0	L	L	L	L	L	L	L	L	L	L	H	0
1	L	L	L	H	H	L	L	H	H	H	H	1
2	L	L	H	L	L	L	H	L	L	H	L	2
3	L	L	H	H	L	L	L	L	H	H	L	3
4	L	H	L	L	H	L	L	H	H	L	L	4
5	L	H	L	H	L	H	L	L	H	L	L	5
6	L	H	H	L	L	H	L	L	L	L	L	6
7	L	H	H	H	L	L	L	H	H	H	H	7
8	H	L	L	L	L	L	L	L	L	L	L	8
9	H	L	L	H	L	L	L	L	H	L	L	9
10	H	L	H	L	H	H	H	H	H	H	L	-
11	H	L	H	H	L	H	H	L	L	L	L	E
12	H	H	L	L	H	L	L	H	L	L	L	H
13	H	H	L	H	H	H	H	L	L	L	H	L
14	H	H	H	L	L	L	H	H	L	L	L	P
15	H	H	H	H	H	H	H	H	H	H	H	BLANK

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