

Six-Channel Discrete-to-Digital Interface
Sensing Open / Ground Signals

DESCRIPTION

The HI-8420 is a six channel discrete-to-digital interface device. Mixed-signal CMOS technology is used to provide superior low-power performance. The HI-8420 has six separate Open / Ground sensing inputs. The device outputs are CMOS / TTL compatible and may be disabled (tri-state) using the \overline{CE} and \overline{OE} pins.

The device is a drop-in replacement for the DE11026. For added functionality, the Holt HI-8422 offers eight channels of Open / Ground sensing and eight channels of 28V / Ground sensing in a single device.

The HI-8420 is offered in a small footprint 16-pin plastic package. Please contact the Holt sales department for other packaging options.

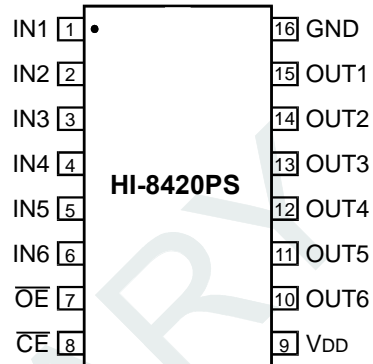
FEATURES

- Six independent Open / Ground sensing channels
- 5.0V single supply operation
- Low power CMOS technology
- Military processing options available
- Drop in replacement for DE11026

FUNCTION TABLE

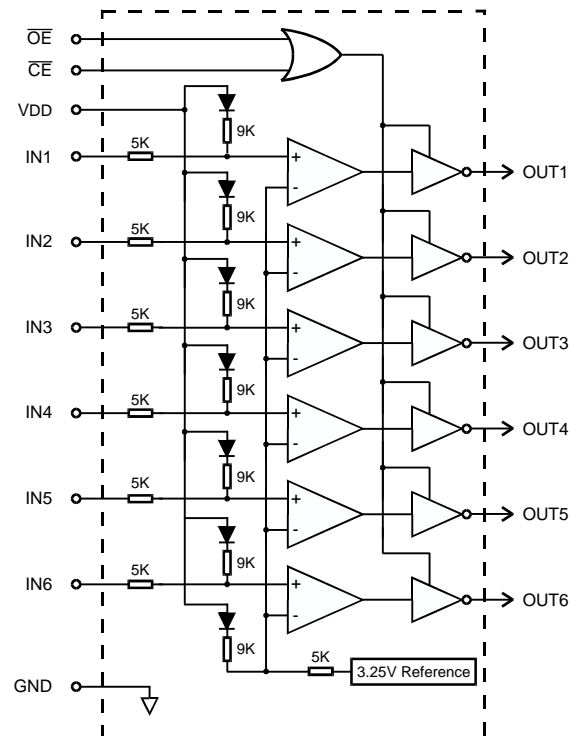
Discrete Input	\overline{CE}	\overline{OE}	Output
Open	0	0	0
Ground	0	0	1
X	1	X	High Z
X	X	1	High Z

PIN CONFIGURATION



16-Pin Plastic SOIC package
(Narrow Body)

BLOCK DIAGRAM



PIN DESCRIPTIONS

PIN	SYMBOL	FUNCTION	DESCRIPTION
1	IN1	Discrete Input	Open / Ground sensing input, channel 1
2	IN2	Discrete Input	Open / Ground sensing input, channel 2
3	IN3	Discrete Input	Open / Ground sensing input, channel 3
4	IN4	Discrete Input	Open / Ground sensing input, channel 4
5	IN5	Discrete Input	Open / Ground sensing input, channel 5
6	IN6	Discrete Input	Open / Ground sensing input, channel 6
7	\overline{OE}	Digital input	Output Enable. OUT1-OUT6 are high-impedance if \overline{OE} is high
8	\overline{CE}	Digital input	Chip Enable. OUT1-OUT6 are high-impedance if \overline{CE} is high
9	VDD	Power	Positive supply voltage 5.0 V
10	OUT6	Tri-state output	Logic output, channel 6
11	OUT5	Tri-state output	Logic output, channel 5
12	OUT4	Tri-state output	Logic output, channel 4
13	OUT3	Tri-state output	Logic output, channel 3
14	OUT2	Tri-state output	Logic output, channel 2
15	OUT1	Tri-state output	Logic output, channel 1
16	GND	Power	Ground

ABSOLUTE MAXIMUM RATINGS

Supply voltage (VDD)	-0.3 V to +7 V
Logic input voltage range	-0.3 V to +5.5 V
Discrete input voltage range	-5 V to +35 V
Power dissipation at 25°C	350 mW
Solder temperature	275°C for 10 sec
Storage temperature	-65°C to +150°C

RECOMMENDED OPERATING CONDITIONS

Supply Voltage	
VDD	4.5 V to 5.5 V
Operating Temperature Range	
Industrial Screening	-40°C to +85°C
Hi-Temp Screening	-55°C to +125°C

NOTE: Stresses above absolute maximum ratings or outside recommended operating conditions may cause permanent damage to the device. These are stress ratings only. Operation at the limits is not recommended.

ELECTRICAL CHARACTERISTICS

VDD = 5.0V ± 10%, GND = 0V, TA = Operating Temperature Range (unless otherwise specified).

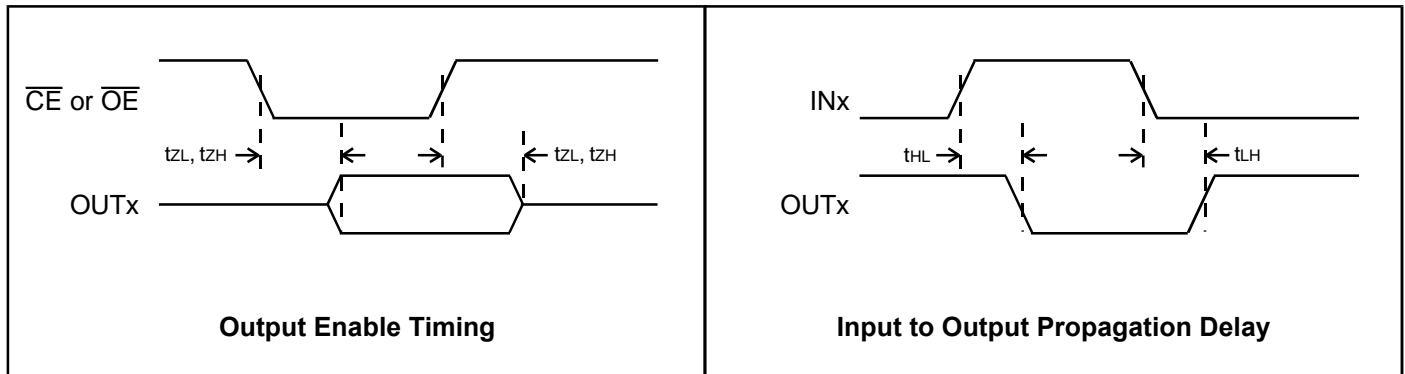
PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
DISCRETE INPUTS						
Ground state input voltage	V _{SG}	Input voltage to give high output			3.0	V
Open state input voltage	V _{SO}	Input voltage to give low output	3.5			V
Ground state input resistor	R _{IG}	Resistor from input to ground to give high output	0		100	Ω
Open state input resistor	R _{IO}	Resistor from input to ground to give low output	100			KΩ
Input source current	I _{IO}	Current sourced into 100Ω to ground	-100	-330		μA
Reverse leakage current	I _{IR}	V _{IN} = 35 V, V _{DD} = 0 V			5.0	mA

ELECTRICAL CHARACTERISTICS (Cont.)

VDD = 5.0V ± 10%, GND = 0V, TA = Operating Temperature Range (unless otherwise specified).

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS	
LOGIC INPUTS (\overline{CE}, \overline{OE})							
Input Voltage	Input voltage HI	V_{IH}	2.0			V	
	Input voltage LO	V_{IL}			0.8	V	
Input current	Input sink	I_{IH}	$V_{IH} = V_{DD}$		1.0	μA	
	Input source	I_{IL}	$V_{IL} = 0 V$	-1.0		μA	
OUTPUTS							
Logic output voltage	High	V_{OH}	$I_{OH} = -5 mA$	2.4		V	
	Low	V_{OL}	$I_{OL} = 5 mA$		0.4	V	
Logic output voltage (CMOS)	High	V_{OH}	$I_{OH} = -100 \mu A$	$V_{DD} - 0.2$		V	
	Low	V_{OL}	$I_{OL} = 100 \mu A$		0.2	V	
Tri-state output current		I_{OZ}	$V_{OUT} = 0 V \text{ or } V_{DD}$		±10	μA	
SUPPLY CURRENT							
VDD current		I_{DD}	$V_{IN} = V_{DD}$ (all inputs)		5	10	mA
SWITCHING CHARACTERISTICS							
Propagation delay	IN to OUT	t_{LH}, t_{HL}			150	ns	
Output enable time		t_{ZL}, t_{ZH}	From \overline{CE} or \overline{OE}		25	ns	
Output disable time		t_{LZ}, t_{HZ}	From \overline{CE} or \overline{OE}		25	ns	

TIMING DIAGRAMS



ORDERING INFORMATION

PART NUMBER	PACKAGE DESCRIPTION	TEMPERATURE RANGE	PROCESS FLOW	BURN IN	LEAD FINISH
HI-8420PSI	16 PIN PLASTIC SOIC (NARROW BODY)	-40°C TO +85°C	I	NO	SOLDER
HI-8420PST	16 PIN PLASTIC SOIC (NARROW BODY)	-55°C TO +125°C	T	NO	SOLDER

16-PIN PLASTIC SMALL OUTLINE (SOIC) - NB
(Narrow Body)

Package Type: 16HN

