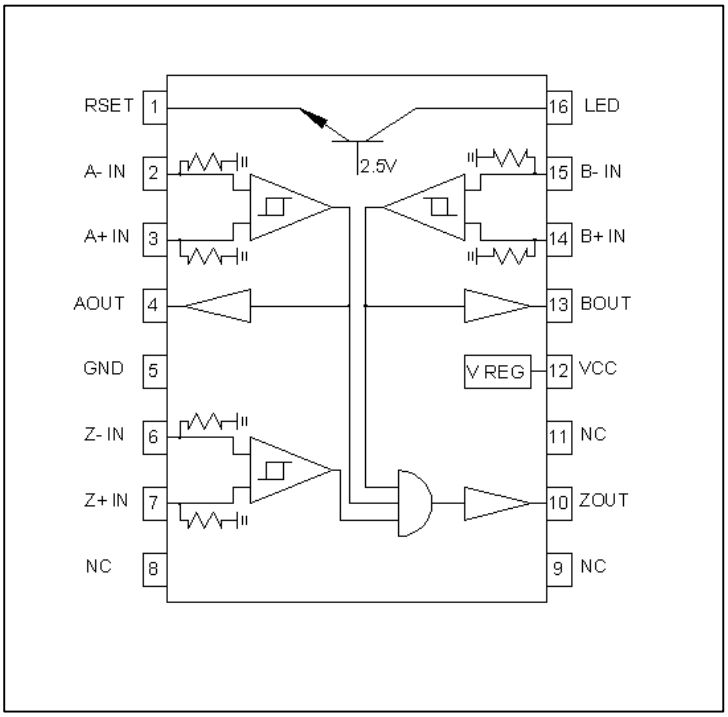
3 CHANNEL DIFFERENTIAL AMPLIFIER-COMPARATOR

(Phototransistor input version of the standard ET9570)

ET9571

FEATURES

- Supply Voltage Range 4.5V to 30V
- Designed for phototransistor inputs
- Index channel gated by A and B
- Current sink for LED drive (see application note **APP-D2**)
- Outputs short circuit protected
- 25mA peak drive current



APPLICATIONS

- Optical Encoders
- Industrial Controls

DESCRIPTION

These devices are specifically designed as receiver circuits for the phototransistor signals available in some optical encoders. Connect the emitters of the phototransistors to the input pins, with the collectors connected to Vcc. The inputs have 330 ohm resistors to terminate the phototransistors in an emitter follower mode. Differential inputs enhance noise rejection and performance over temperature. Care should be taken to use phototransistors on differential input pairs which have similar values of DC leakage current, as large differences in this charactersitic will affect waveform symmetry.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Units	Ref.
Operating Temperature Range	T_A	-40	125	°C	Note 1
Supply Voltage Range	V_{CC}	4.5	30	V	

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iC-Haus GmbH
Integrated Circuits
Am Kuemmerling 18, D-55294 Bodenheim

Tel +49-6135-9292-0
Fax +49-6135-9292-192
http://www.ichaus.com

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, typical values given at V_{CC}=12V, T_A = 25°C, with LED and RSET open.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
High Level Supply Current	I_{CCH1} I_{CCH2}	4.0 4.5	6.7 7.5	11.0 12.0	mA	Vcc = 4.5 V Vcc = 30.0V
Peak Photocurrent Input	I_{IP}	0.3	0.5	15	mA	Note 2
Dark Cell Level	I_{ID}	0.0	0.05	7.5	mA	
Photocurrent Contrast Ratio	I_R	2:1	-	-		Peak:Dark Cell
Hysteresis at Comparator Inputs	I_H	6	11	20	mV	
Output High Level Voltage	V_{OH}	2.5 28.0	3.0 28.5		V	I_{OH} = -4mA,V_{CC} = 4.5V I_{OH} = -4mA,V_{CC} = 30V
Output Low Level Voltage	V_{OL}		199	400	mV	V_{CC} = 4.5V-30V I_{OL} = 8mA
Output Short-Circuit Current Driving High (All Outputs)	I_{OS}	15	25	50	mA	V_{CC} = 5V, V_{OUT} = 0V
Output Short-Circuit Current Driving Low (All Outputs)	I_{OS}	30	70	120	mA	V_{CC} = 5V, V_{OUT} = 5V
RSET Voltage	V_{RSET}	1.3	1.7	2.1	V	R = 180 ohms

AC SWITCHING CHARACTERISTICS

Values given at V_{CC} = 5V, T_A = 25°C, C_L = 15pF on all outputs.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Propagation delay from Comparator Input to Output	T_{PD}		850		ns	
Output Rise Time	T_R		100		ns	
Output Fall Time	T_F		20		ns	

NOTES:

1. This is not a test parameter, but for information only.
2. Higher signal levels can be handled by adding resistors from the inputs to ground.

PACKAGE

Chip Only
16 Lead SOIC

SUFFIX

-C
-SOP

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http://www.ichaus.com