

3 CHANNEL DIFFERENTIAL AMPLIFIER- COMPARATOR w/BALANCE ADJUST, and Gated Z Channel

(Standard logic applications.)

ET9590LH-5

FEATURES

- Supply Voltage To 5V
- Designed for photodiode inputs
- Z (index) channel gated to A and B channels
- Current sink for LED drive (see application note **APP-D2**)
- Outputs short circuit protected
- 25mA peak drive current
- Comparator hysteresis only 1.1 : 1

APPLICATIONS

- High Speed Optical Encoders
- Industrial Controls

This part is available in two packages, the 24 lead SOIC, and the 28 lead TSSOP. It is available also in chip form. For block diagrams with pin out information, see sheet 3 of 3.

PACKAGE

Chip Only
24 Lead SOIC
28 Lead TSSOP

SUFFIX

-C
-SOP
-TSP

DESCRIPTION

While the ET9590LH-5 is very similar in performance to the ET9580LH, it is targeted for applications with **5V** supply voltages. Applications previously using the 9590LH, with 5V supplies, may substitute this device as an equivalent part. For applications that require higher output voltages, (>5V), customers should consider using this device with a buffer device from the line driver category, such as the **ET7272**. For input imbalance trimming, see application note **APP-D1**.

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	5.5	V	

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ELECTRICAL CHARACTERISTICS

Unless otherwise specified, typical values given at $V_{CC}=5V$, $T_A = 25^{\circ}C$, with LED and RSET open.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Supply Current	I_{CC}	4.5	7.5	11.5	mA	
Input Common Mode Voltage	V_{CM}		1.35		V	
Average Photocurrent Input	I_{IA}	0.066	0.3	40	μA	Each input (Note 1)
Peak Photocurrent Input	I_{IP}	0.13	0.5	60	μA	Each input (Note 1)
Dark Cell Level	I_{ID}	0.02	0.1	20	μA	Each input (Note 1)
Photocurrent Contrast Ratio	I_{IR}	2:1	5:1			Peak:Dark Cell (Note 1)
Comparator Threshold			1.1:1			Ratio of Differential Inputs (Note 1)
Output High Level Voltage	V_{OH}	2.5	3.0		V	$I_{OH} = -4mA$, $V_{CC} = 4.5V$
Output Low Level Voltage	V_{OL}		199	400	mV	$I_{OL} = 8mA$, $V_{CC} = 4.5V$
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 (Note 1)

Values given at $V_{CC} = 5V$, $T_A = 25^{\circ}C$, $C_L = 15pF$ on all outputs, and photocurrent = $1\mu A$ minimum.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Pre-Amplifier Bandwidth	BW_{PA}		900		KHz	
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	

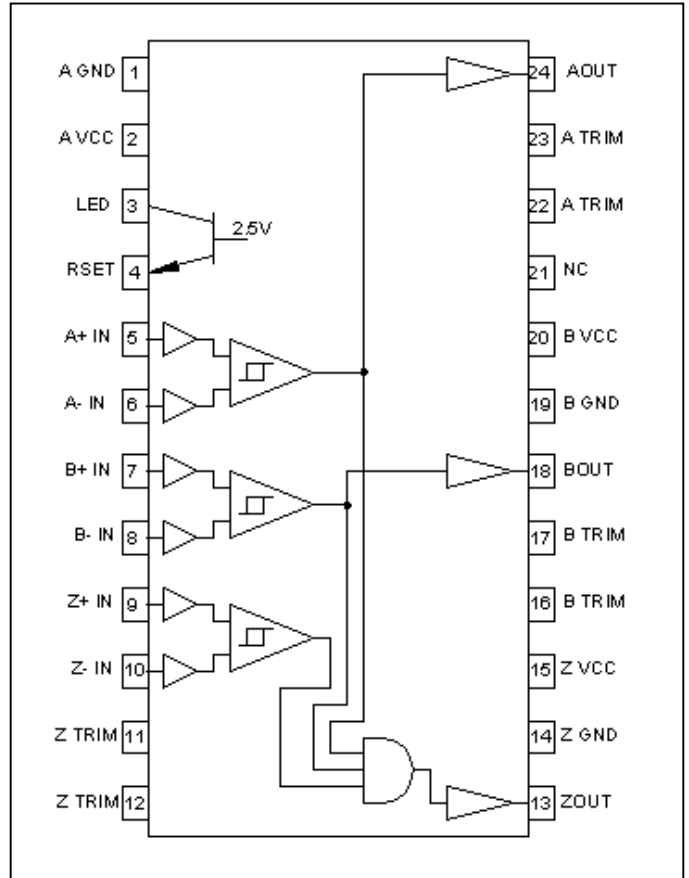
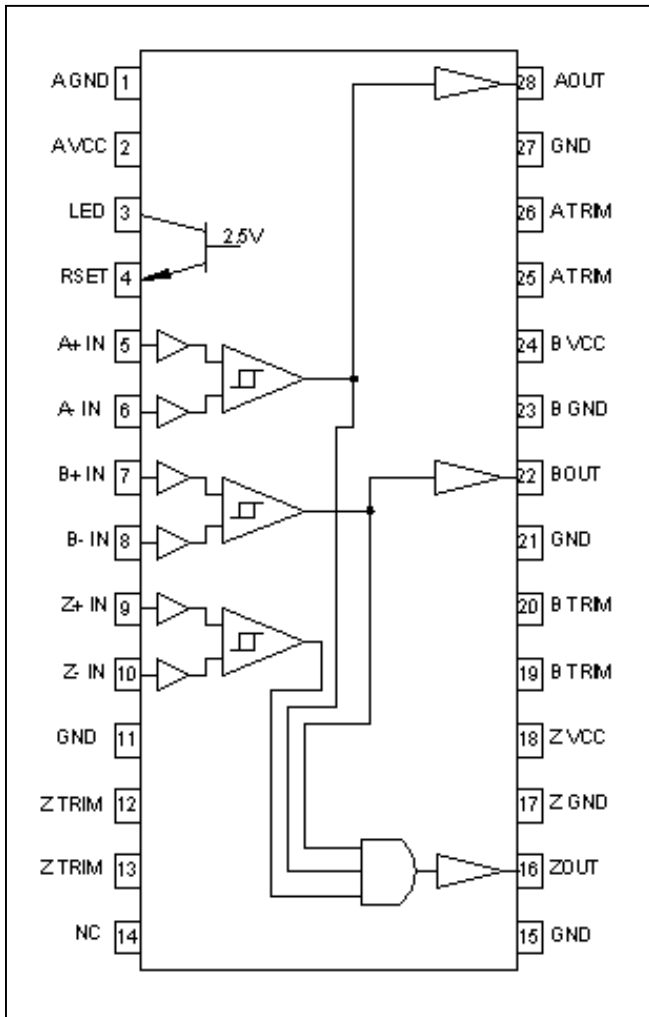
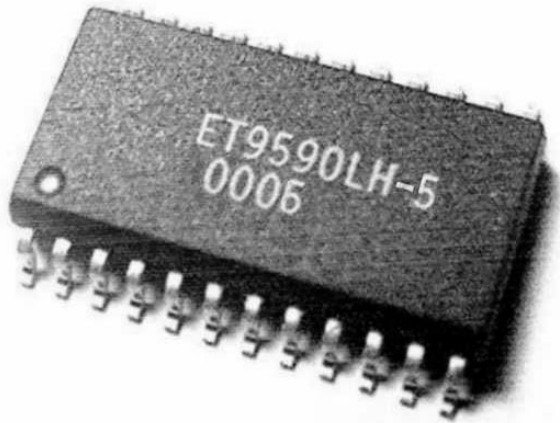
NOTES:

1. These parameters are controlled by process and are not tested on every lot.

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24 LEAD SOIC



28 LEAD TSSOP

Photo not yet available ...

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