

# THREE CHANNEL DIFFERENTIAL LINE DRIVER IC

With built-in current sink to drive an LED

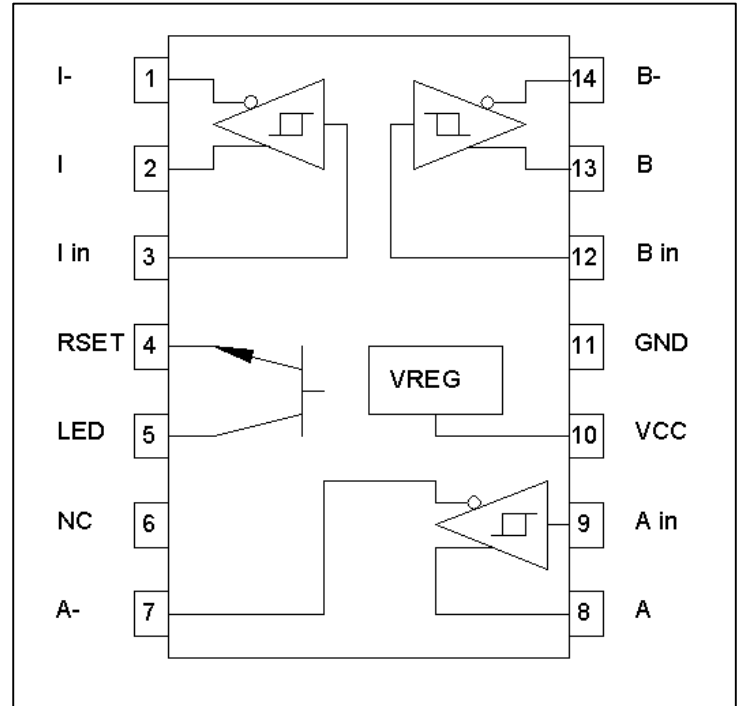
# ET9600

## FEATURES

- Supply Voltage Range 4.5V to 30V
- Operation to 800KHz
- CMOS and TTL Compatible Inputs
- Outputs RS-422A Compatible
- High Impedance Buffered Inputs with Hysteresis
- Outputs short circuit protected
- 70mA peak SINK/SOURCE current
- Outputs Protected by Thermal Shut-Down

## APPLICATIONS

- Optical Encoders
- Industrial Controls



## DESCRIPTION

These line drivers are similar to the four channel 26ET31, with the added feature of providing an internal LED drive. The device is biased so that the base of the LED drive transistor (shown) is held at 2.5V. To set the LED current, connect a resistor from RSET to ground. For more information on LED drive, see application note **APP-D2**. Voltage connected to the VCC pin is regulated for use by logic functions within the chip, while the output drivers run off this voltage without modification. The device marking (see photo) includes the suffix SCP to denote that this version has 'short circuit protection'.

## 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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## ELECTRICAL CHARACTERISTICS

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

| Parameters                        | Symbol                 | Min.       | Typ.         | Max.         | Units       | Test Conditions                        |
|-----------------------------------|------------------------|------------|--------------|--------------|-------------|--|
| Overtemp Operate Point (junction) | $T_{JOP}$              |            | 155          |              | $^{\circ}C$ | Note 1                                 |
| Overtemp Release Point (junction) | $T_{JRP}$              |            | 105          |              | $^{\circ}C$ | Note 1                                 |
| Supply Current                    | $I_{CC1}$<br>$I_{CC2}$ | 7.0<br>9.0 | 11.0<br>12.0 | 17.0<br>20.0 | mA          | $V_{CC} = 4.5V$<br>$V_{CC} = 30.0V$    |
| Input Positive-Going Threshold    | $V_{T+}$               | 1.1        | 1.5          | 1.9          | V           |  |
| Input Negative-Going Threshold    | $V_{T-}$               | 0.7        | 1.0          | 1.4          | V           |  |
| Low Level Input Current           | $I_{IL}$               |            | -0.1         | -4.0         | $\mu A$     | $V_{IN} = 0V$                          |
| High Level Input Current          | $I_{IH}$               |            | 0            | 4.0          | $\mu A$     | $V_{IN} = 5V$                          |
| Low Level Output                  | $V_{OL}$               |            | 150          | 375          | mV          | $V_{CC} = 4.5V-30V$<br>$I_{OL} = 10mA$ |
| High Level Output                 | $V_{OH}$               | 2.4        | 2.9          |              | V           | $I_{OH} = -10mA, V_{CC} =$             |
| High Level Output                 | $V_{OH}$               | 27.8       | 28.4         |              | V           | $I_{OH} = -10mA, V_{CC} = 30V$         |

### NOTES:

1. This is not a test parameter, but for information only.
2. It may be necessary to clamp the outputs with Schottky diodes when driving extremely long cables with high capacitance between outputs. These diodes should have a forward voltage of less than 0.4V, and be connected with cathode to the output and anode to ground.

### PACKAGE

Chip Only  
14 Lead SOIC

### SUFFIX

-C  
-SOP



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