

## AM26LS30

### *Dual Differential RS-422 Party Line/Quad Single Ended RS-423 Line Driver*

The AM26LS30 is a line driver designed for digital data transmission. A mode control input provides a choice of operation either as two differential line drivers which meet all the requirements of EIA Standard RS-422 or four independent single-ended RS-423 line drivers.

In the differential mode the outputs have individual three-state controls. In the hi-impedance state these outputs will not clamp the line over a common mode transmission line voltage of  $\pm 10$  V. A typical full duplex system would be the AM26LS30 differential line driver and up to twelve AM26LS32 line receivers or an AM26LS32 line receiver and up to thirty-two AM26LS30 differential drivers.

#### **Rochester Electronics Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

#### **Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
  - Class Q Military
  - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
  - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

*The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.*

**FOR REFERENCE ONLY**

# Am26LS30

Dual Differential RS-422 Party Line/Quad Single Ended RS-423  
Line Driver

**Advanced  
Micro  
Devices**

## DISTINCTIVE CHARACTERISTICS

- Dual RS-422 line driver or quad RS-423 line driver
- Driver outputs do not clamp line with power off or in hi-impedance state
- Independent output control in the differential mode
- Low  $I_{CC}$  and  $I_{EE}$  power consumption  
RS-422 differential mode; 35 mW/driver typ.  
RS-423 single-ended mode; 26 mW/driver typ.
- Individual slew rate control for each output
- 50  $\Omega$  transmission line drive capability (RS-422 into virtual ground)
- Low current PNP inputs compatible with TTL, MOS and CMOS
- High capacitive load drive capability
- Exact replacement for DS16/3691
- Advanced low power Schottky processing

## GENERAL DESCRIPTION

The Am26LS30 is a line driver designed for digital data transmission. A mode control input provides a choice of operation either as two differential line drivers which meet all of the requirements of EIA Standard RS-422 or four independent single-ended RS-423 line drivers.

In the differential mode the outputs have individual three-state controls. In the hi-impedance state these outputs will not clamp the line over a common mode transmission line voltage of  $\pm 10$  V. A typical full duplex system would be the Am26LS30 differential line driver

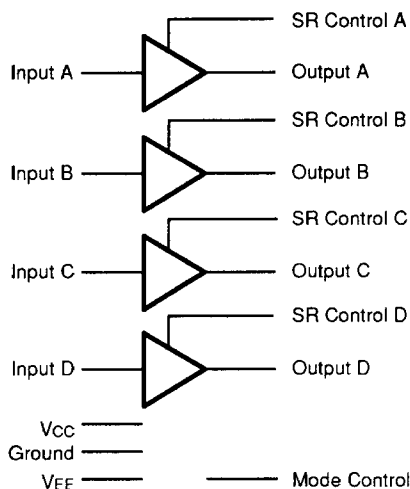
and up to twelve Am26LS32 line receivers or a Am26LS32 line receiver and up to thirty-two Am26LS30 differential drivers.

A slew rate control pin allows the use of an external capacitor to control slew rate for suppression of near end cross talk to receivers in the cable.

The Am26LS30 is constructed using Advanced Low Power Schottky processing.

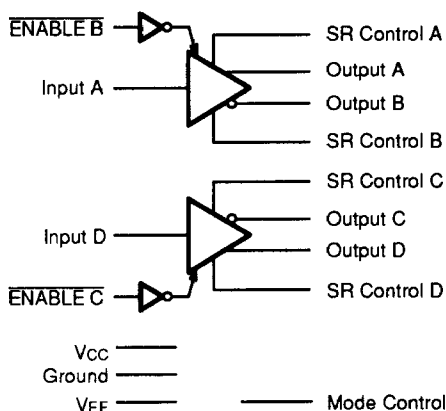
## BLOCK DIAGRAM

Logic for Am26LS30 with  
Mode Control HIGH (RS-423)



04600-001A

Logic for Am26LS30 with  
Mode Control LOW (RS-422)

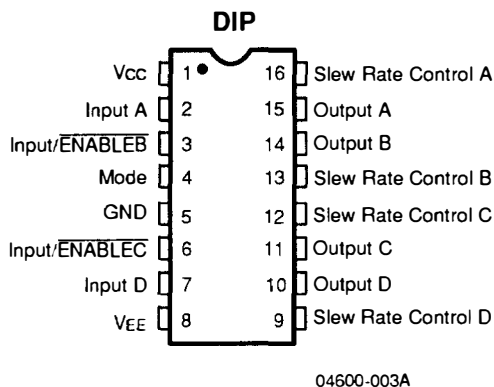


04600-002A

## RELATED AMD PRODUCTS

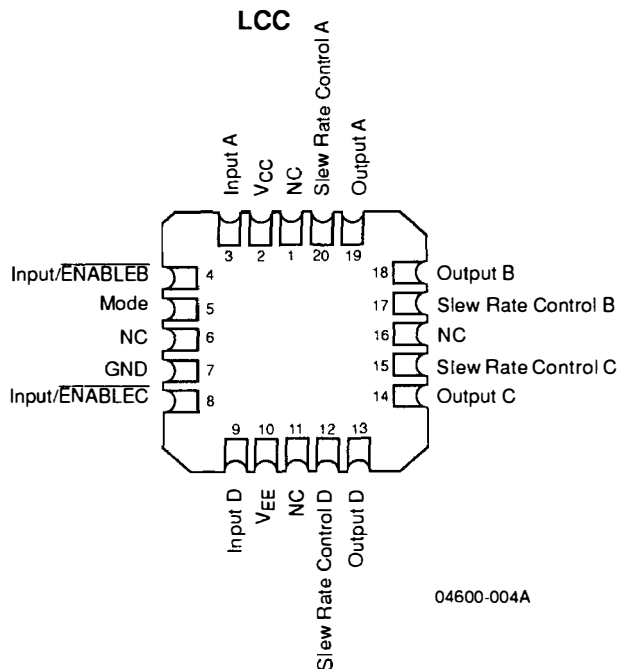
| Part No. | Description                                      |
|----------|--------------------------------------------------|
| 26LS29   | Quad Three-State Single Ended RS-423 Line Driver |
| 26LS32   | Quad Differential Line Receiver                  |
| 26LS33   | Quad Differential Line Receiver                  |

## CONNECTION DIAGRAMS Top View

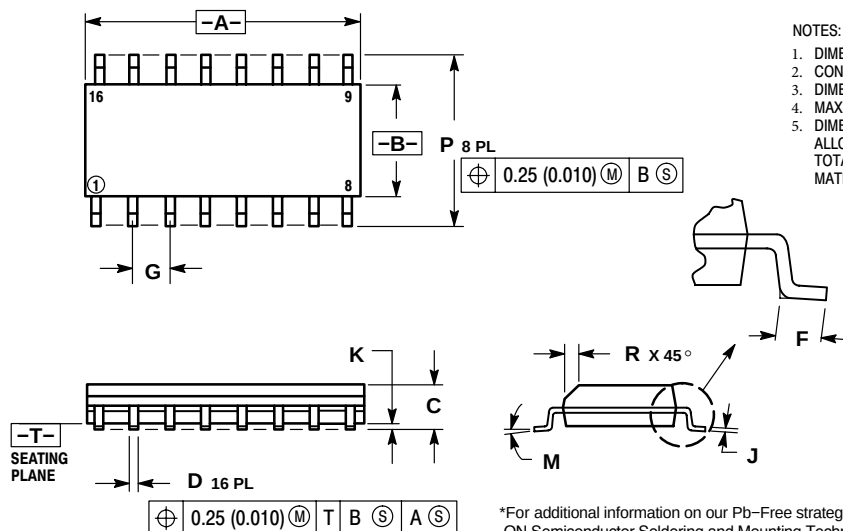


### Note:

Pin 1 is marked for orientation.



## MC26LS30 SO-16 D SUFFIX PACKAGE DIMENSIONS CASE 751B-05 ISSUE J



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

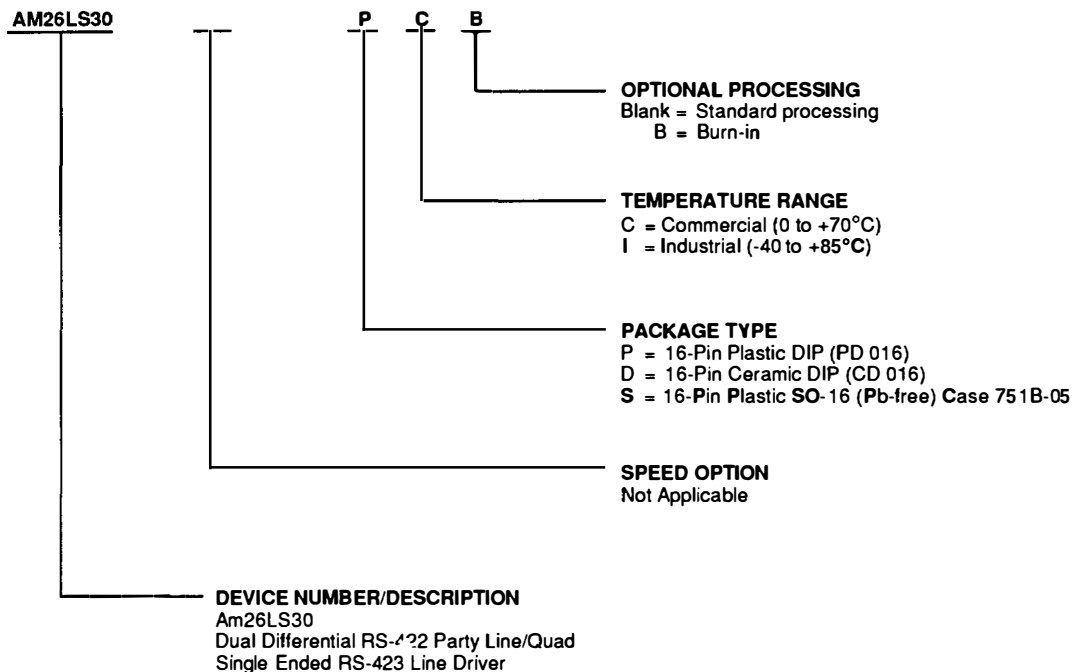
| DIM | MILLIMETERS |       | INCHES    |       |
|-----|-------------|-------|-----------|-------|
|     | MIN         | MAX   | MIN       | MAX   |
| A   | 9.80        | 10.00 | 0.386     | 0.393 |
| B   | 3.80        | 4.00  | 0.150     | 0.157 |
| C   | 1.35        | 1.75  | 0.054     | 0.068 |
| D   | 0.35        | 0.49  | 0.014     | 0.019 |
| F   | 0.40        | 1.25  | 0.016     | 0.049 |
| G   | 1.27 BSC    |       | 0.050 BSC |       |
| J   | 0.19        | 0.25  | 0.008     | 0.009 |
| K   | 0.10        | 0.25  | 0.004     | 0.009 |
| M   | 0°          | 7°    | 0°        | 7°    |
| P   | 5.80        | 6.20  | 0.229     | 0.244 |
| R   | 0.25        | 0.50  | 0.010     | 0.019 |

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

## ORDERING INFORMATION

### Standard Products

AMD standard products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of:



| Valid Combinations |                    |
|--------------------|--------------------|
| AM26LS30           | PC, PCB<br>DC, DCB |

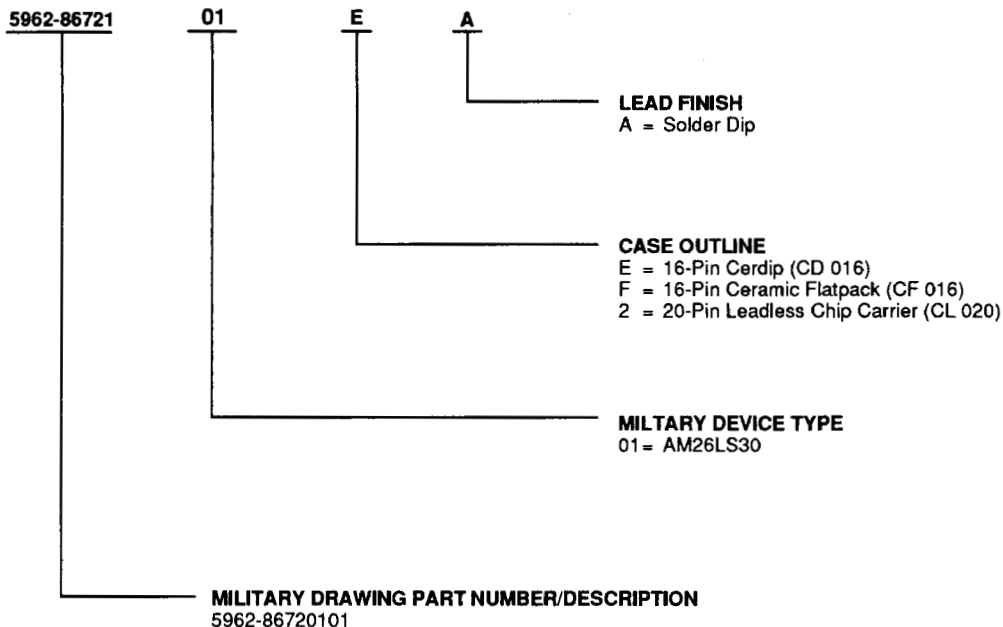
#### Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations or to check on newly released combinations, and to obtain additional data on AMD's standard military grade products.

AM26LS30SI equivalent to MC26LS30DG (OnSemi)

**MILITARY ORDERING INFORMATION****Standard Military Drawing (SMD)/DESC Products**

AMD products for Aerospace and Defense applications are available in several packages and operating ranges. Standard Military Drawing (SMD)/DESC products are fully compliant with MIL-STD-883C requirements. The order number (Valid Combination) for SMD/DESC products is formed by a combination of:



| Valid Combinations |            |
|--------------------|------------|
| 5962-8672101       | EA, FA, 2A |

**Valid Combinations**

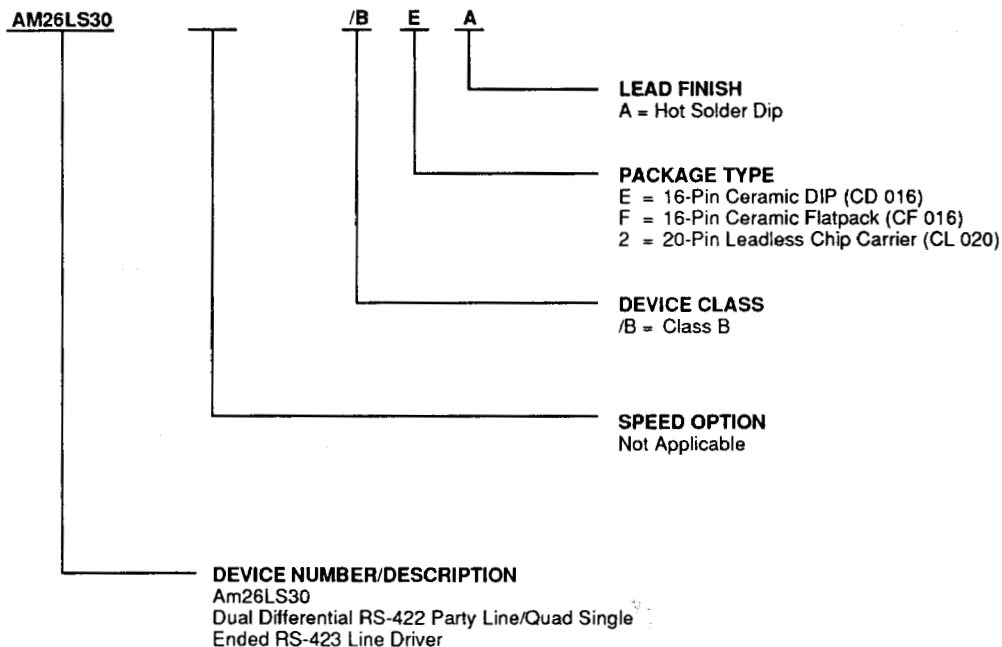
Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, or to check on newly released combinations.

**Group A Tests**

Group A tests consist of Subgroups  
1, 2, 3, 7, 8, 9, 10, 11.

**MILITARY ORDERING INFORMATION****APL Products**

AMD products for Aerospace and Defense applications are available in several packages and operating ranges. APL (Approved Products List) products are fully compliant with MIL-STD-883C requirements. The order number (Valid Combination) is formed by a combination of:



| Valid Combinations |                  |
|--------------------|------------------|
| AM26LS30           | /BEA, /BFA, /B2A |

**Valid Combinations**

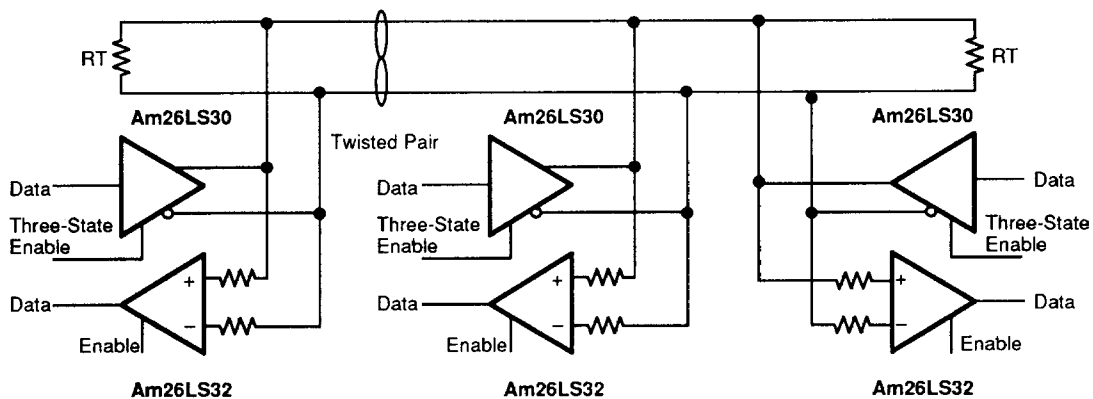
Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, or to check on newly released combinations.

**Group A Tests**

Group A tests consist of Subgroups  
1, 2, 3, 7, 8, 9, 10, 11.

**Am26LS30 FUNCTION TABLE**

| Mode | Inputs |      | Outputs |      |
|------|--------|------|---------|------|
|      | A(D)   | B(C) | A(D)    | B(C) |
| 0    | 0      | 0    | 0       | 1    |
| 0    | 0      | 1    | Z       | Z    |
| 0    | 1      | 0    | 1       | 0    |
| 0    | 1      | 1    | Z       | Z    |
| 1    | 0      | 0    | 0       | 0    |
| 1    | 0      | 1    | 0       | 1    |
| 1    | 1      | 0    | 1       | 0    |
| 1    | 1      | 1    | 1       | 1    |

**TYPICAL APPLICATION**

04600-005A

## ABSOLUTE MAXIMUM RATINGS

|                                         |                 |
|-----------------------------------------|-----------------|
| Storage Temperature Range               | -65 to +150°C   |
| Supply Voltage                          |                 |
| V+                                      | 7.0 V           |
| V-                                      | -7.0 V          |
| Power Dissipation                       | 600 mW          |
| Input Voltage                           | -1.5 to +15.0 V |
| Output Voltage (Power Off)              | ±15 V           |
| Lead Soldering Temperature (10 seconds) | 300°C           |

Stresses above those listed under Absolute Maximum Ratings may cause permanent device failure. Functionality at or above these limits is not implied. Exposure to absolute maximum ratings for extended periods may affect device reliability.

## OPERATING RANGES

### Commercial (C) Devices

|                                         |                    |
|-----------------------------------------|--------------------|
| Temperature                             | 0 to +70°C         |
| Supply Voltage (V <sub>CC</sub> )       | +4.75 V to +5.25 V |
| Supply Voltage (V <sub>EE</sub> ) RS422 | GND                |
| Supply Voltage (V <sub>EE</sub> ) RS423 | -4.75 V to -5.25 V |

### Military (M) Devices

|                                         |                    |
|-----------------------------------------|--------------------|
| Temperature                             | -55 to +125°C      |
| Supply Voltage (V <sub>CC</sub> )       | +4.5 V to +5.5 V   |
| Supply Voltage (V <sub>EE</sub> ) RS422 | GND                |
| Supply Voltage (V <sub>EE</sub> ) RS423 | -4.75 V to -5.25 V |

Operating ranges define those limits between which the functionality of the device is guaranteed.

## DC CHARACTERISTICS over operating ranges unless otherwise specified EIA RS-422 Connection, Mode Voltage ≤ 0.8 V, V<sub>CC</sub> = +4.75 V to +5.5 V, V<sub>EE</sub> = GND

| Parameter Symbol                          | Parameter Description                     | Test Conditions (Note 3)                       |                          | Min. | Typ. (Note 1) | Max. | Unit |
|-------------------------------------------|-------------------------------------------|------------------------------------------------|--------------------------|------|---------------|------|------|
| V <sub>O</sub>                            | Differential Output Voltage,              | R <sub>L</sub> = ∞                             | V <sub>IN</sub> = 2.0 V  |      | 3.6           | 6.0  | V    |
| $\overline{V_O}$                          | V <sub>A, B</sub>                         |                                                | V <sub>IN</sub> = 0.8 V  |      | -3.6          | -6.0 |      |
| V <sub>T</sub>                            | Differential Output Voltage,              | R <sub>L</sub> = 100 Ω                         | V <sub>IN</sub> = 2.0 V  | 2.0  | 2.4           |      | V    |
| $\overline{V_T}$                          | V <sub>A, B</sub>                         |                                                | V <sub>IN</sub> = 0.8 V  | -2.0 | -2.4          |      |      |
| V <sub>OS</sub> , $\overline{V_{OS}}$     | Common Mode Offset Voltage                | R <sub>L</sub> = 100 Ω                         |                          |      | 2.5           | 3.0  | V    |
| V <sub>T</sub>   -   $\overline{V_T}$     | Difference in Differential Output Voltage | R <sub>L</sub> = 100 Ω                         |                          |      | 0.005         | 0.4  | V    |
| V <sub>OS</sub>   -   $\overline{V_{OS}}$ | Difference in Common Mode Offset Voltage  | R <sub>L</sub> = 100 Ω                         |                          |      | 0.005         | 0.4  | V    |
| V <sub>SS</sub>                           | V <sub>T</sub> - $\overline{V_T}$         | R <sub>L</sub> = 100 Ω                         |                          | 4.0  | 4.8           |      | V    |
| V <sub>CMR</sub>                          | Output Voltage Common Mode Range          | V <sub>ENABLE</sub> = 2.4 V                    |                          | ±10  |               |      | V    |
| I <sub>XA</sub>                           | Output Leakage Current                    | V <sub>CC</sub> = 0 V                          | V <sub>CMR</sub> = 10 V  |      |               | 100  | μA   |
| I <sub>XB</sub>                           |                                           |                                                | V <sub>CMR</sub> = -10 V |      |               | -100 |      |
| I <sub>OX</sub>                           | Off State (High Impedance) Output Current | V <sub>CC</sub> = Max.                         | V <sub>CMR</sub> = 10 V  |      |               | 100  | μA   |
|                                           |                                           |                                                | V <sub>CMR</sub> = -10 V |      |               | -100 |      |
| I <sub>SA</sub> , I <sub>SB</sub>         | Output Short Circuit Current              | V <sub>CC</sub> = Max.                         | V <sub>OA</sub> = 6.0 V  | 20   | 80            | 150  | mA   |
|                                           |                                           |                                                | V <sub>OB</sub> = 0 V    | -20  | -80           | -150 |      |
|                                           |                                           | V <sub>CC</sub> = Max.                         | V <sub>OA</sub> = 0 V    | -20  | -80           | -150 | mA   |
|                                           |                                           |                                                | V <sub>OB</sub> = 6.0 V  | 20   | 80            | 150  |      |
| I <sub>CC</sub>                           | Supply Current                            | V <sub>IN</sub> = .4 V, V <sub>CC</sub> = Max. |                          |      | 18            | 30   | mA   |
| V <sub>IH</sub>                           | High Level Input Voltage                  |                                                |                          | 2.0  |               |      | V    |
| V <sub>IL</sub>                           | Low Level Input Voltage                   |                                                |                          |      |               | 0.8  | V    |
| I <sub>IH</sub>                           | High Level Input Current                  | V <sub>CC</sub> = Max.                         | V <sub>IN</sub> = 2.4 V  |      |               | 40   | μA   |
|                                           |                                           |                                                | V <sub>IN</sub> = 15 V   |      |               | 100  |      |
| I <sub>IL</sub>                           | Low Level Input Current                   | V <sub>CC</sub> = Max.                         | V <sub>IN</sub> = 0.4 V  |      | -30           | -200 | μA   |
| V <sub>IC</sub>                           | Input Clamp Voltage                       | V <sub>CC</sub> = Min.                         | I <sub>IN</sub> = -12 mA |      |               | -1.5 | V    |



# DC CHARACTERISTICS over operating ranges unless otherwise specified

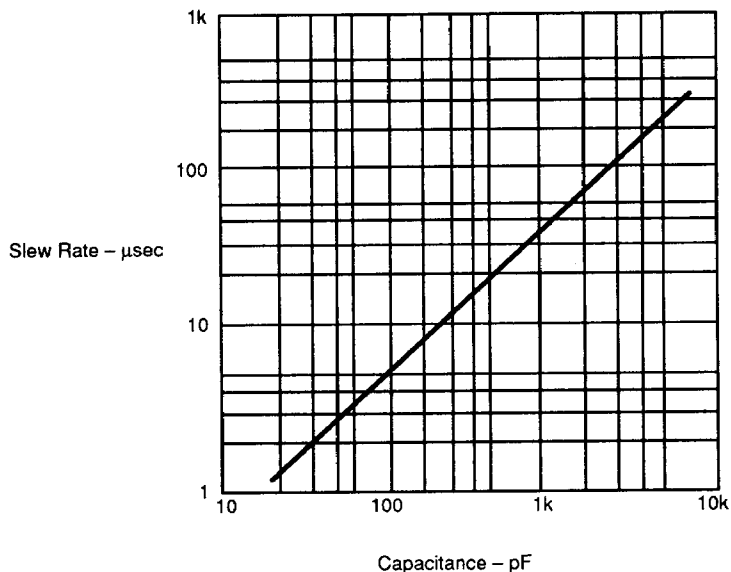
## EIA RS-423 Connection, Mode Voltage $\geq 2.0$ V

| Parameter Symbol           | Parameter Description        | Test Conditions (Note 4)                                           |                  | Min. | Typ. (Note 1) | Max. | Unit    |
|----------------------------|------------------------------|--------------------------------------------------------------------|------------------|------|---------------|------|---------|
| $V_O$                      | Output Voltage               | $R_L = \infty$ (Note 3)                                            | $V_{IN} = 2.4$ V | 4.0  | 4.4           | 6.0  | V       |
| $\overline{V_O}$           |                              | $ V_{CC} = V_{EE} =4.75$ V                                         | $V_{IN} = 0.4$ V | -4.0 | -4.4          | -6.0 |         |
| $V_T$                      | Output Voltage (Note 7)      | $R_L = 450 \Omega$                                                 | $V_{IN} = 2.4$ V | 3.6  | 4.1           |      | V       |
| $\overline{V_T}$           |                              | $ V_{CC} = V_{EE} =4.75$ V                                         | $V_{IN} = 0.4$ V | -3.6 | -4.1          |      |         |
| $ V_T  -  \overline{V_T} $ | Output Unbalance (Note 7)    | $ V_{CC} = V_{EE} =4.75$ V, $R_L = 450 \Omega$                     |                  |      | 0.02          | 0.4  | V       |
| $I_{X+}$                   | Output Leakage Power Off     | $V_{CC} = V_{EE} = 0$ V                                            | $V_O = 6.0$ V    |      |               | 100  | $\mu A$ |
| $I_{X-}$                   |                              |                                                                    | $V_O = -6.0$ V   |      |               | -100 |         |
| $I_{S+}$                   | Output Short Circuit Current | $V_O = 0$ V                                                        | $V_{IN} = 2.4$ V | -20  | -80           | -150 | mA      |
| $I_{S-}$                   |                              | $ V_{CC} = V_{EE} =\text{Max.}$ (Note 5)                           | $V_{IN} = 0.4$ V | 20   | 80            | 150  |         |
| $I_{SLEW}$                 | Slew Control Current         | $V_{SLEW} = V_{EE}$                                                | $V_{IN} = 2.7$ V |      | -230          |      | $\mu A$ |
| $I_{CC}$                   | Positive Supply Current      | $V_{IN} = 0.4$ V, $R_L = \infty$ , $ V_{CC} = V_{EE} =\text{Max.}$ |                  |      | 18            | 30   | mA      |
| $I_{EE}$                   | Negative Supply Current      | $V_{IN} = 0.4$ V, $R_L = \infty$ , $ V_{CC} = V_{EE} =\text{Max.}$ |                  |      | -10           | -22  | mA      |
| $V_{IH}$                   | High Level Input Voltage     | Note 6                                                             |                  | 2.0  |               |      | V       |
| $V_{IL}$                   | Low Level Input Voltage      | Note 6                                                             |                  |      |               | 0.8  | V       |
| $I_{IH}$                   | High Level Input Current     | $V_{IN} = 2.4$ V, $ V_{CC} = V_{EE} =\text{Max.}$                  |                  |      |               | 40   | $\mu A$ |
|                            |                              | $V_{IN} = 15$ V, $V_{CC} = 5.5$ V, $V_{EE} = -5.0$ V               |                  |      |               | 100  |         |
| $I_{IL}$                   | Low Level Input Current      | $V_{IN} = 0.4$ V, $ V_{CC} = V_{EE} =\text{Max.}$                  |                  |      | -30           | -200 | $\mu A$ |
| $V_{IC}$                   | Input Clamp Voltage          | $I_{IN} = -12$ mA, $V_{CC} = \text{Min.}$ , $V_{EE} = \text{Max.}$ |                  |      |               | -1.5 | V       |

### Notes:

1. Typical limits are at  $V_{CC} = 5.0$  V,  $V_{EE} = -5.0$  V,  $25^\circ\text{C}$  ambient and maximum loading.
2. Symbols and definitions correspond to EIA RS-423 where applicable.
3. Output voltage is +3.9 V minimum and -3.9 V minimum at  $-55^\circ\text{C}$ .
4.  $R_L$  connected between each output and its complement.
5. Not more than one output should be shorted at a time. Duration of the short circuit test should not exceed one second.
6. Input thresholds are tested during DC tests and may be done in combination with testing of other DC parameters.
7. This parameter is tested by forcing an equivalent current.

## PERFORMANCE CURVE

Slew Rate (Rise or Fall Time)  
Versus External Capacitor

04600-006A

## SWITCHING CHARACTERISTICS

EIA RS-422 Connection,  $V_{CC} = 5.0$  V,  $V_{EE} = \text{GND}$ , Mode = 0.4 V,  $T_A = 25^\circ\text{C}$ 

| Parameter Symbol | Parameter Description         | Test Conditions                                              | Min. | Typ. | Max. | Unit |
|------------------|-------------------------------|--------------------------------------------------------------|------|------|------|------|
| $t_r$            | Differential Output Rise Time | Fig. 2, $R_L = 100 \Omega$ , $C_L = 500$ pF                  |      | 120  | 200  | ns   |
| $t_f$            | Differential Output Fall Time | Fig. 2, $R_L = 100 \Omega$ , $C_L = 500$ pF                  |      | 120  | 200  | ns   |
| $t_{PDH}$        | Output Propagation Delay      | Fig. 2, $R_L = 100 \Omega$ , $C_L = 500$ pF                  |      | 120  | 200  | ns   |
| $t_{PDL}$        | Output Propagation Delay      | Fig. 2, $R_L = 100 \Omega$ , $C_L = 500$ pF                  |      | 120  | 200  | ns   |
| $t_{LZ}$         | Output Enable to Output       | $R_L = 100 \Omega$ , $C_L = 500$ pF,<br>$C_c = 0$ pF, Fig. 3 |      | 180  | 300  | ns   |
| $t_{HZ}$         |                               |                                                              |      | 200  | 300  |      |
| $t_{ZL}$         |                               | $R_L = 100 \Omega$ , $C_L = 500$ pF,<br>$C_c = 0$ pF, Fig. 3 |      | 200  | 300  |      |
| $t_{ZH}$         |                               |                                                              |      | 180  | 300  |      |

**SWITCHING CHARACTERISTICS (Continued)****EIA RS-422 Connection,  $V_{CC} = 4.5\text{ V}$  to  $5.5\text{ V}$ ,  $V_{EE} = \text{GND}$ , Mode = 0.4 V,  $T_A = 55^\circ\text{C}$  to  $125^\circ\text{C}$** 

| Parameter Symbol | Parameter Description         | Test Conditions                                                                                       | Min. | Typ. | Max. | Unit |
|------------------|-------------------------------|-------------------------------------------------------------------------------------------------------|------|------|------|------|
| $t_r$            | Differential Output Rise Time | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$<br>see Rise Time Control for RS-422                       |      |      | 300  | ns   |
| $t_f$            | Differential Output Fall Time | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$<br>see Rise Time Control for RS-422                       |      |      | 300  | ns   |
| $t_{PDH}$        | Output Propagation Delay      | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$<br>see Rise Time Control for RS-422                       |      |      | 300  | ns   |
| $t_{PDL}$        | Output Propagation Delay      | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$<br>see Rise Time Control for RS-422                       |      |      | 300  | ns   |
| $t_{LZ}$         | Output Enable to Output       | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-422 |      |      | 400  | ns   |
| $t_{HZ}$         |                               | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-422 |      |      | 400  | ns   |
| $t_{ZL}$         |                               | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-422 |      |      | 400  | ns   |
| $t_{ZH}$         |                               | $R_L = 100\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-422 |      |      | 400  | ns   |

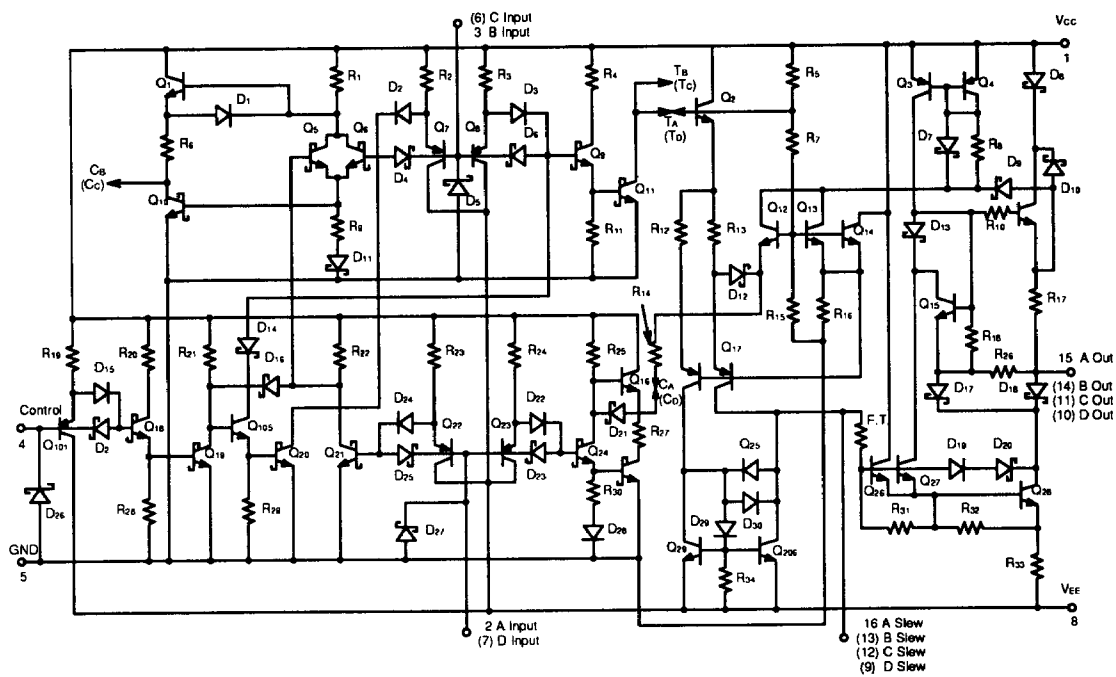
**SWITCHING CHARACTERISTICS****EIA RS-423 Connection,  $V_{CC} = 5.0\text{ V}$ ,  $V_{EE} = -5.0\text{ V}$ , Mode = 2.4 V,  $T_A = 25^\circ\text{C}$** 

| Parameter Symbol | Parameter Description    | Test Conditions                                                 | Min. | Typ. | Max. | Unit             |
|------------------|--------------------------|-----------------------------------------------------------------|------|------|------|------------------|
| $t_r$            | Rise Time                | Fig. 1, $R_L = 450\ \Omega$ ,<br>$C_L = 500\text{ pF}$          |      |      |      |                  |
|                  |                          | $C_c = 50\text{ pF}$                                            |      | 3.0  |      | $\mu\text{s}$    |
|                  |                          | $C_c = 0$                                                       |      | 120  | 300  | ns               |
| $t_f$            | Fall Time                | Fig. 1, $R_L = 450\ \Omega$ ,<br>$C_L = 500\text{ pF}$          |      |      |      |                  |
|                  |                          | $C_c = 50\text{ pF}$                                            |      | 3.0  |      | $\mu\text{s}$    |
|                  |                          | $C_c = 0$                                                       |      | 120  | 300  | ns               |
| Src              | Slew Rate Coefficient    | Fig. 1, $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$             |      | .06  |      | $\mu\text{s/pF}$ |
| $t_{PDH}$        | Output Propagation Delay | Fig. 1, $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0$ |      | 180  | 300  | ns               |
| $t_{PDL}$        | Output Propagation Delay | Fig. 1, $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0$ |      | 180  | 300  | ns               |

**EIA RS-423 Connection,  $V_{CC} = 4.75\text{ V}$  to  $5.5\text{ V}$ ,  $V_{EE} = -4.75\text{ V}$  to  $-5.5\text{ V}$ , Mode = 2.4 V,  $T_A = -55^\circ\text{C}$  to  $125^\circ\text{C}$** 

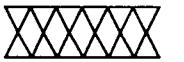
| Parameter Symbol | Parameter Description    | Test Conditions                                                                                       | Min. | Typ. | Max. | Unit |
|------------------|--------------------------|-------------------------------------------------------------------------------------------------------|------|------|------|------|
| $t_r$            | Rise Time                | $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-423 |      |      | 450  | ns   |
| $t_f$            | Fall Time                | $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-423 |      |      | 450  | ns   |
| $t_{PDH}$        | Output Propagation Delay | $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-423 |      |      | 450  | ns   |
| $t_{PDL}$        | Output Propagation Delay | $R_L = 450\ \Omega$ , $C_L = 500\text{ pF}$ , $C_c = 0\text{ pF}$<br>see Rise Time Control for RS-423 |      |      | 450  | ns   |

### Am26LS30 EQUIVALENT CIRCUIT



04600-007A

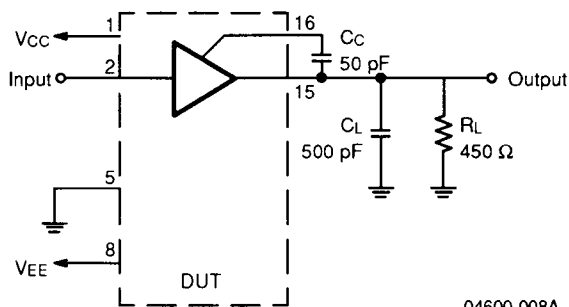
## KEY TO SWITCHING WAVEFORMS

| WAVEFORM                                                                          | INPUTS                           | OUTPUTS                                   |
|-----------------------------------------------------------------------------------|----------------------------------|-------------------------------------------|
|  | Must Be Steady                   | Will Be Steady                            |
|  | May Change from H to L           | Will Be Changing from H to L              |
|  | May Change from L to H           | Will Be Changing from L to H              |
|  | Don't Care, Any Change Permitted | Changing, State Unknown                   |
|  | Does Not Apply                   | Center Line is High Impedance "Off" State |

KS000010

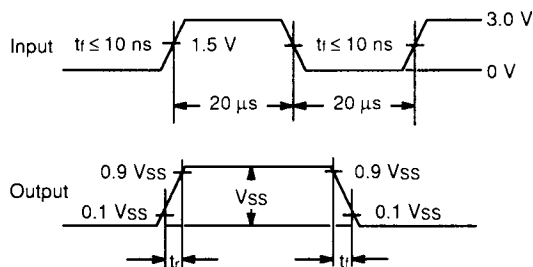
## EIA RS-423 CONNECTION

Switching Test Circuit  
(Mode Control = 0)



04600-008A

Switching Test Waveform

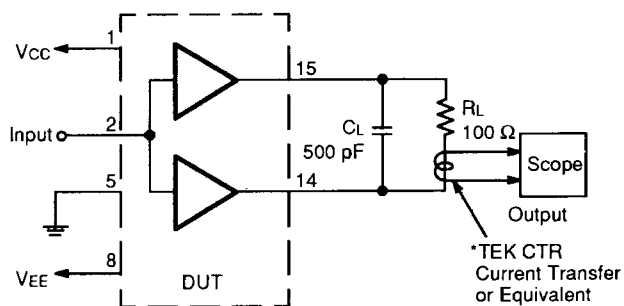


04600-009A

Figure 1. Rise Time Control for RS-423

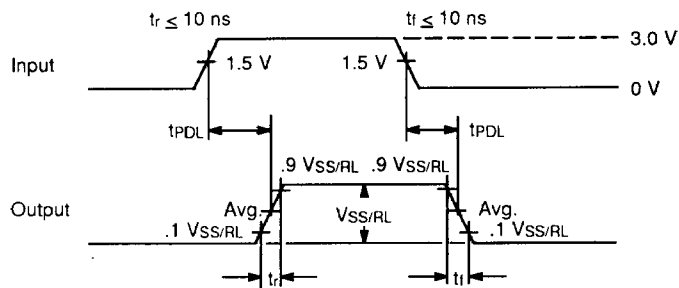
## RS-422 CONNECTION

### Switching Test Circuit (Mode Control = 0)



04600-010A

### Rise Time Control for RS-422

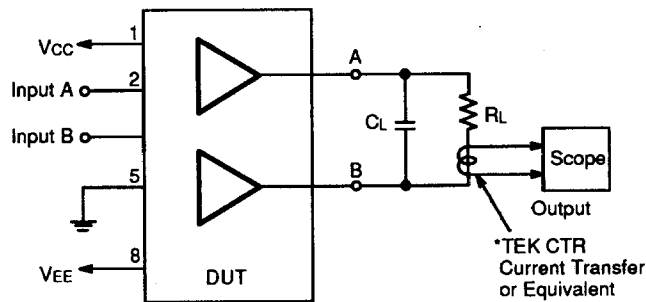


04600-011A

Figure 2.

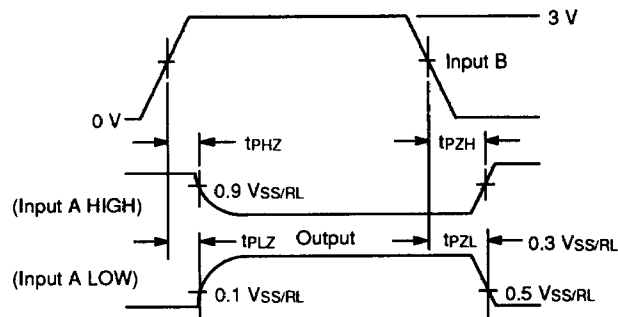
# RS-422 CONNECTION (Continued)

## Switching Test Circuit (Mode Control = 0)



04600-012A

## Switching Test Waveform



04600-013A

\*Current probe is the easiest way to display a differential waveform

Figure 3. Three-State Delays