

## FEATURES

- 9-bit ideal for byte-parity applications
- 3-state TTL outputs
- Flow-through configuration
- Extra TTL and ECL power/ground pins to minimize switching noise
- ECL and TTL 3-state control inputs
- 4.8ns max. delay into 50pF, 9.6ns into 200pF (all outputs switching)
- PNP TTL inputs for low loading
- Choice of ECL compatibility: MECL 10KH (10Hxxx) or 100K (100Hxxx)
- Fully compatible with MC10H/100H601
- Available in 28-pin PLCC package

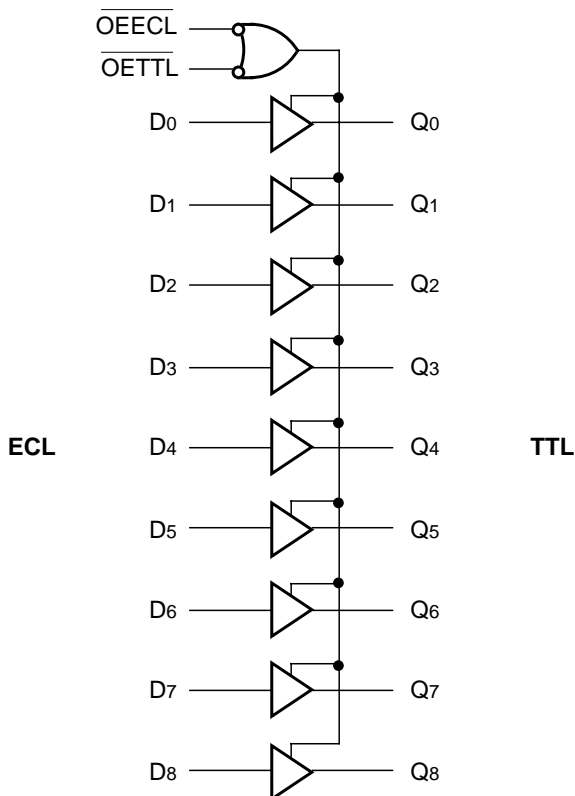
## DESCRIPTION

The SY10/100H601 are 9-bit, dual supply ECL-to-TTL translators. Devices in the Micrel 9-bit translator series utilize the 28-lead PLCC for optimal power pinning, signal flow-through and electrical performance.

The devices feature a 48mA TTL output stage and AC performance is specified into both a 50pF and 200pF load capacitance. For the 3-state output disable, both ECL and TTL control inputs are provided, allowing maximum design flexibility.

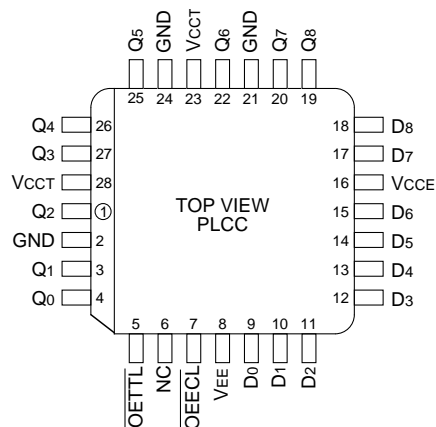
The 10H version is compatible with MECL 10KH ECL logic levels. The 100H version is compatible with 100K levels.

## BLOCK DIAGRAM



## PIN NAMES

| Pin                | Function                |
|--------------------|-------------------------|
| GND                | TTL Ground (0V)         |
| VCCE               | ECL Vcc (0V)            |
| VCCT               | TTL Supply (+5.0V)      |
| VEE                | ECL Supply (-5.2/-4.5V) |
| D0-D8              | Data Inputs (ECL)       |
| Q0-Q8              | Data Outputs (TTL)      |
| $\overline{OEECL}$ | 3-State Control (ECL)   |
| $\overline{OETTL}$ | 3-State Control (TTL)   |

**PACKAGE/ORDERING INFORMATION****28-Pin PLCC (J28-1)****Ordering Information<sup>(1)</sup>**

| Part Number                     | Package Type | Operating Range | Package Marking                             | Lead Finish |
|---------------------------------|--------------|-----------------|---|-------------|
| SY10H601JC                      | J28-1        | Commercial      | SY10H601JC                                  | Sn-Pb       |
| SY10H601JCTR <sup>(2)</sup>     | J28-1        | Commercial      | SY10H601JC                                  | Sn-Pb       |
| SY100H601JC                     | J28-1        | Commercial      | SY100H601JC                                 | Sn-Pb       |
| SY100H601JCTR <sup>(2)</sup>    | J28-1        | Commercial      | SY100H601JC                                 | Sn-Pb       |
| SY10H601JZ <sup>(3)</sup>       | J28-1        | Commercial      | SY10H601JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY10H601JZTR <sup>(2, 3)</sup>  | J28-1        | Commercial      | SY10H601JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY100H601JZ <sup>(3)</sup>      | J28-1        | Commercial      | SY100H601JZ with Pb-Free bar-line indicator | Matte-Sn    |
| SY100H601JZTR <sup>(2, 3)</sup> | J28-1        | Commercial      | SY100H601JZ with Pb-Free bar-line indicator | Matte-Sn    |

**Notes:**

1. Contact factory for die availability. Dice are guaranteed at  $T_A = 25^\circ\text{C}$ , DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

**TRUTH TABLE**

| $\overline{OE}ECL$ | $\overline{OE}TTL$ | D | Q |
|--------------------|--------------------|---|---|
| L                  | L                  | L | L |
| L                  | L                  | H | H |
| H                  | X                  | X | Z |
| X                  | H                  | X | Z |

**DC ELECTRICAL CHARACTERISTICS**

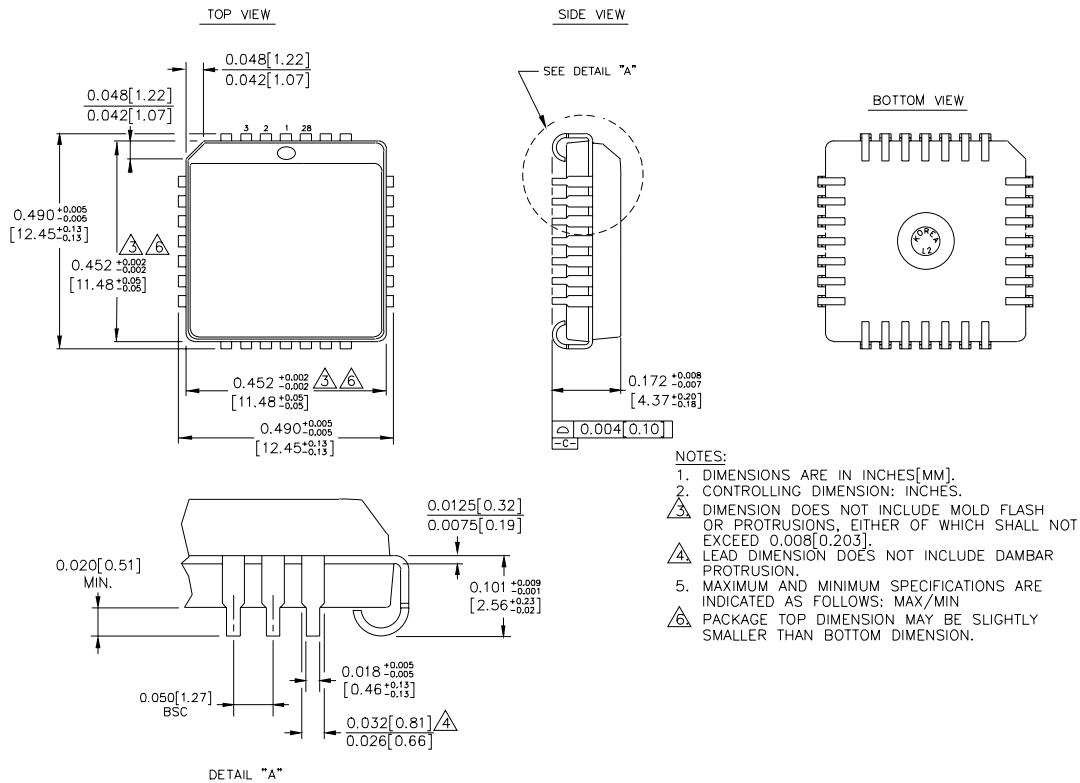
$V_{CC} = 5.0V \pm 10\%$ ;  $V_{EE} = -4.75V$  to  $-5.5V$  (10H Version);  $V_{EE} = -4.2V$  to  $-5.5V$  (100H Version)

| Symbol    | Parameter                    | $T_A = 0^\circ C$ |      | $T_A = +25^\circ C$ |      | $T_A = +85^\circ C$ |      | Unit    | Condition        |
|-----------|------------------------------|-------------------|------|---------------------|------|---------------------|------|---------|------------------|
|           |                              | Min.              | Max. | Min.                | Max. | Min.                | Max. |         |                  |
| $I_{EE}$  | Power Supply Current, ECL    | —                 | 46   | —                   | 46   | —                   | 50   | mA      | —                |
| $I_{CCH}$ | Power Supply Current, TTL    | —                 | 110  | —                   | 110  | —                   | 110  | mA      | —                |
| $I_{CCL}$ |                              | —                 | 110  | —                   | 110  | —                   | 110  |         |                  |
| $I_{CCZ}$ |                              | —                 | 105  | —                   | 105  | —                   | 105  |         |                  |
| $I_{OS}$  | Output Short Circuit Current | -100              | -225 | -100                | -225 | -100                | -225 | mA      | $V_{OUT} = 0V$   |
| $I_{OZH}$ | Output Disable Current HIGH  | —                 | 50   | —                   | 50   | —                   | 50   | $\mu A$ | $V_{OUT} = 2.7V$ |
| $I_{OZL}$ | Output Disable Current LOW   | —                 | -50  | —                   | -50  | —                   | -50  | $\mu A$ | $V_{OUT} = 0.5V$ |

**AC ELECTRICAL CHARACTERISTICS**

$V_{CC} = 5.0V \pm 10\%$ ;  $V_{EE} = -4.75V$  to  $-5.5V$  (10H Version);  $V_{EE} = -4.2V$  to  $-5.5V$  (100H Version)

| Symbol                 | Parameter                               | $T_A = 0^\circ C$ |            | $T_A = +25^\circ C$ |            | $T_A = +85^\circ C$ |            | Unit | Condition                     |
|------------------------|---|-------------------|------------|---------------------|------------|---------------------|------------|------|-------------------------------|
|                        |   | Min.              | Max.       | Min.                | Max.       | Min.                | Max.       |      |                               |
| $t_{PLH}$<br>$t_{PHL}$ | Propagation Delay to Output             | 1.7<br>3.4        | 4.8<br>9.6 | 1.7<br>3.4          | 4.8<br>9.6 | 1.7<br>3.4          | 4.8<br>9.6 | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |
| $t_{PLZ}$<br>$t_{PHZ}$ | Output Disable Time, $\overline{OE}ECL$ | 3.7<br>5.4        | 6.5<br>13  | 3.7<br>5.4          | 6.5<br>13  | 3.7<br>5.4          | 6.5<br>13  | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |
| $t_{PLZ}$<br>$t_{PHZ}$ | Output Disable Time, $\overline{OE}TTL$ | 4.3<br>7.0        | 7.5<br>15  | 4.3<br>7.0          | 7.5<br>15  | 4.3<br>7.0          | 7.5<br>15  | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |
| $t_{PZL}$<br>$t_{PZH}$ | Output Enable Time, $\overline{OE}ECL$  | 3.5<br>5.0        | 6.0<br>12  | 3.5<br>5.0          | 6.0<br>12  | 3.5<br>5.0          | 6.0<br>12  | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |
| $t_{PZL}$<br>$t_{PZH}$ | Output Enable Time, $\overline{OE}TTL$  | 4.2<br>6.0        | 7.0<br>14  | 4.2<br>6.0          | 7.0<br>14  | 4.2<br>6.0          | 7.0<br>14  | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |
| $t_r$<br>$t_f$         | Output Rise/Fall Time<br>1.0V – 2.0V    | —<br>—            | 1.2<br>3.0 | —<br>—              | 1.2<br>3.0 | —<br>—              | 1.2<br>3.0 | ns   | $C_L = 50pF$<br>$C_L = 200pF$ |

**28-PIN PLCC (J28-1)**

Rev. 03

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