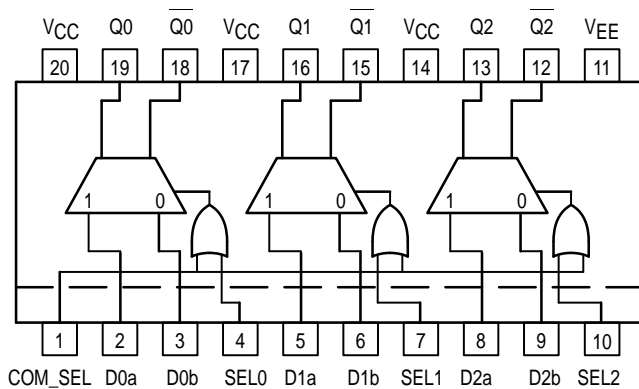


# Triple 2:1 Multiplexer

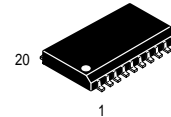
The MC100LVEL59 is a triple 2:1 multiplexer with differential outputs. The MC100EL59 is pin and functionally equivalent to the MC100LVEL59 but is specified for operation at the standard 100E ECL voltage supply. The output data of the muxes can be controlled individually via the select inputs or as a group via the common select input. The flexible selection scheme makes the device useful for both data path and random logic applications.

- Individual or Common Select Controls
- 20-Lead SOIC Packaging
- 500ps Typical Propagation Delays
- Supports Both Standard and Low Voltage 100K ECL
- Internal Input Pulldown Resistors
- >2000V ESD Protection

**Logic Diagram and Pinout: 20-Lead SOIC (Top View)**



## MC100LVEL59 MC100EL59



**DW SUFFIX**  
PLASTIC SOIC PACKAGE  
CASE 751D-04

### TRUTH TABLE

| SEL | Data |
|-----|------|
| H   | a    |
| L   | b    |

### PIN NAMES

| Pins         | Function                |
|--------------|-------------------------|
| D0a–D1a      | Input Data a            |
| D0b–D1b      | Input Data b            |
| SEL0–SEL1    | Individual Select Input |
| COM_SEL      | Common Select Input     |
| <u>Q0–Q2</u> | True Outputs            |
| Q0–Q2        | Inverted Outputs        |



# MC100LVEL59 MC100EL59

## MC100LVEL59

### DC CHARACTERISTICS ( $V_{EE} = -3.0V$ to $-3.8V$ ; $V_{CC} = GND$ )

| Symbol   | Characteristic       | -40°C |     |     | 0°C |     |     | 25°C |     |     | 85°C |     |     | Unit    |
|----------|----------------------|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|---------|
|          |                      | Min   | Typ | Max | Min | Typ | Max | Min  | Typ | Max | Min  | Typ | Max |         |
| $I_{EE}$ | Power Supply Current |       | 27  | 32  |     | 27  | 32  |      | 27  | 32  |      | 27  | 32  | mA      |
| $I_{IH}$ | Input HIGH Current   |       |     | 150 |     |     | 150 |      |     | 150 |      |     | 150 | $\mu A$ |

## MC100LVEL59

### AC CHARACTERISTICS ( $V_{EE} = -3.0V$ to $-3.8V$ ; $V_{CC} = GND$ )

| Symbol      | Characteristic                               | -40°C |     |     | 0°C |     |     | 25°C |     |     | 85°C |     |     | Unit |
|-------------|--|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|------|
|             |  | Min   | Typ | Max | Min | Typ | Max | Min  | Typ | Max | Min  | Typ | Max |      |
| $t_{PLH}$   | Propagation Delay DATA→Q/Q                   | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
| $t_{PHL}$   | Delay SEL→Q/Q                                | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
|             | COM_SEL→Q/Q                                  | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
| $t_{sk(O)}$ | Output–Output Skew<br>Any $D_n$ , $D_m$ to Q |       |     | 100 |     |     | 100 |      |     | 100 |      |     | 100 | ps   |
| $t_r$       | Output Rise/Fall Times Q<br>(20% – 80%)      | 200   |     | 540 | 200 |     | 540 | 200  |     | 540 | 200  |     | 540 | ps   |
| $t_f$       |  |       |     |     |     |     |     |      |     |     |      |     |     |      |

## MC100EL59

### DC CHARACTERISTICS ( $V_{EE} = -4.2V$ to $-5.5V$ ; $V_{CC} = GND$ )

| Symbol   | Characteristic       | -40°C |     |     | 0°C |     |     | 25°C |     |     | 85°C |     |     | Unit    |
|----------|----------------------|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|---------|
|          |                      | Min   | Typ | Max | Min | Typ | Max | Min  | Typ | Max | Min  | Typ | Max |         |
| $I_{EE}$ | Power Supply Current |       | 27  | 32  |     | 27  | 32  |      | 27  | 32  |      | 27  | 32  | mA      |
| $I_{IH}$ | Input HIGH Current   |       |     | 150 |     |     | 150 |      |     | 150 |      |     | 150 | $\mu A$ |

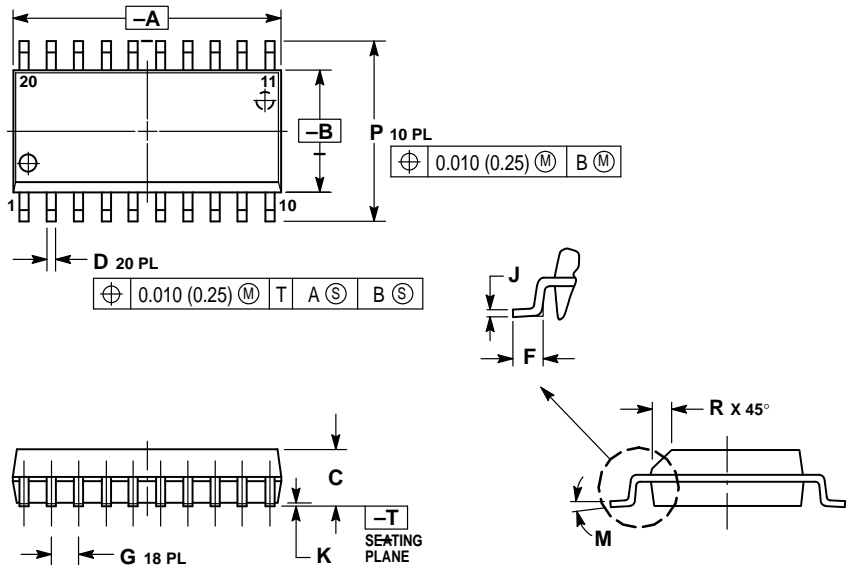
## MC100EL59

### AC CHARACTERISTICS ( $V_{EE} = -4.2V$ to $-5.5V$ ; $V_{CC} = GND$ )

| Symbol      | Characteristic                               | -40°C |     |     | 0°C |     |     | 25°C |     |     | 85°C |     |     | Unit |
|-------------|--|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|------|
|             |  | Min   | Typ | Max | Min | Typ | Max | Min  | Typ | Max | Min  | Typ | Max |      |
| $t_{PLH}$   | Propagation Delay DATA→Q/Q                   | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
| $t_{PHL}$   | Delay SEL→Q/Q                                | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
|             | COM_SEL→Q/Q                                  | 340   |     | 690 | 340 |     | 690 | 340  |     | 690 | 340  |     | 690 | ps   |
| $t_{sk(O)}$ | Output–Output Skew<br>Any $D_n$ , $D_m$ to Q |       |     | 100 |     |     | 100 |      |     | 100 |      |     | 100 | ps   |
| $t_r$       | Output Rise/Fall Times Q<br>(20% – 80%)      | 200   |     | 540 | 200 |     | 540 | 200  |     | 540 | 200  |     | 540 | ps   |
| $t_f$       |  |       |     |     |     |     |     |      |     |     |      |     |     |      |

OUTLINE DIMENSIONS

DW SUFFIX  
PLASTIC SOIC PACKAGE  
CASE 751D-04  
ISSUE E



- 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 0.150 (0.006) PER SIDE.
  5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.13 (0.005) TOTAL IN EXCESS OF D DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS |       | INCHES    |       |
|-----|-------------|-------|-----------|-------|
|     | MIN         | MAX   | MIN       | MAX   |
| A   | 12.65       | 12.95 | 0.499     | 0.510 |
| B   | 7.40        | 7.60  | 0.292     | 0.299 |
| C   | 2.35        | 2.65  | 0.093     | 0.104 |
| D   | 0.35        | 0.49  | 0.014     | 0.019 |
| F   | 0.50        | 0.90  | 0.020     | 0.035 |
| G   | 1.27 BSC    |       | 0.050 BSC |       |
| J   | 0.25        | 0.32  | 0.010     | 0.012 |
| K   | 0.10        | 0.25  | 0.004     | 0.009 |
| M   | 0°          | 7°    | 0°        | 7°    |
| P   | 10.05       | 10.55 | 0.395     | 0.415 |
| R   | 0.25        | 0.75  | 0.010     | 0.029 |

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