

MC10EP57, MC100EP57

3.3V / 5V ECL 4:1 Differential Multiplexer

The MC10/100EP57 is a fully differential 4:1 multiplexer. By leaving the SEL1 line open (pulled LOW via the input pulldown resistors) the device can also be used as a differential 2:1 multiplexer with SEL0 input selecting between D0 and D1. The fully differential architecture of the EP57 makes it ideal for use in low skew applications such as clock distribution.

The SEL1 is the most significant select line. The binary number applied to the select inputs will select the same numbered data input (i.e., 00 selects D0).

Multiple V_{BB} outputs are provided. The V_{BB} pin, an internally generated voltage supply, is available to this device only. For single-ended input conditions, the unused differential input is connected to V_{BB} as a switching reference voltage. V_{BB} may also rebias AC coupled inputs. When used, decouple V_{BB} and V_{CC} via a 0.01 μF capacitor and limit current sourcing or sinking to 0.5 mA. When not used, V_{BB} should be left open.

The 100 Series contains temperature compensation.

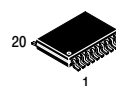
- 375 ps Typical Propagation Delays
- Maximum Frequency > 2 GHz Typical
- PECL Mode Operating Range: $V_{CC} = 3.0\text{ V}$ to 5.5 V with $V_{EE} = 0\text{ V}$
- NECL Mode Operating Range: $V_{CC} = 0\text{ V}$ with $V_{EE} = -3.0\text{ V}$ to -5.5 V
- Open Input Default State
- Safety Clamp on Inputs
- Q Output will default LOW with inputs open or at V_{EE}
- V_{BB} Outputs
- Useful as Either 4:1 or 2:1 Multiplexer



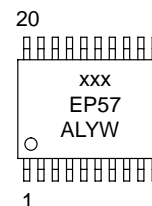
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MARKING DIAGRAM



TSSOP-20
DT SUFFIX
CASE 948E



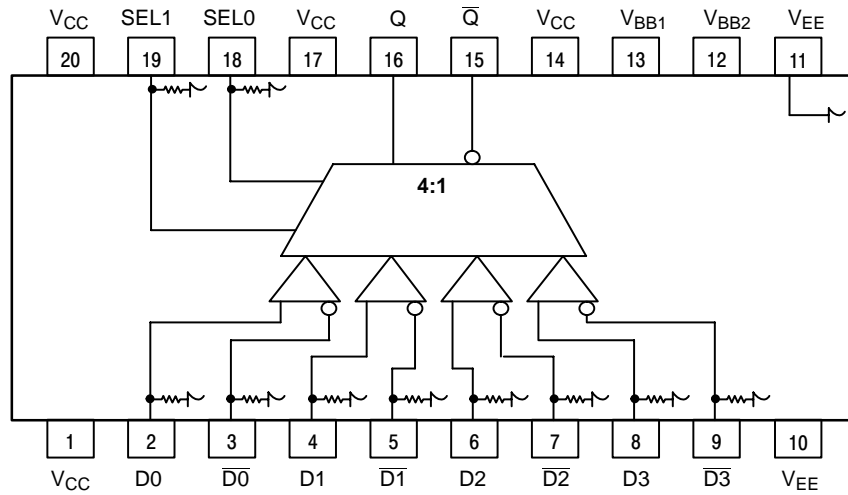
xxx = MC10 or 100
A = Assembly Location
L = Wafer Lot
Y = Year
W = Work Week

*For additional information, see Application Note AND8002/D

ORDERING INFORMATION

| Device | Package | Shipping |
|---------------|----------|------------------|
| MC10EP57DT | TSSOP-20 | 75 Units/Rail |
| MC10EP57DTR2 | TSSOP-20 | 2500 Tape & Reel |
| MC100EP57DT | TSSOP-20 | 75 Units/Rail |
| MC100EP57DTR2 | TSSOP-20 | 2500 Tape & Reel |

MC10EP57, MC100EP57



Warning: All V_{CC} and V_{EE} pins must be externally connected to Power Supply to guarantee proper operation.

Figure 1. 20-Lead Package (Top View) and Logic Diagram

PIN DESCRIPTION

| PIN | FUNCTION |
|----------------------------|------------------------------|
| D0–3*, $\overline{D0-3^*}$ | ECL Diff. Data Inputs |
| SEL0*, 1* | ECL Mux Select Inputs |
| V_{BB1} , V_{BB2} | ECL Reference Output Voltage |
| Q, \overline{Q} | ECL Data Outputs |
| V_{CC} | Positive Supply |
| V_{EE} | Negative Supply |

FUNCTION TABLE

| SEL1 | SEL0 | DATA OUT |
|------|------|---------------------|
| L | L | D0, $\overline{D0}$ |
| L | H | D1, $\overline{D1}$ |
| H | L | D2, $\overline{D2}$ |
| H | H | D3, $\overline{D3}$ |

* Pins will default LOW when left open.

ATTRIBUTES

| Characteristics | Value |
|--|---|
| Internal Input Pulldown Resistor | 75 k Ω |
| Internal Input Pullup Resistor | N/A |
| ESD Protection | Human Body Model Machine Model Charged Device Model |
| | > 4 kV > 100 V > 2 kV |
| Moisture Sensitivity, Indefinite Time Out of Drypack (Note 1.) | Level 1 |
| Flammability Rating Oxygen Index | UL-94 code V-0 A 1/8" 28 to 34 |
| Transistor Count | 584 Devices |
| Meets or exceeds JEDEC Spec EIA/JESD78 IC Latchup Test | |

1. For additional information, see Application Note AND8003/D.

MC10EP57, MC100EP57

MAXIMUM RATINGS (Note 2.)

| Symbol | Parameter | Condition 1 | Condition 2 | Rating | Units |
|------------------|--|--|--|-------------|--------------|
| V _{CC} | PECL Mode Power Supply | V _{EE} = 0 V | | 6 | V |
| V _{EE} | NECL Mode Power Supply | V _{CC} = 0 V | | -6 | V |
| V _I | PECL Mode Input Voltage NECL Mode Input Voltage | V _{EE} = 0 V V _{CC} = 0 V | V _I ≤ V _{CC} V _I ≥ V _{EE} | 6 -6 | V V |
| I _{out} | Output Current | Continuous Surge | | 50 100 | mA mA |
| I _{BB} | V _{BB} Sink/Source | | | ± 0.5 | mA |
| T _A | Operating Temperature Range | | | -40 to +85 | °C |
| T _{stg} | Storage Temperature Range | | | -65 to +150 | °C |
| θ _{JA} | Thermal Resistance (Junction to Ambient) | 0 LFPM 500 LFPM | 20 TSSOP 20 TSSOP | 140 100 | °C/W °C/W |
| θ _{JC} | Thermal Resistance (Junction to Case) | std bd | 20 TSSOP | 23 to 41 | °C/W |
| T _{sol} | Wave Solder | <2 to 3 sec @ 248°C | | 265 | °C |

2. Maximum Ratings are those values beyond which device damage may occur.

10EP DC CHARACTERISTICS, PECL V_{CC} = 3.3 V, V_{EE} = 0 V (Note 3.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|--------------------|---|-------------|-------------|------|-------------|------|------|-------------|------|------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I _{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V _{OH} | Output HIGH Voltage (Note 4.) | 2165 | 2290 | 2415 | 2230 | 2355 | 2480 | 2290 | 2415 | 2540 | mV |
| V _{OL} | Output LOW Voltage (Note 4.) | 1365 | 1490 | 1615 | 1430 | 1555 | 1680 | 1490 | 1615 | 1740 | mV |
| V _{IH} | Input HIGH Voltage (Single Ended) | 2090 | | 2415 | 2155 | | 2480 | 2215 | | 2540 | mV |
| V _{IL} | Input LOW Voltage (Single Ended) | 1365 | | 1690 | 1460 | | 1755 | 1490 | | 1815 | mV |
| V _{BB} | Output Voltage Reference | 1735 | 1835 | 1935 | 1800 | 1900 | 2000 | 1860 | 1960 | 2060 | mV |
| V _{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 5.) | 2.0 | | 3.3 | 2.0 | | 3.3 | 2.0 | | 3.3 | V |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | SEL, D D | 0.5 -150 | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

3. Input and output parameters vary 1:1 with V_{CC}. V_{EE} can vary +0.3 V to -2.2 V.

4. All loading with 50 ohms to V_{CC}-2.0 volts.

5. V_{IHCMR} min varies 1:1 with V_{EE}, V_{IHCMR} max varies 1:1 with V_{CC}. The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

MC10EP57, MC100EP57

10EP DC CHARACTERISTICS, PECL $V_{CC} = 5.0\text{ V}$, $V_{EE} = 0\text{ V}$ (Note 6.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|-------------|---|-------------|------|------|-------------|------|------|-------------|------|------|---------------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I_{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V_{OH} | Output HIGH Voltage (Note 7.) | 3865 | 3990 | 4115 | 3930 | 4055 | 4180 | 3990 | 4115 | 4240 | mV |
| V_{OL} | Output LOW Voltage (Note 7.) | 3065 | 3190 | 3315 | 3130 | 3255 | 3380 | 3190 | 3315 | 3440 | mV |
| V_{IH} | Input HIGH Voltage (Single Ended) | 3790 | | 4115 | 3855 | | 4180 | 3915 | | 4240 | mV |
| V_{IL} | Input LOW Voltage (Single Ended) | 3065 | | 3390 | 3130 | | 3455 | 3190 | | 3515 | mV |
| V_{BB} | Output Voltage Reference | 3435 | 3535 | 3635 | 3500 | 3600 | 3700 | 3560 | 3660 | 3760 | mV |
| V_{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 8.) | 2.0 | | 5.0 | 2.0 | | 5.0 | 2.0 | | 5.0 | V |
| I_{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I_{IL} | Input LOW Current SEL, D D | 0.5 -150 | | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

6. Input and output parameters vary 1:1 with V_{CC} . V_{EE} can vary +2.0 V to -0.5 V.

7. All loading with 50 ohms to V_{CC} -2.0 volts.

8. V_{IHCMR} min varies 1:1 with V_{EE} , V_{IHCMR} max varies 1:1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

10EP DC CHARACTERISTICS, NECL $V_{CC} = 0\text{ V}$, $V_{EE} = -5.5\text{ V}$ to -3.0 V (Note 9.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|-------------|--|--------------|-------|-------|--------------|-------|-------|--------------|-------|-------|---------------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I_{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V_{OH} | Output HIGH Voltage (Note 10.) | -1135 | -1010 | -885 | -1070 | -945 | -820 | -1010 | -885 | -760 | mV |
| V_{OL} | Output LOW Voltage (Note 10.) | -1935 | -1810 | -1685 | -1870 | -1745 | -1620 | -1810 | -1685 | -1560 | mV |
| V_{IH} | Input HIGH Voltage (Single Ended) | -1210 | | -885 | -1145 | | -820 | -1085 | | -760 | mV |
| V_{IL} | Input LOW Voltage (Single Ended) | -1935 | | -1610 | -1870 | | -1545 | -1810 | | -1485 | mV |
| V_{BB} | Output Voltage Reference | -1565 | -1465 | -1365 | -1500 | -1400 | -1300 | -1440 | -1340 | -1240 | mV |
| V_{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 11.) | $V_{EE}+2.0$ | | 0.0 | $V_{EE}+2.0$ | | 0.0 | $V_{EE}+2.0$ | | 0.0 | V |
| I_{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I_{IL} | Input LOW Current SEL, D D | 0.5 -150 | | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

9. Input and output parameters vary 1:1 with V_{CC} .

10. All loading with 50 ohms to V_{CC} -2.0 volts.

11. V_{IHCMR} min varies 1:1 with V_{EE} , V_{IHCMR} max varies 1:1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

MC10EP57, MC100EP57

100EP DC CHARACTERISTICS, PECL $V_{CC} = 3.3\text{ V}$, $V_{EE} = 0\text{ V}$ (Note 12.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|-------------|--|----------------------------|------|------|-------------|------|------|-------------|------|------|---------------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I_{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V_{OH} | Output HIGH Voltage (Note 13.) | 2155 | 2280 | 2405 | 2155 | 2280 | 2405 | 2155 | 2280 | 2405 | mV |
| V_{OL} | Output LOW Voltage (Note 13.) | 1355 | 1480 | 1605 | 1355 | 1480 | 1605 | 1355 | 1480 | 1605 | mV |
| V_{IH} | Input HIGH Voltage (Single Ended) | 2075 | | 2420 | 2075 | | 2420 | 2075 | | 2420 | mV |
| V_{IL} | Input LOW Voltage (Single Ended) | 1355 | | 1675 | 1355 | | 1675 | 1355 | | 1675 | mV |
| V_{BB} | Output Voltage Reference | 1775 | 1875 | 1975 | 1775 | 1875 | 1975 | 1775 | 1875 | 1975 | mV |
| V_{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 14.) | 2.0 | | 3.3 | 2.0 | | 3.3 | 2.0 | | 3.3 | V |
| I_{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I_{IL} | Input LOW Current | SEL, D D 0.5 -150 | | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

12. Input and output parameters vary 1:1 with V_{CC} . V_{EE} can vary +0.3 V to -2.2 V.

13. All loading with 50 ohms to V_{CC} -2.0 volts.

14. V_{IHCMR} min varies 1:1 with V_{EE} . V_{IHCMR} max varies 1:1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

100EP DC CHARACTERISTICS, PECL $V_{CC} = 5.0\text{ V}$, $V_{EE} = 0\text{ V}$ (Note 15.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|-------------|--|----------------------------|------|------|-------------|------|------|-------------|------|------|---------------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I_{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V_{OH} | Output HIGH Voltage (Note 16.) | 3855 | 3980 | 4105 | 3855 | 3980 | 4105 | 3855 | 3980 | 4105 | mV |
| V_{OL} | Output LOW Voltage (Note 16.) | 3055 | 3180 | 3305 | 3055 | 3180 | 3305 | 3055 | 3180 | 3305 | mV |
| V_{IH} | Input HIGH Voltage (Single Ended) | 3775 | | 4120 | 3775 | | 4120 | 3775 | | 4120 | mV |
| V_{IL} | Input LOW Voltage (Single Ended) | 3055 | | 3375 | 3055 | | 3375 | 3055 | | 3375 | mV |
| V_{BB} | Output Voltage Reference | 3475 | 3575 | 3675 | 3475 | 3575 | 3675 | 3475 | 3575 | 3675 | mV |
| V_{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 17.) | 2.0 | | 5.0 | 2.0 | | 5.0 | 2.0 | | 5.0 | V |
| I_{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I_{IL} | Input LOW Current | SEL, D D 0.5 -150 | | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

15. Input and output parameters vary 1:1 with V_{CC} . V_{EE} can vary +2.0 V to -0.5 V.

16. All loading with 50 ohms to V_{CC} -2.0 volts.

17. V_{IHCMR} min varies 1:1 with V_{EE} . V_{IHCMR} max varies 1:1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

MC10EP57, MC100EP57

100EP DC CHARACTERISTICS, NECL $V_{CC} = 0\text{ V}$, $V_{EE} = -5.5\text{ V}$ to -3.0 V (Note 18.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|-------------|--|--------------|-------|-------|--------------|-------|-------|--------------|-------|-------|---------------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| I_{EE} | Power Supply Current | 40 | 52 | 65 | 40 | 52 | 65 | 40 | 52 | 65 | mA |
| V_{OH} | Output HIGH Voltage (Note 19.) | -1145 | -1020 | -895 | -1145 | -1020 | -895 | -1145 | -1020 | -895 | mV |
| V_{OL} | Output LOW Voltage (Note 19.) | -1945 | -1820 | -1695 | -1945 | -1820 | -1695 | -1945 | -1820 | -1695 | mV |
| V_{IH} | Input HIGH Voltage (Single Ended) | -1225 | | -880 | -1225 | | -880 | -1225 | | -880 | mV |
| V_{IL} | Input LOW Voltage (Single Ended) | -1945 | | -1625 | -1945 | | -1625 | -1945 | | -1625 | mV |
| V_{BB} | Output Voltage Reference | -1525 | -1425 | -1325 | -1525 | -1425 | -1325 | -1525 | -1425 | -1325 | mV |
| V_{IHCMR} | Input HIGH Voltage Common Mode Range (Differential) (Note 20.) | $V_{EE}+2.0$ | | 0.0 | $V_{EE}+2.0$ | | 0.0 | $V_{EE}+2.0$ | | 0.0 | V |
| I_{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I_{IL} | Input LOW Current SEL, \overline{D} | 0.5 -150 | | | 0.5 -150 | | | 0.5 -150 | | | μA |

NOTE: EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfm is maintained.

18. Input and output parameters vary 1:1 with V_{CC} .

19. All loading with 50 ohms to $V_{CC}-2.0$ volts.

20. V_{IHCMR} min varies 1:1 with V_{EE} , V_{IHCMR} max varies 1:1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal.

AC CHARACTERISTICS $V_{CC} = 0\text{ V}$; $V_{EE} = -3.0\text{ V}$ to -5.5 V or $V_{CC} = 3.0\text{ V}$ to 5.5 V ; $V_{EE} = 0\text{ V}$ (Note 21.)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|--------------------------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| f_{max} | Maximum Frequency (See Figure 2. F_{max}/JITTER) | | > 3 | | | > 3 | | | > 3 | | GHz |
| t_{PLH} , t_{PHL} | Propagation Delay to Output Differential D to Q, \overline{Q} COM_SEL, SEL to Q, \overline{Q} | 250 300 | 350 400 | 450 500 | 275 320 | 375 420 | 475 520 | 320 320 | 420 450 | 520 575 | ps |
| t_{SKEW} | Device to Device Skew (Note 22.) | | | 200 | | | 200 | | | 200 | ps |
| t_{JITTER} | Cycle-to-Cycle Jitter (See Figure 2. F_{max}/JITTER) | | 0.2 | < 1 | | 0.2 | < 1 | | 0.2 | < 1 | ps |
| V_{PP} | Input Voltage Swing (Differential) | 150 | 800 | 1200 | 150 | 800 | 1200 | 150 | 800 | 1200 | mV |
| t_r , t_f | Output Rise/Fall Times (20% – 80%) Q, \overline{Q} | 70 | 120 | 170 | 70 | 140 | 200 | 70 | 150 | 220 | ps |

21. Measured using a 750 mV source, 50% duty cycle clock source. All loading with 50 ohms to $V_{CC}-2.0\text{ V}$.

22. Skew is measured between outputs under identical transitions. Duty cycle skew is defined only for differential operation when the delays are measured from the cross point of the inputs to the cross point of the outputs.

MC10EP57, MC100EP57

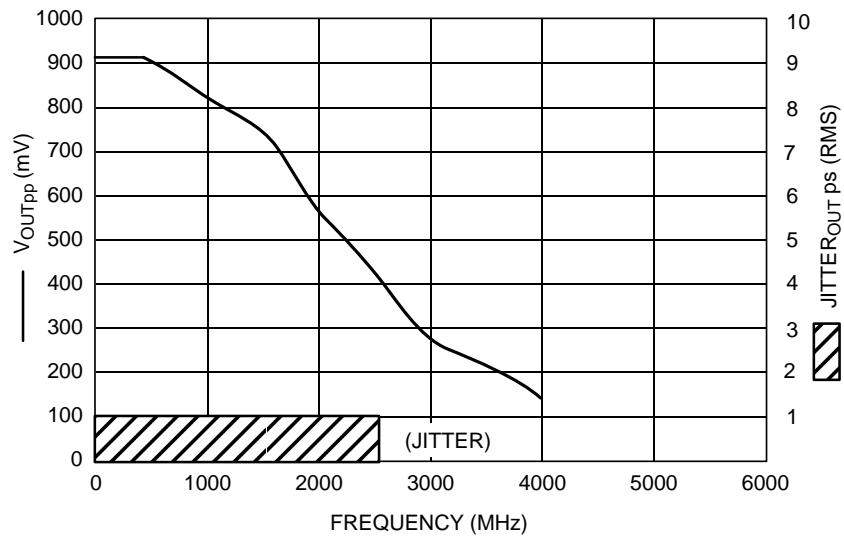


Figure 2. F_{max}/Jitter

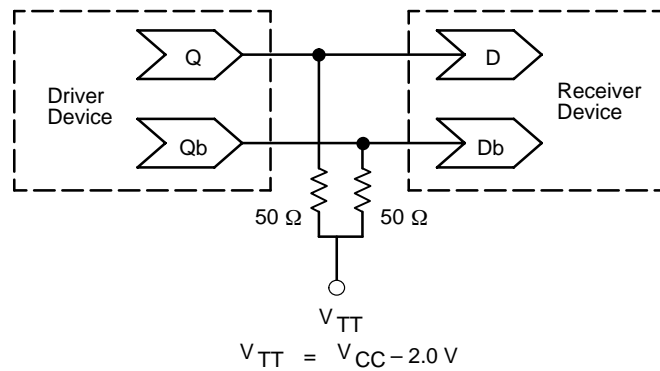


Figure 3. Typical Termination for Output Driver and Device Evaluation
(See Application Note AND8020 – Termination of ECL Logic Devices.)

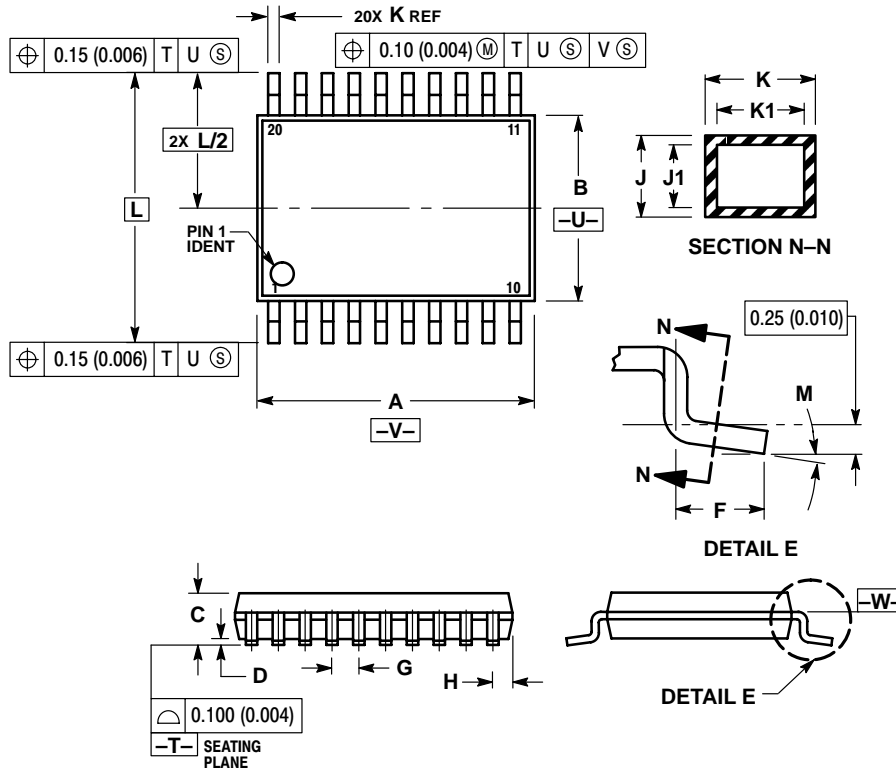
Resource Reference of Application Notes

- AN1404** – ECLinPS Circuit Performance at Non-Standard V_{IH} Levels
- AN1405** – ECL Clock Distribution Techniques
- AN1406** – Designing with PECL (ECL at +5.0 V)
- AN1504** – Metastability and the ECLinPS Family
- AN1568** – Interfacing Between LVDS and ECL
- AN1650** – Using Wire-OR Ties in ECLinPS Designs
- AN1672** – The ECL Translator Guide
- AND8001** – Odd Number Counters Design
- AND8002** – Marking and Date Codes
- AND8009** – ECLinPS Plus Spice I/O Model Kit
- AND8020** – Termination of ECL Logic Devices

For an updated list of Application Notes, please see our website at <http://onsemi.com>.


MC10EP57, MC100EP57

PACKAGE DIMENSIONS TSSOP-20 DT SUFFIX PLASTIC TSSOP PACKAGE CASE 948E-02 ISSUE A



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.
 3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
 4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
 5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
 6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
 7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 6.40 | 6.60 | 0.252 | 0.260 |
| B | 4.30 | 4.50 | 0.169 | 0.177 |
| C | --- | 1.20 | --- | 0.047 |
| D | 0.05 | 0.15 | 0.002 | 0.006 |
| F | 0.50 | 0.75 | 0.020 | 0.030 |
| G | 0.65 BSC | | 0.026 BSC | |
| H | 0.27 | 0.37 | 0.011 | 0.015 |
| J | 0.09 | 0.20 | 0.004 | 0.008 |
| J1 | 0.09 | 0.16 | 0.004 | 0.006 |
| K | 0.19 | 0.30 | 0.007 | 0.012 |
| K1 | 0.19 | 0.25 | 0.007 | 0.010 |
| L | 6.40 BSC | | 0.252 BSC | |
| M | 0° | 8° | 0° | 8° |

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