

MC100EPT21

3.3V Differential LVPECL/LVDS/CML to LVTTTL/LVCMOS Translator

The MC100EPT21 is a Differential LVPECL/LVDS/CML to LVTTTL/LVCMOS translator. Because LVPECL (Positive ECL), LVDS, and positive CML input levels and LVTTTL/LVCMOS output levels are used, only +3.3 V and ground are required. The small outline 8-lead SOIC package makes the EPT21 ideal for applications which require the translation of a clock or data signal.

The V_{BB} output allows this EPT21 to be cap coupled in either single-ended or differential input mode. When single-ended cap coupled, V_{BB} output is tied to the \bar{D} input and D is driven for a non-inverting buffer, or V_{BB} output is tied to the D input and \bar{D} is driven for an inverting buffer. When cap coupled differentially, V_{BB} output is connected through a resistor to each input pin. If used, the V_{BB} pin should be bypassed to V_{CC} via a 0.01 μF capacitor. For additional information see AND8020/D. For a single-ended direct connection use an external voltage reference source such as a resistor divider. Do not use V_{BB} for a single-ended direct connection or port to another device.

Features

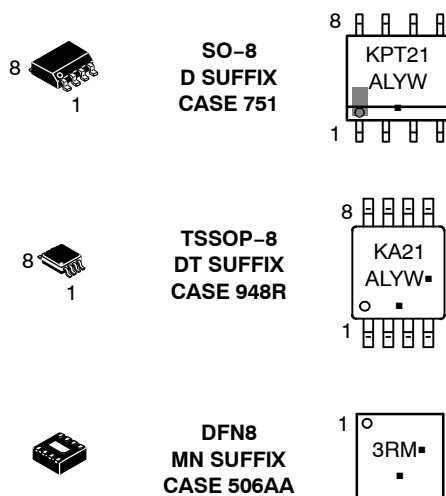
- 1.4 ns Typical Propagation Delay
- Maximum Frequency > 275 MHz Typical
- LVPECL/LVDS/CML Inputs, LVTTTL/LVCMOS Outputs
- 24 mA TTL outputs
- Operating Range: $V_{CC} = 3.0\text{ V}$ to 3.6 V with $GND = 0\text{ V}$
- The 100 Series Contains Temperature Compensation
- V_{BB} Output
- These Devices are Pb-Free and are RoHS Compliant



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MARKING DIAGRAMS*



A = Assembly Location
L = Wafer Lot
Y = Year
W = Work Week
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*For additional marking information, refer to Application Note AND8002/D.

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

MC100EPT21

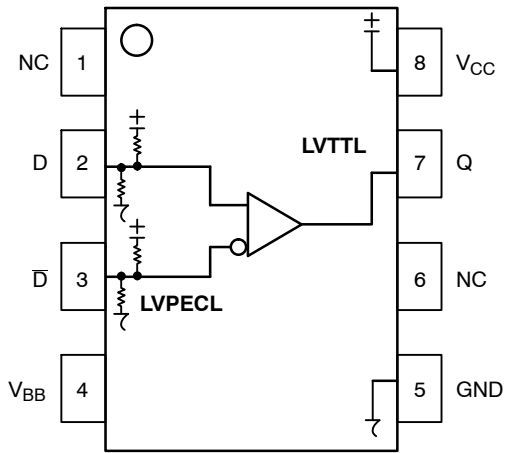


Figure 1. Logic Diagram and 8-Lead Pinout (Top View)

Table 1. PIN DESCRIPTION

| PIN | FUNCTION |
|-----------------|--|
| Q | LVTTTL/LVCMOS Output |
| D*, \bar{D} * | Differential LVPECL/LVDS/CML Input |
| V _{CC} | Positive Supply |
| V _{BB} | Output Reference Voltage |
| GND | Ground |
| NC | No Connect |
| EP | (DFN8 only) Thermal exposed pad must be connected to a sufficient thermal conduit. Electrically connect to the most negative supply (GND) or leave unconnected, floating open. |

* Pin will default to 1/2 of V_{CC} when left open.

Table 2. ATTRIBUTES

| Characteristics | Value |
|---|---|
| Internal Input Pulldown Resistor | D 50 kΩ |
| Internal Input Pulldown Resistor | \bar{D} 50 kΩ |
| Internal Input Pullup Resistor | D, \bar{D} 50 kΩ |
| ESD Protection | Human Body Model > 1.5 kV Machine Model > 100 V Charged Device Model > 2 kV |
| Moisture Sensitivity, Indefinite Time Out of Drypack (Note 1) | SOIC-8 Level 1 TSSOP-8 Level 3 DFN8 Level 1 |
| Flammability Rating | Oxygen Index: 28 to 34 UL 94 V-0 @ 0.125 in |
| Transistor Count | 81 Devices |
| Meets or exceeds JEDEC Spec EIA/JESD78 IC Latchup Test | |

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

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Table 3. MAXIMUM RATINGS

| Symbol | Parameter | Condition 1 | Condition 2 | Rating | Unit |
|------------------|--|--------------------|--|-------------|--------------|
| V _{CC} | PECL Power Supply | GND = 0 V | | 3.8 | V |
| V _{IN} | PECL Input Voltage | GND = 0 V | V _I ≤ V _{CC} | 0 to 3.8 | V |
| 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 | SO-8 SO-8 | 190 130 | °C/W °C/W |
| θ _{JC} | Thermal Resistance (Junction-to-Case) | Standard Board | SO-8 | 41 to 44 | °C/W |
| θ _{JA} | Thermal Resistance (Junction-to-Ambient) | 0 lfpm 500 lfpm | TSSOP-8 TSSOP-8 | 185 140 | °C/W °C/W |
| θ _{JC} | Thermal Resistance (Junction-to-Case) | Standard Board | TSSOP-8 | 41 to 44 | °C/W |
| θ _{JA} | Thermal Resistance (Junction-to-Ambient) | 0 lfpm 500 lfpm | DFN8 DFN8 | 129 84 | °C/W °C/W |
| T _{sol} | Wave Solder | Pb Pb-Free | < 2 to 3 sec @ 248°C < 2 to 3 sec @ 260°C | 265 265 | °C |
| θ _{JC} | Thermal Resistance (Junction-to-Case) | (Note 2) | DFN8 | 35 to 40 | °C/W |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

2. JEDEC standard multilayer board – 2S2P (2 signal, 2 power)

Table 4. PECL INPUT DC CHARACTERISTICS V_{CC} = 3.3 V, GND = 0.0 V (Note 3)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|--------------------|--|-------|------|------|------|------|------|------|------|------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| 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 Configuration) (Note 4) | 1.2 | | 3.3 | 1.2 | | 3.3 | 1.2 | | 3.3 | V |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | -150 | | | -150 | | | -150 | | | μA |

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfpm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

3. Input parameters vary 1:1 with V_{CC}.

4. V_{IHCMR} min varies 1:1 with GND, 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.

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Table 5. LVTTTL/LVCMOS OUTPUT DC CHARACTERISTICS $V_{CC} = 3.3\text{ V}$, $GND = 0.0\text{ V}$, $T_A = -40^\circ\text{C}$ to 85°C

| Symbol | Characteristic | Condition | Min | Typ | Max | Unit |
|-----------|------------------------------|---------------------------|------|-----|-----|------|
| V_{OH} | Output HIGH Voltage | $I_{OH} = -3.0\text{ mA}$ | 2.4 | | | V |
| V_{OL} | Output LOW Voltage | $I_{OL} = 24\text{ mA}$ | | | 0.5 | V |
| I_{CCH} | Power Supply Current | Outputs set to HIGH | 5 | 17 | 25 | mA |
| I_{CCL} | Power Supply Current | Outputs set to LOW | 8 | 21 | 30 | mA |
| I_{OS} | Output Short Circuit Current | | -130 | | -80 | mA |

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

Table 6. AC CHARACTERISTICS $V_{CC} = 3.0\text{ V}$ to 3.6 V , $GND = 0.0\text{ V}$ (Note 5)

| Symbol | Characteristic | -40°C | | | 25°C | | | 85°C | | | Unit |
|--------------------------|--|---------------------|--------------|--------------|--------------------|--------------|--------------|--------------------|--------------|--------------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| f_{max} | Maximum Frequency (Figure 2) | 275 | 350 | | 275 | 350 | | 275 | 350 | | MHz |
| t_{PLH} , t_{PHL} | Propagation Delay to Output Differential | 800 1200 | 1400 1400 | 2050 1800 | 800 1200 | 1400 1400 | 2250 1800 | 900 1100 | 1600 1300 | 2950 1900 | ps |
| t_{SKEW} | Duty Cycle Skew (Note 6) | 45 | 50 | 55 | 45 | 50 | 55 | 45 | 50 | 55 | % |
| t_{SKPP} | Part-to-Part Skew (Note 6) | | | 500 | | | 500 | | | 500 | ps |
| t_{JITTER} | Random Clock Jitter (RMS) | | 3.5 | 5 | | 3.5 | 5 | | 3.5 | 5 | ps |
| V_{PP} | Input Voltage Swing (Differential Configuration) | 150 | 800 | 1200 | 150 | 800 | 1200 | 150 | 800 | 1200 | mV |
| t_r t_f | Output Rise/Fall Times (0.8V – 2.0V) Q, \bar{Q} | 250 | 600 | 900 | 250 | 600 | 900 | 250 | 600 | 900 | ps |

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

5. Measured with a 750 mV 50% duty-cycle clock source. $R_L = 500\ \Omega$ to GND and $C_L = 20\text{ pF}$ to GND. Refer to Figure 3.
6. Skews are measured between outputs under identical transitions. Duty cycle skew is measured between differential outputs using the deviations of the sum T_{pw-} and T_{pw+} .

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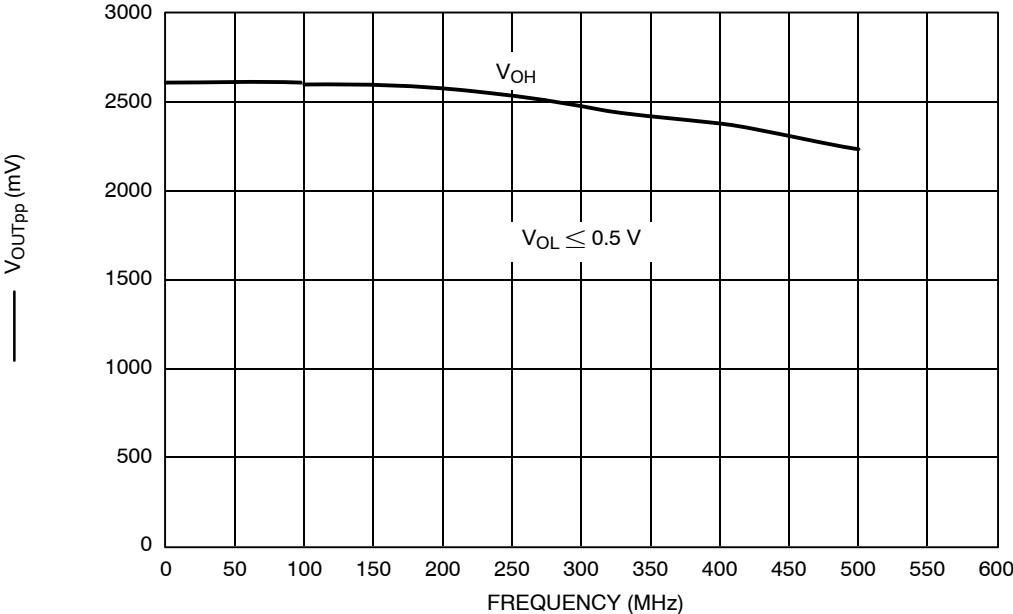


Figure 2. F_{max}

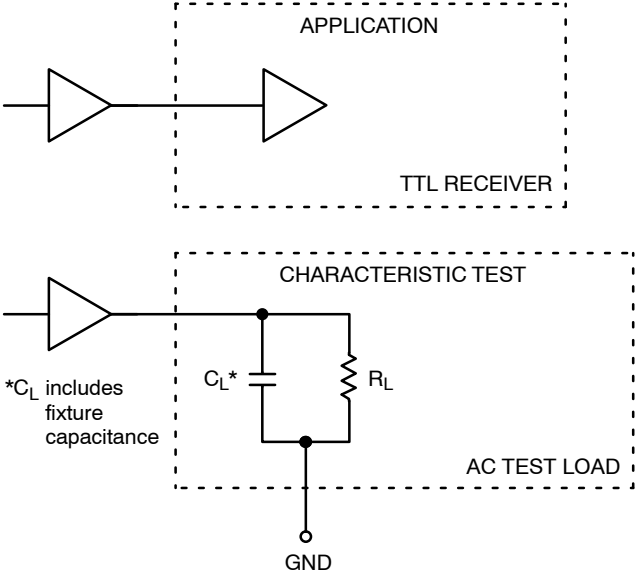


Figure 3. TTL Output Loading Used For Device Evaluation

MC100EPT21

ORDERING INFORMATION

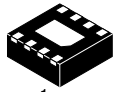
| Device | Package | Shipping† |
|-----------------|----------------------|--------------------|
| MC100EPT21DG | SOIC-8 (Pb-Free) | 98 Units / Rail |
| MC100EPT21DR2G | SOIC-8 (Pb-Free) | 2500 / Tape & Reel |
| MC100EPT21DTG | TSSOP-8 (Pb-Free) | 100 Units / Rail |
| MC100EPT21DTR2G | TSSOP-8 (Pb-Free) | 2500 / Tape & Reel |
| MC100EPT21MNR4G | DFN8 (Pb-Free) | 1000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Resource Reference of Application Notes

- AN1405/D** – ECL Clock Distribution Techniques
- AN1406/D** – Designing with PECL (ECL at +5.0 V)
- AN1503/D** – ECLinPS™ I/O SPICE Modeling Kit
- AN1504/D** – Metastability and the ECLinPS Family
- AN1568/D** – Interfacing Between LVDS and ECL
- AN1672/D** – The ECL Translator Guide
- AND8001/D** – Odd Number Counters Design
- AND8002/D** – Marking and Date Codes
- AND8020/D** – Termination of ECL Logic Devices
- AND8066/D** – Interfacing with ECLinPS
- AND8090/D** – AC Characteristics of ECL Devices

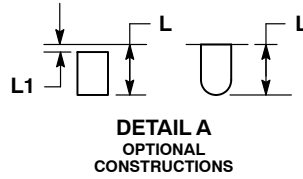
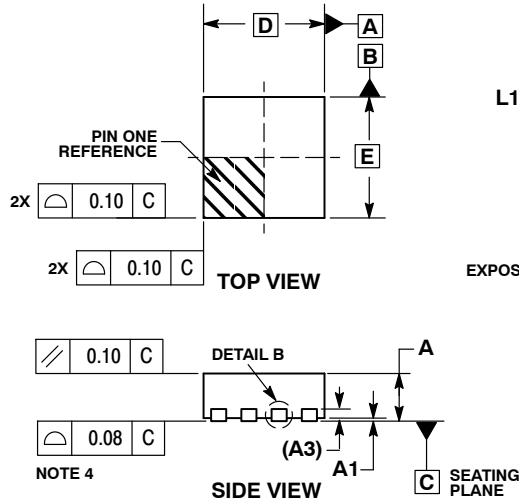
MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

DFN8 2x2, 0.5P
CASE 506AA
ISSUE F

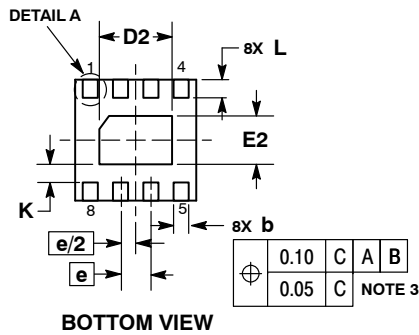
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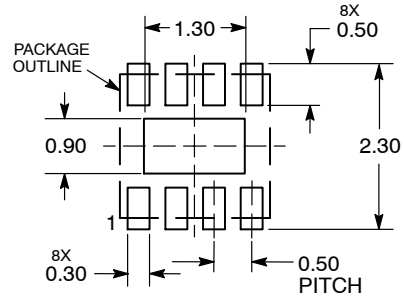
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994 .
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

| MILLIMETERS | | |
|-------------|----------|------|
| DIM | MIN | MAX |
| A | 0.80 | 1.00 |
| A1 | 0.00 | 0.05 |
| A3 | 0.20 REF | |
| b | 0.20 | 0.30 |
| D | 2.00 BSC | |
| D2 | 1.10 | 1.30 |
| E | 2.00 BSC | |
| E2 | 0.70 | 0.90 |
| e | 0.50 BSC | |
| K | 0.30 REF | |
| L | 0.25 | 0.35 |
| L1 | --- | 0.10 |

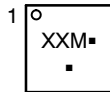


RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

GENERIC MARKING DIAGRAM*



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Device

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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

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| DESCRIPTION: | DFN8, 2.0X2.0, 0.5MM PITCH | PAGE 1 OF 1 |

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MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 1:1

SOIC-8 NB
CASE 751-07
ISSUE AK

DATE 16 FEB 2011



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.
 3. DIMENSION 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.
 6. 751-01 THRU 751-06 ARE OBSOLETE. NEW STANDARD IS 751-07.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 4.80 | 5.00 | 0.189 | 0.197 |
| B | 3.80 | 4.00 | 0.150 | 0.157 |
| C | 1.35 | 1.75 | 0.053 | 0.069 |
| D | 0.33 | 0.51 | 0.013 | 0.020 |
| G | 1.27 BSC | | 0.050 BSC | |
| H | 0.10 | 0.25 | 0.004 | 0.010 |
| J | 0.19 | 0.25 | 0.007 | 0.010 |
| K | 0.40 | 1.27 | 0.016 | 0.050 |
| M | 0° | 8° | 0° | 8° |
| N | 0.25 | 0.50 | 0.010 | 0.020 |
| S | 5.80 | 6.20 | 0.228 | 0.244 |

SOLDERING FOOTPRINT*



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

GENERIC MARKING DIAGRAM*



XXXXXX = Specific Device Code
A = Assembly Location
L = Wafer Lot
Y = Year
W = Work Week
▪ = Pb-Free Package

XXXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

STYLES ON PAGE 2

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CASE 751-07
ISSUE AK

DATE 16 FEB 2011

- | | | | |
|---|--|--|--|
| <p>STYLE 1: PIN 1. EMITTER 2. COLLECTOR 3. COLLECTOR 4. EMITTER 5. EMITTER 6. BASE 7. BASE 8. EMITTER</p> | <p>STYLE 2: PIN 1. COLLECTOR, DIE, #1 2. COLLECTOR, #1 3. COLLECTOR, #2 4. COLLECTOR, #2 5. BASE, #2 6. EMITTER, #2 7. BASE, #1 8. EMITTER, #1</p> | <p>STYLE 3: PIN 1. DRAIN, DIE #1 2. DRAIN, #1 3. DRAIN, #2 4. DRAIN, #2 5. GATE, #2 6. SOURCE, #2 7. GATE, #1 8. SOURCE, #1</p> | <p>STYLE 4: PIN 1. ANODE 2. ANODE 3. ANODE 4. ANODE 5. ANODE 6. ANODE 7. ANODE 8. COMMON CATHODE</p> |
| <p>STYLE 5: PIN 1. DRAIN 2. DRAIN 3. DRAIN 4. DRAIN 5. GATE 6. GATE 7. SOURCE 8. SOURCE</p> | <p>STYLE 6: PIN 1. SOURCE 2. DRAIN 3. DRAIN 4. SOURCE 5. SOURCE 6. GATE 7. GATE 8. SOURCE</p> | <p>STYLE 7: PIN 1. INPUT 2. EXTERNAL BYPASS 3. THIRD STAGE SOURCE 4. GROUND 5. DRAIN 6. GATE 3 7. SECOND STAGE Vd 8. FIRST STAGE Vd</p> | <p>STYLE 8: PIN 1. COLLECTOR, DIE #1 2. BASE, #1 3. BASE, #2 4. COLLECTOR, #2 5. COLLECTOR, #2 6. EMITTER, #2 7. EMITTER, #1 8. COLLECTOR, #1</p> |
| <p>STYLE 9: PIN 1. EMITTER, COMMON 2. COLLECTOR, DIE #1 3. COLLECTOR, DIE #2 4. EMITTER, COMMON 5. EMITTER, COMMON 6. BASE, DIE #2 7. BASE, DIE #1 8. EMITTER, COMMON</p> | <p>STYLE 10: PIN 1. GROUND 2. BIAS 1 3. OUTPUT 4. GROUND 5. GROUND 6. BIAS 2 7. INPUT 8. GROUND</p> | <p>STYLE 11: PIN 1. SOURCE 1 2. GATE 1 3. SOURCE 2 4. GATE 2 5. DRAIN 2 6. DRAIN 2 7. DRAIN 1 8. DRAIN 1</p> | <p>STYLE 12: PIN 1. SOURCE 2. SOURCE 3. SOURCE 4. GATE 5. DRAIN 6. DRAIN 7. DRAIN 8. DRAIN</p> |
| <p>STYLE 13: PIN 1. N.C. 2. SOURCE 3. SOURCE 4. GATE 5. DRAIN 6. DRAIN 7. DRAIN 8. DRAIN</p> | <p>STYLE 14: PIN 1. N-SOURCE 2. N-GATE 3. P-SOURCE 4. P-GATE 5. P-DRAIN 6. P-DRAIN 7. N-DRAIN 8. N-DRAIN</p> | <p>STYLE 15: PIN 1. ANODE 1 2. ANODE 1 3. ANODE 1 4. ANODE 1 5. CATHODE, COMMON 6. CATHODE, COMMON 7. CATHODE, COMMON 8. CATHODE, COMMON</p> | <p>STYLE 16: PIN 1. EMITTER, DIE #1 2. BASE, DIE #1 3. EMITTER, DIE #2 4. BASE, DIE #2 5. COLLECTOR, DIE #2 6. COLLECTOR, DIE #2 7. COLLECTOR, DIE #1 8. COLLECTOR, DIE #1</p> |
| <p>STYLE 17: PIN 1. VCC 2. V2OUT 3. V1OUT 4. TXE 5. RXE 6. VEE 7. GND 8. ACC</p> | <p>STYLE 18: PIN 1. ANODE 2. ANODE 3. SOURCE 4. GATE 5. DRAIN 6. DRAIN 7. CATHODE 8. CATHODE</p> | <p>STYLE 19: PIN 1. SOURCE 1 2. GATE 1 3. SOURCE 2 4. GATE 2 5. DRAIN 2 6. MIRROR 2 7. DRAIN 1 8. MIRROR 1</p> | <p>STYLE 20: PIN 1. SOURCE (N) 2. GATE (N) 3. SOURCE (P) 4. GATE (P) 5. DRAIN 6. DRAIN 7. DRAIN 8. DRAIN</p> |
| <p>STYLE 21: PIN 1. CATHODE 1 2. CATHODE 2 3. CATHODE 3 4. CATHODE 4 5. CATHODE 5 6. COMMON ANODE 7. COMMON ANODE 8. CATHODE 6</p> | <p>STYLE 22: PIN 1. I/O LINE 1 2. COMMON CATHODE/VCC 3. COMMON CATHODE/VCC 4. I/O LINE 3 5. COMMON ANODE/GND 6. I/O LINE 4 7. I/O LINE 5 8. COMMON ANODE/GND</p> | <p>STYLE 23: PIN 1. LINE 1 IN 2. COMMON ANODE/GND 3. COMMON ANODE/GND 4. LINE 2 IN 5. LINE 2 OUT 6. COMMON ANODE/GND 7. COMMON ANODE/GND 8. LINE 1 OUT</p> | <p>STYLE 24: PIN 1. BASE 2. EMITTER 3. COLLECTOR/ANODE 4. COLLECTOR/ANODE 5. CATHODE 6. CATHODE 7. COLLECTOR/ANODE 8. COLLECTOR/ANODE</p> |
| <p>STYLE 25: PIN 1. VIN 2. N/C 3. REXT 4. GND 5. IOUT 6. IOUT 7. IOUT 8. IOUT</p> | <p>STYLE 26: PIN 1. GND 2. dv/dt 3. ENABLE 4. ILIMIT 5. SOURCE 6. SOURCE 7. SOURCE 8. VCC</p> | <p>STYLE 27: PIN 1. ILIMIT 2. OVLO 3. UVLO 4. INPUT+ 5. SOURCE 6. SOURCE 7. SOURCE 8. DRAIN</p> | <p>STYLE 28: PIN 1. SW_TO_GND 2. DASIC OFF 3. DASIC_SW_DET 4. GND 5. V_MON 6. VBULK 7. VBULK 8. VIN</p> |
| <p>STYLE 29: PIN 1. BASE, DIE #1 2. EMITTER, #1 3. BASE, #2 4. EMITTER, #2 5. COLLECTOR, #2 6. COLLECTOR, #2 7. COLLECTOR, #1 8. COLLECTOR, #1</p> | <p>STYLE 30: PIN 1. DRAIN 1 2. DRAIN 1 3. GATE 2 4. SOURCE 2 5. SOURCE 1/DRAIN 2 6. SOURCE 1/DRAIN 2 7. SOURCE 1/DRAIN 2 8. GATE 1</p> | | |

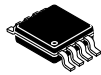
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MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

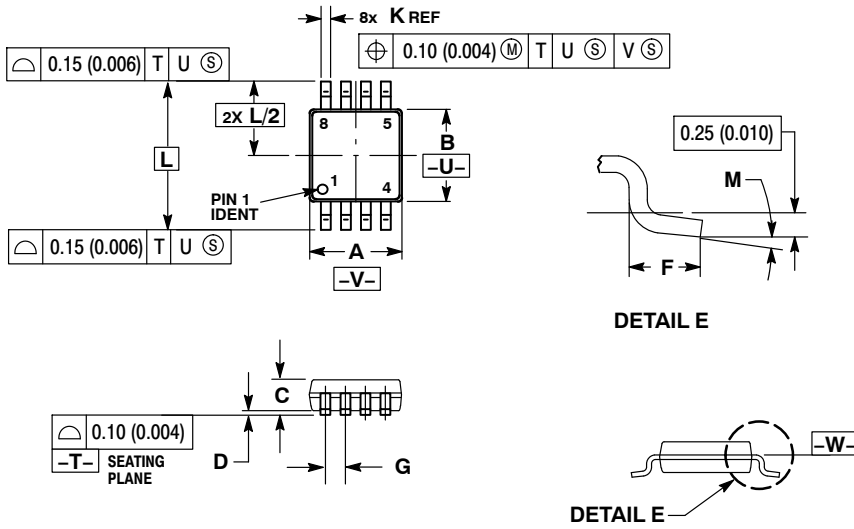
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SCALE 2:1

TSSOP 8 CASE 948R-02 ISSUE A

DATE 04/07/2000



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. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
6. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 2.90 | 3.10 | 0.114 | 0.122 |
| B | 2.90 | 3.10 | 0.114 | 0.122 |
| C | 0.80 | 1.10 | 0.031 | 0.043 |
| D | 0.05 | 0.15 | 0.002 | 0.006 |
| F | 0.40 | 0.70 | 0.016 | 0.028 |
| G | 0.65 BSC | | 0.026 BSC | |
| K | 0.25 | 0.40 | 0.010 | 0.016 |
| L | 4.90 BSC | | 0.193 BSC | |
| M | 0° | 6° | 0° | 6° |

| | | |
|-------------------------|--------------------|--|
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