

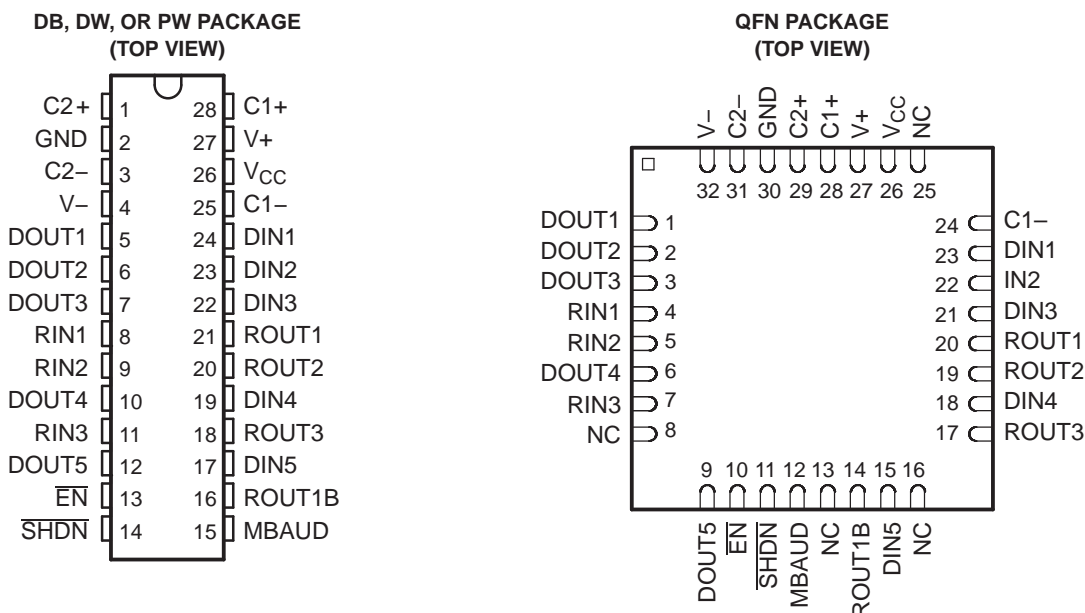
FEATURES

- Meets or Exceeds the Requirements of TIA/EIA-232-F and ITU v.28 Standards
- Operates With 3-V to 5.5-V V_{CC} Supply
- Operates From 250 kbits/s to 1 Mbit/s
- Low Standby Current . . . 1 μ A Typical
- External Capacitors . . . $4 \times 0.1 \mu$ F
- Accepts 5-V Logic Input With 3.3-V Supply
- Designed to Be Interchangeable With Maxim MAX3237E
- Latch-Up Performance Exceeds 100 mA Per JEDEC 78, Class II

- ESD Protection for RS-232 I/O Pins and Logic Input pins
 - ± 15 kV – Human-Body Model (HBM)
 - ± 8 kV – IEC61000-4-2, Contact Discharge
 - ± 15 kV – IEC61000-4-2, Air-Gap Discharge

APPLICATIONS

- Battery-Powered, Hand-Held, and Portable Equipment
- PDAs and Palmtop PCs
- Notebooks, Sub-Notebooks, and Laptops
- Digital Cameras
- Mobile Phones and Wireless Devices



DESCRIPTION

The MAX3237E consists of five line drivers, three line receivers, and a dual charge-pump circuit with ± 15 -kV ESD protection pin to pin (serial-port connection pins, including GND). The device meets the requirements of TIA/EIA-232-F and provides the electrical interface between an asynchronous communication controller and the serial-port connector. The charge pump and four small external capacitors allow operation from a single 3-V to 5.5-V supply. This device operates at data signaling rates of 250 kbit/s in normal operating mode (MBAUD = GND) and 1Mbit/s when MBAUD = V_{CC} . The driver output slew rate is a maximum of 30 V/ μ s.

DESCRIPTION (CONTINUED)

The MAX3237E transmitters are disabled and the outputs are forced into high-impedance state when the device is in shutdown mode ($\overline{\text{SHDN}}$ = GND) and the supply current falls to less than 1 μ A. Also, during shutdown, the onboard charge pump is disabled; V+ is lowered to V_{CC} , and V- is raised toward GND. Receiver outputs also can be placed in the high-impedance state by setting enable ($\overline{\text{EN}}$) high. ROUT1B remains active all the time, regardless of the $\overline{\text{EN}}$ and $\overline{\text{SHDN}}$ condition.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

MAX3237E
3-V TO 5.5-V MULTICHANNEL RS-232
1-MBit/s LINE DRIVER/RECEIVER

SLLS709A–MAY 2006–REVISED OCTOBER 2006

The MAX3237EC is characterized for operation from 0°C to 70°C. The MAX3237EI is characterized for operation from –40°C to 85°C.

AVAILABLE OPTIONS

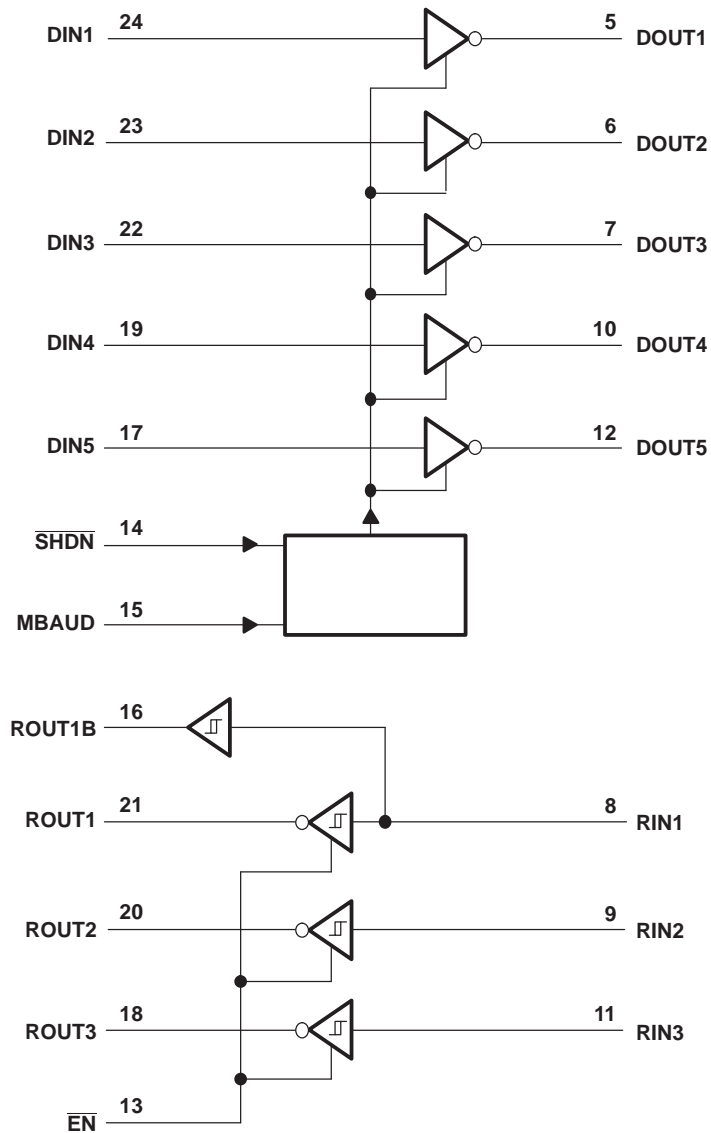
| T _A | PACKAGED DEVICES |
|----------------|-----------------------------|
| 0°C to 70°C | MAX3237ECDBR |
| | MAX3237ECPWR |
| | MAX3237ECRHBR (QFN package) |
| | MAX3237ECDWR |
| –40°C to 85°C | MAX3237EIDBR |
| | MAX3237EIPWR |
| | MAX3237EIRHBR (QFN package) |
| | MAX3237EIDWR |

FUNCTION TABLE

| INPUTS | | OUTPUTS | | |
|--------|----|------------------|------------------|--------|
| SHDN | EN | DOUT | ROUT | ROUT1B |
| 0 | 0 | Z ⁽¹⁾ | Active | Active |
| 0 | 1 | Z ⁽¹⁾ | Z ⁽¹⁾ | Active |
| 1 | 0 | Active | Active | Active |
| 1 | 1 | Active | Z ⁽¹⁾ | Active |

(1) Z = high impedance (off)

LOGIC DIAGRAM (POSITIVE LOGIC)



MAX3237E
3-V TO 5.5-V MULTICHANNEL RS-232
1-MBit/s LINE DRIVER/RECEIVER

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Absolute Maximum Ratings⁽¹⁾

over operating free-air temperature range (unless otherwise noted)

| | | MIN | MAX | UNIT | |
|----------------------|---|---|-------|-----------------------|---|
| V _{CC} | Supply voltage range ⁽²⁾ | –0.3 | 6 | V | |
| V+ | Positive-output supply voltage range ⁽²⁾ | –0.3 | 7 | V | |
| V– | Negative-output supply voltage range ⁽²⁾ | 0.3 | –7 | V | |
| V+ – V– | Supply voltage difference ⁽²⁾ | | 13 | V | |
| V _I | Input voltage range | Driver ($\overline{\text{SHDN}}$, MBAUD, $\overline{\text{EN}}$) | –0.3 | 6 | V |
| | | Receiver | –25 | 25 | |
| V _O | Output voltage range | Driver | –13.2 | 13.2 | V |
| | | Receiver | –0.3 | V _{CC} + 0.3 | |
| | Short-circuit duration | DOUT to GND | | Unlimited | |
| θ_{JA} | Package thermal impedance ⁽³⁾ | | 62 | °C/W | |
| | | Lead temperature 1,6 mm (1/16 in) from case for 10 s | 260 | °C | |
| T _{stg} | Storage temperature range | –65 | 150 | °C | |

- (1) Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- (2) All voltages are with respect to network GND.
- (3) The package thermal impedance is calculated in accordance with JESD 51-7.

Recommended Operating Conditions⁽¹⁾

See [Figure 5](#)

| | | MIN | NOM | MAX | UNIT | |
|-----------------|---|---|-------------------------|-----|------|---|
| Supply voltage | | V _{CC} = 3.3 V | 3 | 3.3 | 3.6 | V |
| | | V _{CC} = 5 V | 4.5 | 5 | 5.5 | |
| V _{IH} | Driver and control high-level input voltage | DIN, $\overline{\text{SHDN}}$, MBAUD, $\overline{\text{EN}}$ | V _{CC} = 3.3 V | 2 | 5.5 | V |
| | | | V _{CC} = 5 V | 2.4 | 5.5 | |
| V _{IL} | Driver and control low-level input voltage | DIN, $\overline{\text{SHDN}}$, MBAUD, $\overline{\text{EN}}$ | | 0 | 0.8 | V |
| V _I | Receiver input voltage | | | –25 | 25 | V |
| T _A | Operating free-air temperature | MAX3237EC | 0 | 70 | °C | |
| | | MAX3237EI | –40 | 85 | | |

- (1) Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3 V to 5 V.

Electrical Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see [Figure 5](#))

| PARAMETER | | TEST CONDITIONS | MIN | TYP ⁽²⁾ | MAX | UNIT |
|-----------------|---|---|-----|--------------------|-----|---------|
| I _I | Input leakage current | DIN, $\overline{\text{SHDN}}$, MBAUD, $\overline{\text{EN}}$ | | 9 | 18 | μ A |
| I _{CC} | Supply current (T _A = 25°C) | No load, $\overline{\text{SHDN}} = V_{\text{CC}}$ | | 0.5 | 2 | mA |
| | | $\overline{\text{SHDN}} = \text{GND}$ | | 1 | 10 | μ A |
| | | Shutdown supply current $\overline{\text{SHDN}} = \text{RIN} = \text{GND}$, DIN = GND or V _{CC} | | 10 | 300 | nA |

- (1) Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3 V to 5 V.
- (2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.

DRIVER SECTION

Electrical Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see [Figure 5](#))

| PARAMETER | | TEST CONDITIONS | | MIN | TYP ⁽²⁾ | MAX | UNIT |
|-----------------|---|--|-----------------------|-----|--------------------|-----|------|
| V _{OH} | High-level output voltage | DOUT at R _L = 3 kΩ to GND, | DIN = GND | 5 | 5.4 | | V |
| V _{OL} | Low-level output voltage | DOUT at R _L = 3 kΩ to GND, | DIN = V _{CC} | –5 | –5.4 | | V |
| I _{IH} | High-level input current | V _I = V _{CC} | | | ±0.01 | ±1 | μA |
| I _{IL} | Low-level input current | V _I at GND | | | ±0.01 | ±1 | μA |
| I _{OS} | Short-circuit output current ⁽³⁾ | V _{CC} = 3.6 V or 3.3 V, | V _O = 0 V | | | ±60 | mA |
| r _O | Output resistance | V _{CC} , V ₊ , and V _– = 0 V, | V _O = ±2 V | 300 | 50k | | Ω |

(1) Test conditions are C1–C4 = 0.1 μF at V_{CC} = 3 V to 5 V.

(2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.

(3) Short-circuit durations should be controlled to prevent exceeding the device absolute power-dissipation ratings, and not more than one output should be shorted at a time.

Switching Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see [Figure 5](#))

| PARAMETER | | TEST CONDITIONS | | MIN | TYP ⁽²⁾ | MAX | UNIT |
|--------------------|---|---|-------------------------------------|-------------------------|--------------------|-----|--------|
| Maximum data rate | C _L = 1000 pF, MBAUD = GND | R _L = 3 kΩ, 1 DIN switching, See Figure 1 | | 250 | | | kbit/s |
| | C _L = 1000 pF, V _{CC} = 4.5 V to 5.5 V, MBAUD = V _{CC} | | | 1000 | | | |
| | C _L = 250 pF, V _{CC} = 3 V to 4.5 V, MBAUD = V _{CC} | | | 1000 | | | |
| t _{sk(p)} | Pulse skew ⁽³⁾ | C _L = 150 pF to 2500 pF, R _L = 3 kΩ to 7 kΩ, MBAUD = V _{CC} or GND, See Figure 2 | | 100 | | | ns |
| SR(tr) | Slew rate, transition region (see Figure 1) | V _{CC} = 3.3 V, R _L = 3 kΩ to 7 kΩ, T _A = 25°C | C _L = 150 pF to 1000 pF | MBAUD = GND | 6 | 30 | V/μs |
| | | | C _L = 150 pF to 2500 pF, | MBAUD = V _{CC} | 24 | 150 | |
| | | | | MBAUD = GND | 4 | 30 | |

(1) Test conditions are C1–C4 = 0.1 μF at V_{CC} = 3 V to 5 V.

(2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.

(3) Pulse skew is defined as |t_{PLH} – t_{PHL}| of each channel of the same device.

MAX3237E
3-V TO 5.5-V MULTICHANNEL RS-232
1-MBit/s LINE DRIVER/RECEIVER

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RECEIVER SECTION

Electrical Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see [Figure 5](#))

| PARAMETER | | TEST CONDITIONS | MIN | TYP ⁽²⁾ | MAX | UNIT |
|------------------|---|--------------------------------|-----------------------|-----------------------|-----|------|
| V _{OH} | High-level output voltage | I _{OH} = -1 mA | V _{CC} - 0.6 | V _{CC} - 0.1 | | V |
| V _{OL} | Low-level output voltage | I _{OL} = 1 mA | | | 0.4 | V |
| V _{IT+} | Positive-going input threshold voltage | V _{CC} = 3.3 V | | 1.5 | 2.4 | V |
| | | V _{CC} = 5 V | | 2 | 2.4 | |
| V _{IT-} | Negative-going input threshold voltage | V _{CC} = 3.3 V | 0.6 | 1.1 | | V |
| | | V _{CC} = 5 V | 0.8 | 1.5 | | |
| V _{hys} | Input hysteresis (V _{IT+} - V _{IT-}) | | | 0.5 | | V |
| I _{oz} | Output leakage current | $\overline{EN} = V_{CC}$ | | ±0.05 | ±10 | µA |
| r _i | Input resistance | V _I = ±3 V to ±25 V | 3 | 5 | 7 | kΩ |

- (1) Test conditions are C1–C4 = 0.1 mF at V_{CC} = 3 V to 5 V.
- (2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.

Switching Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

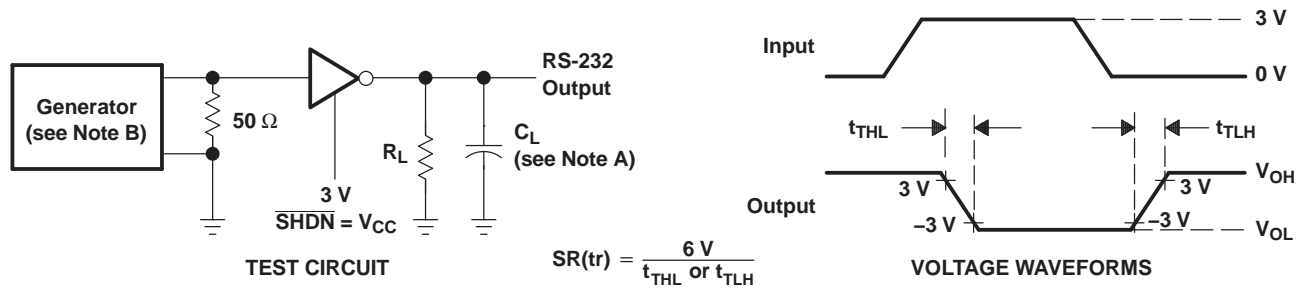
| PARAMETER | | TEST CONDITIONS | TYP ⁽²⁾ | UNIT |
|--------------------|---|--|--------------------|------|
| t _{PLH} | Propagation delay time, low- to high-level output | C _L = 150 pF, See Figure 3 | 150 | ns |
| t _{PHL} | Propagation delay time, high- to low-level output | C _L = 150 pF, See Figure 3 | 150 | ns |
| t _{en} | Output enable time | C _L = 150 pF, R _L = 3 kΩ, See Figure 4 | 2.6 | µs |
| t _{dis} | Output disable time | C _L = 150 pF, R _L = 3 kΩ, See Figure 4 | 2.4 | µs |
| t _{sk(p)} | Pulse skew ⁽³⁾ | See Figure 3 | 50 | ns |

- (1) Test conditions are C1–C4 = 0.1 µF at V_{CC} = 3 V to 5 V.
- (2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.
- (3) Pulse skew is defined as |t_{PLH} - t_{PHL}| of each channel of the same device.

ESD Protection

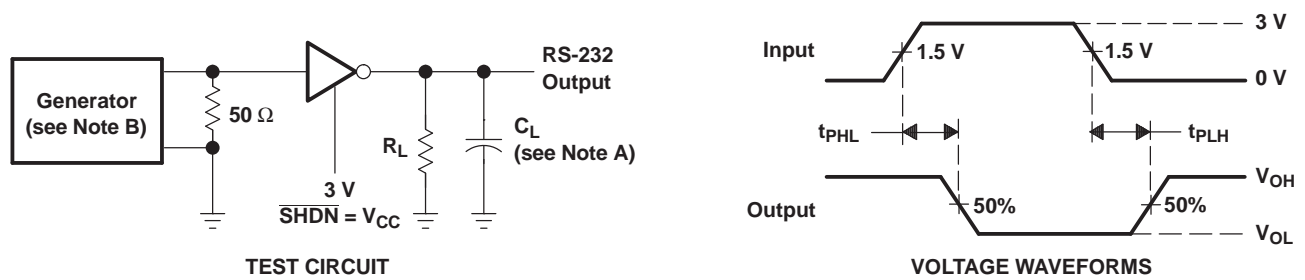
| PIN | TEST CONDITIONS | TYP | UNIT |
|----------------|---------------------------------|-----|------|
| DIN, RIN, ROUT | HBM | ±15 | kV |
| | IEC61000-4-2, Contact Discharge | ±8 | |
| | IEC61000-4-2, Air-Gap Discharge | ±15 | |

PARAMETER MEASUREMENT INFORMATION



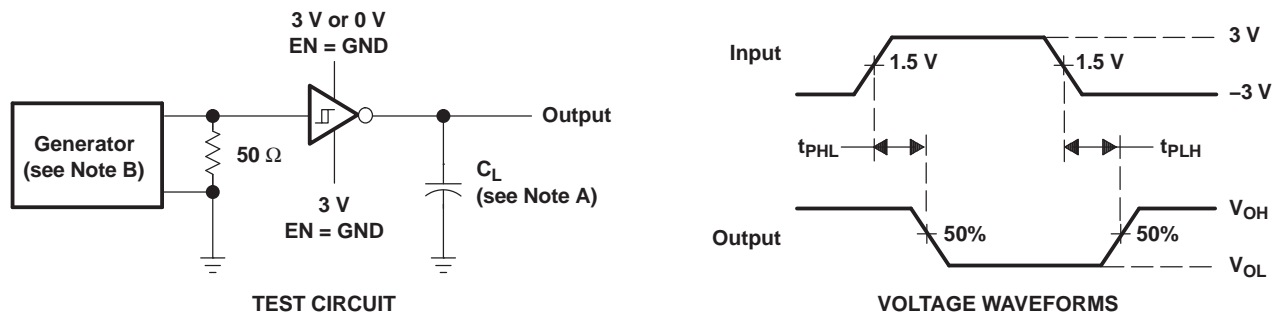
NOTES: A. C_L includes probe and jig capacitance.
 B. The pulse generator has the following characteristics: PRR = 250 kbit/s, $Z_O = 50\ \Omega$, 50% duty cycle, $t_r \leq 10\text{ ns}$, $t_f \leq 10\text{ ns}$.

Figure 1. Driver Slew Rate



NOTES: A. C_L includes probe and jig capacitance.
 B. The pulse generator has the following characteristics: PRR = 250 kbit/s, $Z_O = 50\ \Omega$, 50% duty cycle, $t_r \leq 10\text{ ns}$, $t_f \leq 10\text{ ns}$.

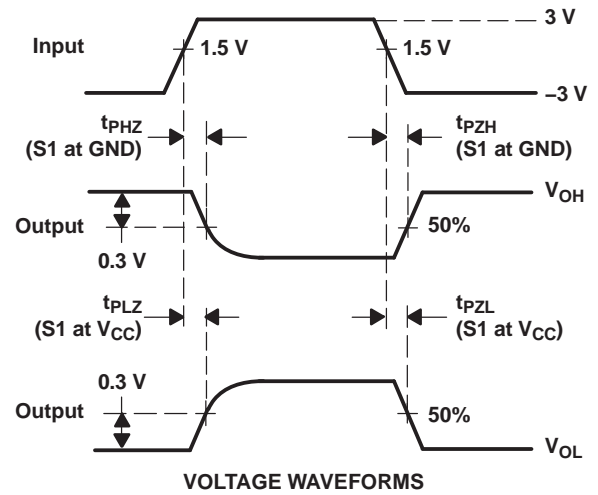
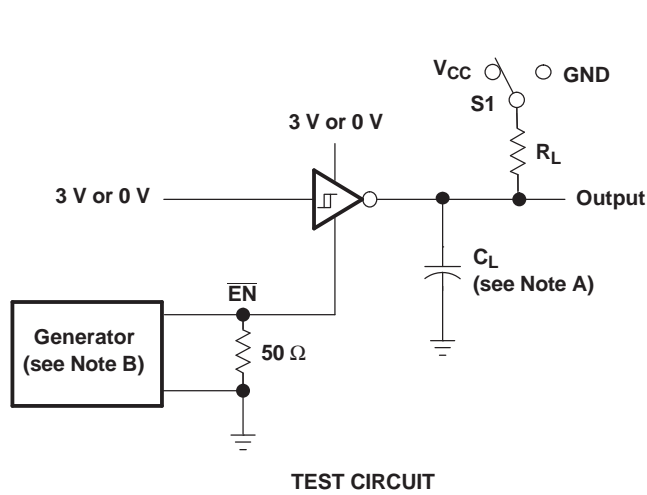
Figure 2. Driver Pulse Skew



NOTES: A. C_L includes probe and jig capacitance.
 B. The pulse generator has the following characteristics: $Z_O = 50\ \Omega$, 50% duty cycle, $t_r \leq 10\text{ ns}$, $t_f \leq 10\text{ ns}$.

Figure 3. Receiver Propagation Delay Times

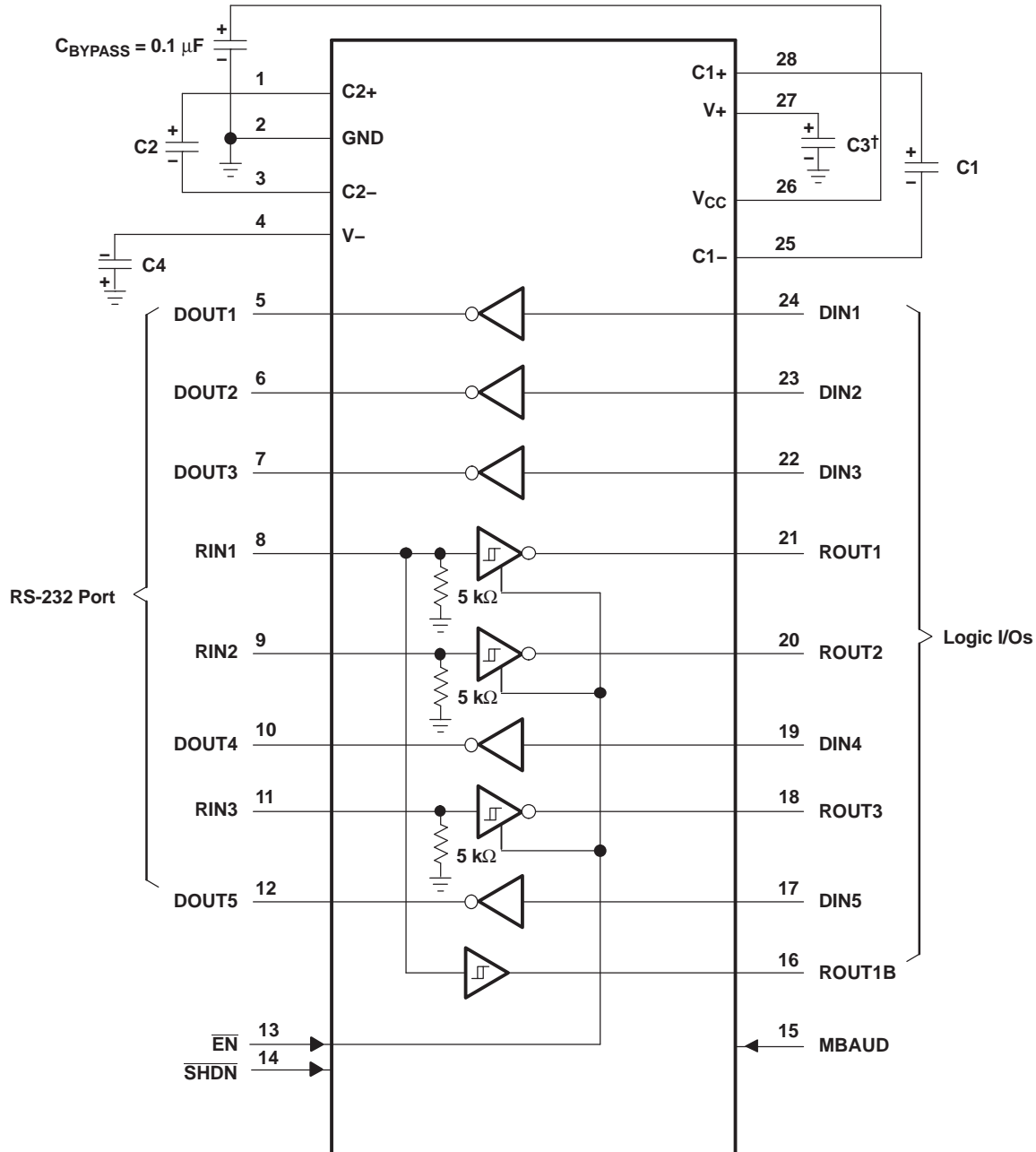
PARAMETER MEASUREMENT INFORMATION (continued)



- NOTES: A. C_L includes probe and jig capacitance.
 B. The pulse generator has the following characteristics: $Z_O = 50 \Omega$, 50% duty cycle, $t_r \leq 10 \text{ ns}$, $t_f \leq 10 \text{ ns}$.
 C. t_{PLZ} and t_{PHZ} are the same as t_{dis} .
 D. t_{PZL} and t_{PZH} are the same as t_{en} .

Figure 4. Receiver Enable and Disable Times

APPLICATION INFORMATION



† C3 can be connected to V_{CC} or GND.

- NOTES: A. Resistor values shown are nominal.
B. Nonpolarized ceramic capacitors are acceptable. If polarized tantalum or electrolytic capacitors are used, they should be connected as shown.

V_{CC} vs CAPACITOR VALUES

| V _{CC} | C1 | C2, C3, and C4 |
|-----------------|----------|----------------|
| 3.3 V ± 0.15 V | 0.1 μF | 0.1 μF |
| 3.3 V ± 0.3 V | 0.22 μF | 0.22 μF |
| 5 V ± 0.5 V | 0.047 μF | 0.33 μF |
| 3 V to 5.5 V | 0.22 μF | 1 μF |

Figure 5. Typical Operating Circuit and Capacitor Values

PACKAGING INFORMATION

| Orderable Device | Status ⁽¹⁾ | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/Ball Finish | MSL Peak Temp ⁽³⁾ |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| MAX3237ECDB | ACTIVE | SSOP | DB | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDBG4 | ACTIVE | SSOP | DB | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDBR | ACTIVE | SSOP | DB | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDBRG4 | ACTIVE | SSOP | DB | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDW | ACTIVE | SOIC | DW | 28 | 20 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDWG4 | ACTIVE | SOIC | DW | 28 | 20 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDWR | ACTIVE | SOIC | DW | 28 | 1000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECDWRG4 | ACTIVE | SOIC | DW | 28 | 1000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECPW | ACTIVE | TSSOP | PW | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECPWG4 | ACTIVE | TSSOP | PW | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECPWR | ACTIVE | TSSOP | PW | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237ECPWRG4 | ACTIVE | TSSOP | PW | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDB | ACTIVE | SSOP | DB | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDBG4 | ACTIVE | SSOP | DB | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDBR | ACTIVE | SSOP | DB | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDBRG4 | ACTIVE | SSOP | DB | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDW | ACTIVE | SOIC | DW | 28 | 20 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDWG4 | ACTIVE | SOIC | DW | 28 | 20 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDWR | ACTIVE | SOIC | DW | 28 | 1000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIDWRG4 | ACTIVE | SOIC | DW | 28 | 1000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIPW | ACTIVE | TSSOP | PW | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIPWG4 | ACTIVE | TSSOP | PW | 28 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIPWR | ACTIVE | TSSOP | PW | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| MAX3237EIPWRG4 | ACTIVE | TSSOP | PW | 28 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

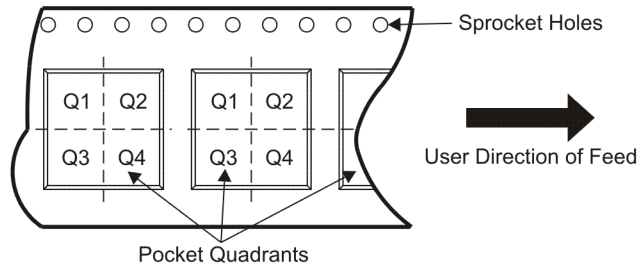
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TAPE AND REEL INFORMATION



QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|--------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| MAX3237ECDBR | SSOP | DB | 28 | 2000 | 330.0 | 16.4 | 8.2 | 10.5 | 2.5 | 12.0 | 16.0 | Q1 |
| MAX3237ECDWR | SOIC | DW | 28 | 1000 | 330.0 | 32.4 | 11.35 | 18.67 | 3.1 | 16.0 | 32.0 | Q1 |
| MAX3237ECPWR | TSSOP | PW | 28 | 2000 | 330.0 | 16.4 | 7.1 | 10.4 | 1.6 | 12.0 | 16.0 | Q1 |
| MAX3237EIDBR | SSOP | DB | 28 | 2000 | 330.0 | 16.4 | 8.2 | 10.5 | 2.5 | 12.0 | 16.0 | Q1 |
| MAX3237EIDWR | SOIC | DW | 28 | 1000 | 330.0 | 32.4 | 11.35 | 18.67 | 3.1 | 16.0 | 32.0 | Q1 |
| MAX3237EIPWR | TSSOP | PW | 28 | 2000 | 330.0 | 16.4 | 7.1 | 10.4 | 1.6 | 12.0 | 16.0 | Q1 |

TAPE AND REEL BOX DIMENSIONS



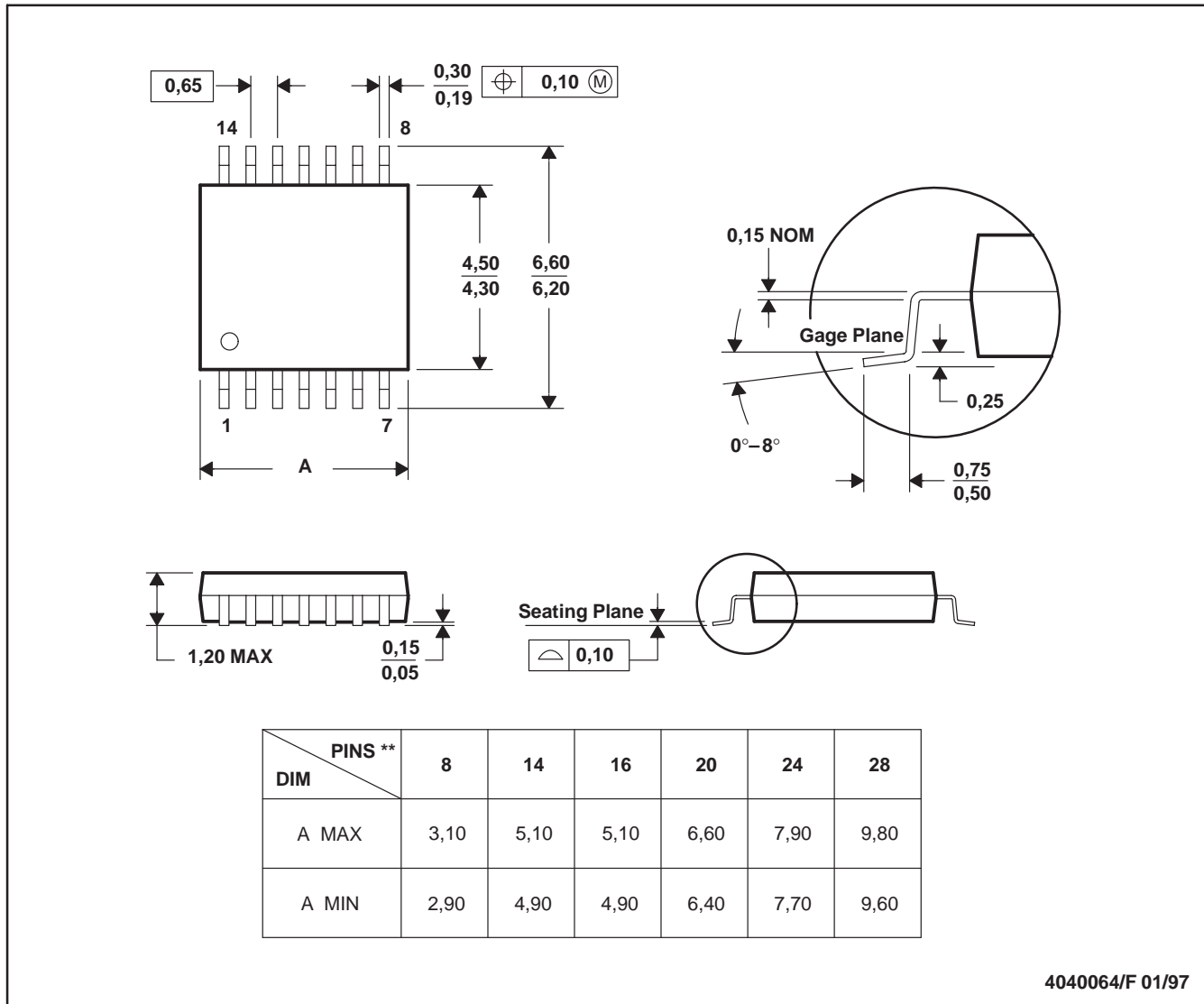
*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|--------------|--------------|-----------------|------|------|-------------|------------|-------------|
| MAX3237ECDBR | SSOP | DB | 28 | 2000 | 346.0 | 346.0 | 33.0 |
| MAX3237ECDWR | SOIC | DW | 28 | 1000 | 346.0 | 346.0 | 49.0 |
| MAX3237ECPWR | TSSOP | PW | 28 | 2000 | 346.0 | 346.0 | 33.0 |
| MAX3237EIDBR | SSOP | DB | 28 | 2000 | 346.0 | 346.0 | 33.0 |
| MAX3237EIDWR | SOIC | DW | 28 | 1000 | 346.0 | 346.0 | 49.0 |
| MAX3237EIPWR | TSSOP | PW | 28 | 2000 | 346.0 | 346.0 | 33.0 |

PW (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14 PINS SHOWN

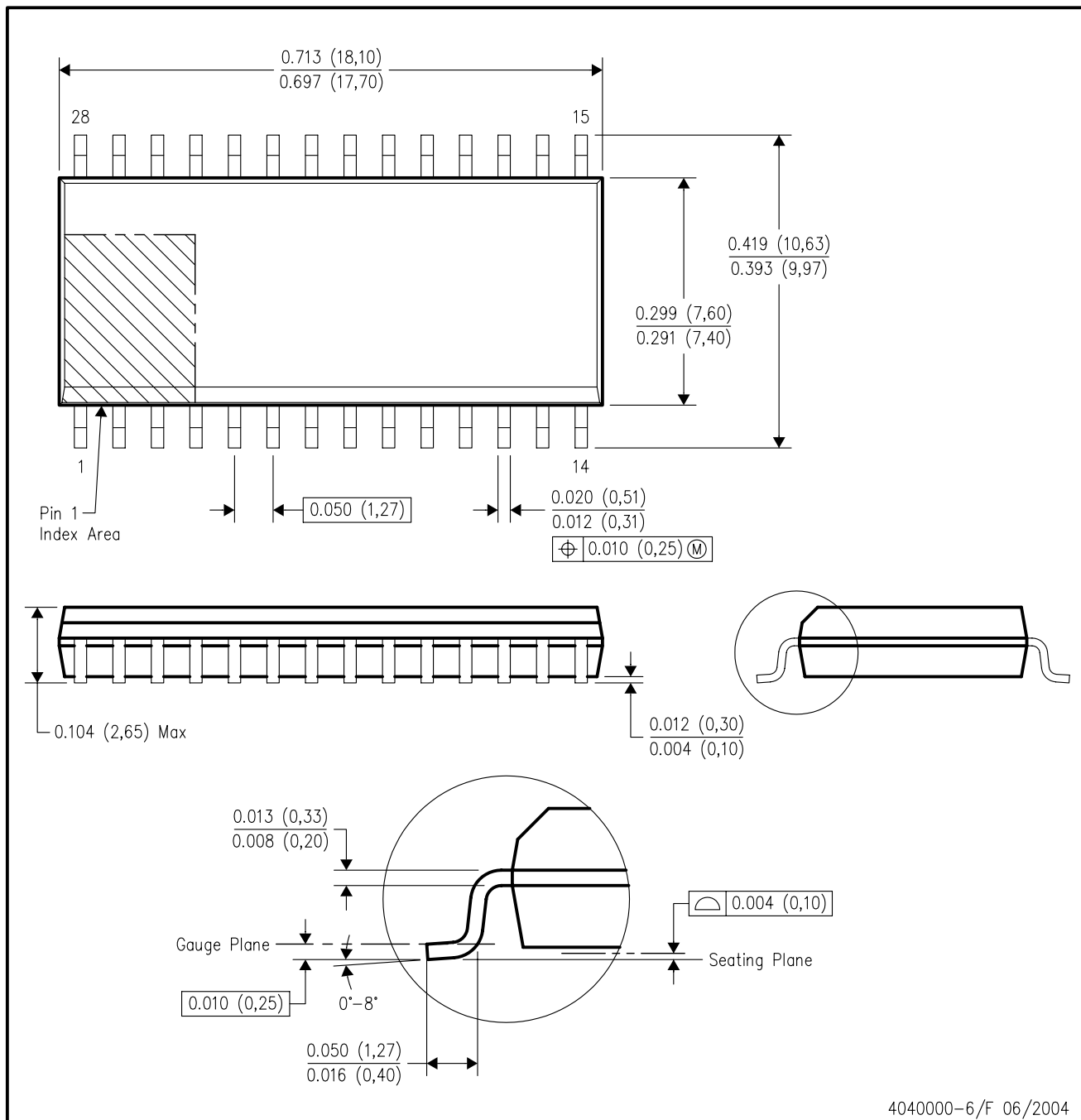


4040064/F 01/97

- NOTES: A. All linear dimensions are in millimeters.
 B. This drawing is subject to change without notice.
 C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
 D. Falls within JEDEC MO-153

DW (R-PDSO-G28)

PLASTIC SMALL-OUTLINE PACKAGE



- NOTES:
- All linear dimensions are in inches (millimeters).
 - This drawing is subject to change without notice.
 - Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
 - Falls within JEDEC MS-013 variation AE.

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