

## SERIES VOLTAGE REFERENCE

 Check for Samples: [REF3140-DIE](#)

### FEATURES

- Low Dropout
- High Output Current
- High Accuracy
- Low  $I_Q$

### APPLICATIONS

- Portable, Battery Powered Equipment
- Data Acquisition Systems
- Medical Equipment
- Hand Held Test Equipment

### DESCRIPTION

The REF3140 is a precision, low power, low dropout, series voltage reference.

The REF3140's small size and low power consumption make it ideal for portable and battery-powered applications. The REF3140 does not require a load capacitor, but is stable with any capacitive load and can sink/source up to 10mA of output current.

Unloaded, the REF3140 can be operated on supplies down to 5 mV above the output voltage.

### ORDERING INFORMATION<sup>(1)</sup>

| PRODUCT | PACKAGE DESIGNATOR | PACKAGE                                | ORDERABLE PART NUMBER | PACKAGE QUANTITY |
|---------|--------------------|--|-----------------------|------------------|
| REF3140 | TD                 | Bare die in waffle pack <sup>(2)</sup> | REF3140TDD1           | 252              |
|         |                    |  | REF3140TDD2           | 10               |

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI web site at [www.ti.com](http://www.ti.com).

(2) Processing is per the Texas Instruments commercial production baseline and is in compliance with the Texas Instruments Quality Control System in effect at the time of manufacture. Electrical screening consists of DC parametric and functional testing at room temperature only. Unless otherwise specified by Texas Instruments AC performance and performance over temperature is not warranted. Visual Inspection is performed in accordance with MIL-STD-883 Test Method 2010 Condition B at 75X minimum.



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.

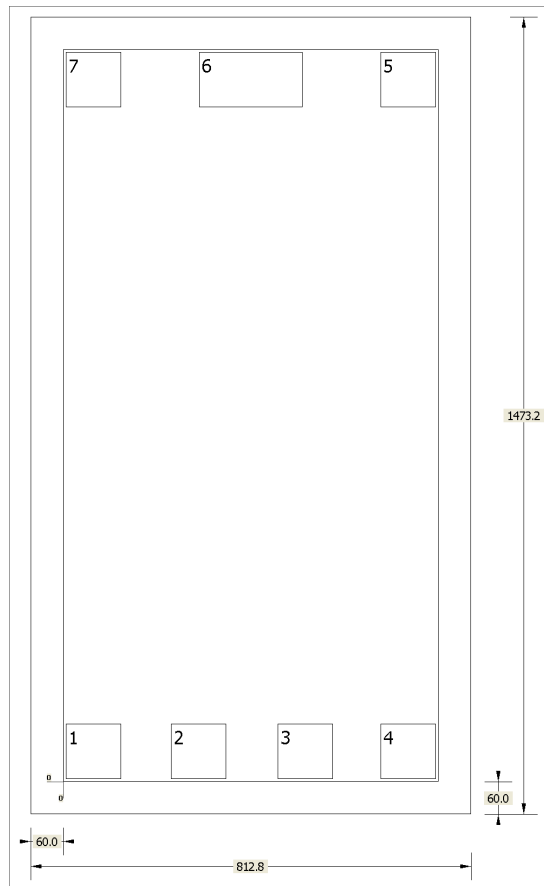


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

**BARE DIE INFORMATION**

| DIE THICKNESS | BACKSIDE FINISH        | BACKSIDE POTENTIAL | BOND PAD METALLIZATION COMPOSITION | BOND PAD THICKNESS |
|---------------|------------------------|--------------------|------------------------------------|--------------------|
| 15 mils.      | Silicon with backgrind | Floating           | Ti/AlSiCu/TiN                      | 800 nm             |



**Table 1. Bond Pad Coordinates in Microns<sup>(1)</sup>**

| DESCRIPTION | PAD NUMBER | X MIN  | Y MIN  | X MAX  | Y MAX  |
|-------------|------------|--------|--------|--------|--------|
| OUT         | 1          | 5      | 5      | 107    | 107    |
| OUT         | 2          | 198.6  | 5      | 300.6  | 107    |
| GND         | 3          | 396.2  | 5      | 498.2  | 107    |
| GND         | 4          | 585.8  | 5      | 687.8  | 107    |
| N/C         | 5          | 585.8  | 1246.2 | 687.8  | 1348.2 |
| IN          | 6          | 251.15 | 1246.2 | 441.65 | 1348.2 |
| N/C         | 7          | 5      | 1246.2 | 107    | 1348.2 |

(1) Substrate N/C.

**PACKAGING INFORMATION**

| Orderable Device | Status <sup>(1)</sup> | Package Type | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup> | Lead/<br>Ball Finish | MSL Peak Temp <sup>(3)</sup> | Samples<br>(Requires Login) |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|----------------------|------------------------------|-----------------------------|
| REF3140TDD1      | ACTIVE                |              |                 | 0    | 252         | TBD                     | Call TI              | N / A for Pkg Type           |                             |
| REF3140TDD2      | ACTIVE                |              |                 | 0    | 10          | TBD                     | Call TI              | N / A for Pkg Type           |                             |

<sup>(1)</sup> 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.

**OBSELETE:** TI has discontinued the production of the device.

<sup>(2)</sup> 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)

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

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|                        |  |
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| DLP® Products          | <a href="http://www.dlp.com">www.dlp.com</a>   |
| DSP                    | <a href="http://dsp.ti.com">dsp.ti.com</a>   |
| Clocks and Timers      | <a href="http://www.ti.com/clocks">www.ti.com/clocks</a>                             |
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### Applications

|                               |  |
|-------------------------------|--|
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| Computers and Peripherals     | <a href="http://www.ti.com/computers">www.ti.com/computers</a>                           |
| Consumer Electronics          | <a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>                   |
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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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