

## VERY HIGH VOLTAGE LINEAR REGULATOR

Check for Samples: [TPS7A4001-DIE](#)

### FEATURES

- Very High Maximum Input Voltage
- CMOS Logic-Level-Compatible Enable Pin
- Stable with Ceramic Capacitors
- Built-In Current-Limit and Thermal Shutdown Protection

### APPLICATIONS

- Microprocessors, Microcontrollers Powered by Industrial Busses with High Voltage Transients
- Industrial Automation
- Telecom Infrastructure
- Automotive
- Power over Ethernet (PoE)
- LED Lighting
- Bias Power Supplies

### DESCRIPTION

The TPS7A4001-DIE is a very high voltage-tolerant linear regulator that is able to withstand continuous dc or transient input voltages.

The TPS7A4001-DIE offers an enable pin (EN) compatible with standard CMOS logic to enable a low-current shutdown mode.

The TPS7A4001-DIE has an internal thermal shutdown and current limiting to protect the system during fault conditions.

In addition, the TPS7A4001-DIE is ideal for generating a low-voltage supply from intermediate voltage rails in telecom and industrial applications; not only it can supply a well-regulated voltage rail, but it can also withstand and maintain regulation during very high and fast voltage transients. These features translate to simpler and more cost-effective electrical surge-protection circuitry for a wide range of applications, including PoE, bias supply, and LED lighting.

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

| PRODUCT   | PACKAGE DESIGNATOR | PACKAGE                                | ORDERABLE PART NUMBER | PACKAGE QUANTITY |
|-----------|--------------------|----------------------------------------|-----------------------|------------------|
| TPS7A4001 | TD                 | Bare die in waffle pack <sup>(2)</sup> | TPS7A4001TDA1         | 132              |
|           |                    |                                        | TPS7A4001TDA2         | 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.



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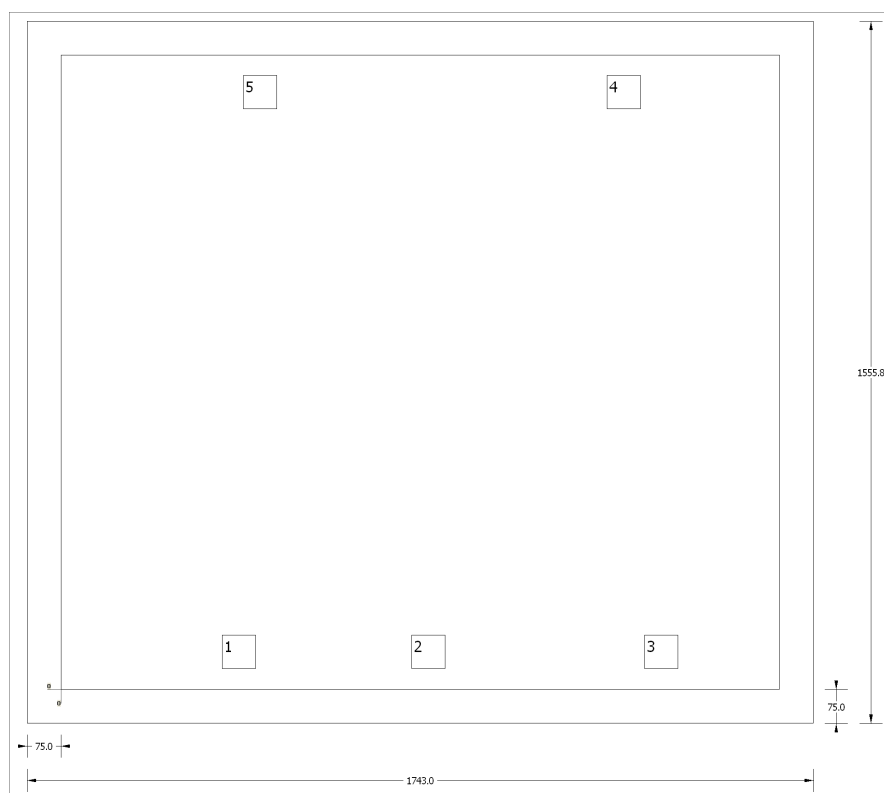


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

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 |
|---------------|------------------------|--------------------|------------------------------------|--------------------|
| 10.5 mils.    | Silicon with backgrind | Floating           | AlTiW                              | 760 nm             |



**Table 1. Bond Pad Coordinates in Microns**

| DESCRIPTION | PAD NUMBER | X MIN   | Y MIN   | X MAX   | Y MAX   |
|-------------|------------|---------|---------|---------|---------|
| OUT         | 1          | 356.94  | 46.08   | 432     | 121.14  |
| FB          | 2          | 776.97  | 46.08   | 852.03  | 121.14  |
| GND         | 3          | 1293.12 | 46.08   | 1368.18 | 121.14  |
| EN          | 4          | 1210.05 | 1285.56 | 1285.11 | 1360.62 |
| IN          | 5          | 403.56  | 1285.56 | 478.62  | 1360.62 |

**PACKAGING INFORMATION**

| Orderable Device | Status<br>(1) | Package Type | Package<br>Drawing | Pins | Package Qty | Eco Plan<br>(2) | Lead/Ball Finish | MSL Peak Temp<br>(3) | Op Temp (°C) | Top-Side Markings<br>(4) | Samples                 |
|------------------|---------------|--------------|--------------------|------|-------------|-----------------|------------------|----------------------|--------------|--------------------------|-------------------------|
| TPS7A4001TDA1    | ACTIVE        |              |                    | 0    | 132         | TBD             | Call TI          | N / A for Pkg Type   |              |                          | <a href="#">Samples</a> |
| TPS7A4001TDA2    | ACTIVE        |              |                    | 0    | 10          | TBD             | Call TI          | N / A for Pkg Type   |              |                          | <a href="#">Samples</a> |

(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.

**OBSELETE:** 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.

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**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.

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

(4) Only one of markings shown within the brackets will appear on the physical device.

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|                              |                                                                                      |
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| RFID                         | <a href="http://www.ti-rfid.com">www.ti-rfid.com</a>                                 |
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### Applications

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