

## LOW-DROPOUT LINEAR REGULATOR

 Check for Samples: [TPS71550-DIE](#)

### FEATURES

- 24-V Maximum Input Voltage
- Low Quiescent Current
- Low-Dropout Regulator
- Available in 5 V
- Minimum/Maximum Specified Current Limit

### APPLICATIONS

- Ultra-Low Power Microcontrollers
- Cellular/Cordless Handsets
- Portable/Battery-Powered Equipment

### DESCRIPTION

The TPS71550 low-dropout (LDO) voltage regulator offers the benefits of high input voltage, low-dropout voltage, low-power operation, and miniaturized packaging. The TPS71550, which operates over an input range of 5 V to 24 V, is stable with any capacitor ( $\geq 0.47 \mu\text{F}$ ). The low-dropout voltage and low quiescent current allow operations at extremely low power levels. Therefore, the TPS71550 is ideal for powering battery management ICs. Specifically, since the TPS71550 is enabled as soon as the applied voltage reaches the minimum input voltage, the output is quickly available to power continuously operating battery charging ICs.

The usual PNP pass transistor has been replaced by a PMOS pass element. Because the PMOS pass element behaves as a low-value resistor, the low-dropout voltage, typically 415 mV at 50 mA of load current, is directly proportional to the load current. The low quiescent current is stable over the entire range of output load current.

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

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
TPS71550	TD <sup>(2)</sup>	Bare die in wafer pack	TPS71550TDB1	400
			TPS71550TDB2	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.

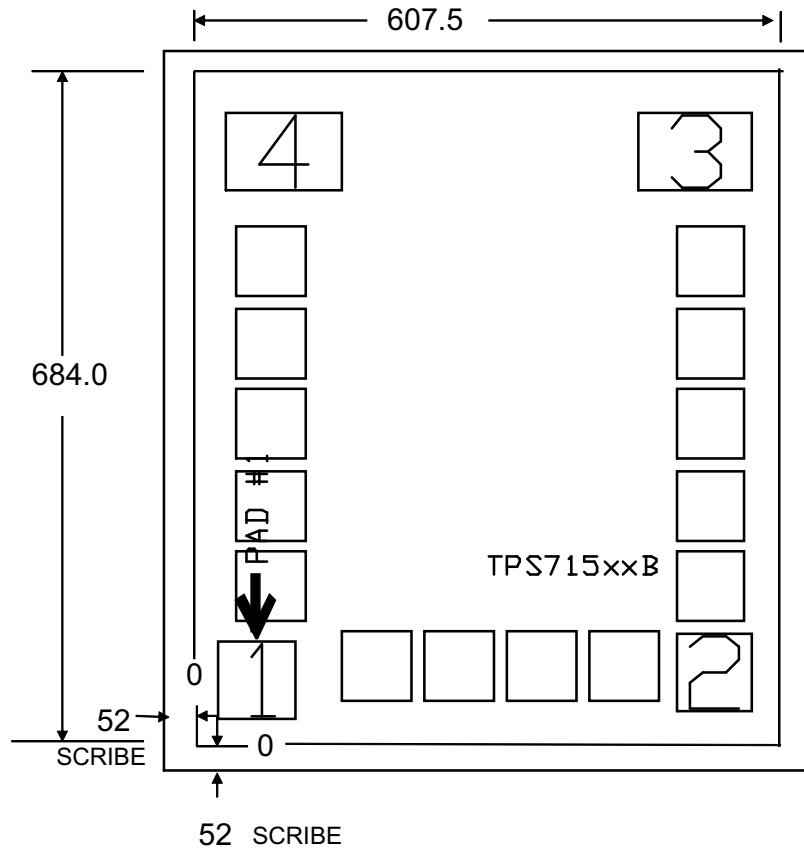


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

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	Aluminium Pad (TiW/AISiCu (0.5%))	600 nm



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

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
GND	1	6.03	5.40	90.09	89.46
	2	507.78	15.30	591.84	99.36
OUT	3	465.93	583.74	591.84	667.80
VIN	4	15.39	583.74	141.30	667.80

(1) Substrate is to float.

**PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>	Samples (Requires Login)
TPS71550TDB1	ACTIVE			0	400	TBD	Call TI	N / A for Pkg Type	
TPS71550TDB2	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.

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**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.

<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.

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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.

**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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