

4.7A / 6.8A / 8.2A Application Processor Supply with I²C Compatible Interface

Check for Samples: [TPS623850](#), [TPS623860](#), [TPS62387A](#)

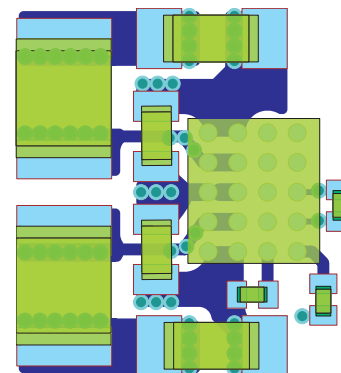
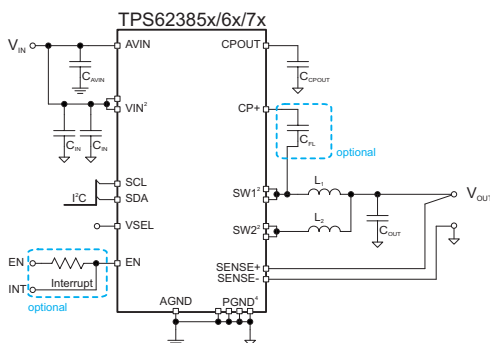
FEATURES

- 2 Phase Step-Down Converter with 10-mV Steps Programmable Output Voltage for Dynamic Voltage Scaling (DVS)
 - 4.7A (TPS62385x – Preview)
 - 6.8A (TPS62386x – Preview)
 - 8.2A (TPS62387x – Preview)
- Highest Efficiency:
 - Reduced Inductor and On-Chip Losses by Dual Phase Design
 - Automatic Dual-to-Single Phase Operation Transition (Phase Shedding)
 - Active Current Balancing between Phases
 - Highest Efficiency over the Whole Load Range
 - Prepared for Integrated Charge Pump for Efficiency Boosting
 - Low R_{DS,on} Switches and Active Rectifiers
 - Power Save Mode for Light Load Efficiency
- I²C High Speed Compatible Interface
- Excellent DC and AC Output Voltage Regulation
 - Differential, Remote Load Sensing
 - Precise DC Output Voltage Accuracy
 - Double Regulation Bandwidth by Dual-Phase Design
 - Reduced Output Voltage Ripple by 180° Phase-Shifted Operation

- Multiple Robust Operation and Protection Features:
 - Soft Start and Rapid Startup Time
 - Power Good Indication
 - Programmable Slew Rate at Voltage Transition
 - Low Battery Voltage Ripple by Phase-Shifted Operation
 - Over Temperature Monitoring and Protection with Programmable Thresholds
 - Input Under Voltage Detection and Lockout
 - Output Current Limit and Protection
 - 7-bit SAR ADC for Output Current Monitoring
 - Interrupt Signal for Exception Handling
- Available in 20-Bump, 2.32 x 2.46 mm² NanoFree™ Package
- Tiny Solution Size: 31 mm²
 - Low External Component Count
 - Dual-Phase Design and 3 Output Current Versions for Tiny Inductors

APPLICATIONS

- Application Processors
- Dynamic Voltage Scale Compliant Processors and DSPs
- SmartReflex™ Compliant Power Supply
- Memory
- Cell Phones, Smart Phones, Feature Phones
- Tablet PCs, Clamshells, Netbooks



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PRODUCT PREVIEW

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
TPS623850YZJR	PREVIEW	DSBGA	YZJ	20	3000	TBD	Call TI	Call TI	-40 to 85		
TPS623850YZJT	PREVIEW	DSBGA	YZJ	20	3000	TBD	Call TI	Call TI	-40 to 85		
TPS623860YZJR	PREVIEW	DSBGA	YZJ	20	3000	TBD	Call TI	Call TI	-40 to 85		
TPS623860YZJT	PREVIEW	DSBGA	YZJ	20	250	TBD	Call TI	Call TI	-40 to 85		
TPS62387AYZJR	PREVIEW	DSBGA	YZJ	20		Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM	-40 to 85	TPS62387A	
TPS62387AYZJT	PREVIEW	DSBGA	YZJ	20		Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM	-40 to 85	TPS62387A	

(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.

(4) Multiple Top-Side Markings will be inside parentheses. Only one Top-Side Marking contained in parentheses and separated by a "-" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Top-Side Marking for that device.

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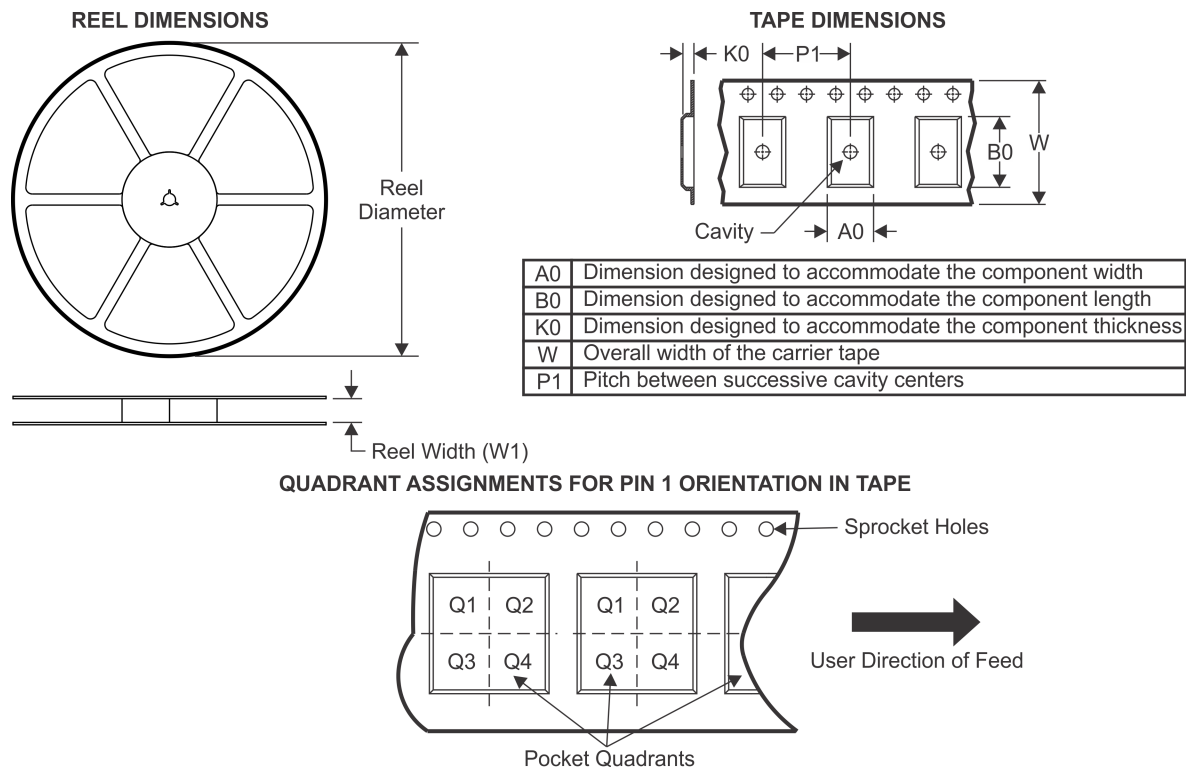


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PACKAGE OPTION ADDENDUM

11-Apr-2013

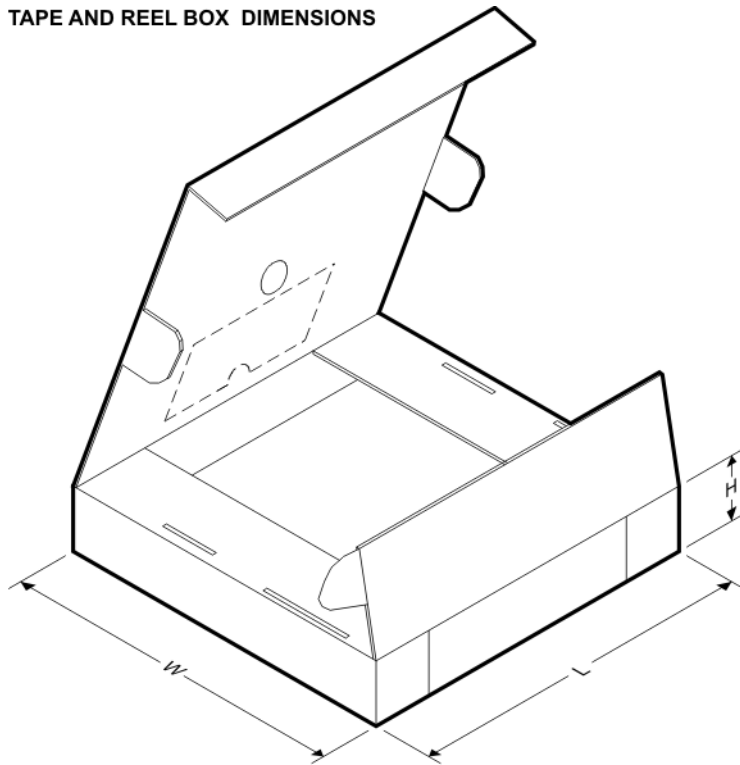
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TAPE AND REEL INFORMATION


*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
TPS62387AYZJR	DSBGA	YZJ	20	0	180.0	8.4	2.54	2.54	0.76	4.0	8.0	Q1
TPS62387AYZJT	DSBGA	YZJ	20	0	180.0	8.4	2.54	2.54	0.76	4.0	8.0	Q1

TAPE AND REEL BOX DIMENSIONS

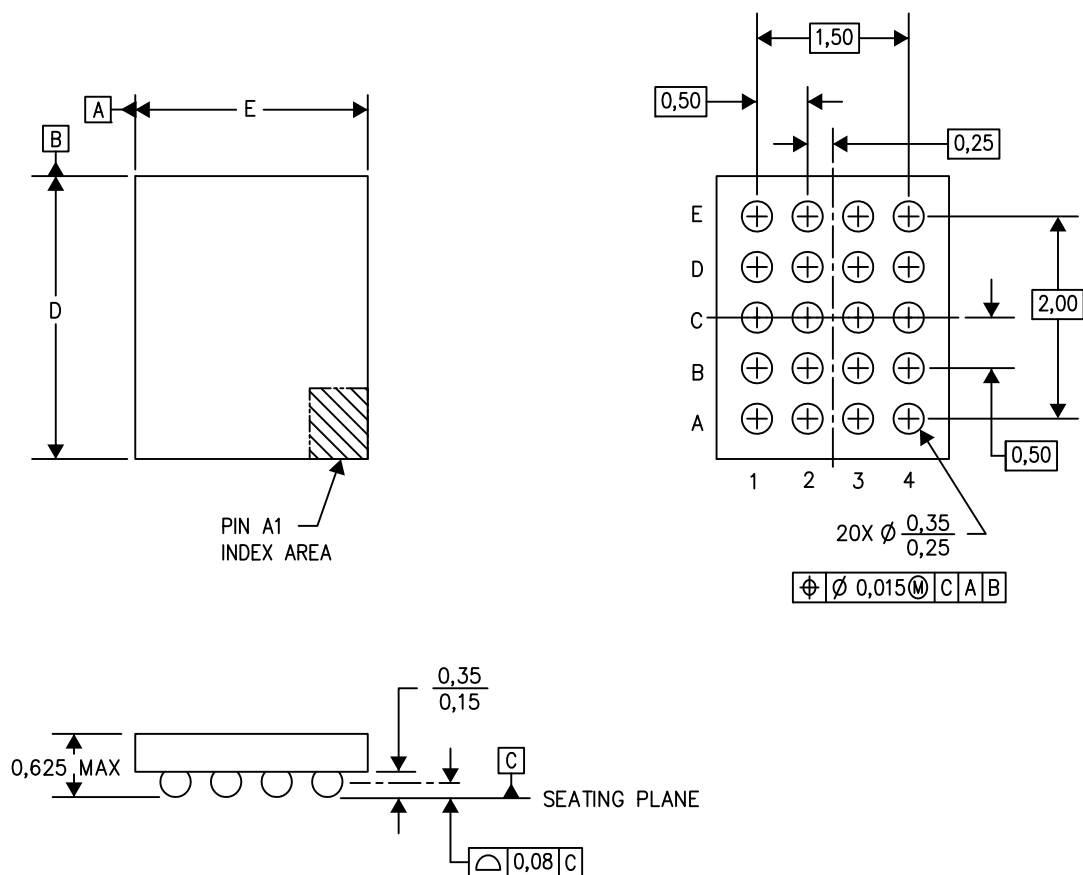


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS62387AYZJR	DSBGA	YZJ	20	0	182.0	182.0	17.0
TPS62387AYZJT	DSBGA	YZJ	20	0	182.0	182.0	17.0

YZJ (R-XBGA-N20)

DIE-SIZE BALL GRID ARRAY



4205061/E 07/13

- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. NanoFree™ package configuration.

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