
Power Management Unit

1 Introduction

1.1 Features

- **Power Management Core**
 - **Dual Input Power Path**
 - **Switch Mode Charger**
 - **Integrated Charge Current Sense FET**
 - **Automatic Battery Supplement Mode**
 - **2 Boost Converters**
 - **1 Boost supports 2 strings of up to 6 LEDs with Internal and External Dimming Control**
 - **1 Boost supports 1 string of 6 LEDs**
 - **Boost Converters can also be used in Constant Voltage Mode**
 - **LED Matrix Controller**
 - **RGB Controller**
 - **I²C™ Interface to Device for Low Latency Communication**

1.2 Applications

- **Portable Applications**

1.3 Description

The TPS658310 Power Management Unit is a broad use, multi-channel device, for portable applications. The device consists of an Integrated Power Path Management and Switch Mode Li-Ion Battery Charger that provides system power from a regulated wall adapter or a USB port. It also handles lighting management with integrated Backlight Boosts, LED Matrix Controller for keypad, Camera Flash LED Controller, Current Source and RGB channels.

To request a full data sheet, please send an email to:

pmu_contact@list.ti.com



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I²C is a trademark of NPX Corporation.

1.4 Block Diagram

The simplified TPS658310 system diagram is shown in [Figure 1-1](#).

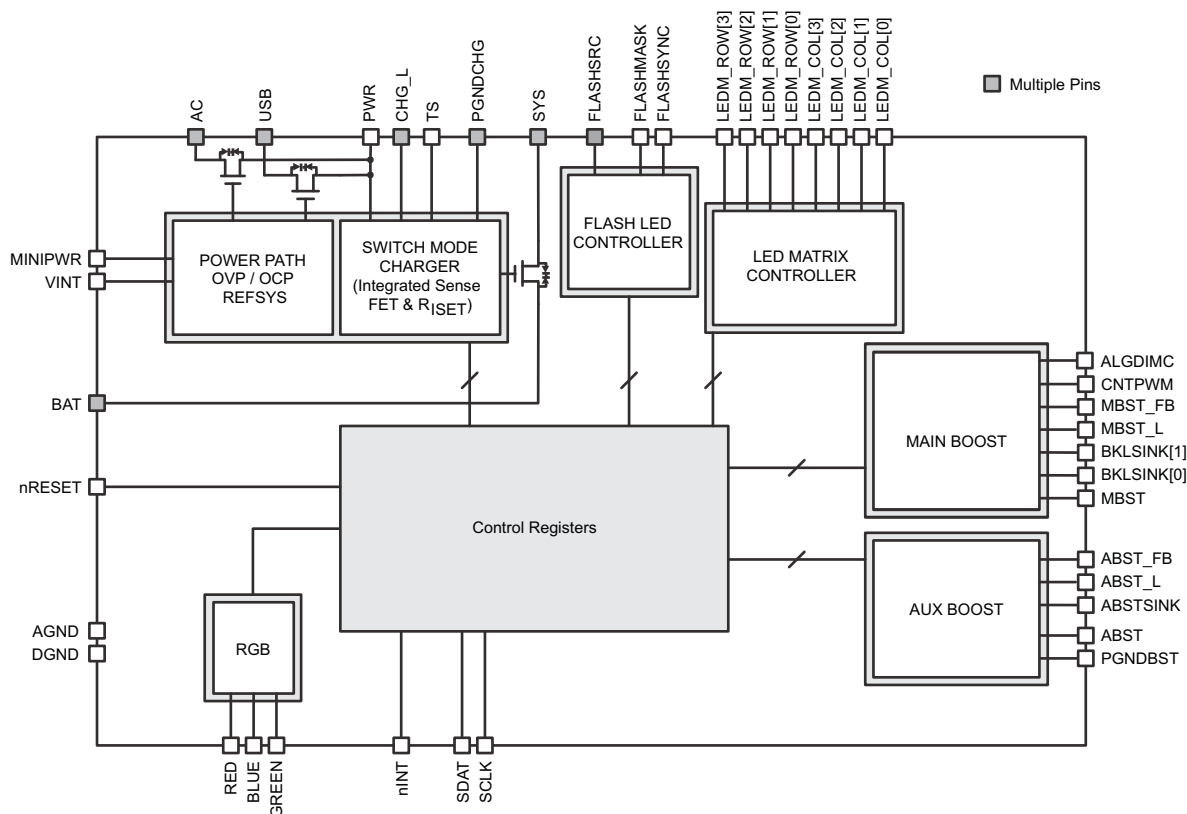
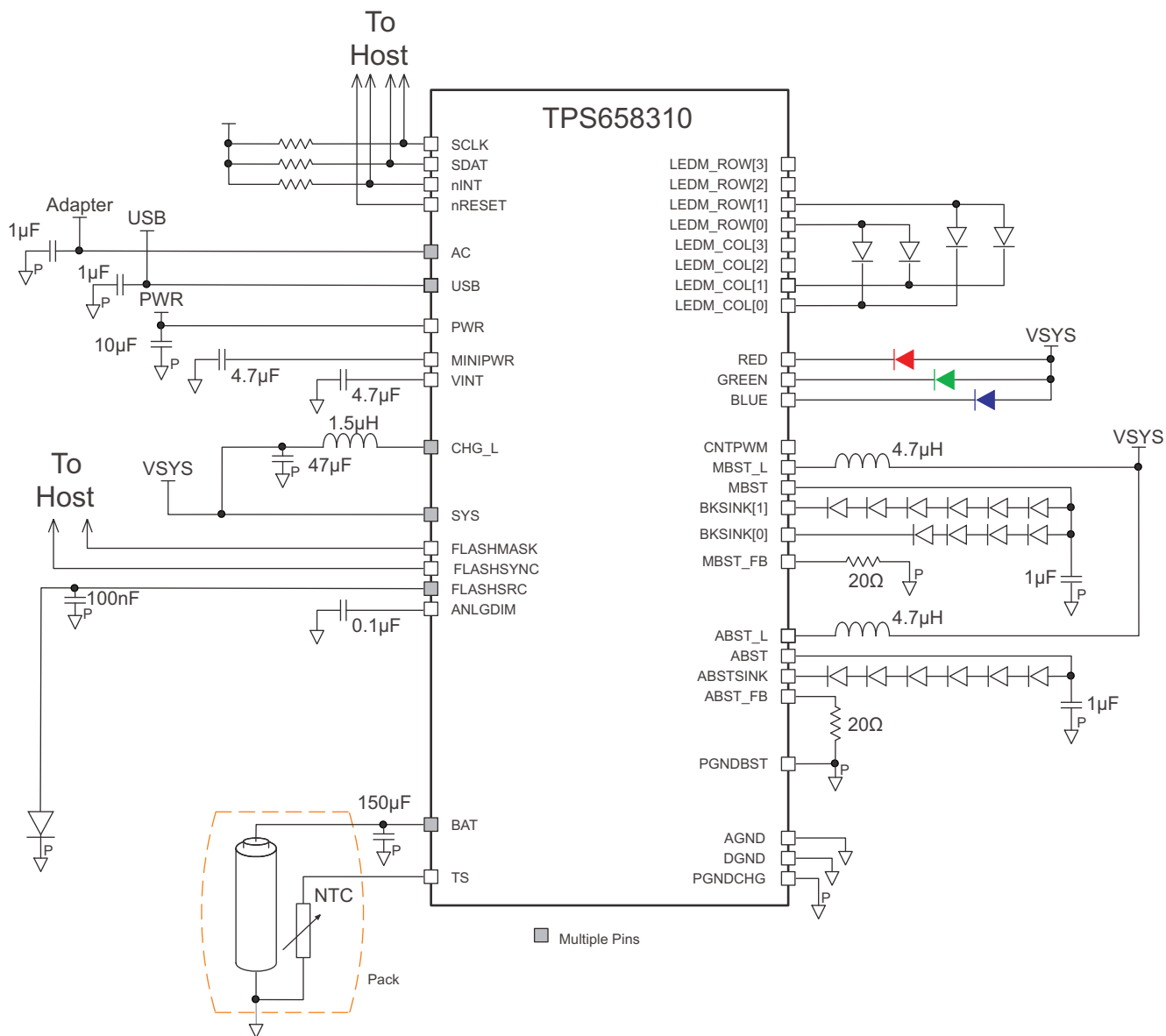


Figure 1-1. Simplified System Diagram

2 Application Schematic



NOTE: Component values shown are the minimum required.

Figure 2-1. Application Schematic

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
TPS658310YFFR	ACTIVE	DSBGA	YFF	49	1500	Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM	-40 to 85	TPS658310	Samples

(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.

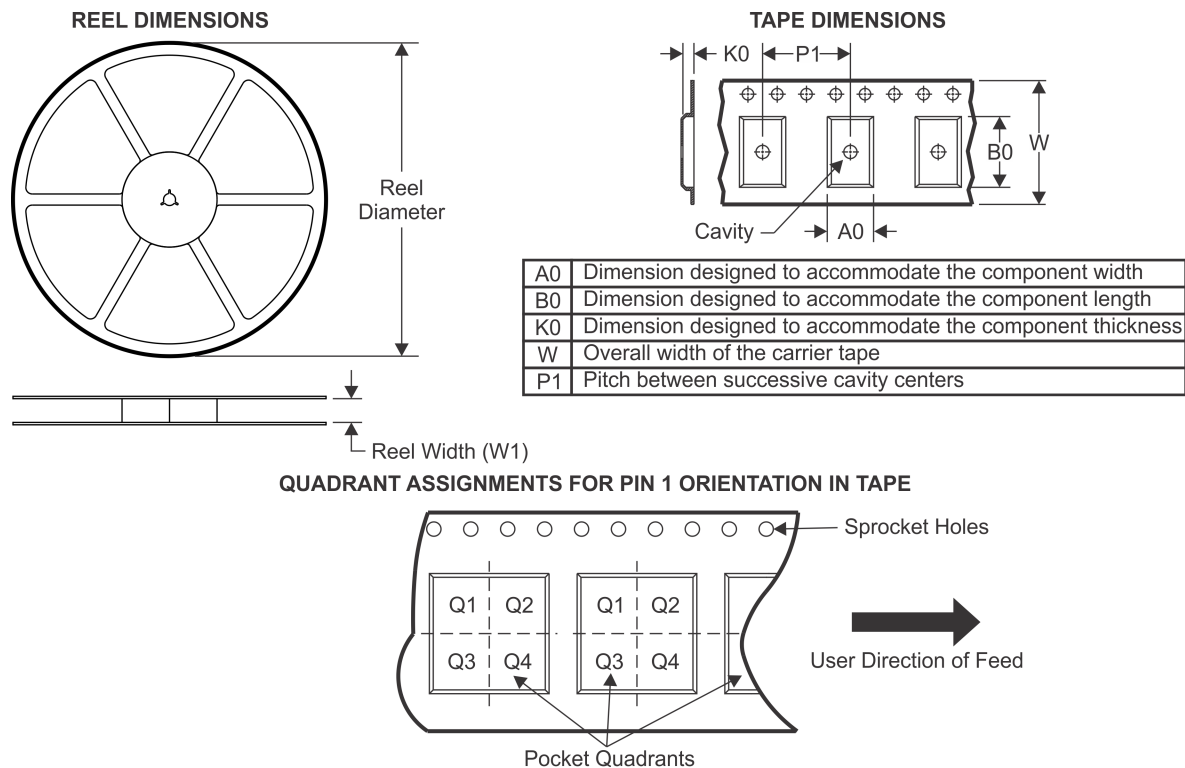
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(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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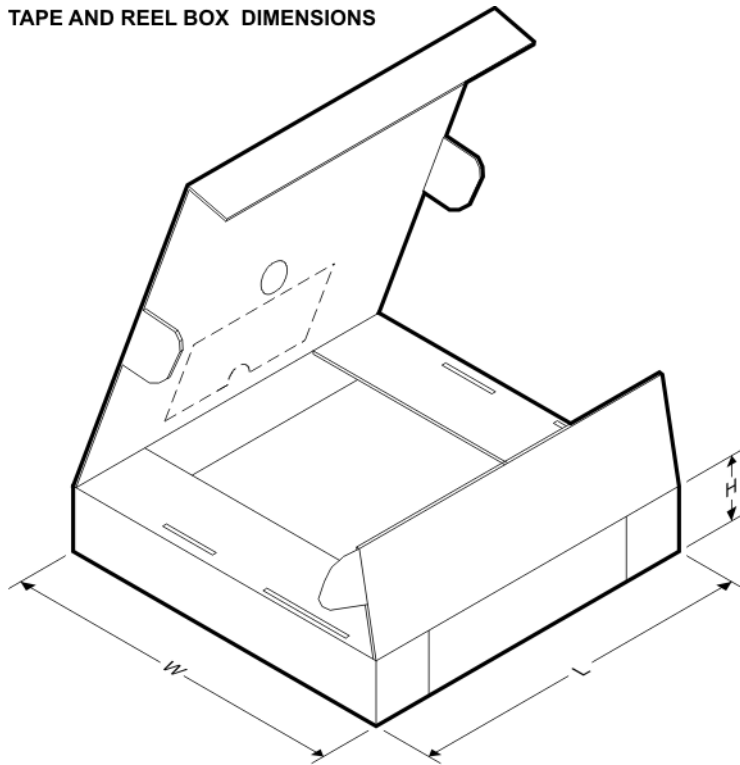
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TAPE AND REEL INFORMATION


*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
TPS658310YFFR	DSBGA	YFF	49	1500	180.0	12.4	3.5	3.7	0.81	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS

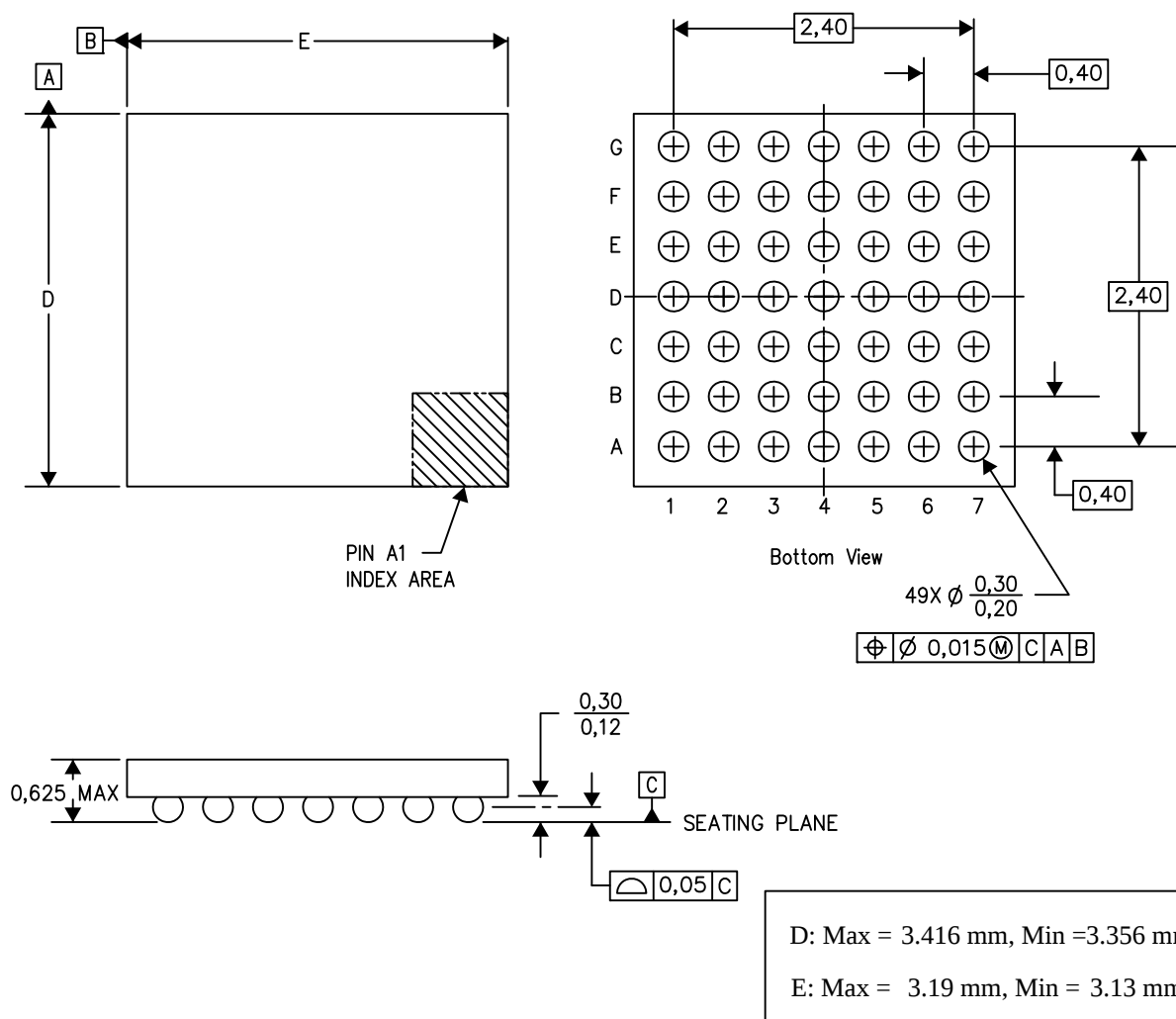


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS658310YFFR	DSBGA	YFF	49	1500	182.0	182.0	20.0

YFF (R-XBGA-N49)

DIE-SIZE BALL GRID ARRAY



4207625-16/A0 12/13

- NOTES: A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
B. This drawing is subject to change without notice.
C. NanoFree™ package configuration.

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