



Programmable GAMMA-VOLTAGE GENERATOR with Two High Slew Rate V_{COM} S

Check for Samples: [BUF18830](#)

FEATURES

- **10-BIT RESOLUTION**
- **18-CHANNEL P-GAMMA:**
 - 300-mV Min Swing-to-Rail (10 mA)
- **TWO-CHANNEL P- V_{COM} :**
 - 400-mA Typical I_{OUT}
- **HIGH SLEW RATE V_{COM} : 45 V/ μ s**
- **RAIL-TO-RAIL OUTPUT**
- **LOW SUPPLY CURRENT**
- **SUPPLY VOLTAGE: 6.5 V to 20 V**
- **DIGITAL SUPPLY: 2.0 V to 5.5 V**
- **TWO-WIRE INTERFACE: Supports 400 kHz and 3.4 MHz**

DESCRIPTION

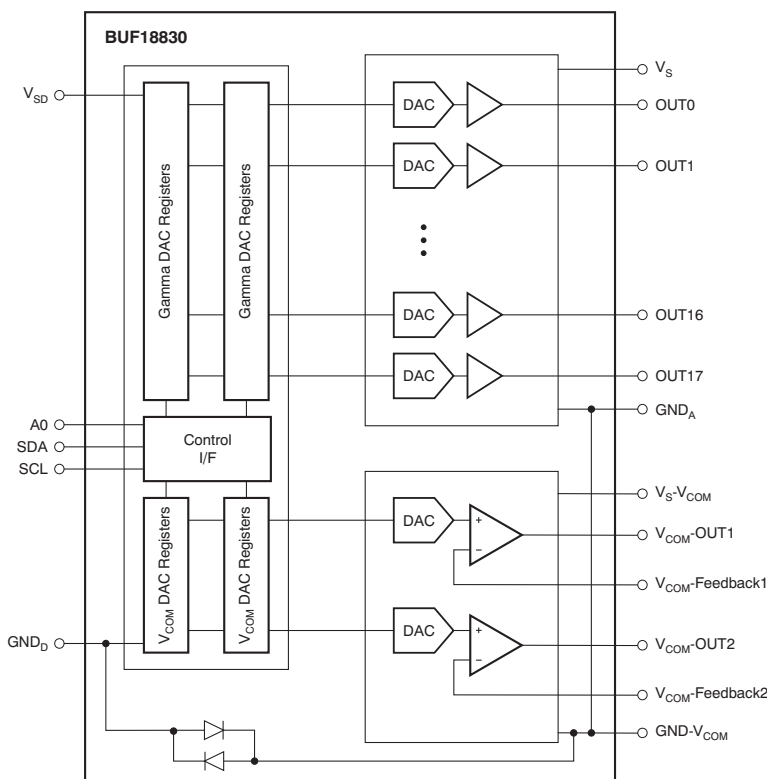
The BUF18830 offers 18 programmable gamma channels and two programmable V_{COM} channels.

All gamma and V_{COM} channels offer a rail-to-rail output that typically swings to within 300 mV of either supply rail with a 10-mA load. All channels are programmed using a two-wire interface that supports standard operations up to 400 kHz and high-speed data transfers up to 3.4 MHz.

The BUF18830 is manufactured using Texas Instruments' proprietary, state-of-the-art, high-voltage CMOS process. This process offers very dense logic and high supply voltage operation of up to 20 V. The BUF18830 is offered in a QFN-38 package and is specified from -40°C to $+85^{\circ}\text{C}$.

APPLICATIONS

- **TFT-LCD AND OLED REFERENCE DRIVERS**



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PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾	Samples (Requires Login)
BUF18830AIRGFR	PREVIEW	VQFN	RGF	38	3000	TBD	Call TI	Call TI	
BUF18830AIRGFT	PREVIEW	VQFN	RGF	38	250	TBD	Call TI	Call TI	

⁽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.

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.

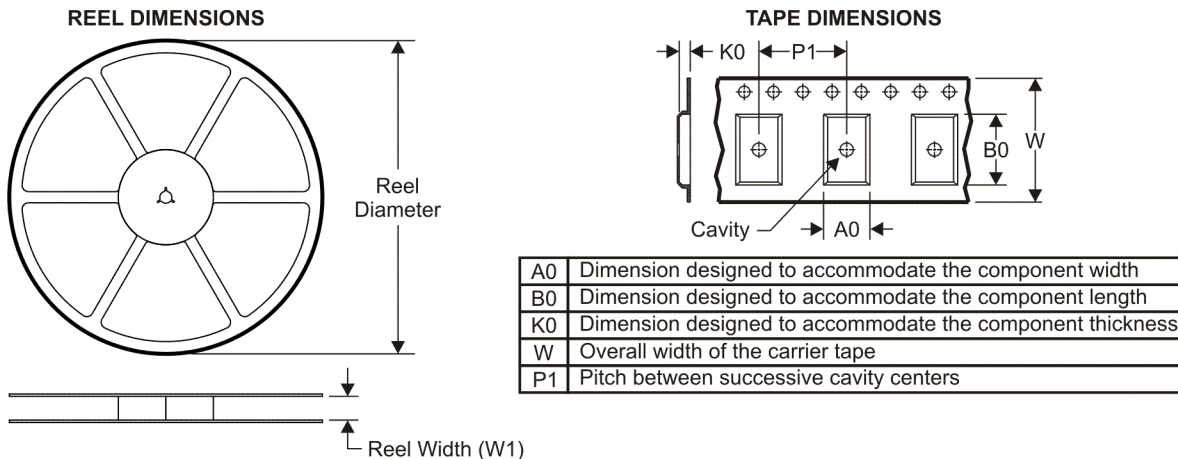
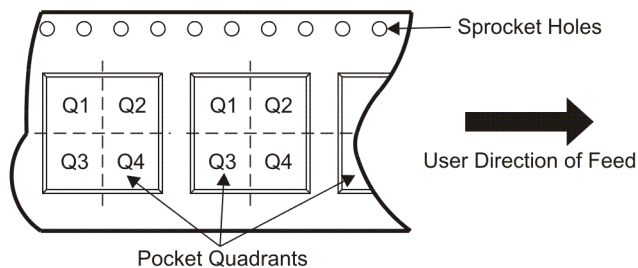
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

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.

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TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*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
BUF18830AIRGFR	VQFN	RGF	38	3000	330.0	16.4	5.25	7.25	1.45	8.0	16.0	Q1
BUF18830AIRGFT	VQFN	RGF	38	250	180.0	16.4	5.25	7.25	1.45	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



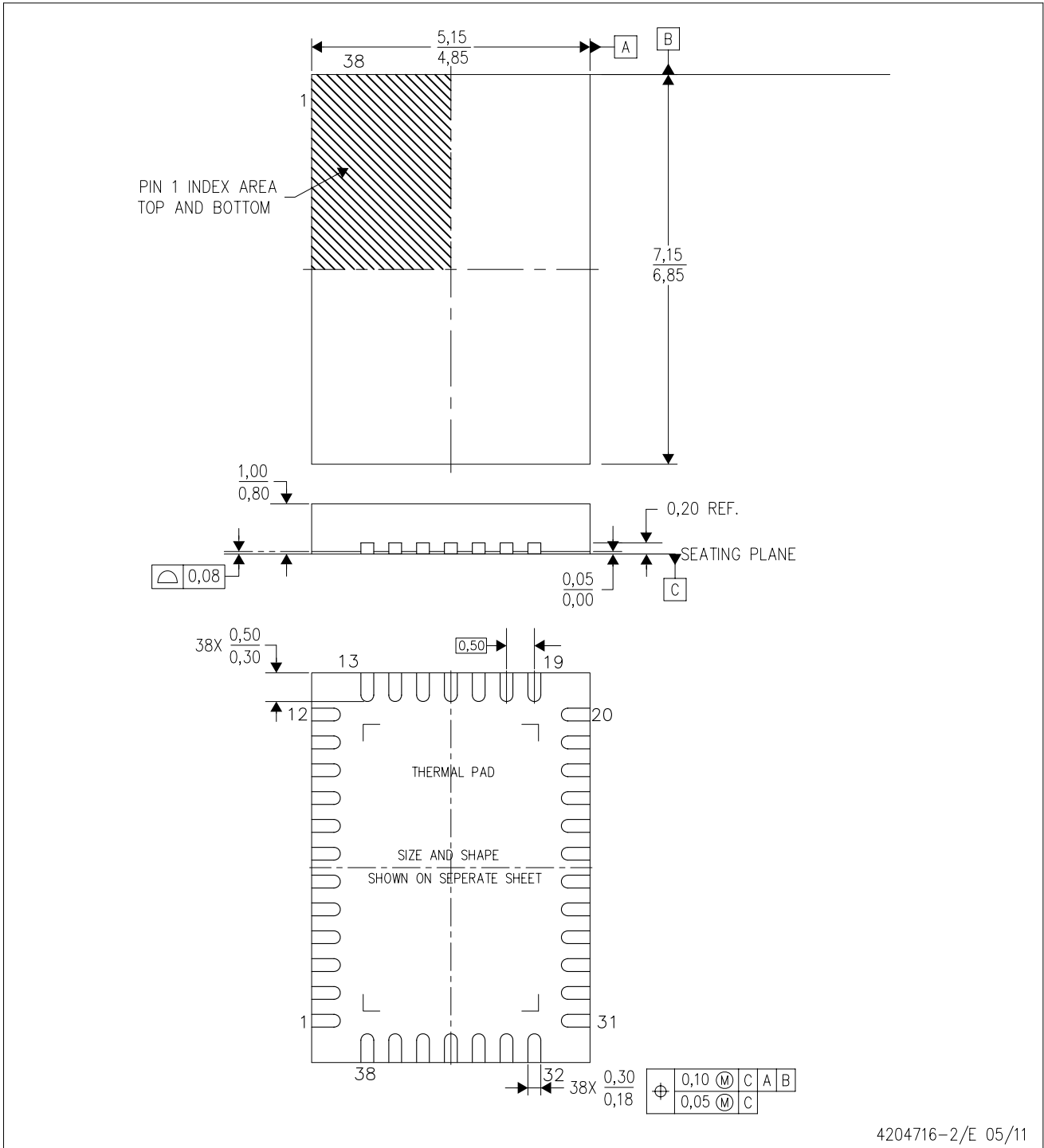
*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
BUF18830AIRGFR	VQFN	RGF	38	3000	346.0	346.0	33.0
BUF18830AIRGFT	VQFN	RGF	38	250	190.5	212.7	31.8

MECHANICAL DATA

RGF (R-PVQFN-N38)

PLASTIC QUAD FLATPACK NO-LEAD



4204716-2/E 05/11

- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5-1994.
 - B. This drawing is subject to change without notice.
 - C. Quad Flatpack, No-leads (QFN) package configuration.
 - D. The package thermal pad must be soldered to the board for thermal and mechanical performance.
 - E. See the additional figure in the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.
 - F. Falls within JEDEC MO-220.



THERMAL PAD MECHANICAL DATA

RGF (R-PVQFN-N38)

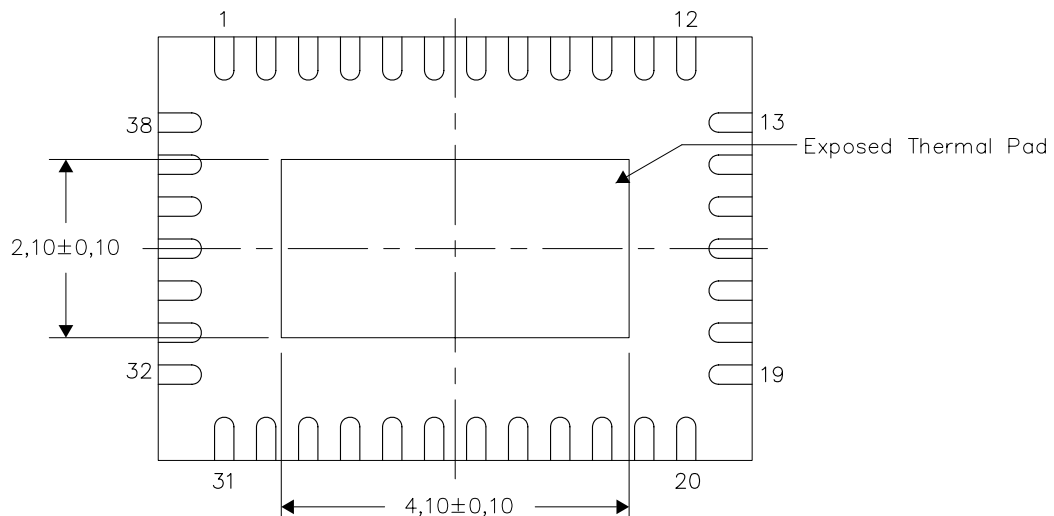
PLASTIC QUAD FLATPACK NO-LEAD

THERMAL INFORMATION

This package incorporates an exposed thermal pad that is designed to be attached directly to an external heatsink. The thermal pad must be soldered directly to the printed circuit board (PCB). After soldering, the PCB can be used as a heatsink. In addition, through the use of thermal vias, the thermal pad can be attached directly to the appropriate copper plane shown in the electrical schematic for the device, or alternatively, can be attached to a special heatsink structure designed into the PCB. This design optimizes the heat transfer from the integrated circuit (IC).

For information on the Quad Flatpack No-Lead (QFN) package and its advantages, refer to Application Report, QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271. This document is available at www.ti.com.

The exposed thermal pad dimensions for this package are shown in the following illustration.



Bottom View

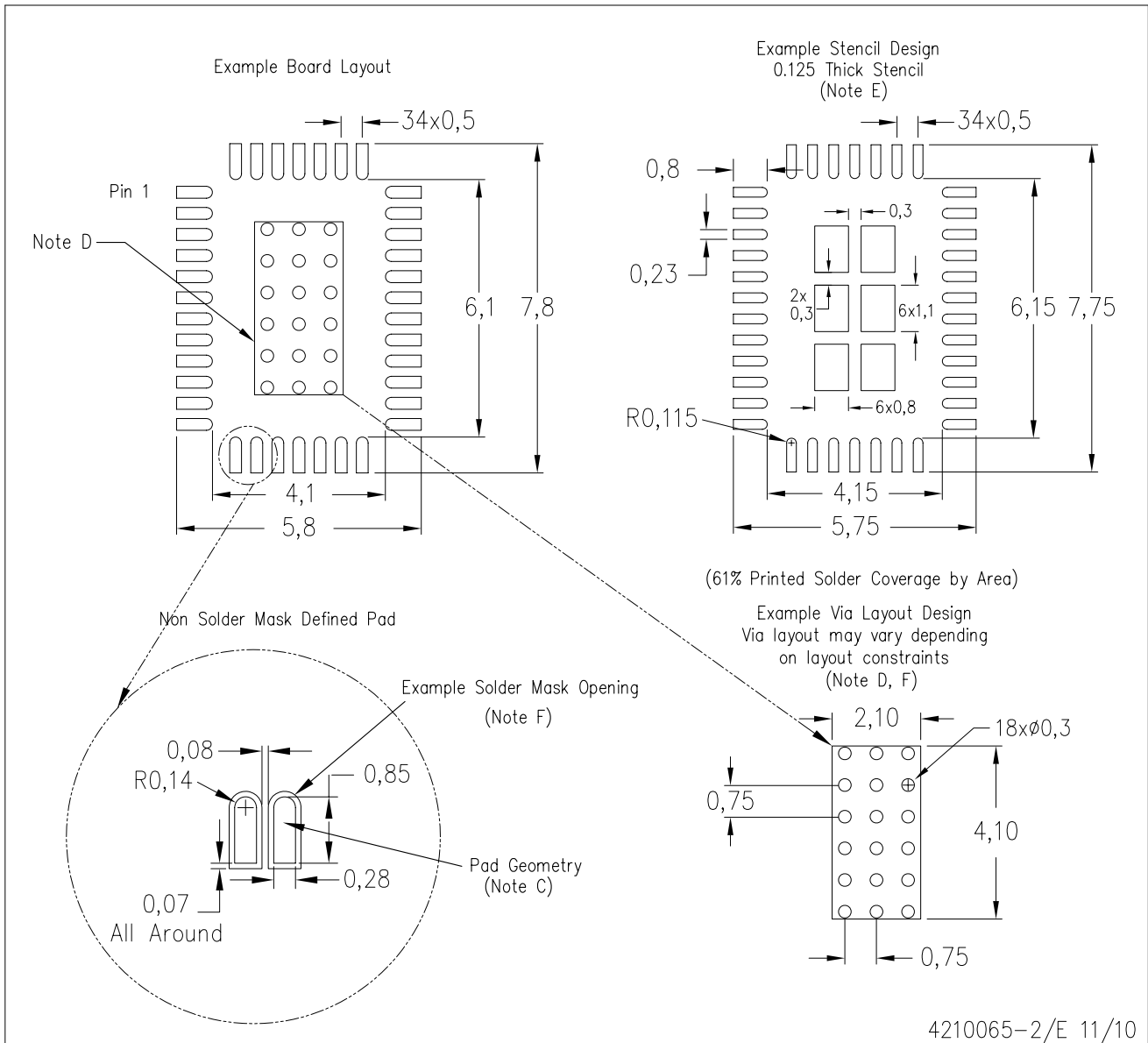
Exposed Thermal Pad Dimensions

4206345-3/J 03/11

NOTE: A. All linear dimensions are in millimeters

RGF (R-PVQFN-N38)

PLASTIC QUAD FLATPACK NO-LEAD



4210065-2/E 11/10

- NOTES:
- All linear dimensions are in millimeters.
 - This drawing is subject to change without notice.
 - Publication IPC-7351 is recommended for alternate designs.
 - This package is designed to be soldered to a thermal pad on the board. Refer to Application Note, QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271, and also the Product Data Sheets for specific thermal information, via requirements, and recommended board layout. These documents are available at www.ti.com <<http://www.ti.com>>.
 - Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC 7525 for stencil design considerations.
 - Customers should contact their board fabrication site for recommended solder mask tolerances and via tenting recommendations for vias placed in the thermal pad.

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