

Dual-Channel, 250-MSPS Feedback Receiver IC

Check for Samples: [ADS62PF49](#)

FEATURES

- **Maximum Output Sample Rate: 250 MSPS**
- **Pin-Compatible with [ADS62P49](#)**
- **Variable Output Resolution**
 - **High Resolution Burst Mode with 14-Bit Output: 73 dB SNR at Low IF, 70.5 dB SNR at 170 MHz**
 - **Low Resolution with 9-Bit 250 MSPS or 11-Bit 125 MSPS**
- **Double Data Rate (DDR) LVDS Output**
- **Programmable Gain up to 6 dB for SNR/SFDR Trade-off**
- **90-dB Cross-Talk**
- **Power Consumption of 1.25 W**
- **64-Pin QFN Package (9 mm × 9 mm)**

APPLICATIONS

- **Feedpath Path for Multi-Carrier, Multi-Mode Cellular Infrastructure Base Stations**

DESCRIPTION

The ADS62PF49 is a dual-channel feedback receiver IC with sampling rates up to 250 MSPS. It allows a high-resolution, 14-bit output for a limited time followed by a low-resolution mode with a minimum of 8x longer time. It is pin-compatible to the ADS62P49 and ADS62C17 dual ADCs.

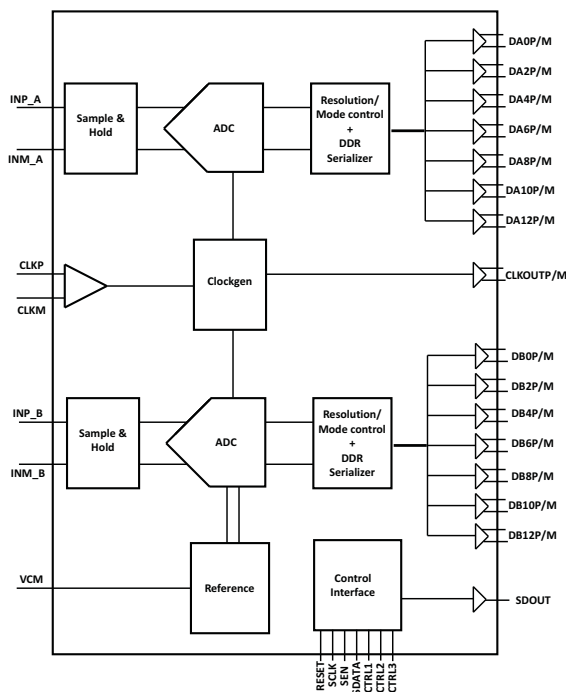
The ADS62PF49 has gain options that can be used to improve SFDR performance at lower full-scale input ranges. It includes a dc offset correction loop that can be used to cancel the analog-to-digital conversion (ADC) offset.

It includes internal references while the traditional reference pins and associated decoupling capacitors have been eliminated. The device is specified over the industrial temperature range (–40°C to 85°C).

Table 1. Performance Summary

AT 170-MHz INPUT		PERFORMANCE IN HIGH-RESOLUTION MODE
SFDR, dBc	0-dB gain	75
	6-dB gain	82
SINAD, dBFS	0-dB gain	69.8
	6-dB gain	66.5

ADS62PF49 Block Diagram



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.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
ADS62PF49IRGCR	ACTIVE	VQFN	RGC	64	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-3-260C-168 HR	-40 to 85	AZ62PF49	Samples
ADS62PF49IRGCT	ACTIVE	VQFN	RGC	64	250	Green (RoHS & no Sb/Br)	NIPDAU	Level-3-260C-168 HR	-40 to 85	AZ62PF49	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) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

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

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

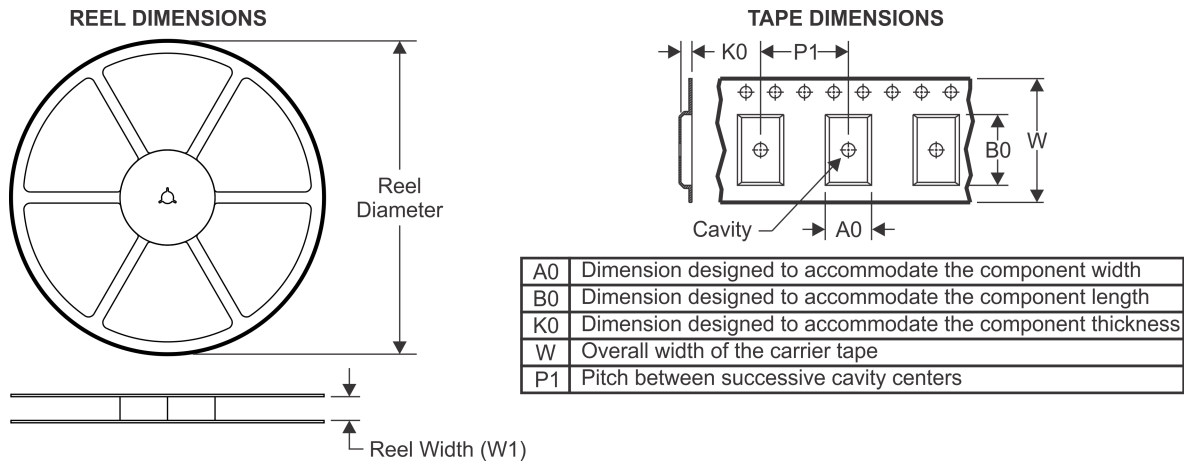
(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

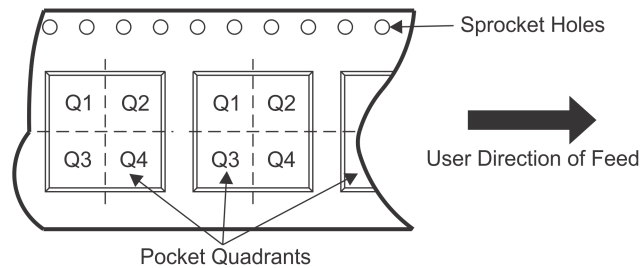
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TAPE AND REEL INFORMATION

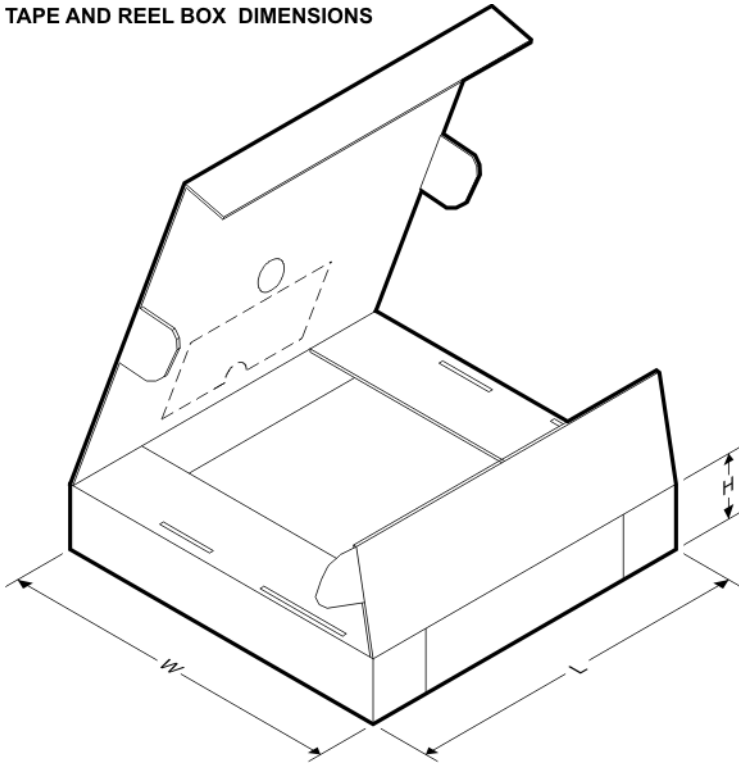


QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
ADS62PF49IRGCR	VQFN	RGC	64	2000	330.0	16.4	9.3	9.3	1.5	12.0	16.0	Q2
ADS62PF49IRGCT	VQFN	RGC	64	250	180.0	16.4	9.3	9.3	1.5	12.0	16.0	Q2

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
ADS62PF49IRGCR	VQFN	RGC	64	2000	350.0	350.0	43.0
ADS62PF49IRGCT	VQFN	RGC	64	250	213.0	191.0	55.0

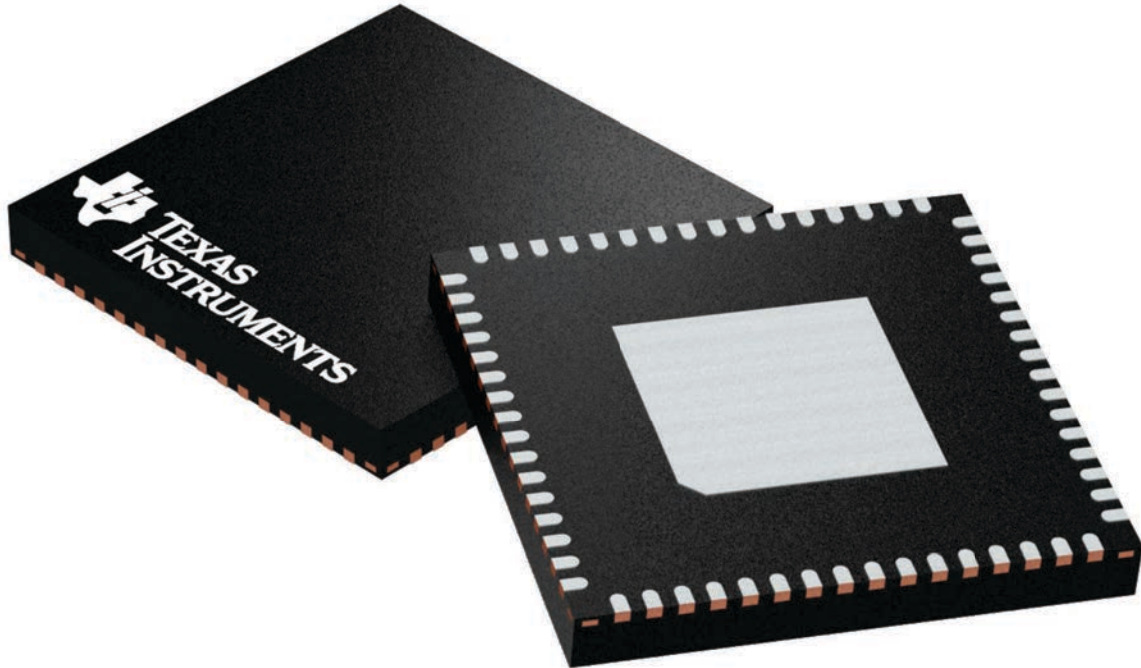
GENERIC PACKAGE VIEW

RGC 64

VQFN - 1 mm max height

9 x 9, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD



Images above are just a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

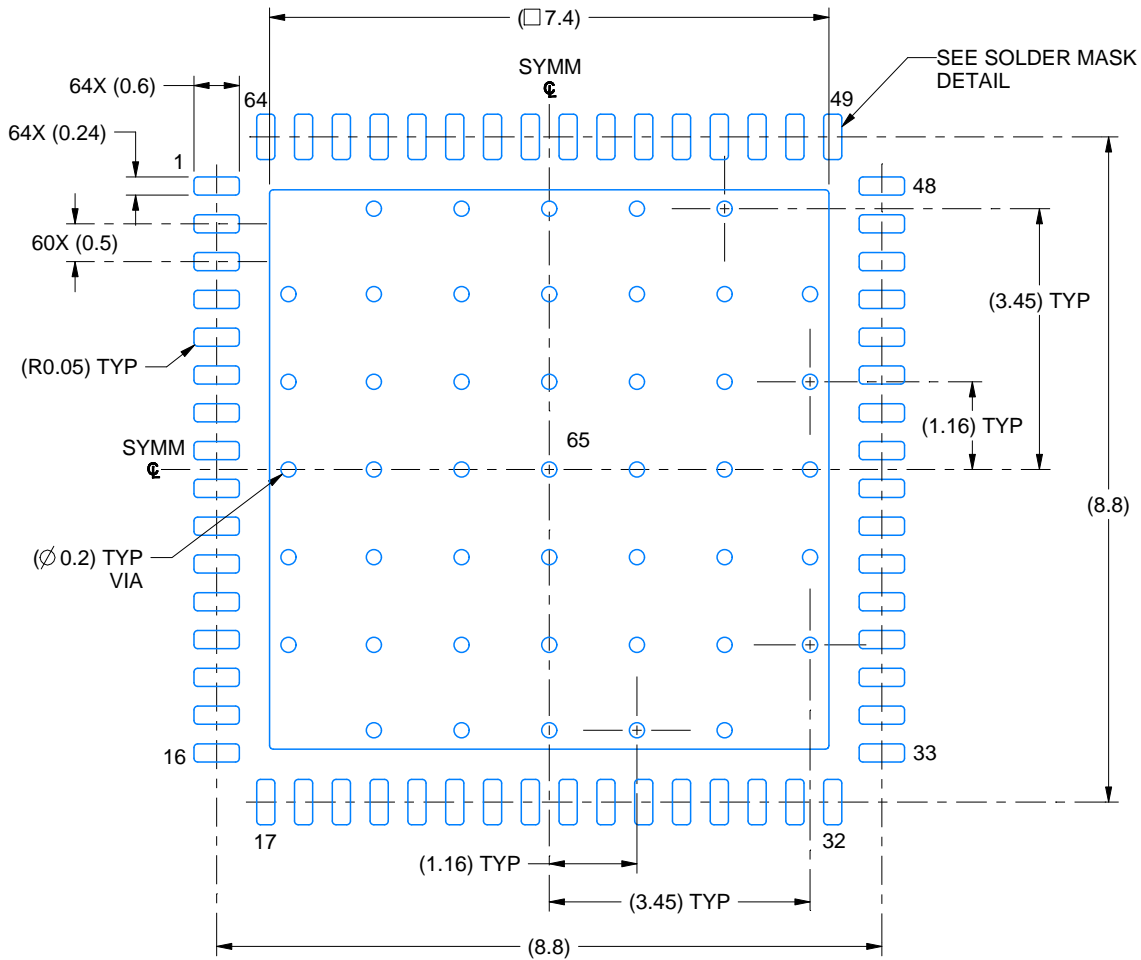
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EXAMPLE BOARD LAYOUT

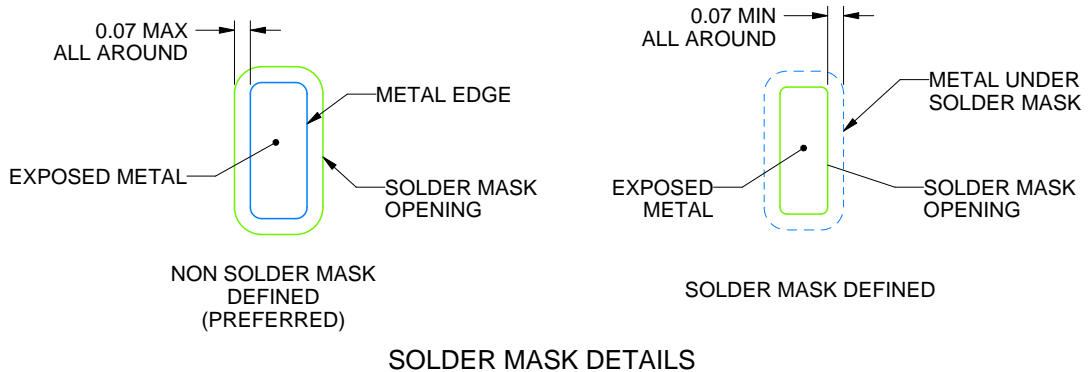
RGC0064H

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



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NOTES: (continued)

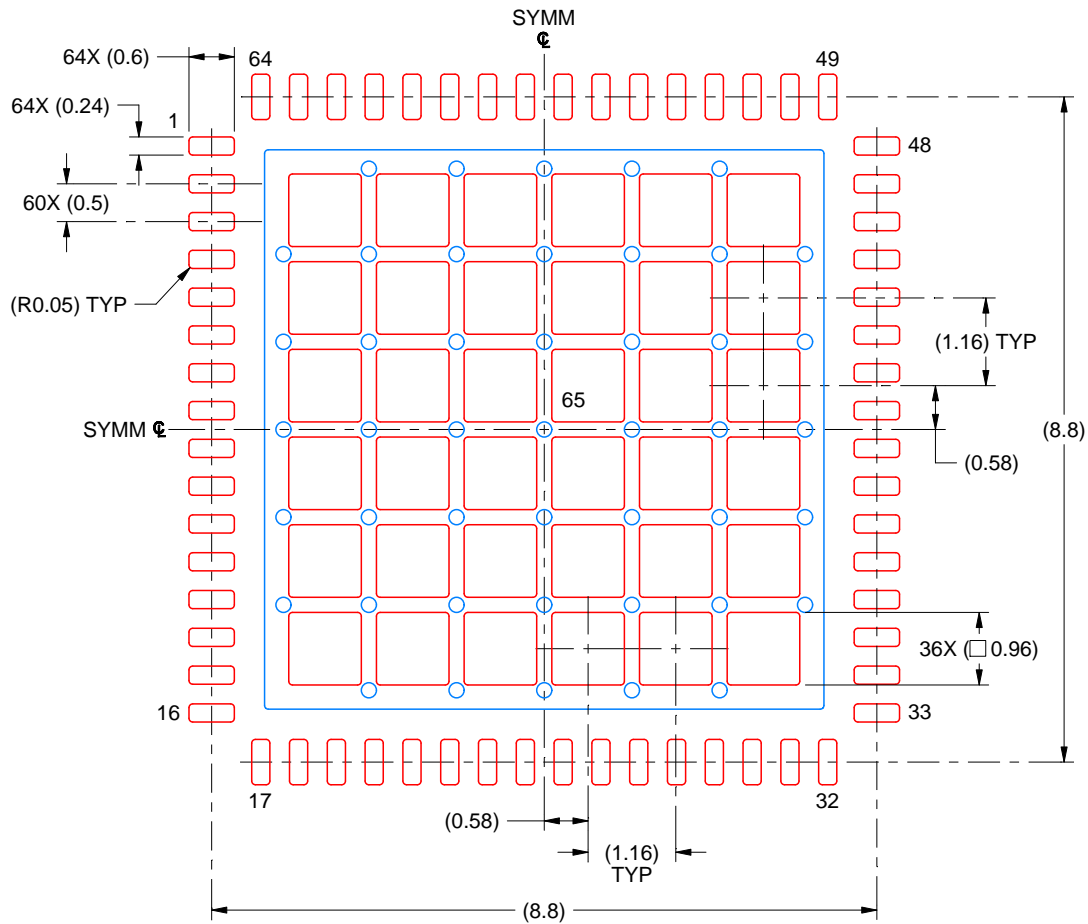
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/sluea271).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

EXAMPLE STENCIL DESIGN

RGC0064H

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



SOLDER PASTE EXAMPLE
 BASED ON 0.125 MM THICK STENCIL
 SCALE: 10X

EXPOSED PAD 65
 61% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE

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NOTES: (continued)

6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.

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