Dual IF Receivers with SNRBoost^{3G+} Signal Processing

Check for Samples: ADS58C20 , ADS58C23

FEATURES

- **Differential Analog IF Input, DDR LVDS Digital IF Output**
- **Up to 125-MHz Signal Bandwidth per Receiver**
  - **With 40- and 75-MHz optimized bands**
- **High Dynamic Performance**
- **High Impedance Input**
- **80-Pin TQFP Package with PowerPAD™**

APPLICATIONS

- **ADS58C20: Multi-Carrier GSM/3G/LTE/TDS-CDMA Cellular Base-station Receiver**
- **ADS58C23: Multi-Carrier 3G/LTE/TDS-CDMA Cellular Base-station Receiver**

DESCRIPTION

The ADS58C20 and ADS58C23 are dual IF receivers for wideband, multi-mode cellular infrastructure base stations. Each channel provides high dynamic performance up to 125 MHz of bandwidth, with optimized bands of 40- and 75-MHz. The IF receiver architecture eases front end filter design for wide bandwidth receivers. The receivers have integrated buffers at the analog inputs with benefits of uniform performance and input impedance across a wide frequency range.

The ADS58C20 is a high performance part with superior specifications for single/multi-mode cellular base-station receivers that include multi-carrier GSM. It can also process other cellular protocols such as TDS-CDMA/3G/LTE and prior generation systems.

The ADS58C23 offers the same functionality and pinout as ADS58C20 but with reduced minimum performance specifications for lower cost and performance systems, such as TDS-CDMA/3G/LTE single/multi-mode receivers (when GSM is not required). It can also process prior generation protocols.

The devices are available in a 80-pin TQFP package, and are specified over the full industrial temperature range (–40°C to 85°C).

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
ADS58C20IPFP	ACTIVE	HTQFP	PFP	80	96	RoHS & Green	NIPDAU	Level-3-260C-168 HR	-40 to 85	ADS58C20I	Samples
ADS58C20IPFPR	ACTIVE	HTQFP	PFP	80	1000	RoHS & Green	NIPDAU	Level-3-260C-168 HR	-40 to 85	ADS58C20I	Samples
ADS58C23IPFP	ACTIVE	HTQFP	PFP	80	96	RoHS & Green	NIPDAU	Level-3-260C-168 HR	-40 to 85	ADS58C23I	Samples
ADS58C23IPFPR	ACTIVE	HTQFP	PFP	80	1000	RoHS & Green	NIPDAU	Level-3-260C-168 HR	-40 to 85	ADS58C23I	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 finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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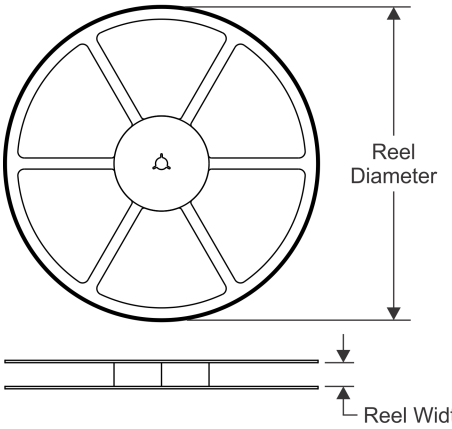
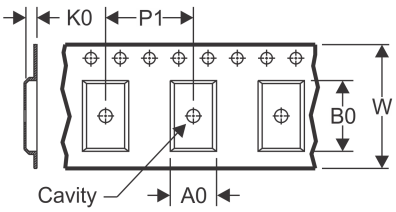
TAPE AND REEL INFORMATION

REEL DIMENSIONS

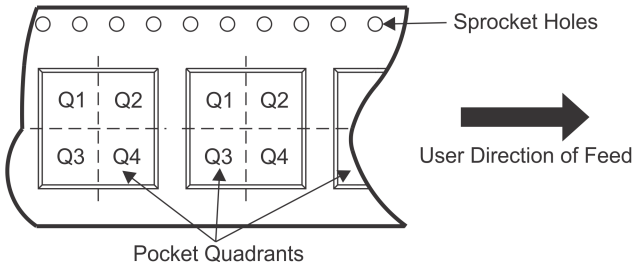


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

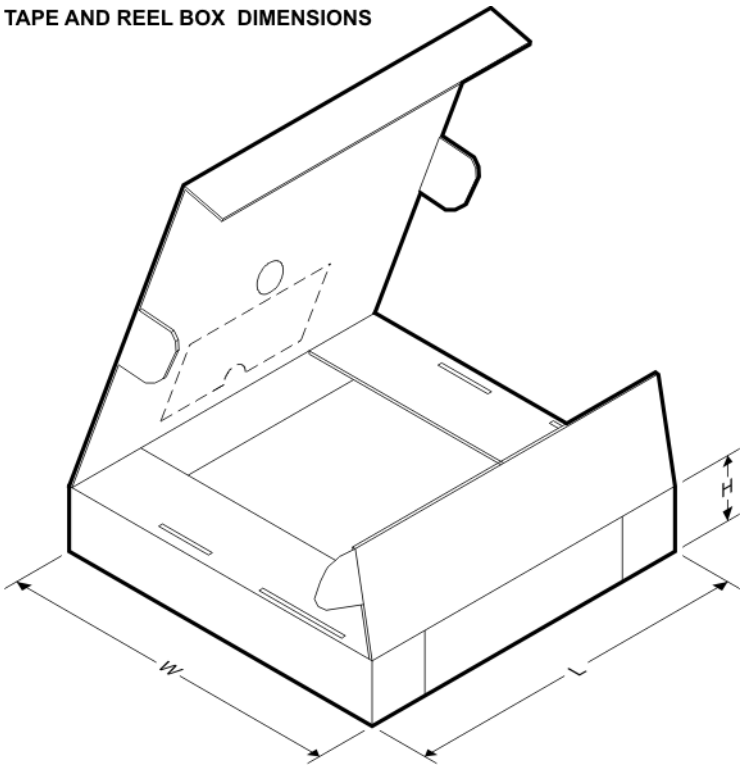
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
ADS58C20IPFPR	HTQFP	PFP	80	1000	330.0	24.4	15.0	15.0	1.5	20.0	24.0	Q2
ADS58C23IPFPR	HTQFP	PFP	80	1000	330.0	24.4	15.0	15.0	1.5	20.0	24.0	Q2

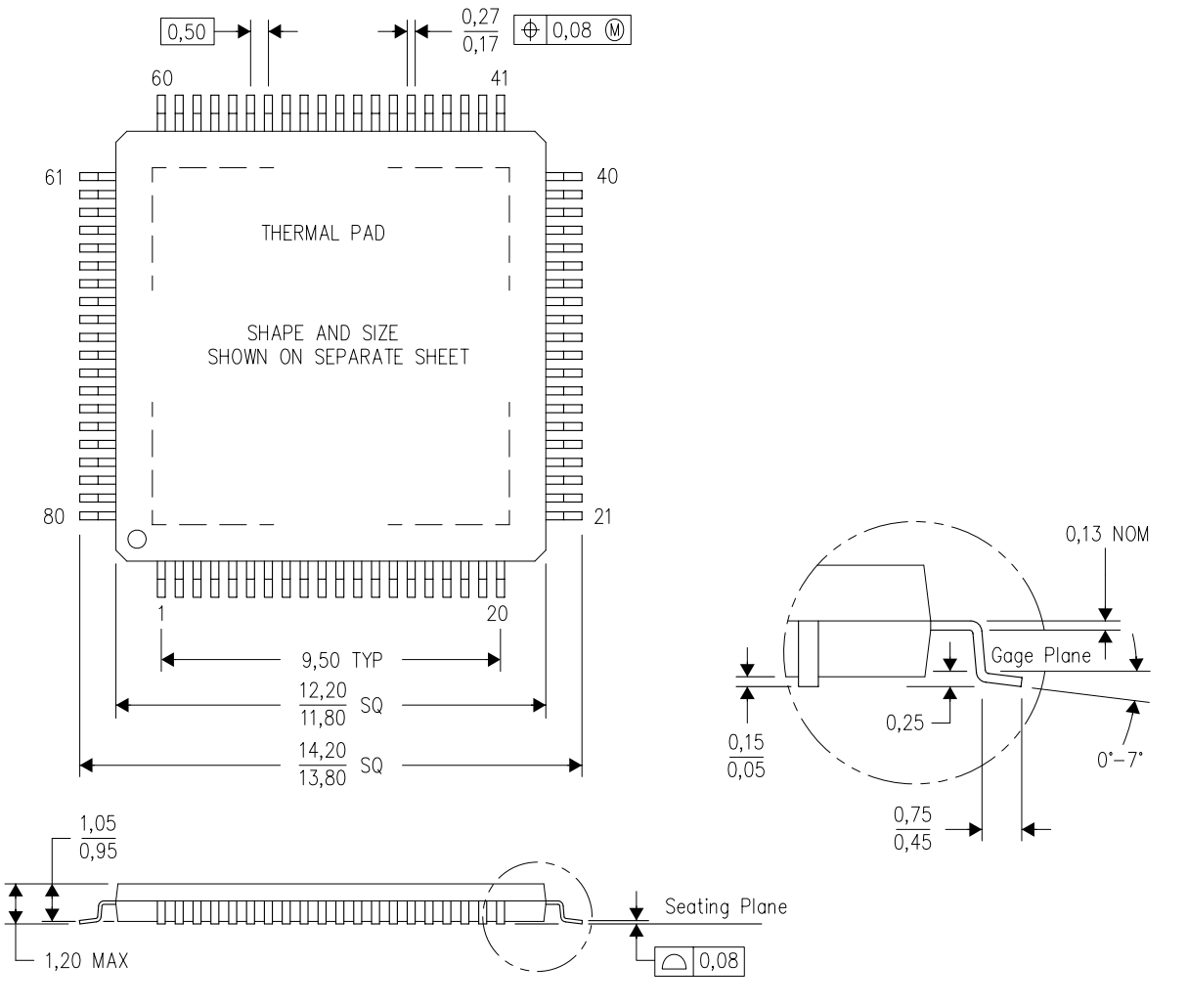
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
ADS58C20IPFPR	HTQFP	PFP	80	1000	350.0	350.0	43.0
ADS58C23IPFPR	HTQFP	PFP	80	1000	350.0	350.0	43.0

PFP (S–PQFP–G80) PowerPAD™ PLASTIC QUAD FLATPACK



NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion
D. This package is designed to be soldered to a thermal pad on the board. Refer to Technical Brief, PowerPad Thermally Enhanced Package, Texas Instruments Literature No. SLMA002 for information regarding recommended board layout. This document is available at www.ti.com <http://www.ti.com>.
E. See the additional figure in the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.
F. Falls within JEDEC MS–026

PowerPAD is a trademark of Texas Instruments.

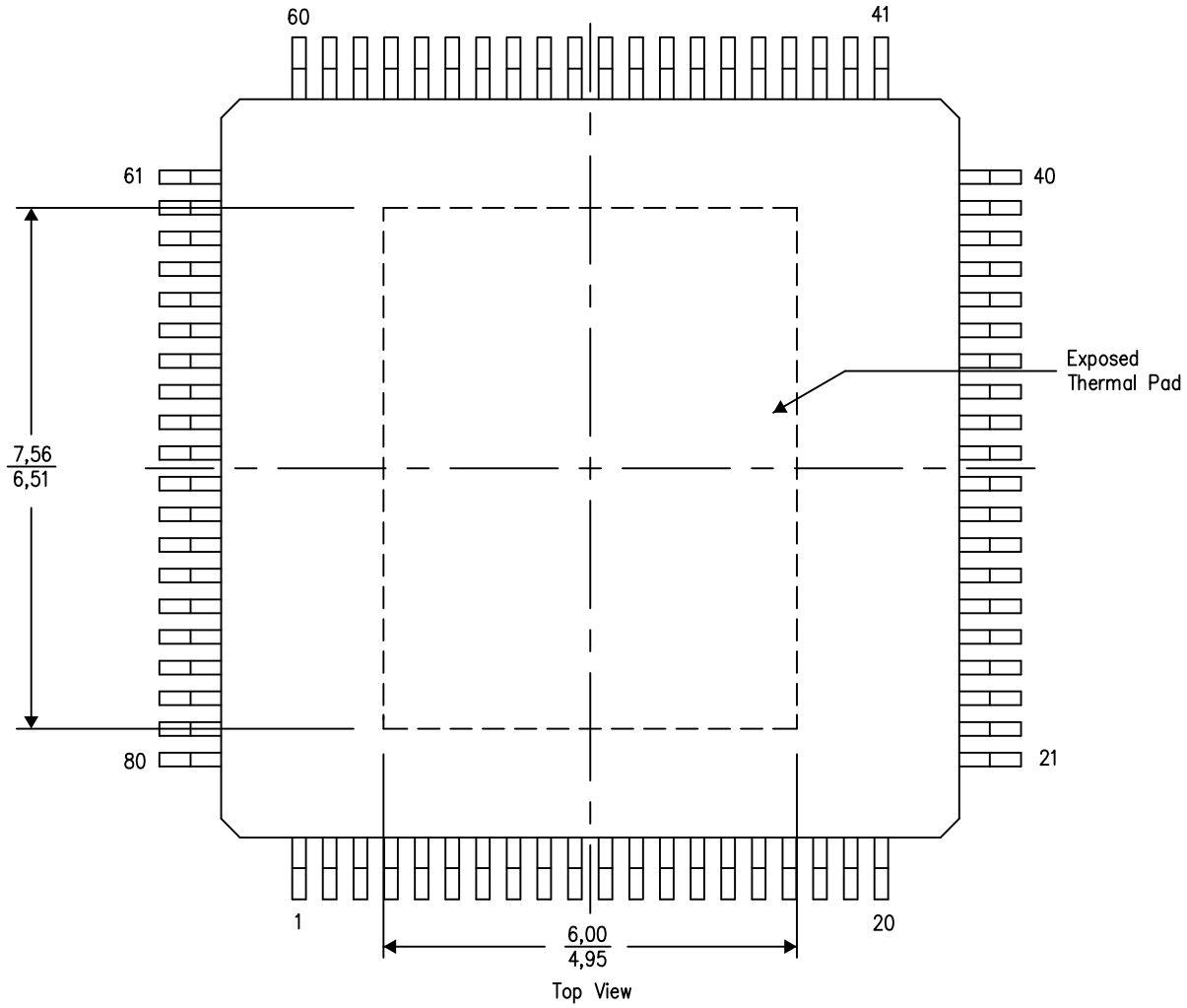
PFP (S–PQFP–G80) PowerPAD™ PLASTIC QUAD FLATPACK

THERMAL INFORMATION

This PowerPAD™ package incorporates an exposed thermal pad that is designed to be attached to a printed circuit board (PCB). The thermal pad must be soldered directly to the 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 additional information on the PowerPAD package and how to take advantage of its heat dissipating abilities, refer to Technical Brief, PowerPAD Thermally Enhanced Package, Texas Instruments Literature No. SLMA002 and Application Brief, PowerPAD Made Easy, Texas Instruments Literature No. SLMA004. Both documents are available at www.ti.com.

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



Exposed Thermal Pad Dimensions

4206327–14/P 05/14

NOTE: A. All linear dimensions are in millimeters

PowerPAD is a trademark of Texas Instruments

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