

General Description

The SC2200 evaluation kits (SC2200-EVK) provide the hardware and software graphical user interface (GUI) necessary for the evaluation of the SC2200. The SC2200 belongs to the 4th-generation family of RF PA linearizers (RFPAL) that provide increased integration and functionality over the previous generations. The SC2200 is a dual-path linearizer that is a fully-adaptive, RFIN/RFOUT predistortion linearization solution optimized for a wide range of amplifiers, power levels, and communication protocols. It supports 2G to 4G standards (FDD and TDD) from 698MHz to 2700MHz, as well as an expanded range of signal bandwidths from 60MHz down to 1.2MHz. The device accepts single-ended RF signals to eliminate baluns and features a mirrored pinout facilitating design of both paths. The SC2200 uses the PA output and input signals to adaptively generate an optimized correction function to minimize the PA's distortion. Using RF-domain analog signal processing enables the SC2200 to operate over wide bandwidths and with very low power consumption. The dual linearizer can be used for small cell MIMO, active antennas, distributed antennas, or in systems requiring two different simplex bands.

Applications

- Cellular Infrastructure
 - Single/Multicarrier, Multistandard: CDMA/EVDO, TD-SCDMA, WiMAX, WCDMA/HSDPA, LTE, and TD-LTE
 - BTS Amplifiers, RRH, Booster Amplifiers, Repeaters, Small Cells, Microcells, Picocells, DAS, AAS, and MIMO Systems
- Wide Range of PAs and Output Power
 - Amplifier: Class A/AB, Doherty
 - Average PA Output Power Examples:
 - Cellular Infrastructure: 27dBm to 40dBm
 - PA Process: LDMOS, GaN, HBT, GaAs, and InGaP

Benefits

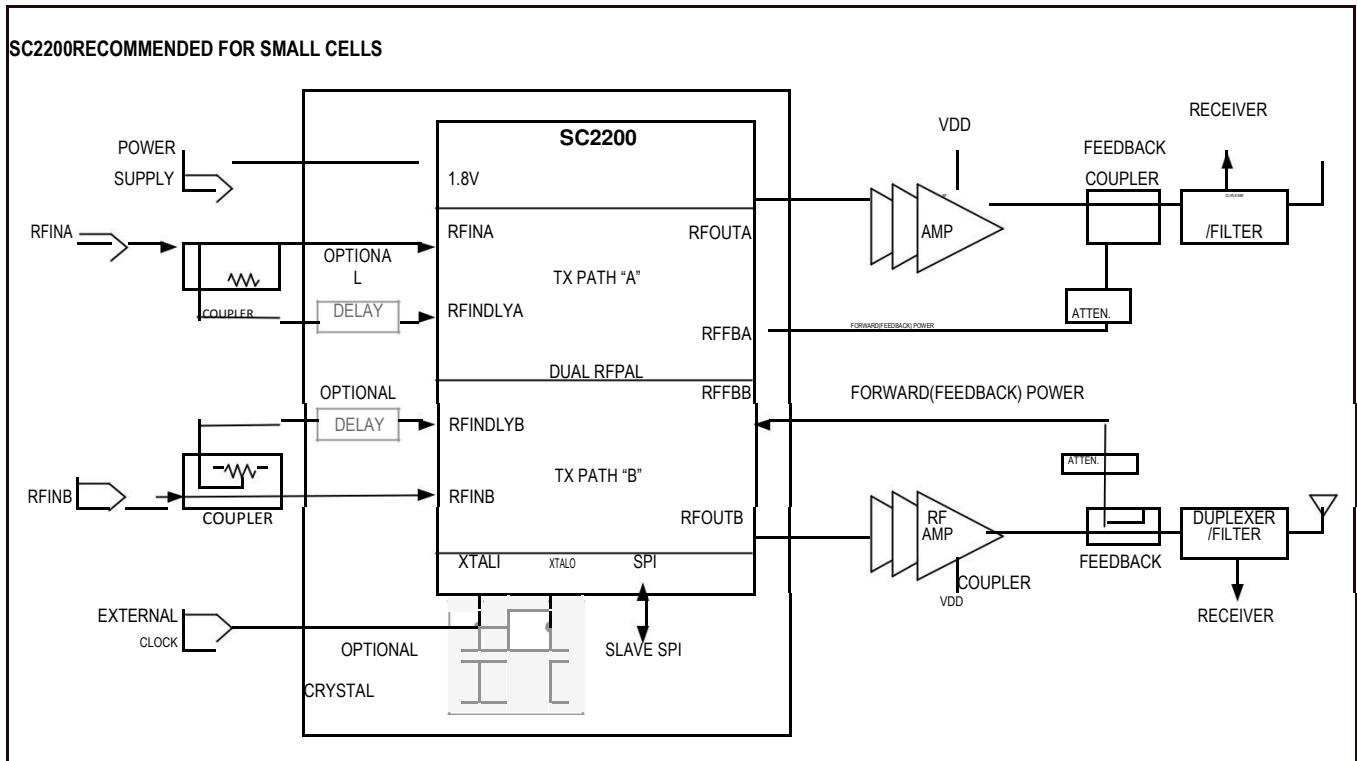
- Ease of Use
 - Integrated RFIN/RFOUT Solution
- Reduces System Power Consumption and OPEX
- Reduces BOM Costs and Total Volume
 - Smaller Power Supply, Heat Sink, and Enclosure
 - Lower Back-Off Reduces Transistor Costs

Features

- Frequency Ranges:
 - SC2200-EVK900: 698–960MHz
 - SC2200-EVK1900: 1800–2200MHz
 - SC2200-EVK2400: 2300–2700MHz
- Integrated Preamp and Single-Ended RF I/Os
- Single +5V Supply Voltage
- Dual-Path RFIN/RFOUT Linearizer
- Fully Adaptive Correction
- Up to 28dB ACLR and 38dB IMD Improvement (1)
- $1.2\text{MHz} < \text{BWSIG} \leq 60\text{MHz}$

[Ordering Information](#) and [Block Diagram](#) appears at end of data sheet.

Typical Application Block Diagram



Evaluation Kit Ordering Information

PART NUMBER	DESCRIPTION
SC2200-EVK900	Evaluation kit, dual-RFPAL, 698MHz-960MHz
SC2200-EVK1900	Evaluation kit, dual-RFPAL, 1800MHz-2200MHz
SC2200-EVK2400	Evaluation kit, dual-RFPAL, 2300MHz-2700MHz

Component Information, PCB Layout, and Schematic

See the following links for component information, PCB layout diagram, and schematic.

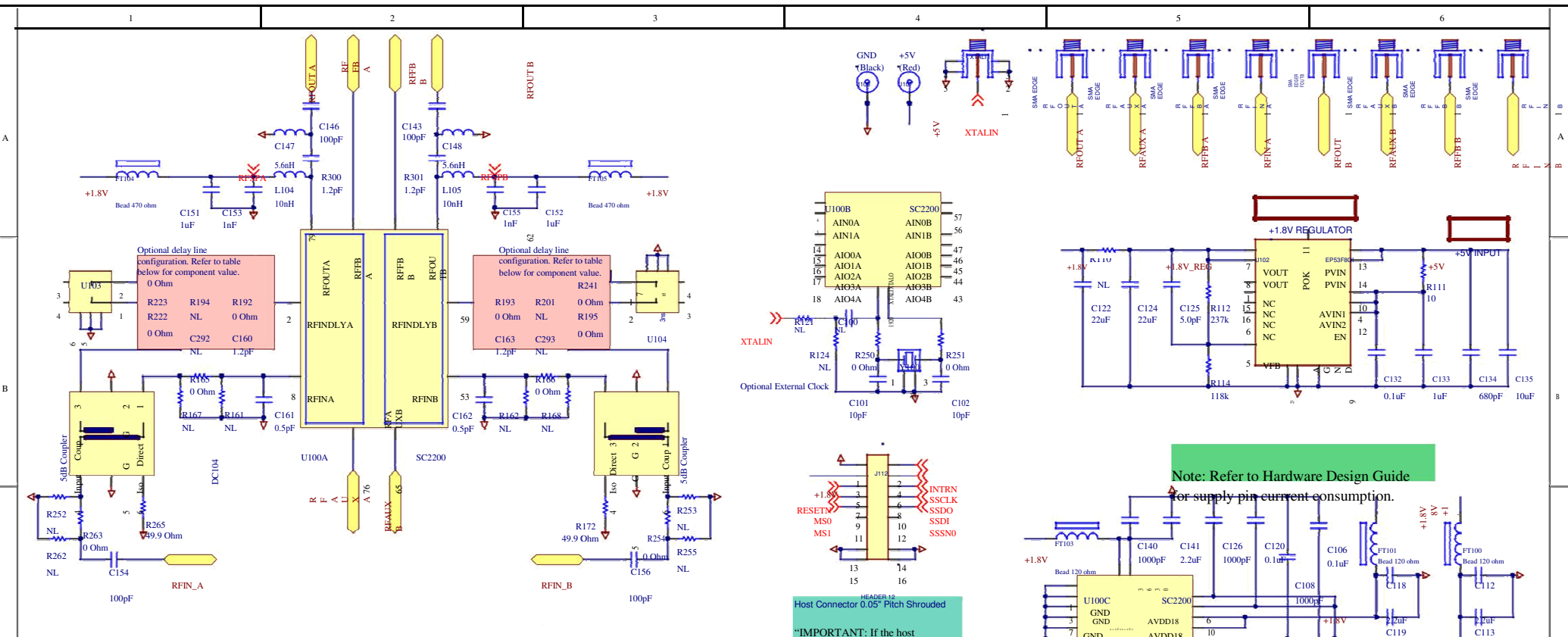
- [SC2200 EV BOMs](#)
- [SC2200 EV PCB](#)
- [SC2200 EV Schematic](#)

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	11/15	Initial release	—

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at www.maximintegrated.com.

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Delay Line Configuration Options							
		EVK900 (700-960 MHz)		EVK1900 (1800-2200 MHz)		EVK2400 (2300-2800 MHz)	
Component Reference	No delay line (classAB)	With delay line (doherty or wide IBW)	No delay line (classAB)	With delay line (doherty or wide IBW)	No delay line (classAB)	With delay line (doherty or wide IBW)	
Designator	Value	Value	Value	Value	Value	Value	
R194	0 Ohm	NL	0 Ohm	NL	0 Ohm	NL	
R222	NL	0 Ohm	0 Ohm	0 Ohm	0 Ohm	0 Ohm	
R223	NL	0 Ohm	NL	0 Ohm	NL	0 Ohm	
C292	221 Ohm	432 Ohm	221 Ohm	1.3pF	221 Ohm	NL	
R192	24.3 Ohm	11.5 Ohm	24.3 Ohm	1nH	24.3 Ohm	0 Ohm	
C160	221 Ohm	432 Ohm	221 Ohm	NL	221 Ohm	1.2pF	
R201	0 Ohm	NL	0 Ohm	NL	0 Ohm	NL	
R195	NL	0 Ohm	NL	0 Ohm	0 Ohm	0 Ohm	
R241	NL	0 Ohm	NL	0 Ohm	NL	0 Ohm	
C293	221 Ohm	432 Ohm	221 Ohm	1.3pF	221 Ohm	NL	
R193	24.3 Ohm	11.5 Ohm	24.3 Ohm	1nH	24.3 Ohm	0 Ohm	
C163	221 Ohm	432 Ohm	221 Ohm	NL	221 Ohm	1.2pF	

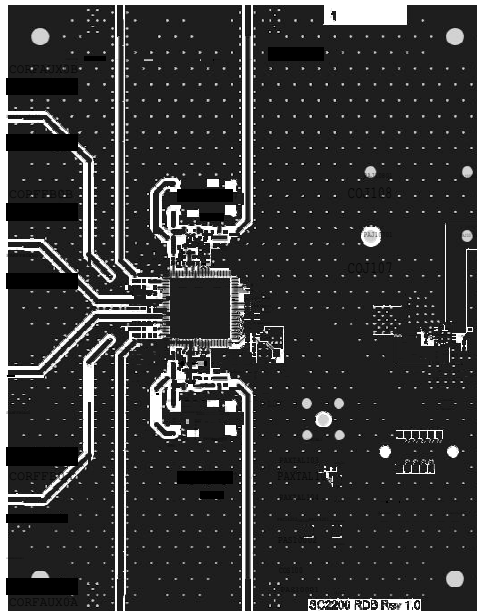
Host Connector 0.05" Pitch Shrouded

"IMPORTANT: If the host processor does not perform "max power calibration", this connector is needed for production line calibration. Refer to Hardware Design Guide for detail.

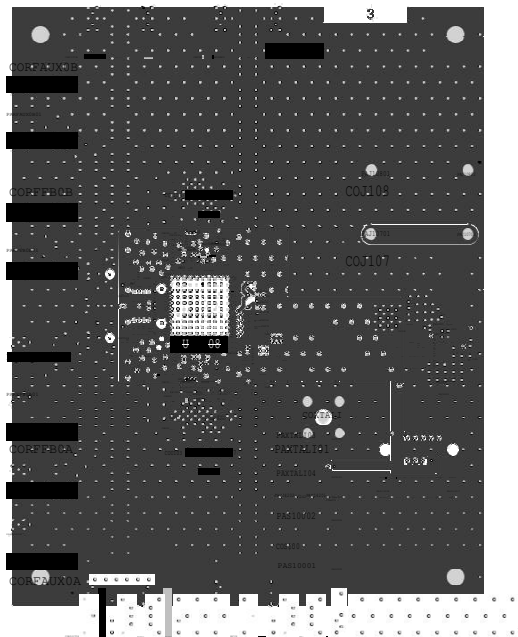
Note: Refer to Hardware Design Guide for supply pin current consumption.

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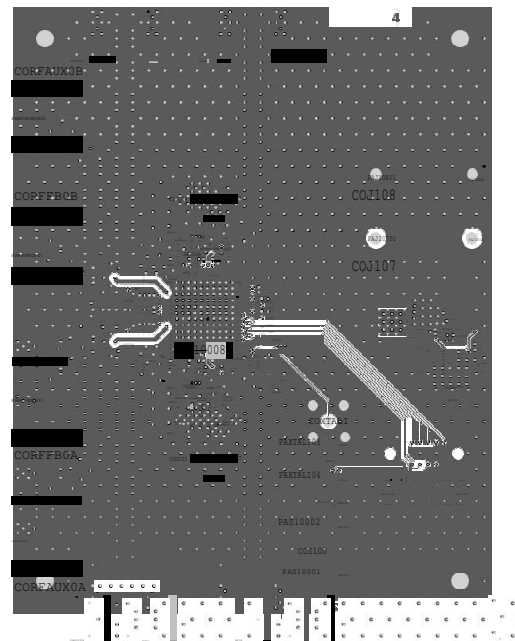
Default Configuration in BOLD. Refer to Hardware Design Guide for detail.



Maxim Integrated
Top Layer 1

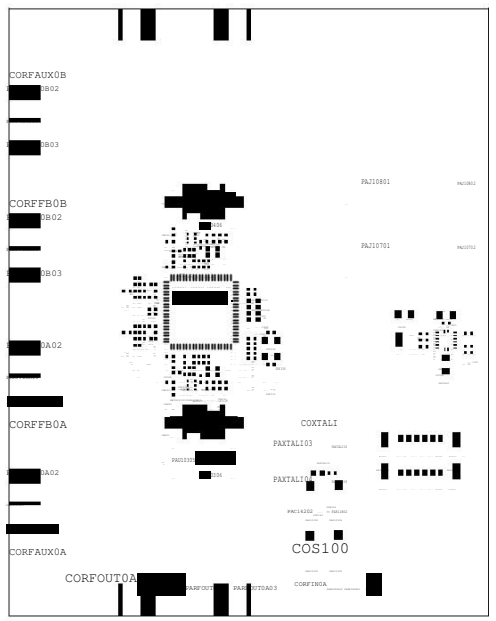


Maxim Integrated
Internal Layer 3



Max1m Integrated
Bottom Layer 4

CORFOU0E [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]



Maxim Integrated
Top Paste

CORFOU0B PAMFOU0A2 PAMFOU0A3 PAMFOU0A4 CORFB0B



CORFAUX0B



CORFFB0B



CORFA02



CORFFB0A



CORFA03

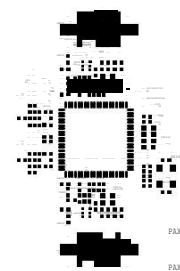


CORFAUX0A

CORFOU0A PAMFOU0A2 PAMFOU0A3 PAMFOU0A4



PAL10407

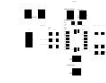


PAL10851

PAL0802

PAL10701

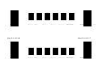
PAL0802



COXTAL1

PAXTAL103

PAXTAL104



PAL10407

COS100

CORFB0A

Maxim Integrated
Top Solder Mask

CORFOU0B [redacted] CORF100 [redacted]

CORFAUX0B

PA02
PA03

CORFFB0B

PA02
PA03

CORFAUX0A

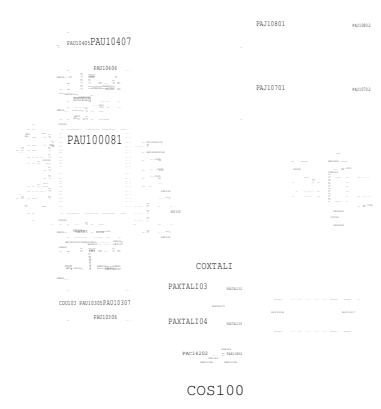
PA02
PA03

CORFFB0A

PA02
PA03

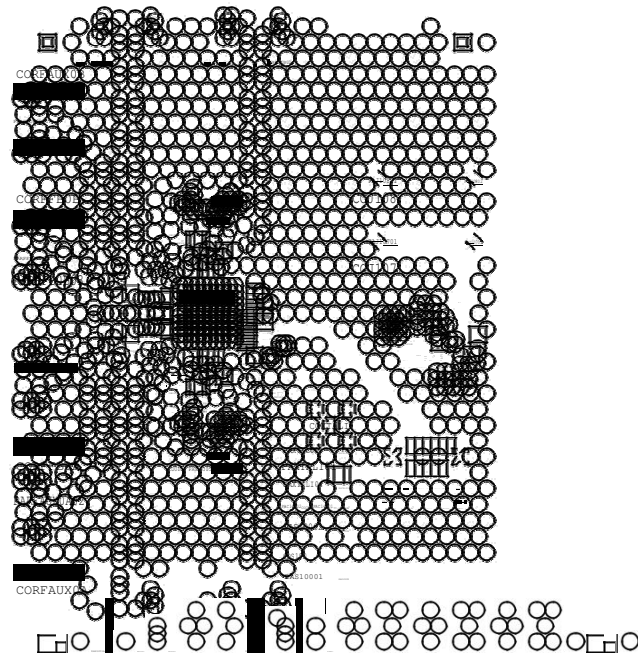
CORFAUX0A

CORFOU0A [redacted] CORF100 [redacted]



Maxim Integrated
Bottom Solder Mask

Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
⊗	2	62.99mil (1.600mm)	NPTH	Round
◇	4	71.00mil (1.803mm)	PTH	Round
⊕	4	110.00mil (2.794mm)	PTH	Round
#	5	62.00mil (1.575mm)	PTH	Round
□	58	10.00mil (0.254mm)	PTH	Round
○	1457	15.00mil (0.381mm)	PTH	Round
1530 Total				



CORFOUTOB

CORFOUS

