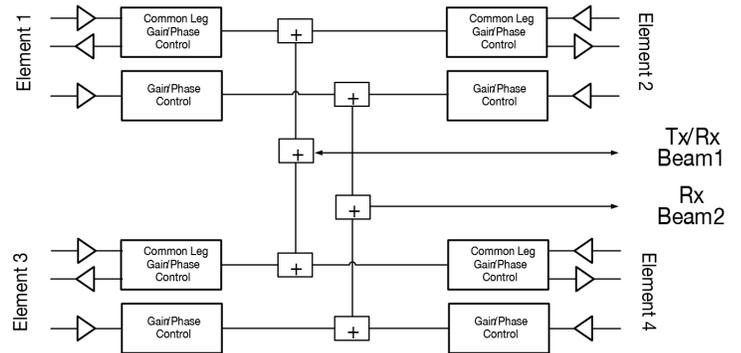


Product Features

- 8.50 – 10.55 GHz operation
- Supports 4 radiating elements
- Dual beam Rx
- Single beam Tx
- +13 dBm Tx OP1dB
- +20 dB Tx gain
- +20 dB Rx coherent gain
- 4.0 dB Rx coherent NF
- -16 dBm Rx coherent IIP3
- 6-bit phase control (LSB=5.625°)
- 6-bit gain control (LSB=0.5dB)
- Fast beam steering
- 7x7 mm QFN
- +1.8 V operation
- 1.9 W DC Tx mode
- 1.9 W DC Rx mode



Applications

Commercial and Weather RADAR

General Description

The AWS-0101 is a highly integrated silicon quad core IC intended for RADAR and 5G phased array applications. The device supports four radiating elements, single beam transmit, and dual beam receive and includes all requisite beam steering controls for 6 bit phase and gain control. The device provides 20 dB gain during transmit mode, 20 dB gain in receive mode, +13 dBm output power during transmit, and 4.0 dB NF during receive. Additional features include gain compensation over temperature, temperature reporting, and fast beam switching using eight on-chip beam weight storage registers. The device features ESD protection on all pins, operates from +1.8 V, and is packaged in a 56 lead 7x7 mm QFN for easy installation in planar phased array antennas.



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Document: AWS-0101-DSB
 Rev. 3

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AWS-0101 Developer Kit

The developer kits (AWS-0101-DK, AWS-0101-DL) include all hardware and software required to interface to the AWS-0101. The kits enable full evaluation and RF testing of the developer kit with easily defined user interfaces. The test board has been carefully designed to easily replicate the performance of the device and to provide the necessary channel to channel isolation. Calibration data is included to enable the removal of test board line losses. The SPI control is supported through a high-speed cable, interposer board, and USB interface module. Driver software is supplied to provide control from a PC. DC power is supplied to the test board through a separate cable assembly. A full set of measured data is included to provide reference performance for each Developer Kit. Evaluation of the AWS-0101 with the Developer Kits will significantly shorten the time to become familiar with the operation and performance of the product, thereby reducing system development time and cost.



Figure 1: AWS-0101-DK Contents and Evaluation Board

Developer Kit Contents

- 1 x Test board with 14 x RF connectors, 1 x DC connector, and 1 x SPI connector
- 1 x DC power cable assembly
- 1 x high speed SPI cable assembly
- 1 x SPI interposer board
- 1 x USB-SPI interface module
- 25 extra ICs (AWS-0101-DK only)
- SPI driver software
- Control software with User Guide, full test results, and board calibration
- 1 x Software Installation and Control Software User's Guide

Ordering Guide

Model	Package	MSL Rating	Package Description	Package Option	Package Marking
AWS-0101	QFN		7x7 mm 56 LD QFN		AWS-0101 YYWW XXXXXX
AWS-0101-DK			Developer's Kit for evaluation (includes 25 additional ICs)		
AWS-0101-DL			Developer's Kit Lite (without additional ICs)		