

# ACMD-4104

## UMTS Band 4 Duplexer with Balanced Rx Port



### Product Brief



#### Description

The Avago ACMD-4104 is a highly miniaturized duplexer designed for use in UMTS Band 4 (1710 – 1755 MHz UL, 2110 – 2155 MHz DL) handsets and mobile data terminals.

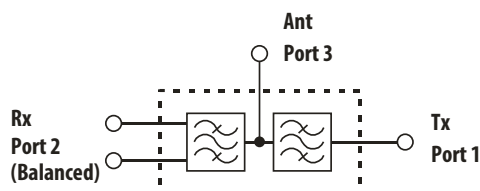
Low Insertion Loss in the Tx channel minimizes current drain from the power amplifier, while low Rx channel Insertion Loss improves receiver sensitivity. The Rx port is balanced (100 ohms) to preserve Common-Mode Rejection Ratio (CMRR) and simplify the interface to baseband chipsets.

The ACMD-4104 enhances the sensitivity and dynamic range of handset receivers by providing high isolation of the transmitted signal from the receiver input and high rejection of transmit-generated noise in the receive band.

The ACMD-4104 is designed with Avago Technologies' innovative Film Bulk Acoustic Resonator (FBAR) technology, which makes possible ultra-small, high-Q filters at a fraction of their usual size. The excellent power handling capability of FBAR bulk-mode resonators supports the high output power levels used in mobile communications applications, while adding virtually no distortion.

The ACMD-4104 also utilizes Avago Technologies' advanced Microcap bonded-wafer, chip scale packaging technology. This process allows the filters to be assembled into a molded chip-on-board module with an overall size of only 1.6 × 2.0 mm and height of 0.9 mm. The ACMD-4104 is compatible with standard 1.6 × 2.0 mm duplexer PCB footprints.

#### Functional Block Diagram



#### Features

- Miniature Size
  - 1.6 × 2.0 mm size
  - 0.9 mm height
  - Standard 1.6 x 2.0 PCB footprint
- Balanced Rx Port, 100 Ω
- High Isolation
- High Power Rating
  - 33 dBm Abs. Max. Tx Power
- Environmental
  - RoHS 6 compliant
  - Halogen-free
  - TBBPA-free

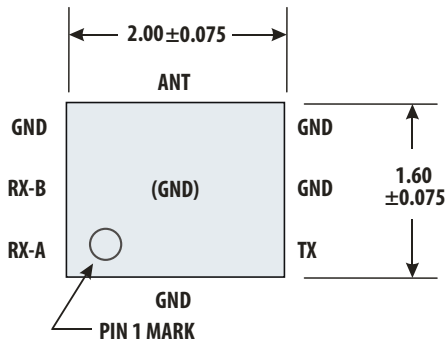
#### Specifications

- Rx Band Performance, –20 to +85 °C
  - Insertion Loss: 1.9 dB Max.
  - Rx Noise Blocking: 55 dB Min.
- Tx Band Performance, –20 to +85 °C
  - Insertion Loss: 1.8 dB Max.
  - Tx Interferer Blocking: 53 dB Min.

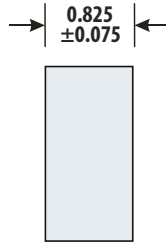
#### Applications

Smartphones, tablets, data terminals and other mobile/portable communication devices operating in the UMTS Band 4 frequency range.

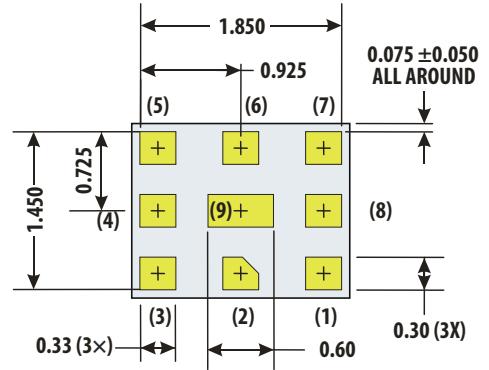
# Package Outline



**TOP VIEW**



**SIDE VIEW**



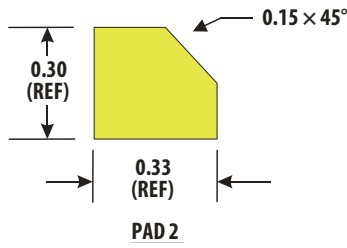
**BOTTOM VIEW**

**Notes:**

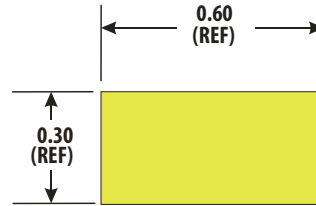
1. Dimensions in millimeters
2. Tolerance, unless otherwise noted:  
 X.XX ± 0.05 mm  
 X.XXX ± 0.025 mm
3. Dimensions nominal, unless otherwise noted
4. Angles 45° nominal
5. Contact areas are gold plated

**Pin Connections:**

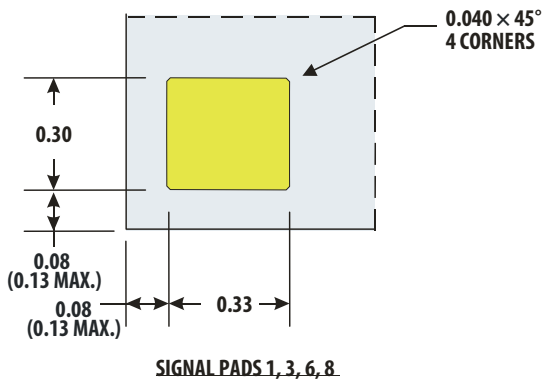
1	Rx-A
2, 4, 5, 7, 9	Gnd
3	Tx
6	Ant
8	Rx-B



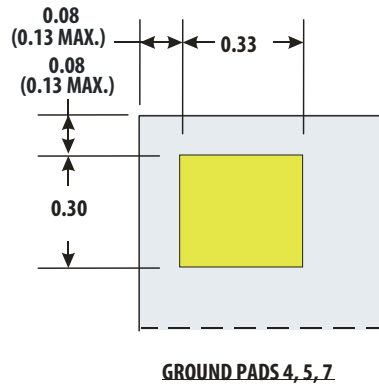
**PAD 2**



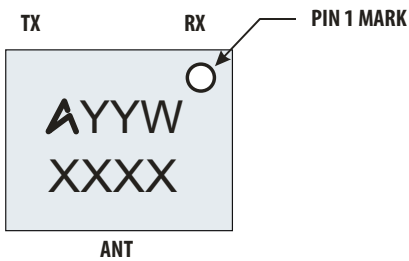
**CENTER PAD 9**



**SIGNAL PADS 1, 3, 6, 8**



**GROUND PADS 4, 5, 7**



**Product Marking and Pin Orientation**

"A" = Mfg (Avago Technologies, Inc.)  
 Y = ACMD-4104  
 Y = Year, last digit  
 W = Work Week  
 XXXX = Lot Number

## Package Moisture Sensitivity

Feature	Test Method	Performance
Moisture Sensitivity Level (MSL) at 260 °C	JESD22-A113D	Level 3

## Ordering Information

Part Number	No. of Devices	Container
ACMD-4104-BLK	100	Tape Strip or Anti-static Bag
ACMD-4104-TR1	3000	178 mm (7-inch) Reel

For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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