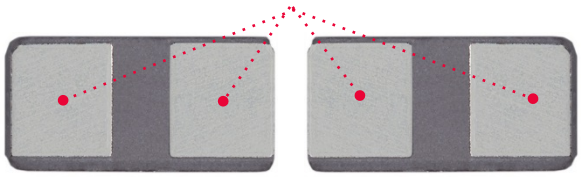
# Wi-Fi*-ready MID Chip and Ceramic SMT Antennas

molex®

**Ultra thin ceramic and LDS-MID antennas enable fast and easy integration into Wi-Fi devices for maximum performance at minimal implementation cost**

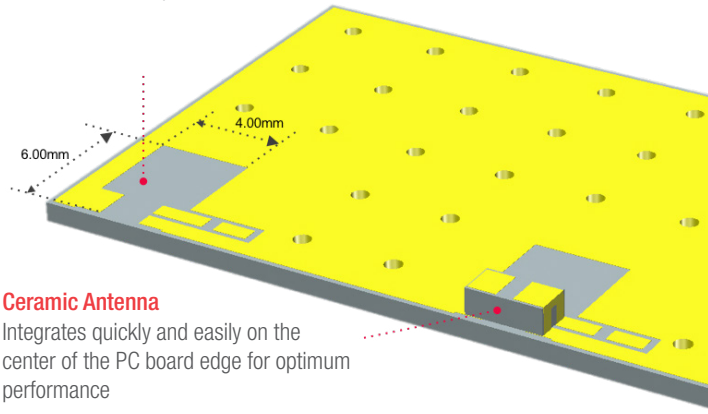
## Features and Benefits

**Symmetrical radiator design**
Offers significant design flexibility by allowing reversed lateral placement on the PCB without affecting radiation pattern or performance



The 2.4GHz SMT Ceramic Antenna with its symmetrical design maintain the same radiation pattern even when rotated 180 degrees to the horizontal

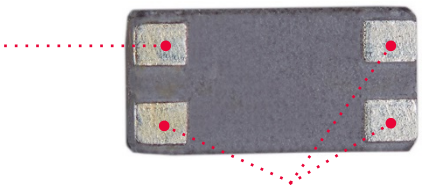
**Clearance Zone**
Ensures little or no EMI interference from neighboring electronic components affecting antenna performance




**Ceramic Antenna**
Integrates quickly and easily on the center of the PC board edge for optimum performance

Reference PCB layout of the 2.4GHz SMT Ceramic Antenna (Refer to AS-203006-001 for more information)

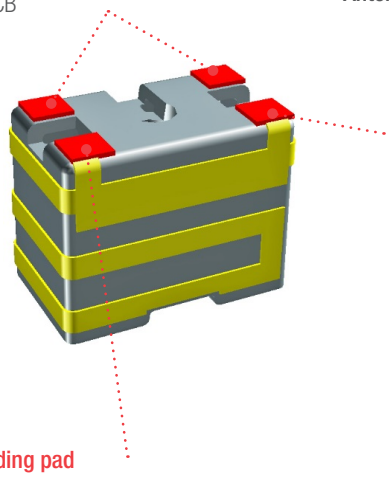
**Feeding pad**
Connects to the radio transceiver via a 50-Ohm transmission line on the PCB. Electrical signals from the transmission line are fed through this pad on the PCB



**Grounding pad**
Provides electrical grounding of antenna onto the application PCB

Underside view of the 2.4GHz SMT Ceramic Antenna showing Feeding and Ground Pads

**(Dummy) Fixing pads**
Firmly anchor antenna housing onto SMT pad of PCB



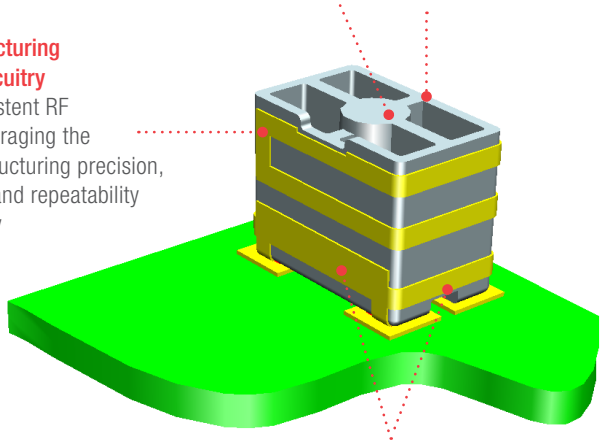
**Grounding pad**
Provides electrical grounding of antenna onto the application PCB

**Feeding pad**
Connects to the radio transceiver via a 50-Ohm transmission line on the PCB. Electrical signals from the transmission line are fed through this pad on the PCB

**Halogen-free Molded Interconnect Device (MID) housing**
Environmentally sustainable housing material withstands high reflow temperatures during assembly processing

**Pick-and-place feature**
Speeds up automated placement of antenna during assembly

**Laser Direct Structuring (LDS)-formed circuitry**
Yields high, consistent RF performance, leveraging the excellent laser structuring precision, speed, accuracy and repeatability of LDS technology



2.4/5 GHz SMT MID Chip Antenna (Series 146175)

**Gold (Au) over Nickel (Ni) traces**
Act as transducers that convert unguided electromagnetic waves to guided electromagnetic waves and vice versa

*Wi-Fi is a registered trademark of the Wi-Fi Alliance.

**Remark:** The above antennas support Bluetooth†, ZIGBEE§ and ISM (Industrial, Scientific and Medical) frequency bands

†Bluetooth is a registered trademark of Bluetooth SIG§ZIGBEE is a registered trademark of trademark of ZigBee Alliance

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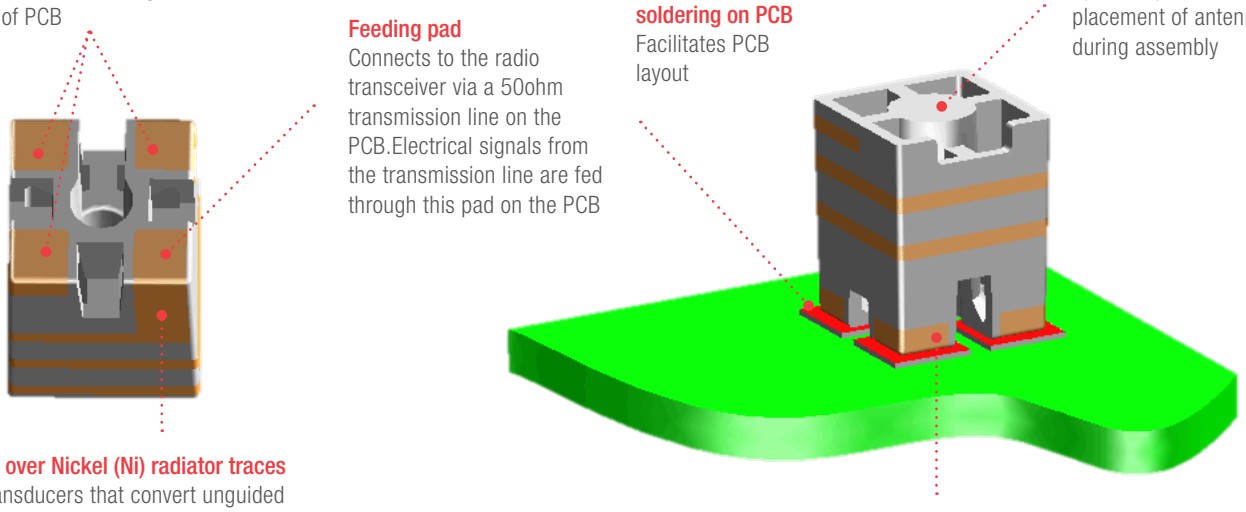
**(Dummy) Fixing pads**
Firmly anchors antenna housing onto SMT pad of PCB

**Feeding pad**
Connects to the radio transceiver via a 50ohm transmission line on the PCB.Electrical signals from the transmission line are fed through this pad on the PCB

**Footprint for soldering on PCB**
Facilitates PCB layout

**Pick-and-place feature**
Speeds up automated placement of antenna during assembly



**Gold (Au) over Nickel (Ni) radiator traces**
Act as transducers that convert unguided electromagnetic waves to guided electromagnetic waves and vice versa

**Halogen-free Molded Interconnect Device (MID) housing**
Environmentally sustainable housing material withstands high reflow temperatures during assembly processing

2.4GHz SMT MID Chip Antenna (Series 47948)

## Applications

**Connected Home**
- Security and Surveillance
- Home Automation
- Home Streaming
- Entertainment
- Smart Appliances
- Energy and Utilities

**Wireless Infrastructure**
- Wireless Solutions

**Telecommunications/Networking**
- Infrastructure/Networking

**Commercial Vehicles**
- Networking

## Specifications

*REFERENCE INFORMATION*
Packaging: Tape on reel
Reference Platform:100.00 by 40.00 by 1.00mm (47948, 146175); 40.00 by 20.00 by 1.00mm (203006)
Designed In: mm
RoHS: Yes
Halogen Free: Yes
Ground Clearance:
6.00 by 4.00mm (146175, 203006)
4.00 by 4.00mm (47948)
SMT Compatible: Yes

*ELECTRICAL*
RF Power (Watt): 2
Return Loss - S11(dB): <-7 (47948); <-6 (146175); <-10 (203006)
Average Total Radiation Efficiency(%): Refer to Product Specifications
Peak Gain (dBi): Refer to Product Specifications
Input Impedance (ohms): 50

*MECHANICAL*
Refer to Product Specifications

*PHYSICAL*
Housing: LCP-LDS, Vectra E840ILDS, 40% mineral-filled LDS grade (47948, 146175); Ceramic (203006)
Flammability: UL 94V-0
Plating:
Operating Temperature: -40 to 125°C

## Ordering Information

| Series No. | Frequency Band (MHz) | Dimensions (mm) |
|---|---|---|
| 203006 | 2400 to 2483.5 | 3.20(L) by 1.60(W) by 1.10(H) |
| 146175 | 2400 to 2483.5<br>5150 to 5850 | 5.00(L) by 3.00(W) by 4.00 (H) |
| 47948 | 2400 to 2483.5 | 3.00(L) by 3.00(W) by 4.00 (H) |

**www.molex.com/link/standard_antennas.html**