

2.4 and 2.4, 5 GHz Ceramic and MID Chip Antennas



2.4 and 2.4, 5 GHz Ceramic and LDS-MID antennas offer outstanding performance and easy integration in connected city and home applications

Features and Advantages

Product and Technical Differences							
Attribute	2.4, 5 GHz Ceramic SMT Antenna (Series 211964)			2.4, 5 GHz SMT MID Chip Antenna (Series 146175)		2.4 GHz SMT MID Chip Antenna (Series 47948)	2.4 GHz SMT Ceramic Antenna (Series 206513)
Size	3.20(L) by 1.60(W) by 1.20(H) mm			5.00(L) by 3.00(W) by 4.00(H) mm		3.00 by 3.00 by 4.00mm	3.00 by 3.00 by 4.00mm
PCB Keep-out	6.00(L) by 4.00(W)mm			6.00(L) by 4.00(W)mm		4.00 by 4.00mm	4.00 by 4.00mm
Material	Ceramic			MID-LDS		MID-LDS	Ceramic
Antenna Type	Loop			Loop		Monopole	Monopole
Frequency Range	2.4 to 5 GHz	2.4 to 5 GHz	5.15 to 5.85 GHz	2.4 GHz	5 GHz	2.4 to 2.5 GHz	2.4 GHz
Return Loss	<-6 dB	<-5 dB	<-5 dB	<-6 dB		<-7 dB	<-6 dB
Peak Gain	2.7dBi	2.1dBi	2.2dBi	3 dBi	4.2 dBi	3.3 dBi	3.0 dBi
Total Efficiency	>80%	>70%	>65%	70% for both 2.4 and 5 GHz		>70%	>55%
Polarization	Linear			Linear		Linear	Linear
Operating Temperature	-40 to +85°C			-40 to +125°C		-40 to +125°C	-40 to +125°C
Key Advantages	Single band and dual band. High operating efficiency			Small clearance zone; high RF performance; dual-band; halogen-free		Miniature in size but big in RF performance	Miniature and identical in size with series 47948
	Symmetrical radiator design offers significant design flexibility by allowing reversed lateral placement on the PCB without affecting radiation pattern or performance			Laser Direct Structuring (LDS)-formed circuitry yields high, consistent RF performance, leveraging the excellent laser structuring precision, speed, accuracy and repeatability of LDS technology		Environmentally sustainable halogen-free LDS-MID housing withstands high reflow temperatures during assembly processing	Cost-economical
							

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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 and Reel
- Designed In: Millimeters
- RoHS: Yes
- Halogen Free: Yes
- Glow Wire Compliant: No

ELECTRICAL

- RF Power (Watt): 2
- Return Loss: Refer to Product Specifications
- 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

- Material: Ceramic (206513, 211964)
LCP-LDS (146175, 147948)
- Plating:
 - Silver (Ag) (206513, 211964)
 - Copper (Cu), Nickel (Ni), Gold (Au) (146175, 47948)
- Operating Temperature: -40 to +125°C
-40 to +85°C (211964)

Ordering Information

Series No.	Frequency Band (MHz)	Dimensions (mm)
206513	2.4 to 2.5	3.00(L) by 3.00(W) by 4.00(H)
47948		
146175	2.4 to 2.5 and 5.15 to 5.85	5.00(L) by 3.00(W) by 4.00(H)
211964		3.20(L) by 1.60(W) by 1.20(H)

www.molex.com/link/standard_antennas.html