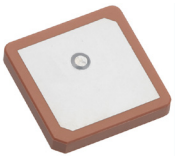
GNSS* Antennas

molex®

Eliminating space and PCB real-estate constraints, LDS-MID and Ceramic GNSS/GPS antennas combine ease of integration with reduced cost of implementation over a variety of wireless navigation device applications

Features and Benefits

Antennas	Helix GPS (146235)	RHCP† LDS-MID GPS (146216)	RHCP Ceramic GPS (146168)	GPS/BEIDOU/GLONASS Ceramic (204286)	Low-profile GNSS Ceramic (204283)
Dimension	3.00 by 5.00 by 4.00mm	11.80 by 11.55 by 6.00mm	25.00 by 25.00 by 4.00mm	25.00 by 25.00 by 4.00mm	3.20 by 1.60 by 1.10mm
PCB Clearance	4mm x 6mm	No clearance	No clearance	No clearance	5mm x 6mm
Type	LDS	LDS	Ceramic	Ceramic	Ceramic
Material	Monopole	PIFA	Patch	Patch	Loop
Antenna Type	1561 - 1602MHz	1575MHz	1575MHz	1561 - 1602MHz	1561 - 1602MHz
Frequency Range	<-8dB	<-10dB	<-15dB	<-10dB	<-10dB
Return Loss	1.1dBi	1dBi	5.5dBi	5.5dBi	2.0dBi
Peak Gain	>50%	>55%	>75%	>70%	>60%
Total Efficiency	Elliptic	RHCP	RHCP	Elliptic	Linear
Polarization	<6.0	<3.0	<3.0	<13.0	-
Benefits	Compact size	Greater space savings (no PCB clearance needed)	Greater space savings (no PCB clearance needed) High Total Radiation Efficiency		Vertical space savings with low profile; compact size
Product Image					

Applications

Automotive

Commercial Vehicle

- Agricultural Vehicle
- Rail

Commercial Aviation

Consumer (Recreational)

- Geocaching

Industrial

- Maritime Port Management System
- Surveying and Mapping Systems
- Emergency Response Systems

Maritime Port Management

Automotive

Agricultural

Commercial Aviation

*GNSS (Global Navigation Satellite System) is the standard generic term for satellite navigation systems that provide autonomous geo-spatial positioning with global coverage. This term includes GPS (USA), GLONASS (Russian), Galileo (European Union), BEIDOU (China) and other regional satellite systems.
†RHCP – An industry acronym for "Right Hand Circularly Polarized"

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Specifications

REFERENCE INFORMATION
Packaging: Tape on reel
(146216, 146235, 204283), Tray (146168, 204286)
Reference Platform:
100.00 by 100.00 by 1.00mm (146216)
100.00 by 50.00 by 1.00mm (146235)
70.00 by 70.00mm (146168, 204286)
80.00 by 40.00 by 0.80mm (204283)
Designed In: Millimeters
RoHS Compliant: Yes
Halogen-free: Yes
Ground Clearance: Refer to Application Specification of each respective Series

ELECTRICAL
RF Power (max.): 2 Watts
Return Loss - S11(dB): Refer to Product Specifications
Average Total Radiation Efficiency(%): Refer to Product Specifications
Peak Gain (dBi): Refer to Product Specifications
Polarization: RHCP (146216, 146168);
Elliptic (146235, 204286); Linear (204283)
Input Impedance (ohms): 50

MECHANICAL
Peeling Force (min.): 8N (146216, 146235)
Tape Test: Acceptance <10% peeling off
(204283, 204286)

PHYSICAL
Housing: LCP-LDS, Vectra E840ILDS, 40% mineral-filled LDS grade (146216, 146235)
Housing: Ceramic (146168, 204283, 204286)
Flammability: UL 94V-0
Plating:
Series 146216, 146235:
Hatched Area — 0.05micron Gold (Au) min.
MID Plane — 1.0 to 2.5micron Nickel (Ni)
Under-plating — 12 to 16micron Copper (Cu)
Series 146168: 8 to 10microns Silver (Ag)
Series 204283: 3 to 8microns Silver (Ag)
Series 204286: 4 to 7microns Silver (Ag)
Operating Temperature: -40 to 125°C

Ordering Information

Series No.	Frequency Band (MHz)	Dimensions (mm)
204286	1561±5; 1575±5; 1602±5	25.00(L) by 25.00(W) by 4.00(H)
204283		3.20(L) by 1.60(W) by 0.80(H)
146235		5.00(L) by 3.00(W) by 4.00(H)
146216	1575±3	11.80(L) by 11.50(W) by 5.95(H)
146168		25.00(L) by 25.00(W) by 4.00(H)

www.molex.com/link/standard_antennas.html

Order No. 987651-5071 Rev. 2 USA/0k/GF/2017.07