

5G MMWAVE RF FLEX-TO-BOARD CONNECTORS

NPI INNOVATION

DECEMBER 2022 | GLOBAL RELEASE



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5G MMWAVE RF FLEX-TO-BOARD CONNECTORS

5G mmWave RF Flex-to-Board Connectors offer excellent signal integrity (SI) performance for high-speed, extreme RF applications, along with the robust mating features and PCB real-estate space savings needed in compact 5G mobile and other communication devices.

Key Product Information

Category: Board-to-Board Connectors

Current: 1.0A/pin

Pitch: 0.35mm

Height: 0.70mm

Width: 2.76mm

Length: 4.16mm



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Series

218876 0.35mm-Pitch Flex-to-Board Receptacles, 5G25 Series

228877 0.35mm-Pitch Flex-to-Board Plugs, 5G25 Series

VITAL PRODUCT INFORMATION

What makes this product different compared to the competition?

The connectors' dedicated RF structure supports up to 25 GHz for superior SI performance. Full-shielding design provides excellent shielding performance to reduce electromagnetic interference (EMI). Shielded parts around the perimeter and grounding cover to protect signal terminals help ensure robustness. Wider alignment allows for proper mating position and helps prevent any mis-operation.

How does this product/solution create value for our customers?

The compact size of the 5G25 series offers elevated printed wiring board (PWB) design flexibility. Moreover, the 5G25 series enables designers of RF antenna modules and mobile devices to combine RF and non-RF signals, which reduces the need for additional connectors while freeing up space.

For whom is it intended (current and future customers)?

Mobile device manufacturers, RF module developers and chipset makers can leverage industry-leading 5G mmWave connectivity technologies.

FREQUENTLY ASKED QUESTIONS

Can you summarize in three phrases the hallmark features of this product?

- High-speed capability
- Full EMI shielding (superior SI performance)
- Robust mating

How is this product different from any other market equivalents and how does it create value for its users?

- Enables higher-speed transmission
- Superb SI performance with full EMI shielding
- Compact size
- High contact reliability, robust mating and PCB retention
- Best-in-class alignment allowance of 0.30mm pitch (Width) and 0.30mm (span)

Who are the potential users of this product?

Any 5G RF developer, including but not limited to mobile device and chip makers, RF module developers, wearable devices enabled by 5G technology and more.

Potentially any design engineer or system architect looking to leverage industry-leading connectivity at 25 GHz speed.

What opportunities does this product bring?

The fifth generation of wireless technology brings with it infinite user and developer opportunities as part of an interactive ecosystem.

5G technology enables a smarter, speedier, and more convenient and connected world.

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
High-frequency capability in a compact design	Customers require high-frequency signal capability to achieve better SI performance.	Molex's 5G25 RF Flex-to-Board Connectors allow for high frequencies dedicated for RF terminal development.	Customers can support up to 25 GHz in their compact design components.
Easy operability	Customers want to avoid the risk of connector damage during the mating process.	Molex's 5G25 RF Flex-to-Board Connectors provide best-in-class alignment allowances of a 0.30mm pitch and a 0.30mm span. These connectors offer a high degree of flexibility over alignment tolerances, speeding up the entire assembly and production process.	Easy mating and un-mating will simplify the assembly process, and secure mating assurance will lower the fallout rate.
Efficient productivity	Consumer and medical device customers want to adopt lean production processes to improve productivity.	Molex's 5G25 RF Flex-to-Board Connectors are packaged using a large reel size to facilitate increased production with the same resources.	Product is designed and packaged for fast, reliable assembly. Customers can reduce waste and improve production efficiency.

MARKETS AND APPLICATIONS



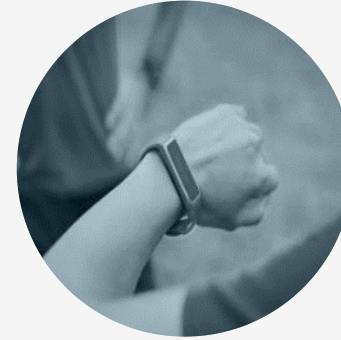
Consumer

Smartphones
Tablet PCs
Wearable devices
Portable audio & navigation equipment
IoT and smart-home devices
AR/VR devices
5G and RF devices
Drones



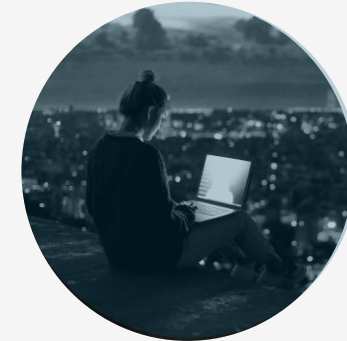
Defense

Unmanned vehicles
Aircraft avionics



Medical

Patient-monitoring systems
Therapeutic and surgical equipment



Industrial

IoT
Portable audio & navigation equipment
5G and RF devices



PRODUCT FEATURES & ADVANTAGES

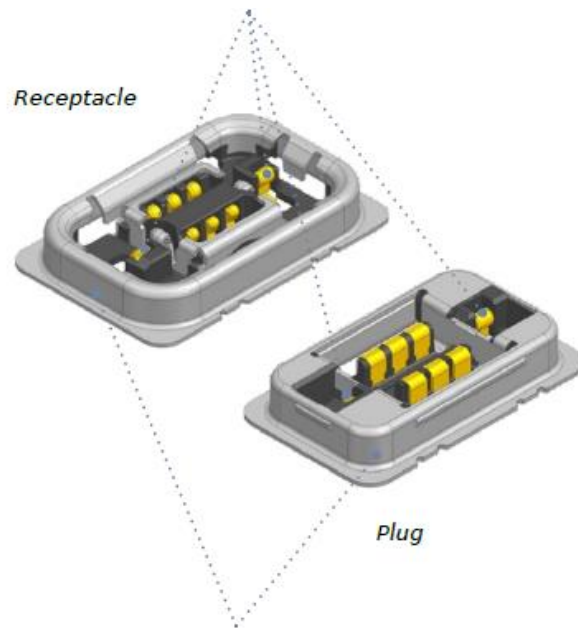
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PRODUCT FEATURES & ADVANTAGES

Unique contact design of RF terminal

Enables high speed while offering space savings and mechanical robustness

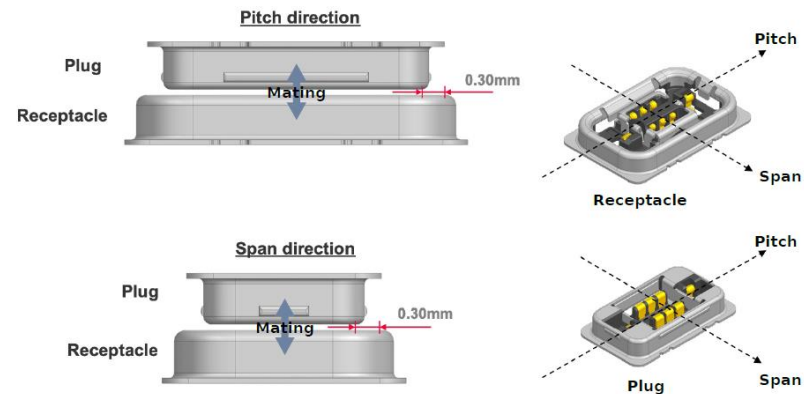


Uniquely designed shield

Offers full EMI shielding and high-frequency capability for superior EMI reduction and SI performance while supporting mating positioning; protects against potential RF contact buckling and shock caused by accidental drop

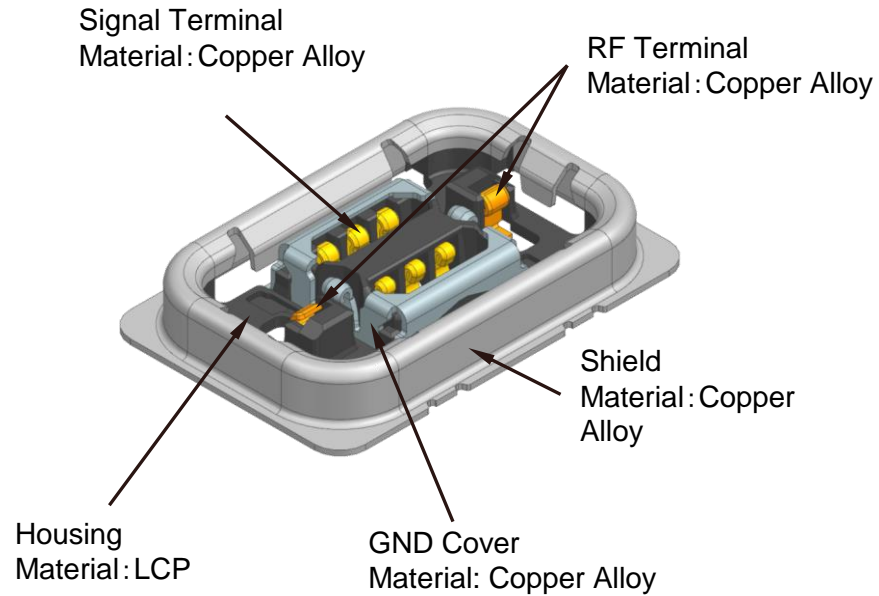
Wide alignment: 0.30mm (pitch)/0.30mm (span)

Allows easy proper mating position, which helps prevent any mis-operation

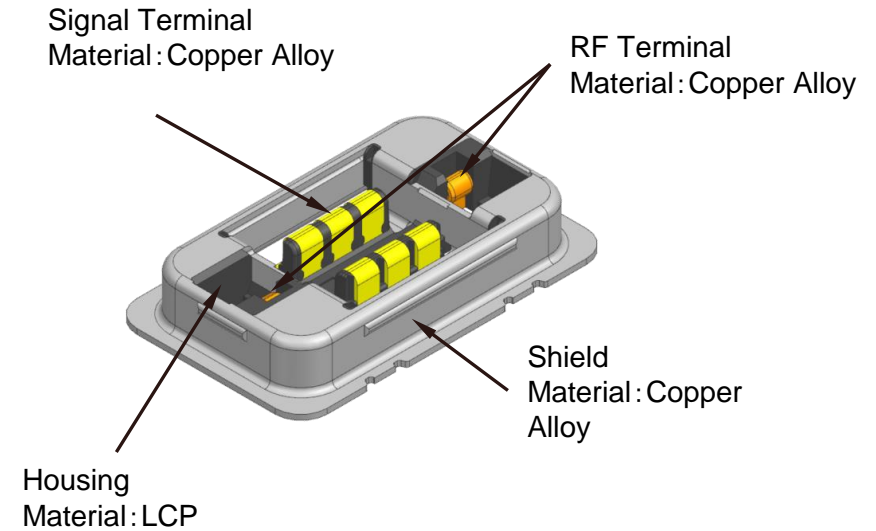


PRODUCT FEATURES & ADVANTAGES

Receptacle

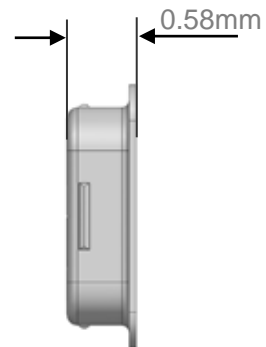
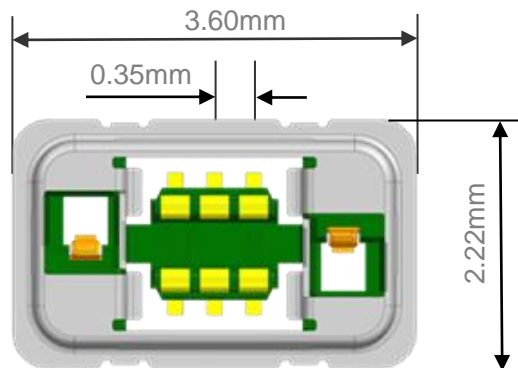
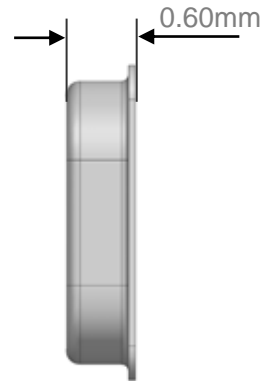
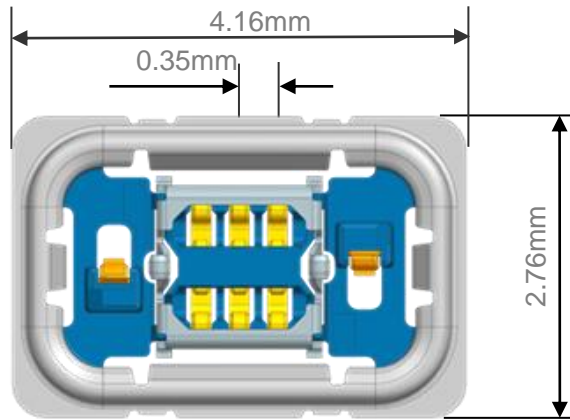


Plug

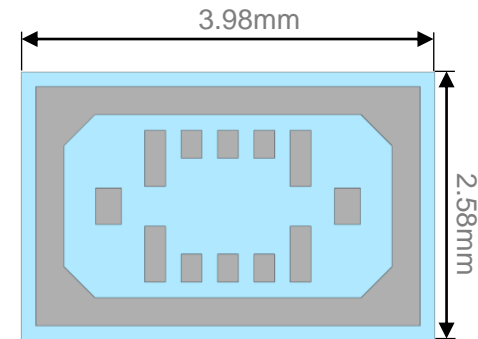
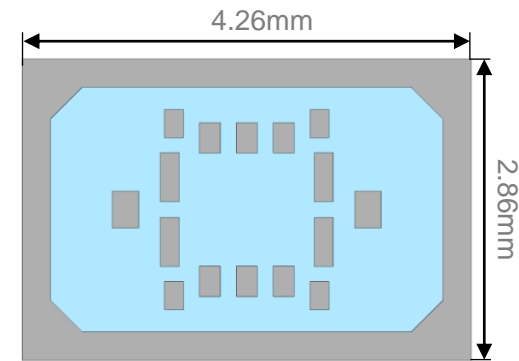



PRODUCT FEATURES & ADVANTAGES

Receptacle and Plug



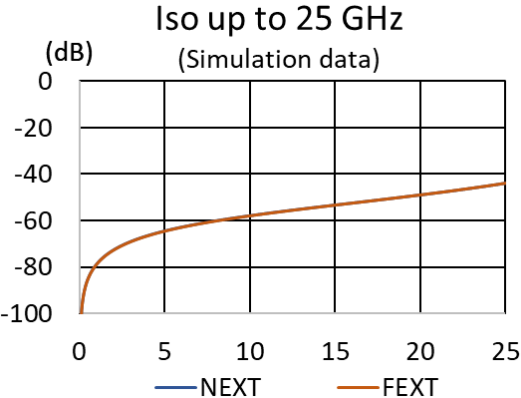
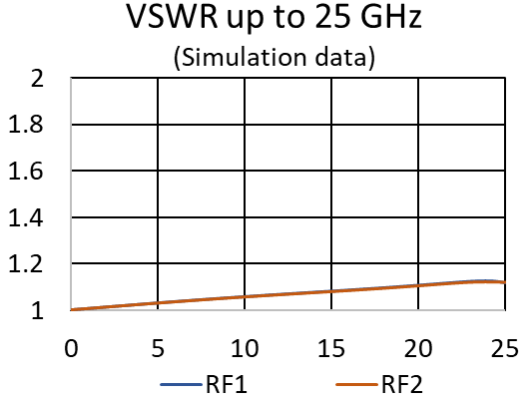
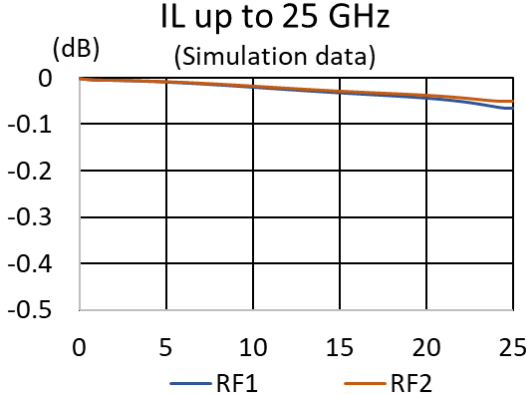
Footprint



 Soldering prohibited area
When wiring is located, the wiring must be masked
by cover lay or resist film.

PRODUCT FEATURES & ADVANTAGES

High-Frequency Signal Support





COMPETITIVE INFORMATION

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COMPETITIVE PRODUCT AND CROSS-REFERENCE INFORMATION

Product and Technical Differences			
Attribute	Molex 5G25	Competitor 1	Competitor 2
Closest Equivalent or Drop-In Replacement	-	Closest Equivalent	Closest Equivalent
Pitch (mm)	0.35	0.35	0.35
Mated Height (mm)	0.70	0.60	0.70
Mated Width (mm)	2.76	2.47	2.10
Length (mm)	4.16	3.60	4.15

*Information gathered from the world wide web at the time of this product launch

COMPETITIVE PRODUCT AND CROSS-REFERENCE INFORMATION

Product and Technical Differences			
Attribute	Molex 5G25	Competitor 1	Competitor 2
Applicable Frequency	~25 GHz	~20 GHz	~15 GHz
V.S.W.R	≤ 1.5 max. ~ 25 GHz	≤ 1.2 max. ~ 6 GHz ≤ 1.5 max. ~ 20 GHz	1.2 max. (DC-1.2 GHz) 1.5 max. (1.2-10 GHz) 2.0 max. (10-15 GHz)
Shield Cover	Yes	Yes	Yes
Grounding Cover	Yes	No	No

*Information gathered from the world wide web at the time of this product launch



SPECIFICATION / ORDERING INFORMATION

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SPECIFICATION & SUPPORTING INFORMATION

Specification

Reference Information

Packaging: Embossed tape with cover
Designed in: Millimeters
RoHS: Yes Halogen Free: Yes

Electrical

Voltage (max.): 50V
Current signal terminal (max.): 1.0A/pin
Contact Resistance (max.):
Signal terminal: 30 milliohms
RF terminal: 20 milliohms
Dielectric Withstanding Voltage: 250V AC
Insulation Resistance (min.): 100 Megohms

Mechanical

Pitch: 0.35mm
Mated Height: 0.70mm Width: 2.76mm
Length: 4.16mm
Structure Type: Vertical type Circuit
Size/Signal: 6/RF-2
Durability (max.): 10 cycles

Physical

Housing: LCP black, UL 94V-0
Signal Terminal: Copper Alloy
RF Terminal: Copper Alloy
Shield: Copper Alloy
GND Cover: Copper Alloy
Plating:
Signal terminal/RF terminal ground cover
Contact Area—Gold
Tail Area—Gold
Under—Nickel
Operating Temperature: -40 to +85°C

Useful Links

	Contact Information
Web Overview Page	www.molex.com/link/5G25RF.html
Datasheet	987652-4291.pdf (English)
Product Specification	https://www.molex.com/webdocs/datasheets/pdf/en-us/2188760062_PCB_RECEPTACLES.pdf
Packaging Specification	https://www.molex.com/pdm_docs/pk/2188769200-SPK-200.pdf



THANK YOU

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