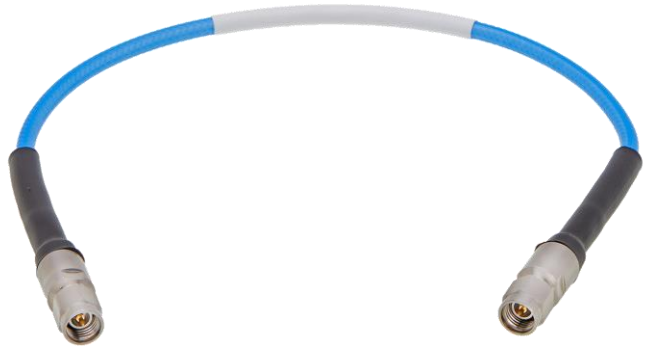


CARDINAL TEST HIGH-FREQUENCY (HF) CABLE ASSEMBLIES

NPI INNOVATION

DECEMBER 2023

creating connections for life

molex

CARDINAL TEST HF CABLE ASSEMBLIES

Molex Cardinal Test HF Cable Assemblies are ideal for test and measurement, with frequencies up to 110 GHz using 1.0mm connectors. The 2.4mm, 3.5mm and 1.85mm Plug and Jack options are available with phase-stable, low-loss cables.

Key Product Information

Category: RF Connectors and Cable Assemblies

Frequency: Up to 110 GHz

Connectors: 1.0mm, 1.85mm, 2.4mm, 3.5mm

Cable Length: 12 to 36 inches

View Product Landing Page

Download Datasheet

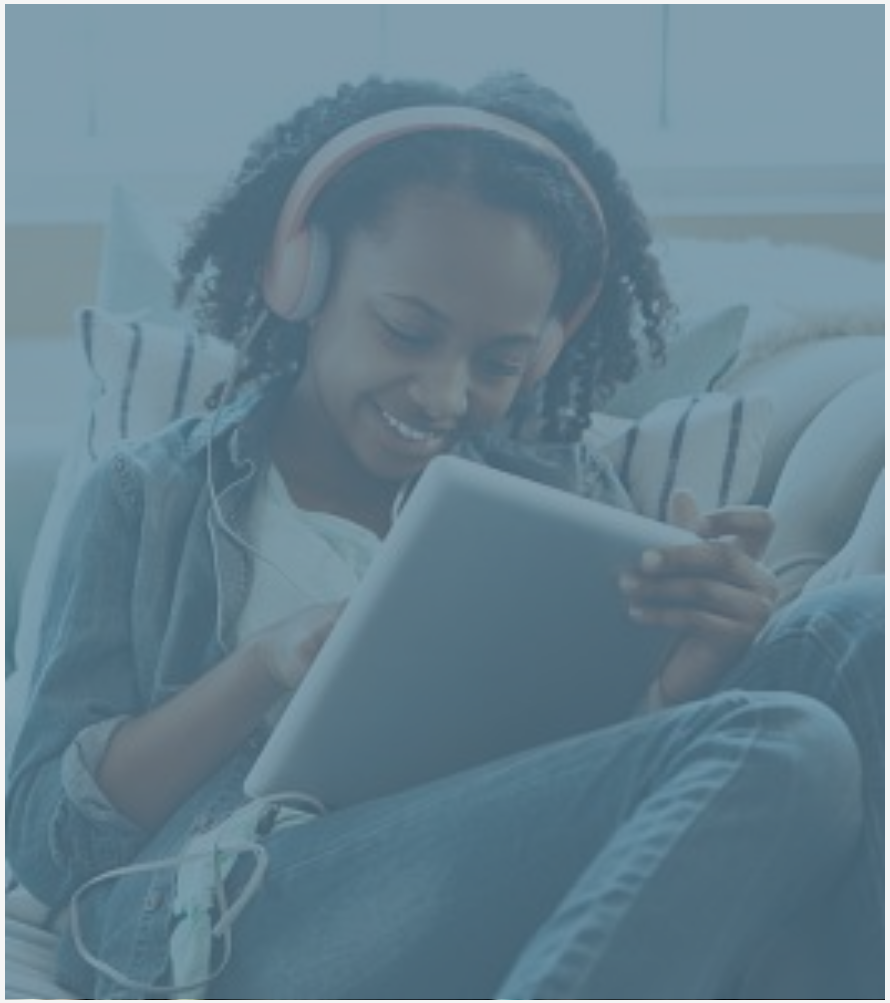
Series

73239 **Cardinal Test High-Frequency Cable Assemblies**

creating connections for life

molex

VITAL PRODUCT INFORMATION



What makes this product different from the competition's?

Cardinal Test HF Cable Assemblies offer frequencies up to 110 GHz, which is ideal for test and measurement environments. They feature N, SMA, 3.5mm, 2.92mm, 2.4mm, 1.85mm and 1.0mm interfaces for design flexibility with standard 12", 24" and 36" length options. Custom lengths and configurations are also available for various design alternatives.

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

These phase-stable cable assemblies provide standard and ruggedized configurations for a robust solution. Every cable comes with actual test data to ensure high quality, and all are competitively priced with short lead times for 12", 24" and 36" lengths.

What is the Molex Advantage?

Molex offers global manufacturing capability, robust engineering support and the latest high-performance components for best-in-class capability solutions. Customers can take advantage of our quality cable assemblies, our short lead times and the convenience of shopping with one vendor.

PRODUCT OVERVIEW

Phase and Amplitude Stability

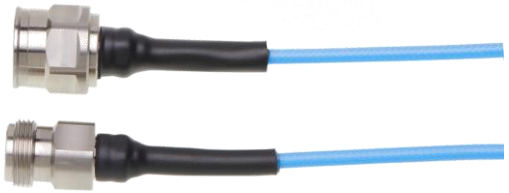
With its complete line of high-precision cable assemblies, especially for stable phase testing, this product is designed based on high-performance microwave interconnection technologies. The 40, 50 and 67 GHz cable assemblies have excellent insertion loss and high phase/amplitude stability in relation to temperature.

Short Lead Times for Standard Lengths

With 24" lengths readily available in distribution and a six-week lead time on standard 12" and 36" options, these cable assemblies are quickly obtainable for almost any test and measurement need. Custom configurations and lengths have short development and delivery times as well.

Versatility

Cardinal Test Cable Assemblies have frequencies ranging from 18 to 110 GHz, cable outer diameters ranging from 1.81 to 3.60mm, and a multitude of connector options including N, SMA, 3.5mm, 2.4mm, 1.85mm and 1.0mm. Both standard flex and ruggedized options are also available.



MARKETS AND APPLICATIONS

Telecommunications and Networking

- Network systems
- Testing and instrumentation
- Automated test equipment
- Wireless communications
- 5G applications
- High-speed data transmission
- Internet of Things

FREQUENTLY ASKED QUESTIONS

What is the typical insertion loss?

This is highly dependent on cable type and frequency. Please contact Molex for details.

What is the typical voltage standing wave ratio (VSWR)?

Typically, the VSWR is <1.4:1 up to 110 GHz (dependent upon connector selection).

How phase stable are these assemblies?

Stability measurements are < ± 5 degrees @ 67 GHz; <± 10 degrees @ 110 GHz.

Are custom lengths/configurations available?

Yes. The minimum length is 6” and there is no maximum length. Connector combinations are subject to availability.

How many mating cycles can one expect?

There are 500 cycles minimum for all interfaces.

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Readily available test and measurement cable assemblies purchased from one source	Customers do not always have the appropriate cable assemblies on hand for their test and measurement needs and are forced to purchase from multiple vendors.	Cardinal Test High-Frequency Cable Assemblies are readily available with short lead times.	Customers can have easy access to off-the-shelf high-frequency assemblies through one vendor with short lead times to meet their test and measurement needs.
Accurate, repeatable results	Customers are challenged with finding high-quality, high-frequency assemblies at a reasonable price.	Cardinal Test High-Frequency Cable Assemblies offer high-performance capabilities for accurate results.	Customers can have tested and proven high-frequency assemblies with outstanding electrical performance to help ensure accurate, repeatable results at a reasonable cost.
Customization of assemblies	Technicians may find themselves in need of longer cable lengths or various interfaces for each end of the assembly.	Molex can deliver custom high-frequency cable assemblies with almost any connector configuration in six weeks or less.	Customers can have the design flexibility they require for specific test and measurement needs and with short lead times.

PRODUCT FEATURES AND ADVANTAGES

Affords the user high-durability options with assemblies that are both highly flexible and pinch resistant

due to the availability of standard and armored assemblies

Offers assemblies up to 110 GHz and a multitude of adapters and ensures a solution for all test and measurement applications

because of high-frequency options

Provides low density and a low dielectric constant with a velocity of propagation up to 80%

because of low attenuation

Provides one of the lowest possible VSWRs along the transmission path and for the assembly as a whole

as a result of Impedance tolerance of ± 1%

Cardinal Test HF Cable Assemblies	
Connector Styles Example	3.5mm Plug 3.5mm Jack
Cable Style Example	Flexible Phase Stable MX204 Armored MXR100
Cable Assembly Frequencies	18, 26.5, 40, 50, 67, 110 GHz

creating connections for life

molex

SPECIFICATIONS AND SUPPORTING INFORMATION

Cable assembly variants based on assembly frequency*

18 GHz Assemblies Ultra Low Loss Variants		
	Connector Styles	SMA Plug
		N Plug
		N Jack
	Cable Styles	Flexible Phase Stable MX204
		Armored MXR100
26.5 GHz Assemblies Phase Stable Variants		
	Connector Styles	3.5mm Plug
		3.5mm Jack
	Cable Styles	Flexible Phase Stable MX204
		Armored MXR100
40 GHz Assemblies Phase Stable Variants		
	Connector Styles	2.92mm Plug
		2.92mm Jack
	Cable Styles	Flexible Phase Stable MX204
		Armored MXR100

*Reference Individual drawings for the cable assembly mechanical and electrical specifications here.

SPECIFICATIONS AND SUPPORTING INFORMATION CONT'D

Cable assembly variants based on assembly frequency*

50 GHz Assemblies Phase Stable Variants		
	Connector Styles	2.4mm Plug 2.4mm Jack
	Cable Styles	Flexible Phase Stable MX204 Armored MXR200
67 GHz Assemblies Phase Stable Variants		
	Connector Styles	1.85mm Plug 1.85mm Jack
	Cable Styles	Flexible Phase Stable MX205 Armored MXR300
110 GHz Assemblies Phase Stable Variants		
	Connector Styles	1.0mm Plug 1.0mm Jack
	Cable Styles	Flexible Phase Stable MX601 Armored MXR110

*Reference Individual drawings for the cable assembly mechanical and electrical specifications here.

creating connections for life

molex