HIGH-TEMPERATURE PHASE-STABLE RF CABLE

Cable Name: IR40

Part No: VXIR400



40 GHz	4.00 mm
MAX FREQUENCY	OUTER DIAMETER
400°C @ 400 s	**82%**
HIGH-TEMP ENDURANCE	VELOCITY

General Description: The Vinstronics VXIR400 is a balanced high-temperature phase-stable RF cable designed for harsh-environment interconnect applications up to 40 GHz. Its silver-plated copper conductor, LD PTFE dielectric, multilayer shielding, and PI + PTFE outer jacket support stable RF transmission, flexible routing, and short-term high-temperature exposure up to 400°C for 400 s.

Core Features

- **High-Temperature Endurance**: Short-term exposure capability up to 400°C for 400 s.
- **Phase-Stable RF Performance**: Designed for stationary phase-sensitive interconnect applications.
- **Balanced 4.00 mm Cable Format**: Provides a practical balance between routing flexibility and RF performance.
- **Multilayer Shielding**: Silver-plated copper tape and braid structure for stable RF transmission.
- **PI + PTFE Outer Jacket**: Provides high-temperature protection and mechanical durability.

Target Applications

- **Extreme Temperature Testing**: For RF interconnects used in thermal test and high-temperature evaluation setups.
- **High-Temperature Onboard RF Links**: For stationary RF paths exposed to elevated thermal stress.
- **Harsh-Environment Routing**: For cable paths requiring both flexibility and thermal survivability.
- **Phase-Sensitive RF Assemblies**: For interconnects requiring stable RF behavior in demanding environments.

CONSTRUCTION SPECIFICATION

Item	Name	Material & Process	Diameter mm
1	Center Conductor	**Silver-plated copper**	**0.91**
2	Dielectric	**LD PTFE**	**2.50**
3	Inner Shield	**Silver-plated copper tape**	**2.66**
4	Interlayer	**LD PTFE**	**2.95**
5	Outer Shield	**Silver-plated copper wire**	**3.35**
6	Outer Jacket	**PI + PTFE**	**4.00**

ELECTRICAL CHARACTERISTICS

Operating Frequency	**40 GHz**
Cutoff Frequency	**56 GHz**
Impedance	**50 Ω**
Velocity of Propagation	**82 %**
Shielding Effectiveness	**> 90 dB**
Dielectric Withstanding Voltage	**1000 VDC**

ATTENUATION AND TRANSMISSION POWER

Frequency (MHz)	1000	2000	3000	6000	8000	10000	12400	18000	26500	40000
Attenuation (dB/100 m)	**41.2**	**58.6**	**72.0**	**102.9**	**119.4**	**134.0**	**149.9**	**182.3**	**223.8**	**279.1**
Average Power (kW)	**0.509**	**0.358**	**0.291**	**0.204**	**0.176**	**0.156**	**0.140**	**0.115**	**0.094**	**0.075**

K1 = 1.285317 **K2** = 0.000550 **Formula:** Attenuation = K1 × √F(MHz) + K2 × F(MHz)

MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

Static Bending Radius	**20 mm**
Dynamic Bending Radius	**40 mm**
Weight	**0.029 kg/m**
Storage Temperature	**-55°C to +125°C**
High-Temp Endurance	**400°C @ 400 s**