



Data sheet

Cri/oFlex[®] 2

Tackle your cryogenic cabling challenge!

Cri/oFlex[®] cabling combines the robustness and compatibility of standard SMA and SMP connectors with the versatility of an in-house developed transmission line platform on flexible substrates. Cri/oFlex[®] is specifically designed for cryogenic environments where thermal load, microwave performance, small form factor and phase stability are critical. Cri/oFlex[®] comes as a standardized cable setup (CF2) as described below, but can be highly customized upon request. Cri/oFlex[®] CF2 products are ideally suited for very compact and densely packed cryogenic environments. Providing very sturdy cables that can be bent countless times, Cri/oFlex[®] solves your cryogenic cabling challenges!

Features

- Extremely flexible
- Excellent phase stability
- Small form factor
- Countless bending and straightening cycles
- Resilient against thermal cycling
- Low thermal load

General Properties	
Connector	
Connector Type	SMA, SMP, Mini-SMP (all male)
Connector Configuration	Straight and Right-angle
Connector Material	Goldplated Brass, PEEK
Housing	Stycast 2850
Flex	
Length	200 to 1000 mm
Width	2 mm
Thickness	0.3 mm
Materials	Polyimide & Silver (Ag)
Transmission-line type	Stripline

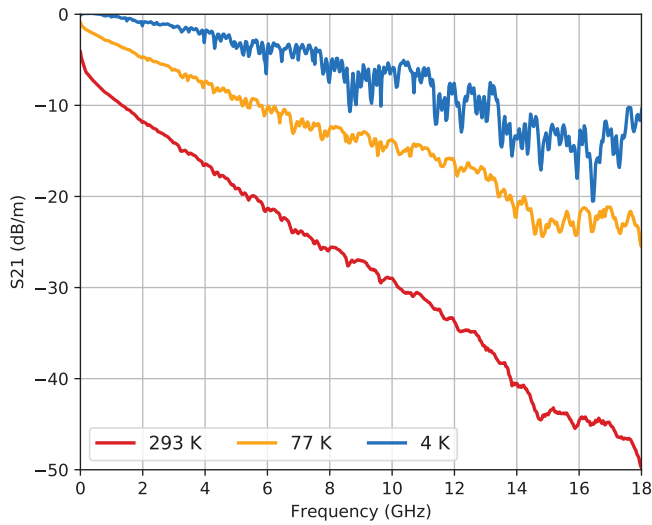
Thermal Properties	
Operating Temperature	10 ⁻³ K → 400 K
Heat Load @ 4K (ΔT: 4 - 40 K), L = 0.4m	< 250* μW
Expected Heat Load @ 10 mK (ΔT: 10 - 350 mK), L = 0.2m	~ 40* nW

*under further investigation

(Static) Mechanical Properties	
Min. Bending Radius	1 mm
Required Length for Longitudinal Rotation	2.5 cm / rotation
Max. Tensile Force	50 N

Electrical Properties	
Impedance	50 Ω (Customizable on Request)
Operating Frequency	DC to 26 GHz
Signal Isolation (Crosstalk)	-60 dB, flex to flex, for connector data contact us

Attenuation [dB/m]	Frequency	300 K	77K	4 K
	2 GHz	12	5	2
6 GHz	22	11	5	
12 GHz	39	16	9	
18 GHz	55	24	16	



Attenuation

The figure above shows the roll-off (S21) of a typical DC-18 GHz bandwidth flex cable. Depending on connector type the overall attenuation may vary slightly.

Phase Stability

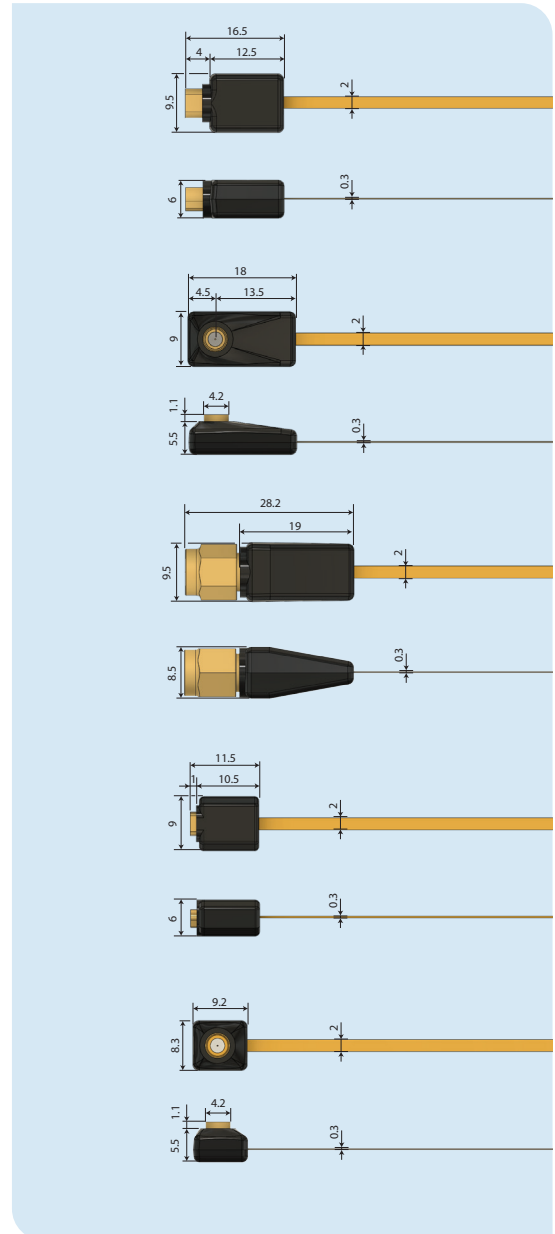
In many cryogenic applications phase stability is essential. Cri/oFlex[®] shows exceptional phase stability, on par with excellent phase stable cables for room temperature. Contact Delft Circuits for specific information on phase stability.

Non-Magnetic

For customers with stringent demands on non-magnetic components in their setups we offer specialized non-magnetic products. The standard Cri/oFlex products can in most cases be considered low-magnetic already and sufficient for most applications involving magnetic fields. For exact values, contact Delft Circuits.

Connectors

In the table below we show the available connector options and frequency bandwidths; ✓ readily available, ✗ under development. Cri/oFlex cables can be configured with different connectors at each end. See the table below for the respective bandwidth options.



		Straight SMP	Straight SMA	Straight Mini-SMP	Right Angle SMP	Right Angle Compact SMP
Bandwidth options	0-6 GHz	✓	✓	✓	✓	✓
	0-12 GHz	✓	✓	✓	✓	✓
	0-18 GHz	✓	✓	✓	✓	✓
	0-20 GHz	✓	✗	✓	✗	✓
	0-26.5 GHz	✓	✗	✗	✗	✗