

# Low-Loss Couplers

DATA SHEET / 2K-001



# Low-Loss Couplers

LOW-LOSS, HIGH DIRECTIVITY, HIGH POWER COUPLERS FOR LOAD PULL AND OTHER POWER APPLICATIONS

## Features

- > High Power Handling
- > High Directivity
- > Low Insertion Loss
- > Broadband Performance
- > Excellent VSWR

## Applications

- > Amplifier Power Monitoring
- > High-Power Base Station Integration
- > Test and Measurement (Load Pull, Antenna Test, General Lab...)

## Description

The LLC-series of bidirectional airline couplers represents a breakthrough in high-power coupler technology. Combining precision machining with stellar electrical characteristics, LLC-series couplers offer unmatched performance. The differentiating features of the LLC-series bidirectional coupler include high power handling, high directivity, low insertion loss and broadband performance. High power handling enables integration in high-power applications including amplifiers and base stations, and for high-power test and measurement applications including PA testing and load pull. Unlike inferior models which are rated at breakdown, Maury defines power handling capability as the power at which there is no discernible change in the performance of the coupler.

High directivity, the difference between coupling and isolation, enables highly-accurate measurements by isolating the direct and coupled measurement pathways. This is especially important in a calibrated system where changing coupler characteristics due to poor directivity can invalidate the calibration and result in erroneous measurements. Low insertion loss is critical for high-power applications in order to avoid power loss and eliminate drift due to heating. Compared with microstrip couplers that suffer losses and self-heating due to metal resistivity and dielectric permittivity, LLC-series airline couplers have no added dielectric. When used as part of a vector-receiver load pull setup, low insertion loss directly maximizes tuning range when combined with an impedance tuner. The broadband nature of the coupler allows it to be used for wideband applications.

LLC18-7  
Low-Loss  
Coupler



LLC18-N-MF  
Low-Loss  
Coupler



LLC34-35-MF  
Low-Loss  
Coupler



## Specifications

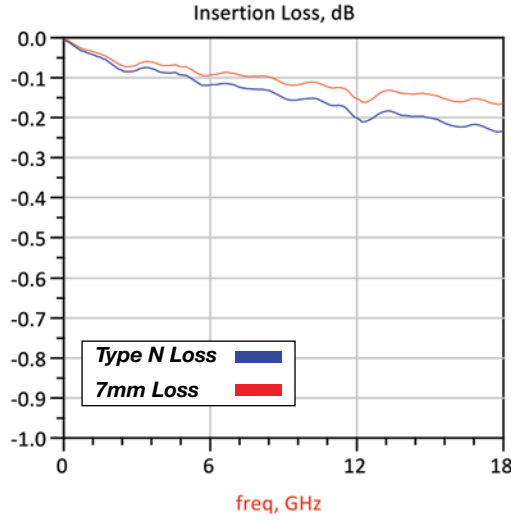
Available Models	Connector		Coupling Ports	Frequency Range <sup>1</sup> (GHz)	Insertion Loss at Fmax	Directivity	Coupling	Power Handling
	Input Port	Output Port						
LLC18-7	7mm	7mm	3.5mm Female	0.6 – 8.0 8.0–18.0	0.15 dB 0.25 dB	15 dB 10 dB	30 dB <sup>2</sup> ±3 dB	500 W CW / 2 KW Peak
LLC18-N-FF	Type N Female	Type N Female			0.25 dB 0.35 dB			
LLC18-N-MF	Type N Male	Type N Female						
LLC18-N-MM	Type N Male	Type N Male	2.92mm Female	2.0 – 26.5 26.5–34.0	0.25 dB 0.3 dB	14 dB 10 dB		150 W CW / 500 W Peak
LLC34-35-FF	3.5mm Female	3.5mm Female						
LLC34-35-MF	3.5mm Male	3.5mm Female						
LLC34-35-MM	3.5mm Male	3.5mm Male						

<sup>1</sup> Usable from 0.1 GHz with increased coupling.

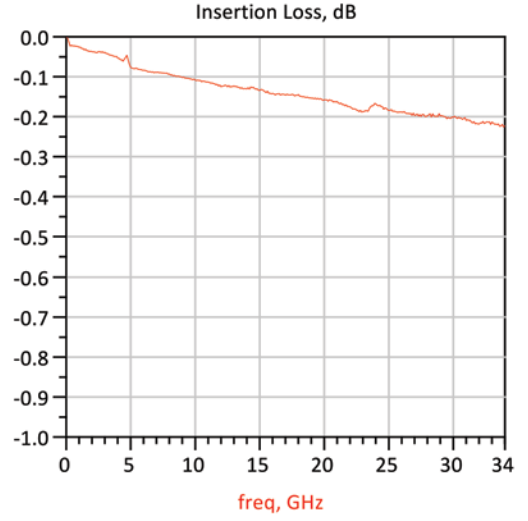
<sup>2</sup> ±6dB 0.6 – 0.8 GHz for LLC18 and 2.0 – 3.0 GHz for LLC34.

**Mainline  
Insertion Loss**

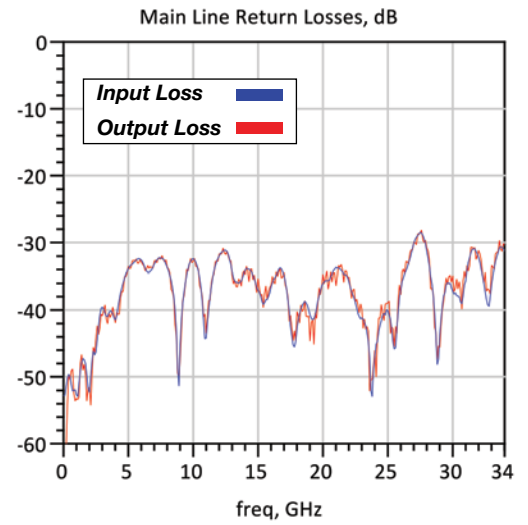
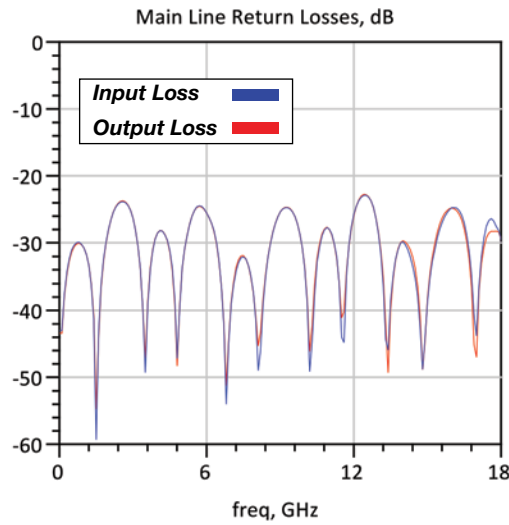
**LLC18**



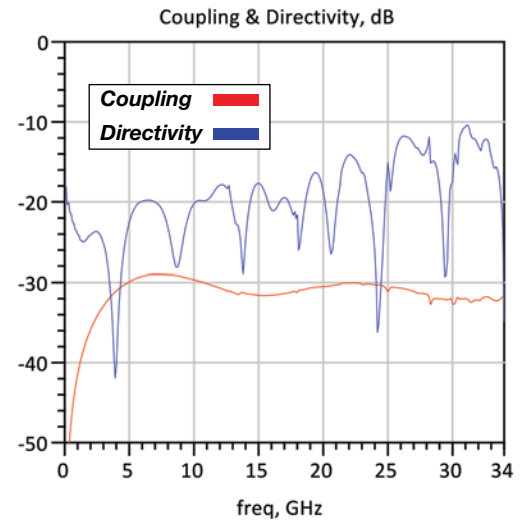
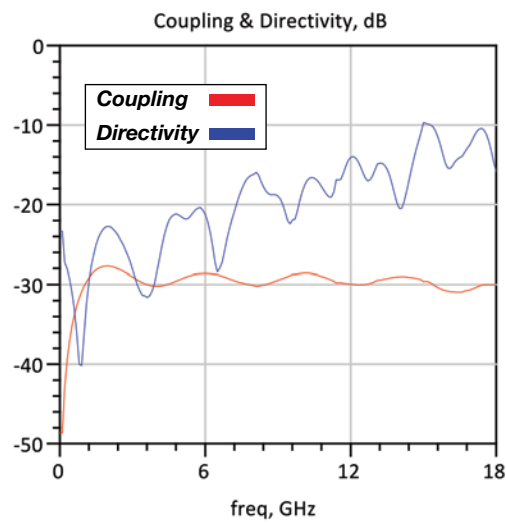
**LLC34**



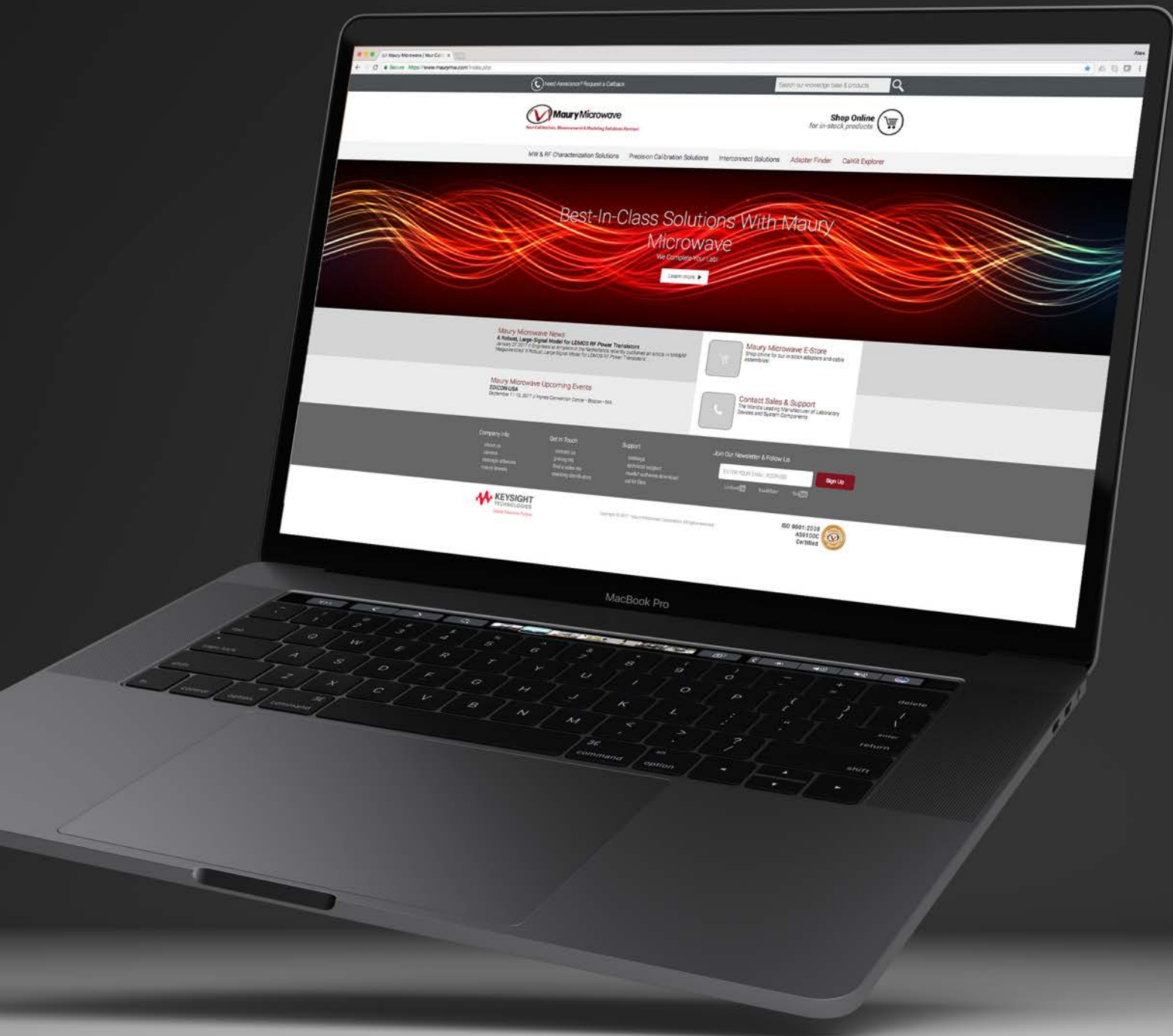
**Mainline  
Return Loss**



**Coupling and  
Directivity**



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