Thin-Film Directional Couplers

DB0805 3dB 90° Couplers

GENERAL DESCRIPTION ITF TECHNOLOGY

The ITF SMD 3dB 90° Coupler is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.

The ITF 3dB 90° Coupler is offered in a variety of frequency bands compatible with various types of high frequency wireless systems.

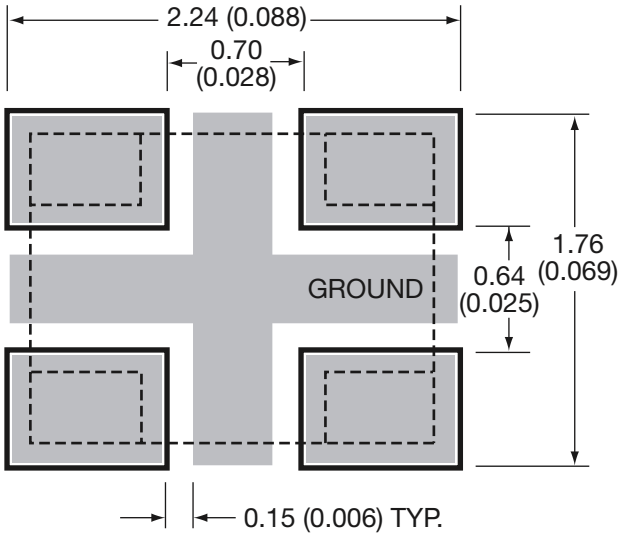
APPLICATIONS

- Balanced Amplifiers and Signal Distribution in Mobile Communications

FEATURES

- Miniature 0805 size
- Low I. Loss
- High Isolation
- Power Handling: 10W RF CW
- Surface Mountable
- Supplied on Tape and Reel
- Operating Temperature -40°C to +85°C

Recommended Pad Layout Dimensions **mm (inches)**

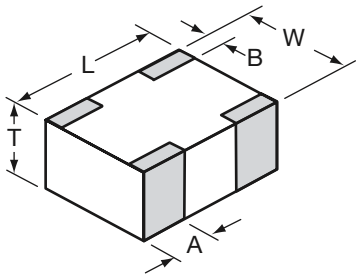


DIMENSIONS:

millimeters (inches)

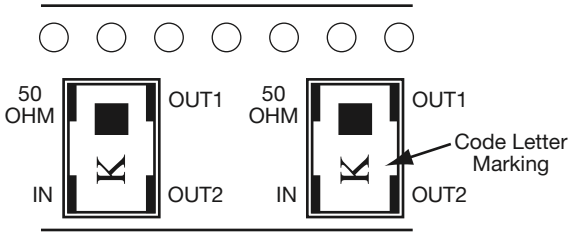
L	2.03±0.10 (0.080±0.004)
W	1.55±0.10 (0.061±0.004)
T	0.98±0.15 (0.037±0.006)
A	0.56±0.25 (0.022±0.010)
B	0.35±0.15 (0.014±0.006)

Bottom View



TERMINALS (Top View)

Orientation in Tape



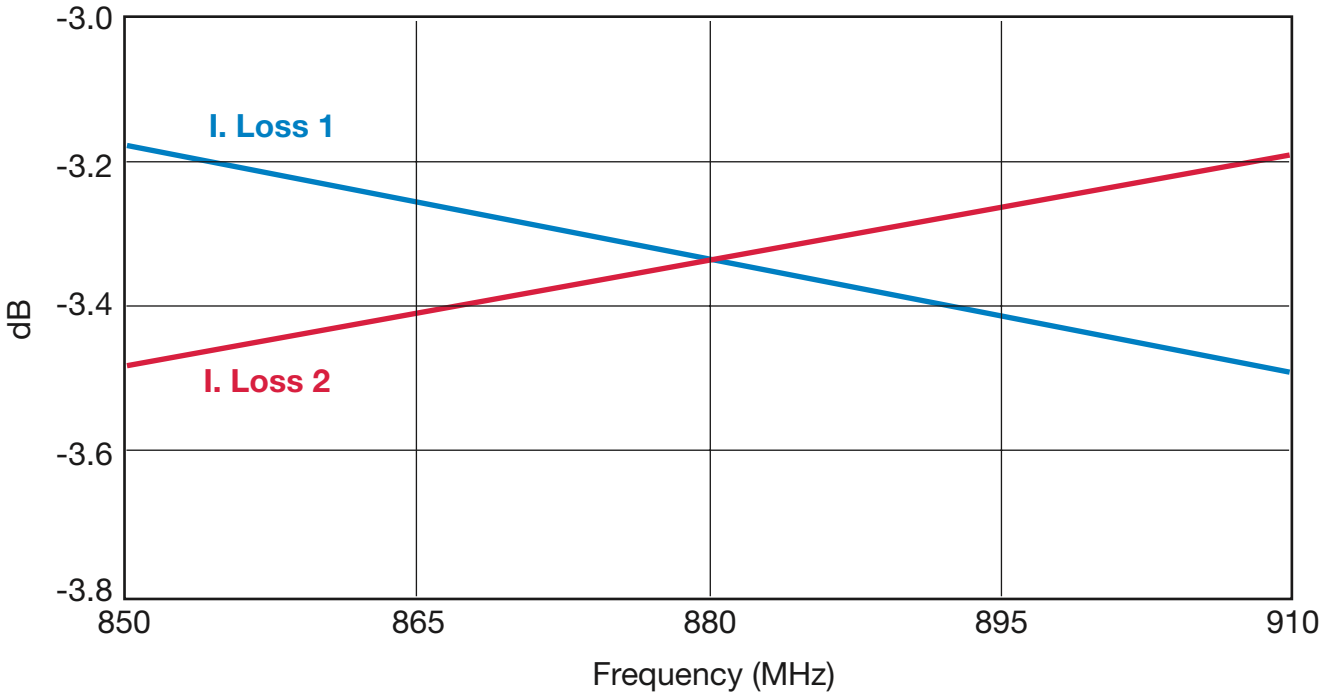
ELECTRICAL PARAMETERS*

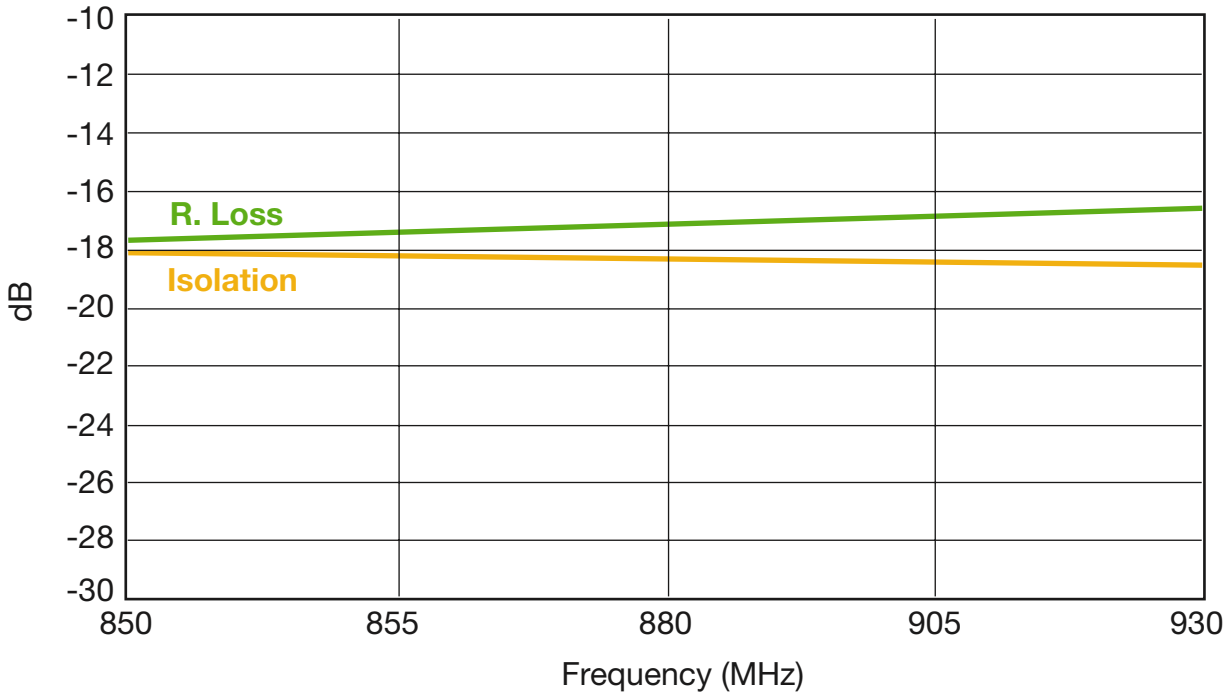
Part Number	Frequency F_O [MHz]	I. Loss @ F_O [dB]	Phase Balance [deg] max.	Code Letter Marking
DB0805A0880AWTR	880±30	0.35	3	**Y**
DB0805A0915AWTR	915±30	0.35	3	**V**
DB0805A0967AWTR	967±30	0.35	3	**V**
DB0805A1350AWTR	1350±50	0.35	3	**C**
DB0805A1650AWTR	1650±50	0.35	3	**F**
DB0805A1800AWTR	1800±50	0.30	3	**F**
DB0805A1850AWTR	1850±50	0.30	3	**K**
DB0805A1900AWTR	1900±50	0.30	3	**K**
DB0805A1950AWTR	1950±50	0.25	3	**K**
DB0805A2140AWTR	2140±50	0.25	3	**L**
DB0805A2325AWTR	2325±50	0.25	3	**T**

*With Recommended Pad Layout

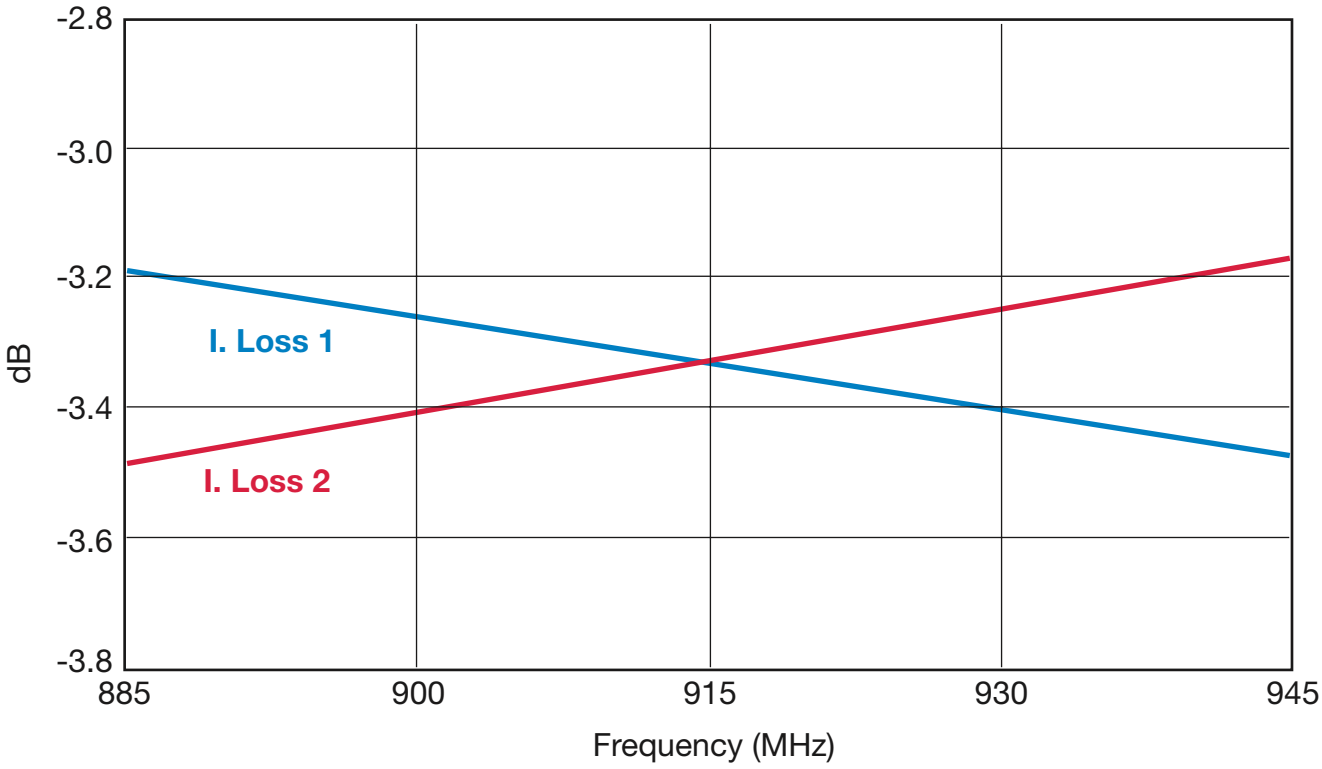
Important: **All intermediate frequencies within the indicated range are readily available.**

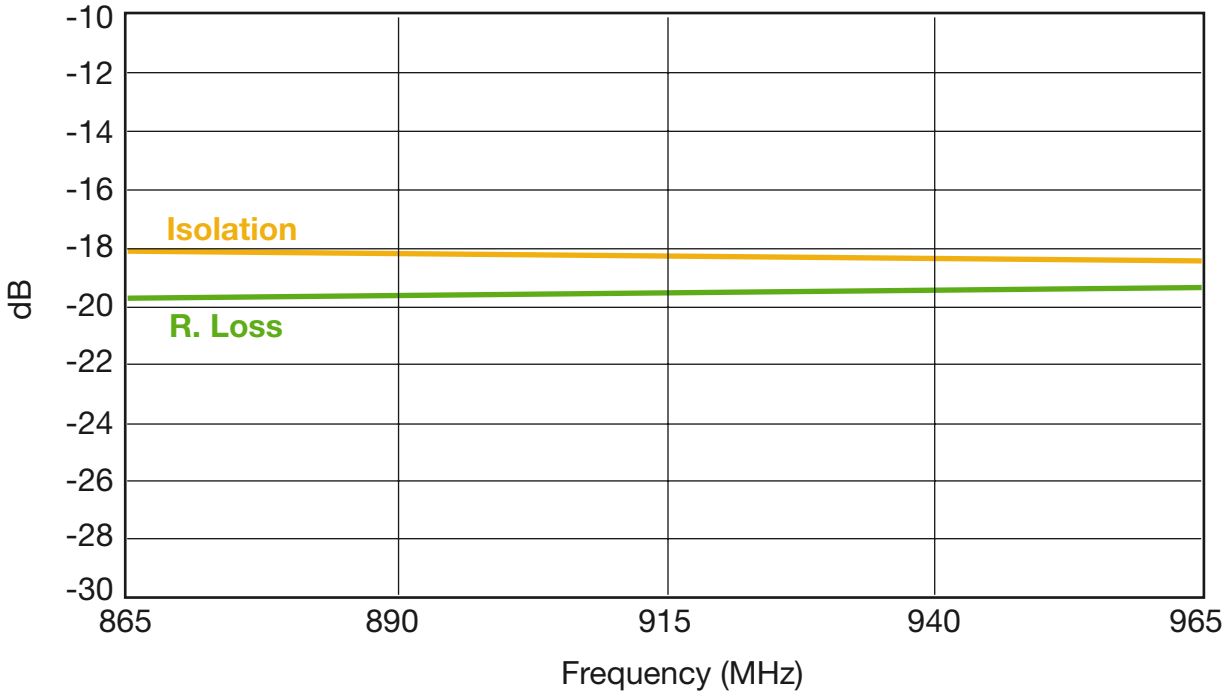
880 ± 30MHz DB0805A0880AWTR



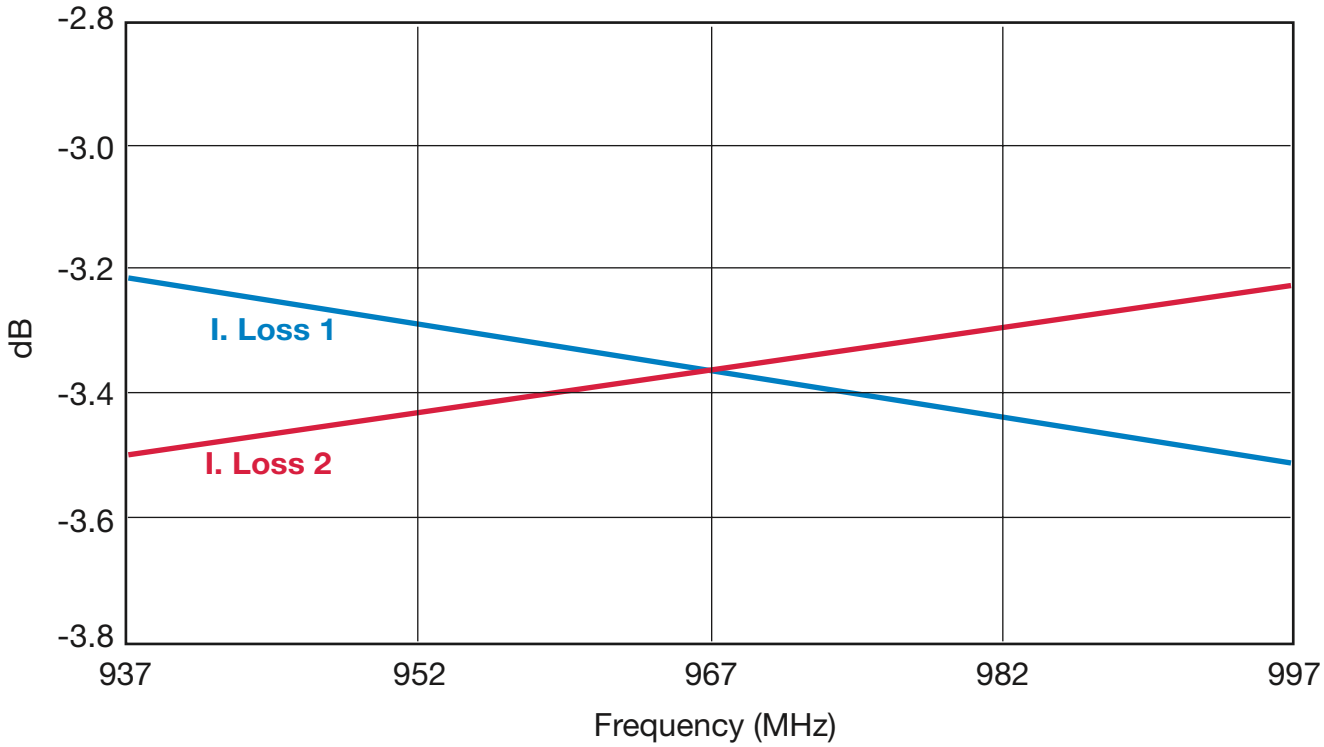


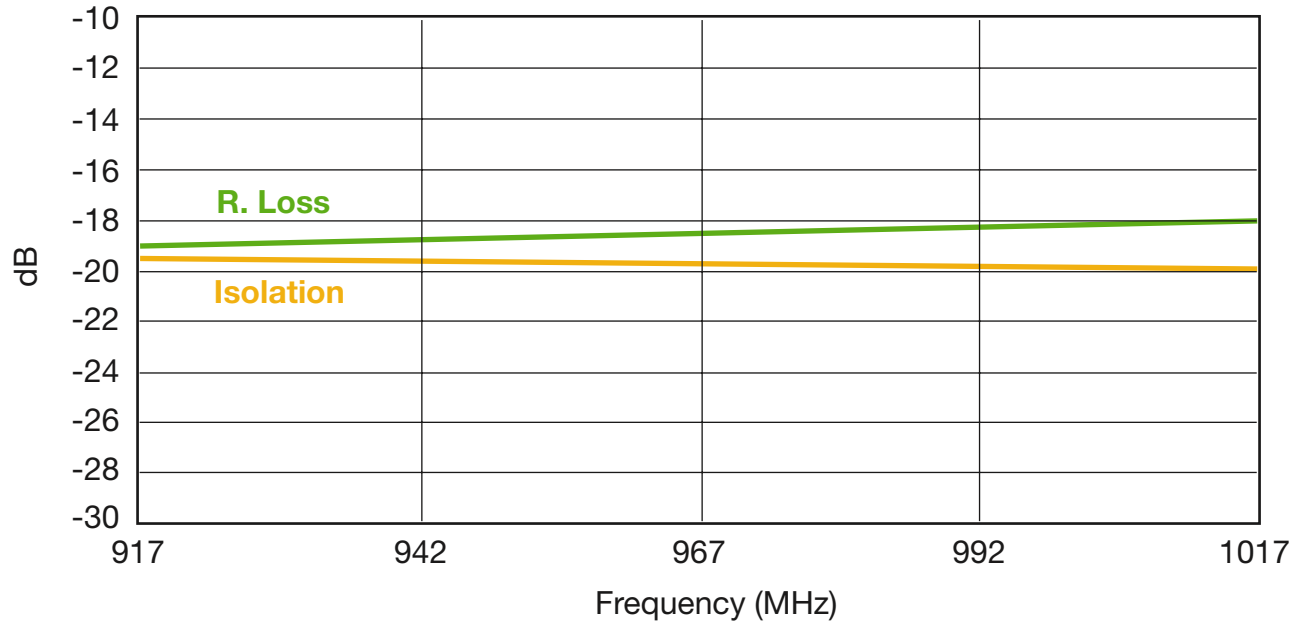
915 ± 30MHz DB0805A0915AWTR



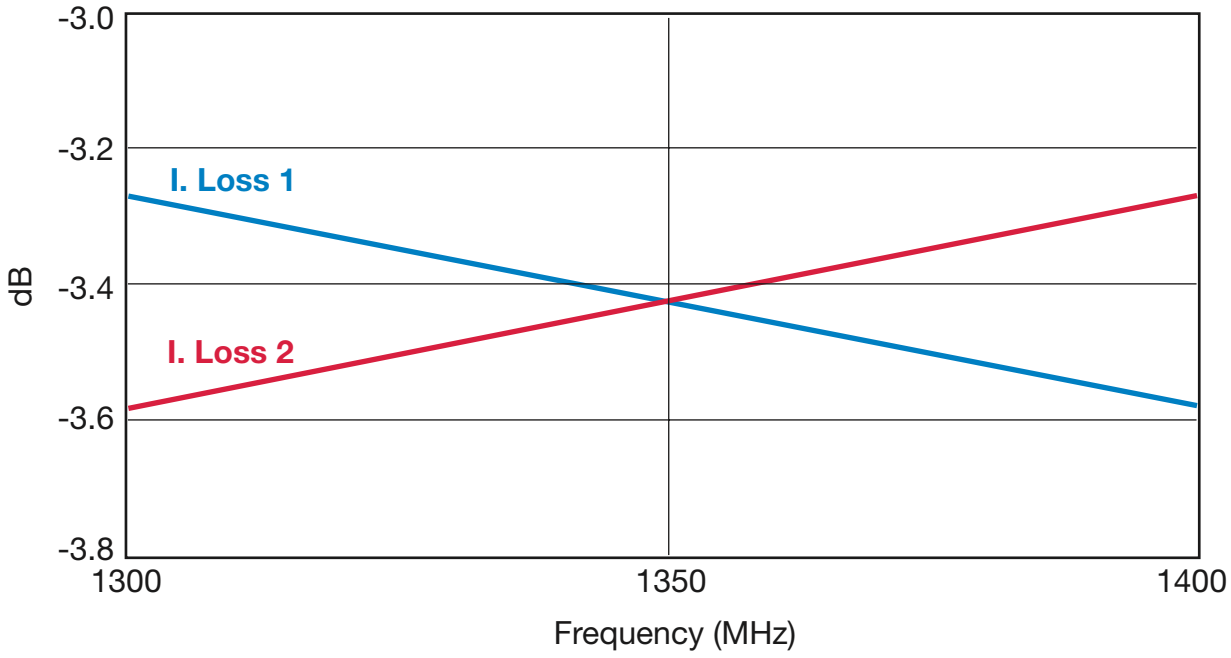


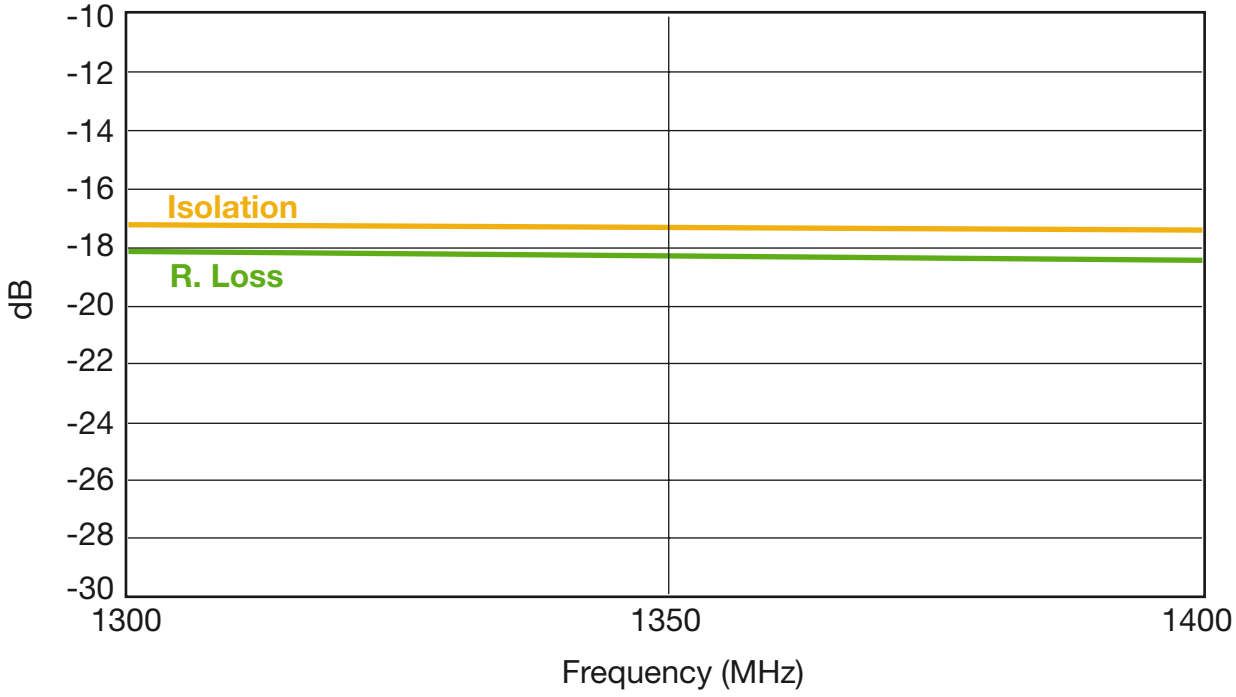
967± 30MHz DB0805A0967AWTR



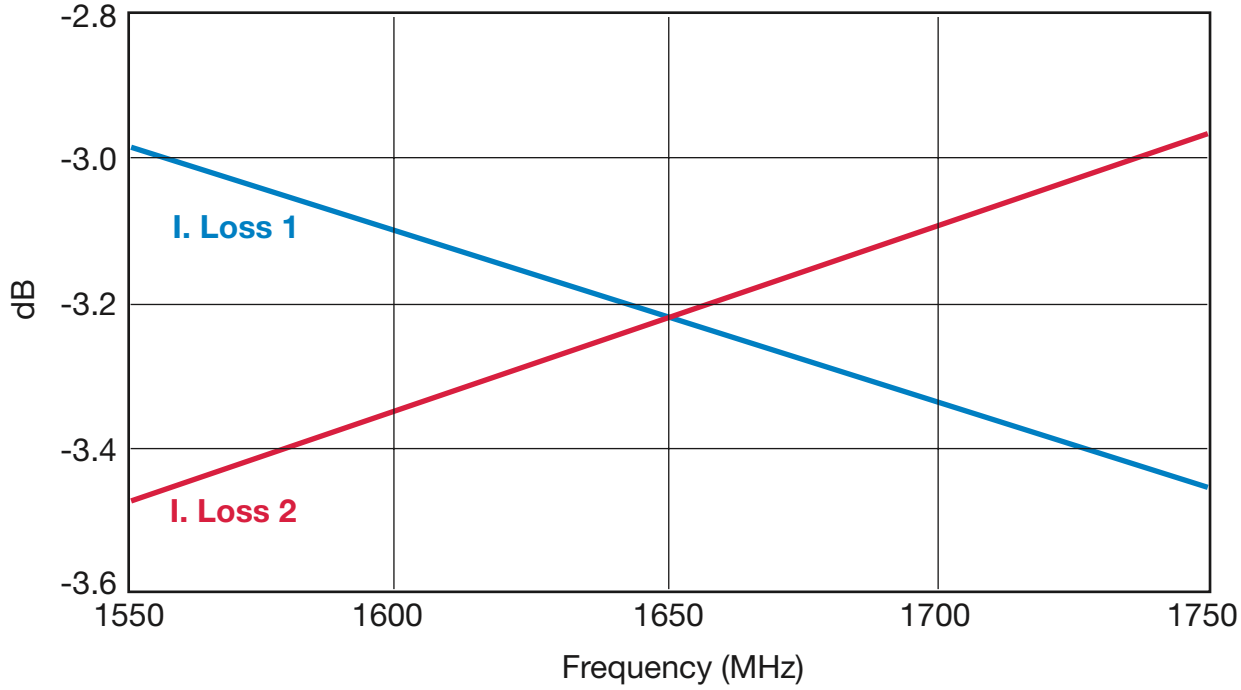


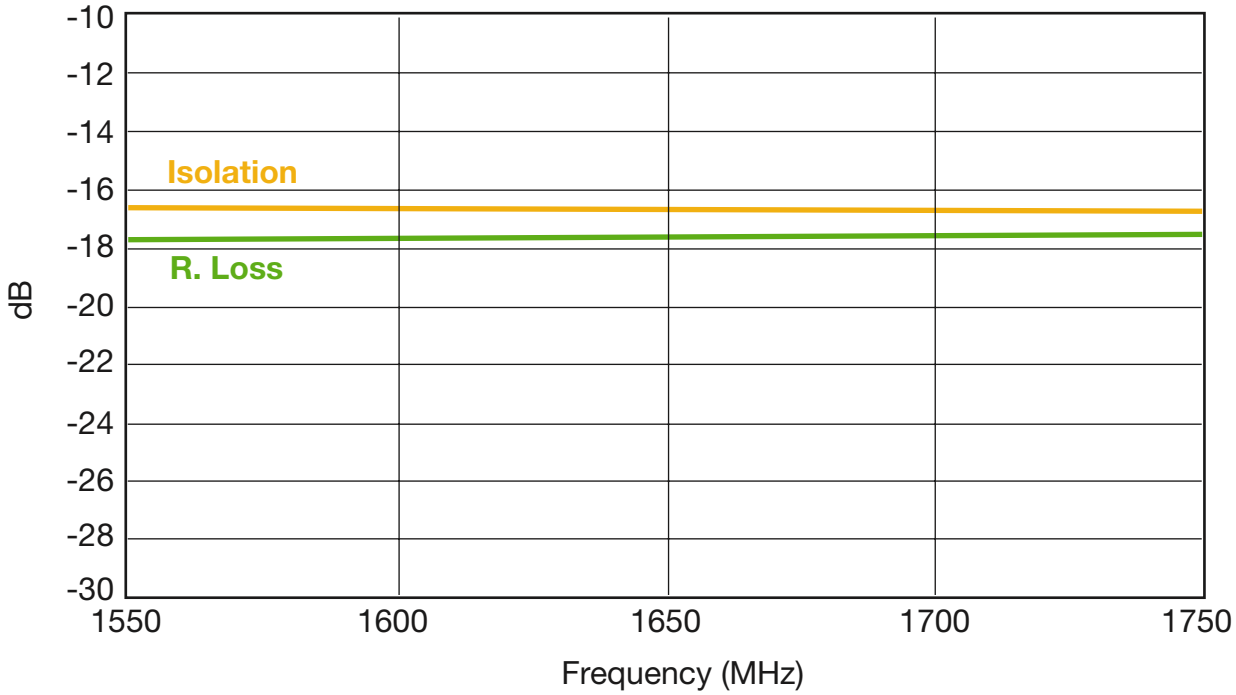
1350 ± 50MHz DB0805A1350AWTR



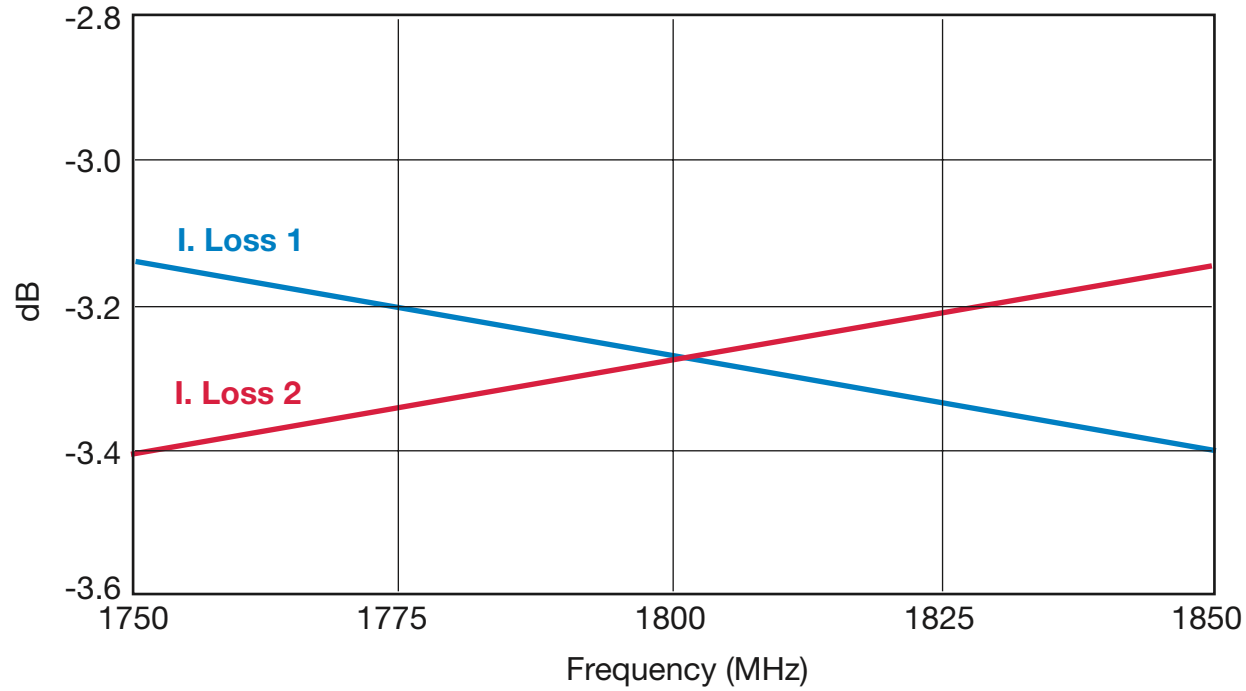


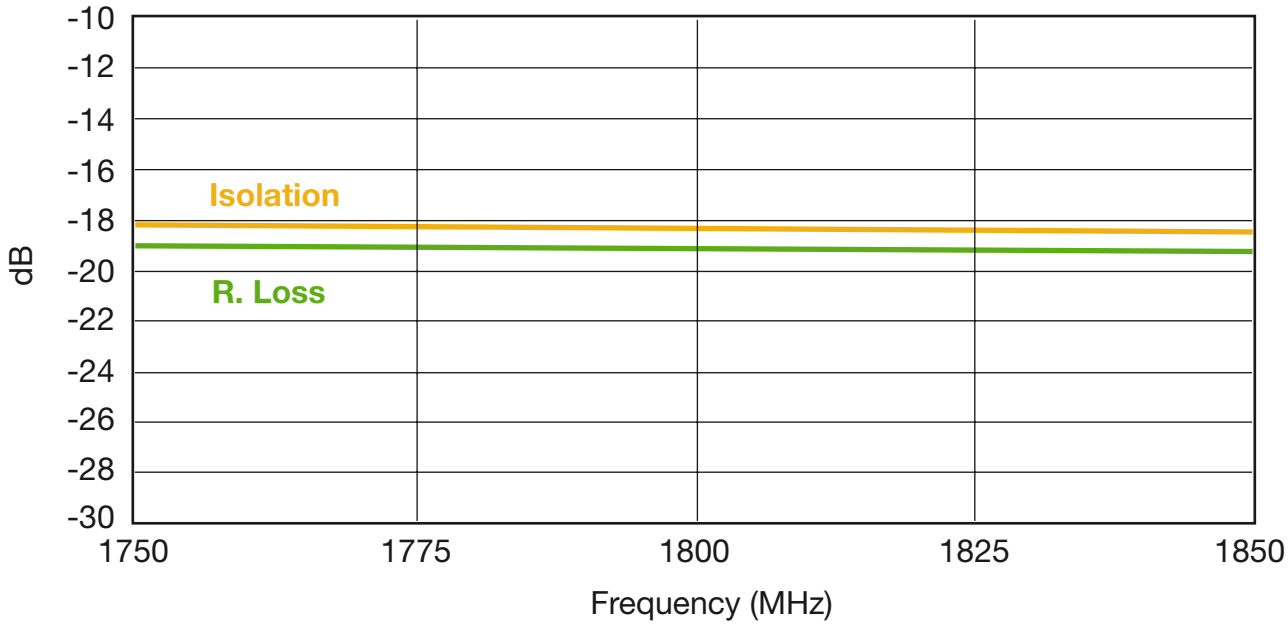
1650 ± 50MHz DB0805A1650AWTR



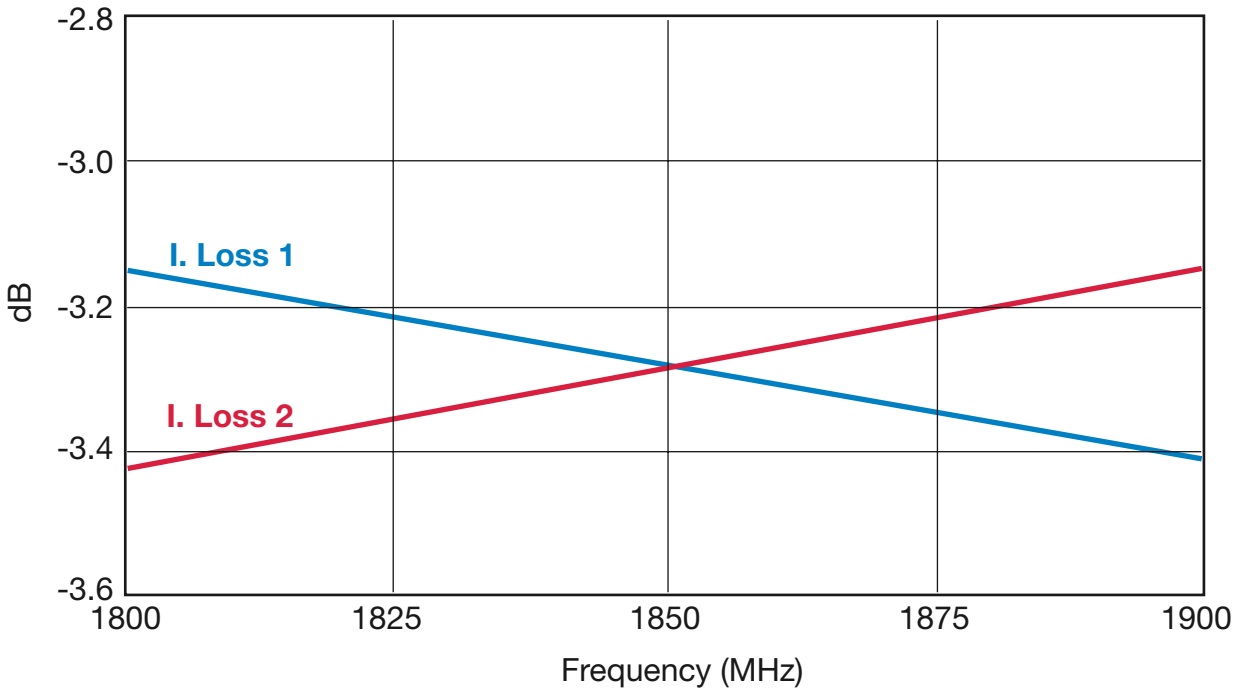


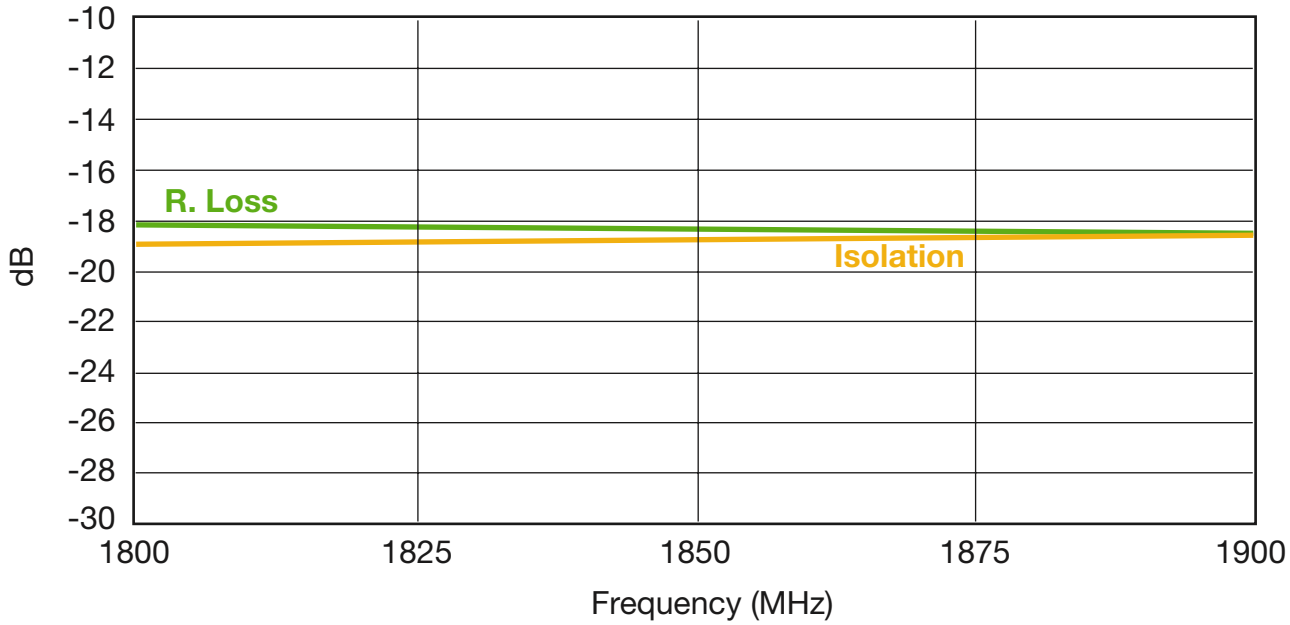
1800 ± 50MHz DB0805A1800AWTR



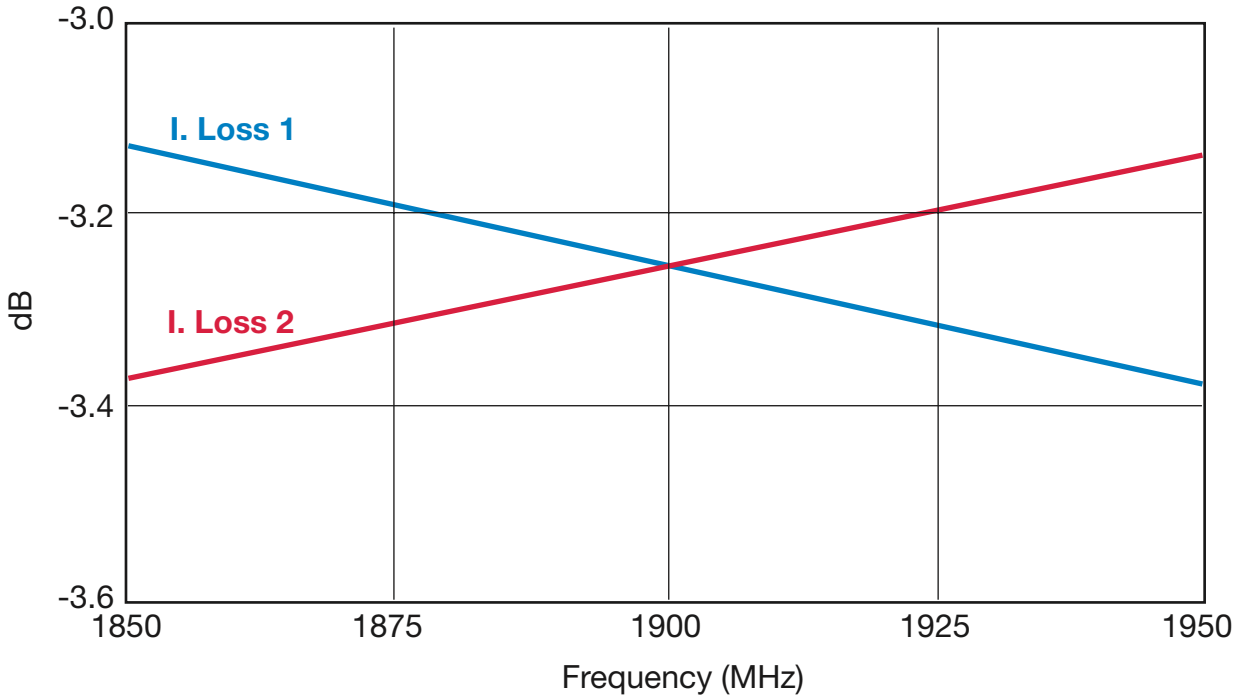


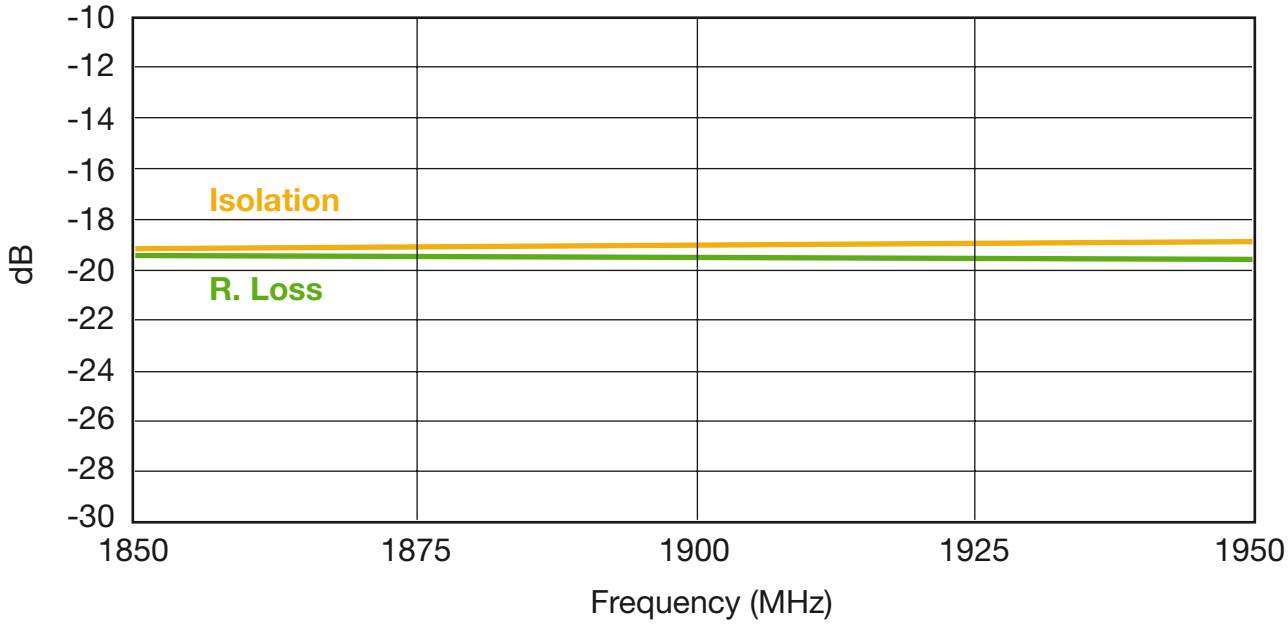
1850 ± 50MHz DB0805A1850AWTR



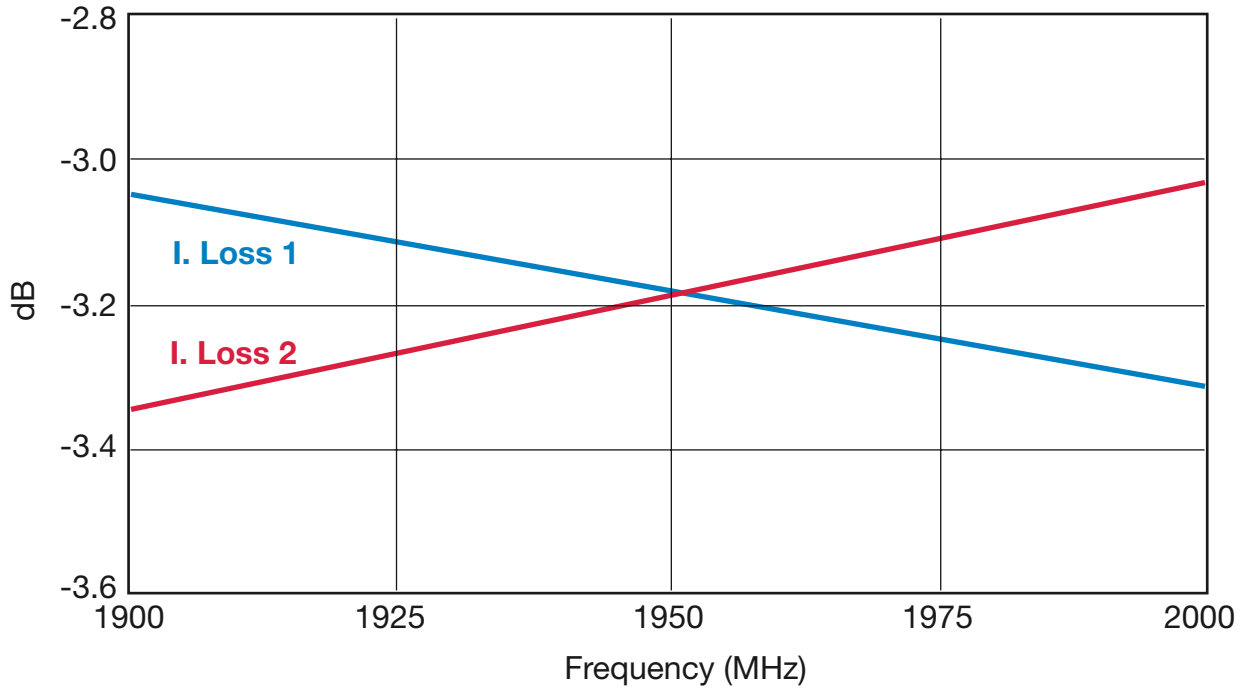


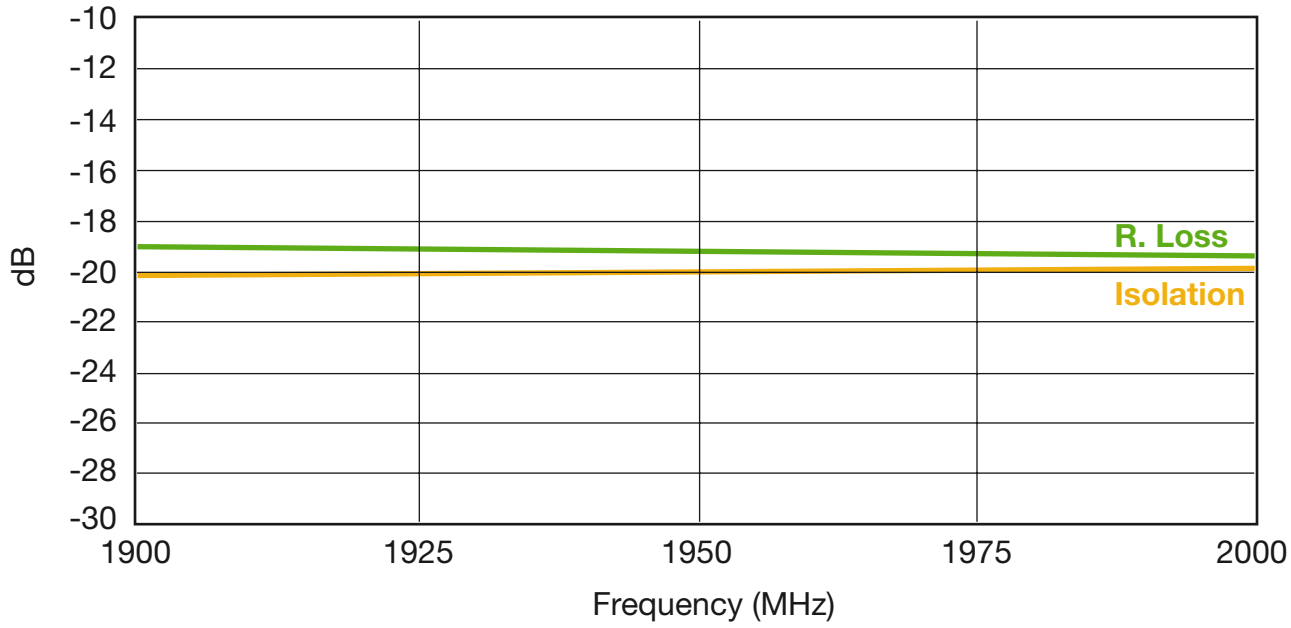
1900 ± 50MHz DB0805A1900AWTR



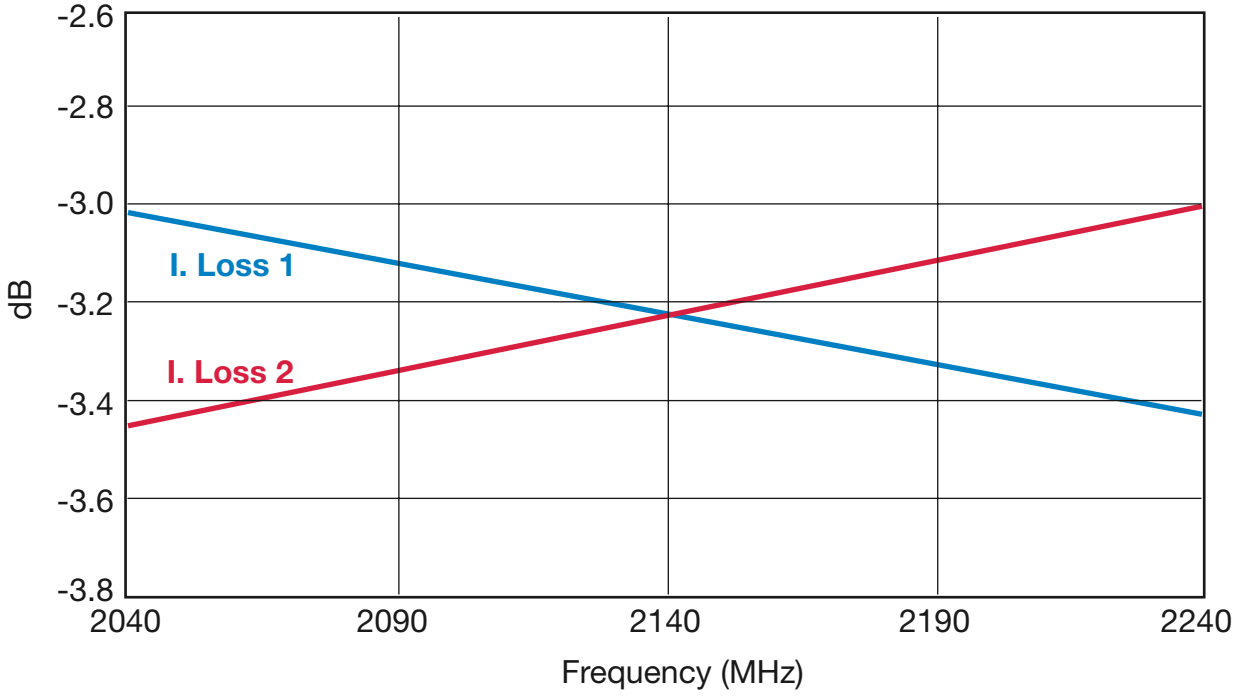


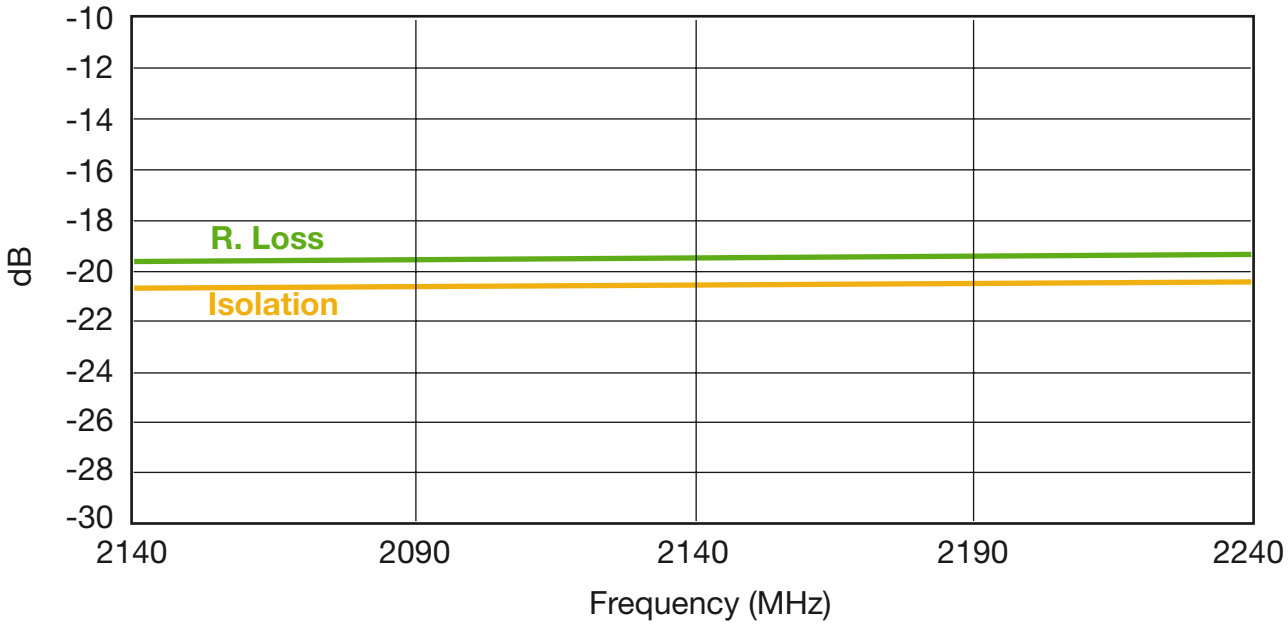
1950 ± 50MHz DB0805A1950AWTR



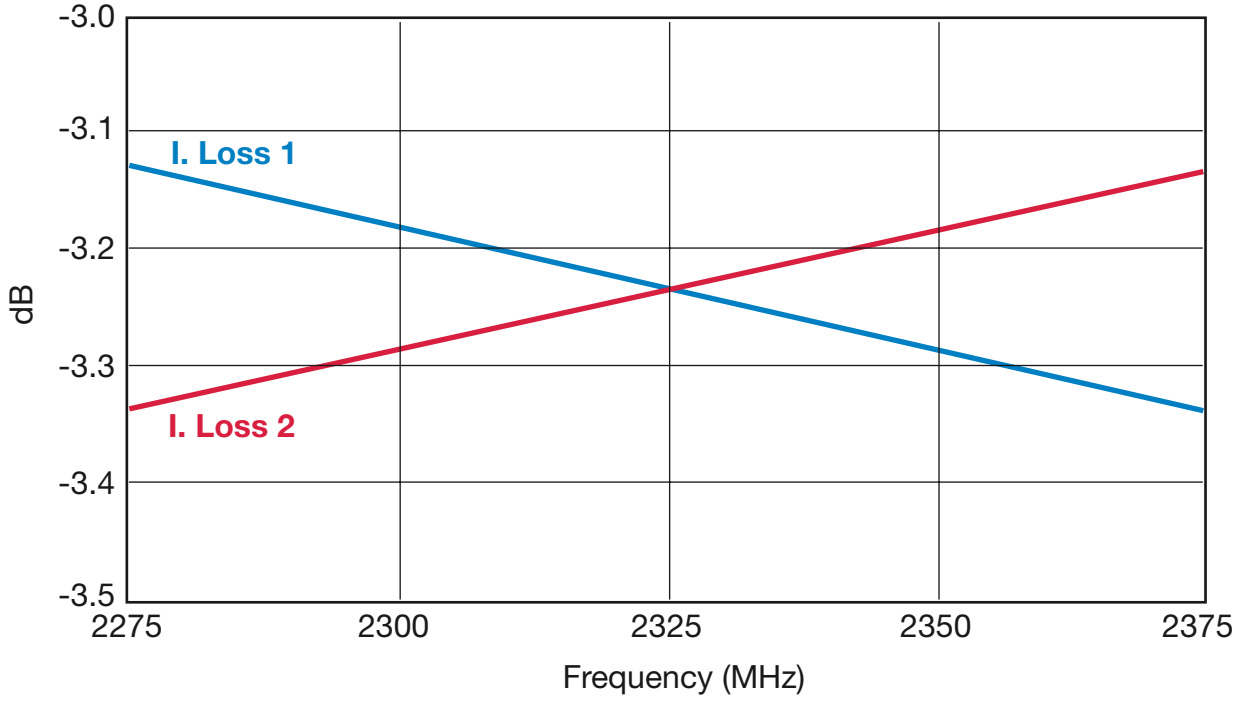


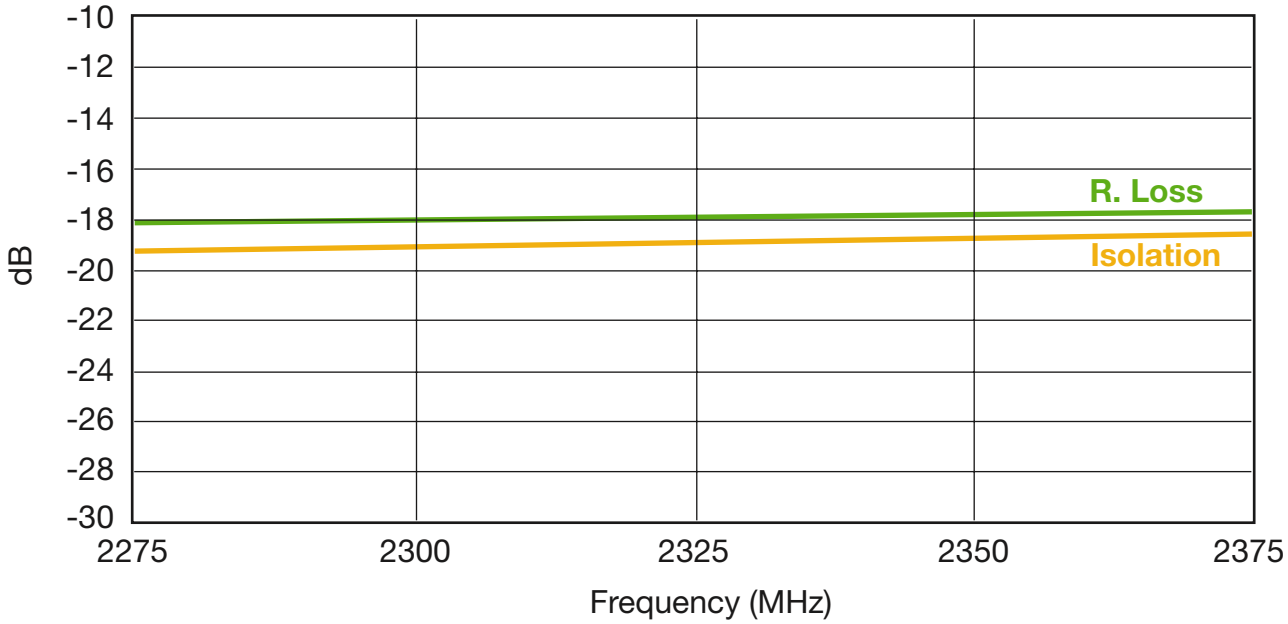
2140 ± 50MHz DB0805A2140AWTR





2325 ± 50MHz DB0805A2325AWTR





Thin-Film Directional Couplers

DB0805 3dB 90° Test Jigs

GENERAL DESCRIPTION

These jigs are designed for testing the DB0805 3dB 90° Couplers using a Vector Network Analyzer.

They consist of a dielectric substrate, having 50Ω microstrips as conducting lines and a bottom ground plane located at a distance of 0.254mm from the microstrips.

The substrate used is Neltec's NH9338ST0254C1BC.

The connectors are SMA type (female), 'Johnson Components Inc.' Product P/N: 142-0701-841.

Both a measurement jig and a calibration jig are provided.

The calibration jig is designed for a full 2-port calibration, and consists of an open line, short line and through line. LOAD calibration can be done by a 50Ω SMA termination.

MEASUREMENT PROCEDURE

When measuring a component, it can be either soldered or pressed using a non-metallic stick until all four ports touch the appropriate pads. Set the VNA to the relevant frequency band. Connect the VNA using a 10dB attenuator on the jig terminal connected to port 2. Follow the VNA's instruction manual and use the calibration jig to perform a full 2-port calibration in the required bandwidths.

Place the coupler on the measurement jig as follows:

Input (Coupler) ➜ Connector 1 (Jig)
50Ω (Coupler) ➜ Connector 2 (Jig)
Output 1 (Coupler) ➜ Connector 3 (Jig)
Output 2 (Coupler) ➜ Connector 4 (Jig)

To measure R. Loss and I. Loss 1 connect:

Connector 1 (Jig) ➜ Port 1 (VNA)
Connector 2 (Jig) ➜ 50Ω
Connector 3 (Jig) ➜ Port 2 (VNA)
Connector 4 (Jig) ➜ 50Ω

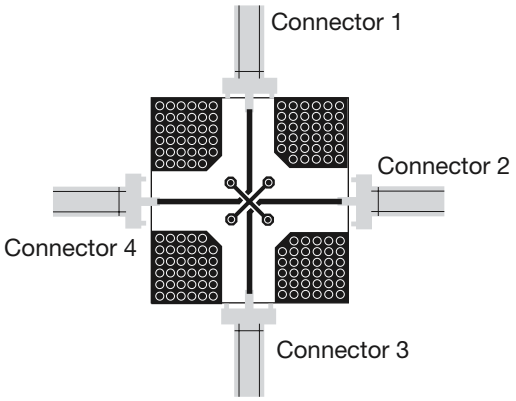
To measure R. Loss and I. Loss 2 connect:

Connector 1 (Jig) ➜ Port 1 (VNA)
Connector 2 (Jig) ➜ 50Ω
Connector 3 (Jig) ➜ 50Ω
Connector 4 (Jig) ➜ Port 2 (VNA)

To measure Isolation connect:

Connector 1 (Jig) ➜ 50Ω
Connector 2 (Jig) ➜ 50Ω
Connector 3 (Jig) ➜ Port 1 (VNA)
Connector 4 (Jig) ➜ Port 2 (VNA)

Measurement Jig



Calibration Jig