

# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers

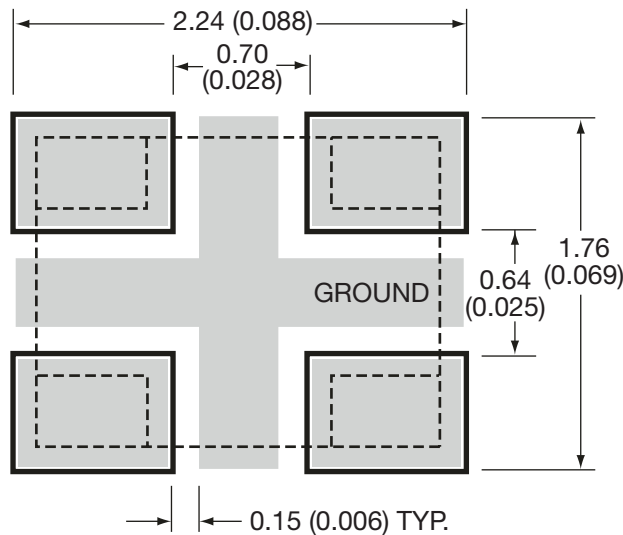


### GENERAL DESCRIPTION ITF TECHNOLOGY

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.

### Recommended Pad Layout Dimensions mm (inches)



### APPLICATIONS

- Balanced Amplifiers and Signal Distribution in Mobile Communications

### FEATURES

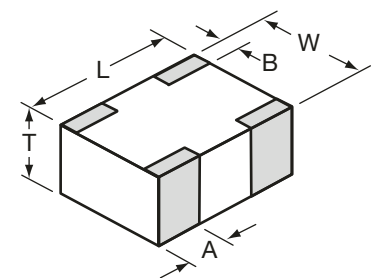
- Miniature 0805 size
- Low I. Loss
- High Isolation
- Power Handling: 10W RF CW
- Surface Mountable
- Supplied on Tape and Reel
- Operating Temperature -40°C to +85°C

### DIMENSIONS:

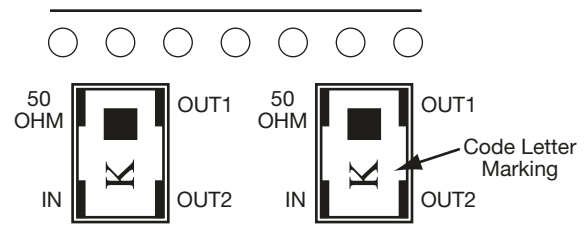
millimeters (inches)

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

### Bottom View



### TERMINALS (Top View) Orientation in Tape



### ELECTRICAL PARAMETERS\*

| Part Number**   | Frequency F <sub>0</sub><br>[MHz] | I. Loss @ F <sub>0</sub><br>[dB] | Phase Balance<br>[deg] max. | Code Letter<br>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

NOTE: Additional Frequencies Available Upon Request

**\*\*LEAD FREE TERMINATION  
PART NUMBERS:  
DB0805AxxxxASTR**

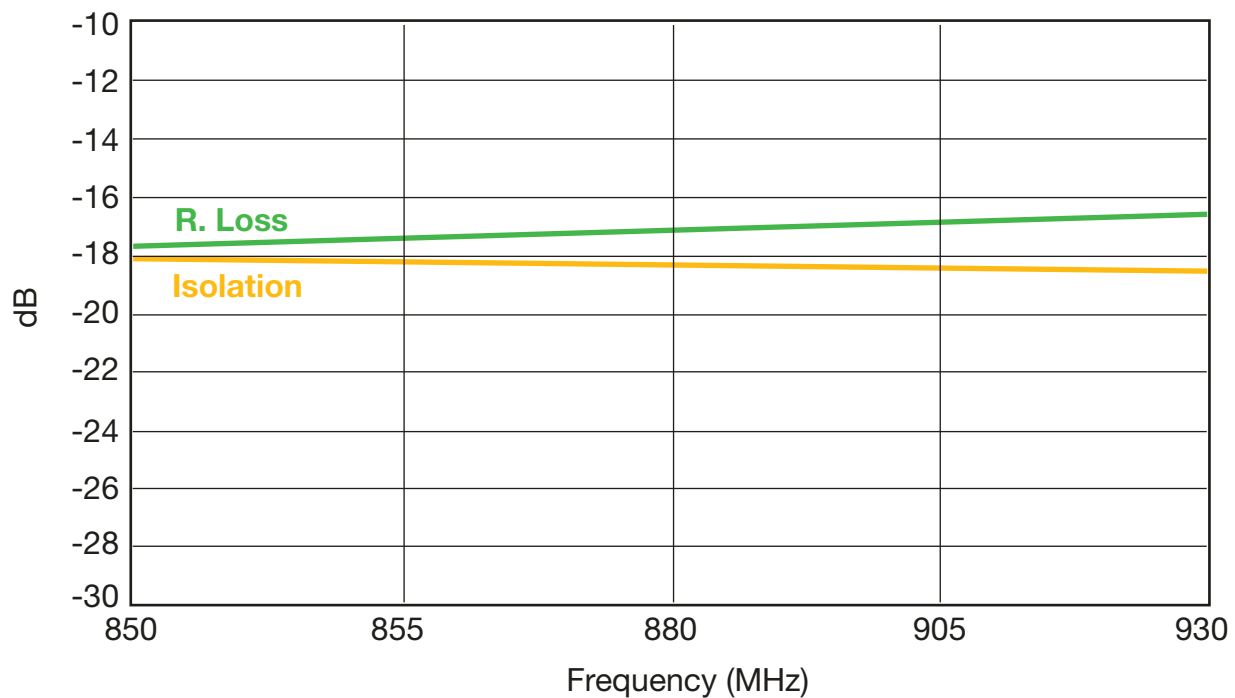
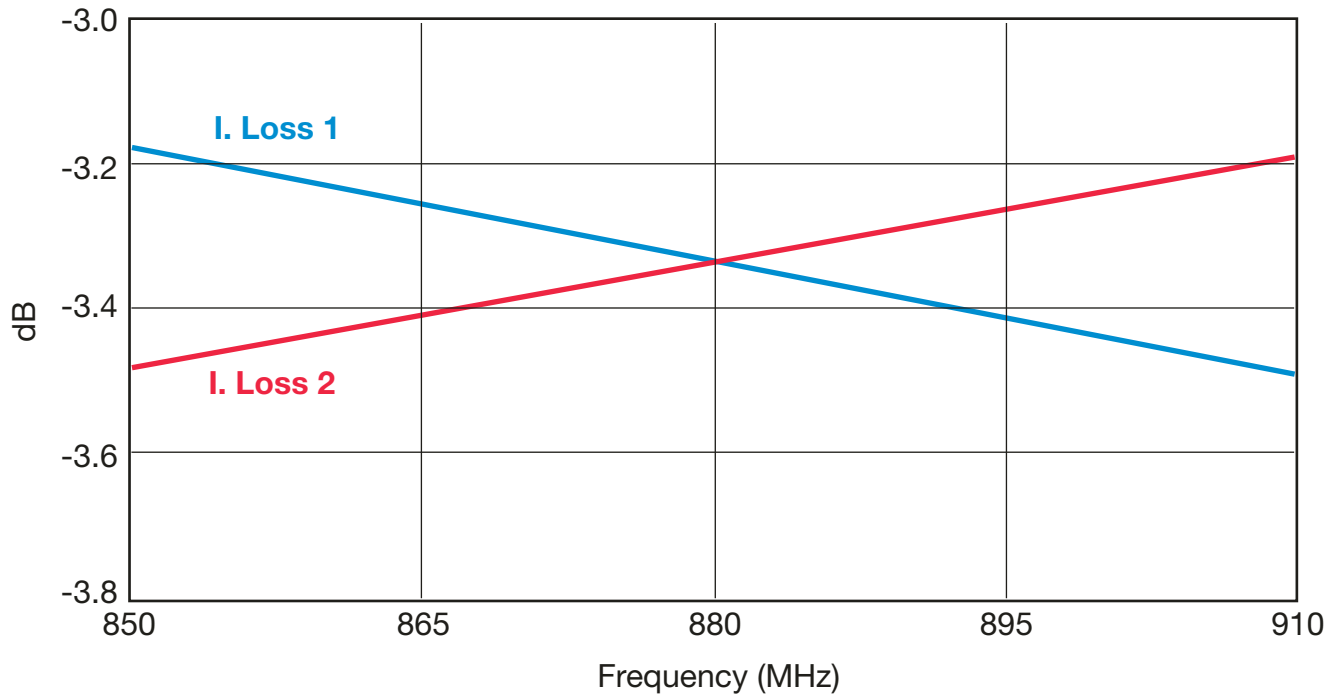


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



880 ± 30MHz DB0805A0880AWTR

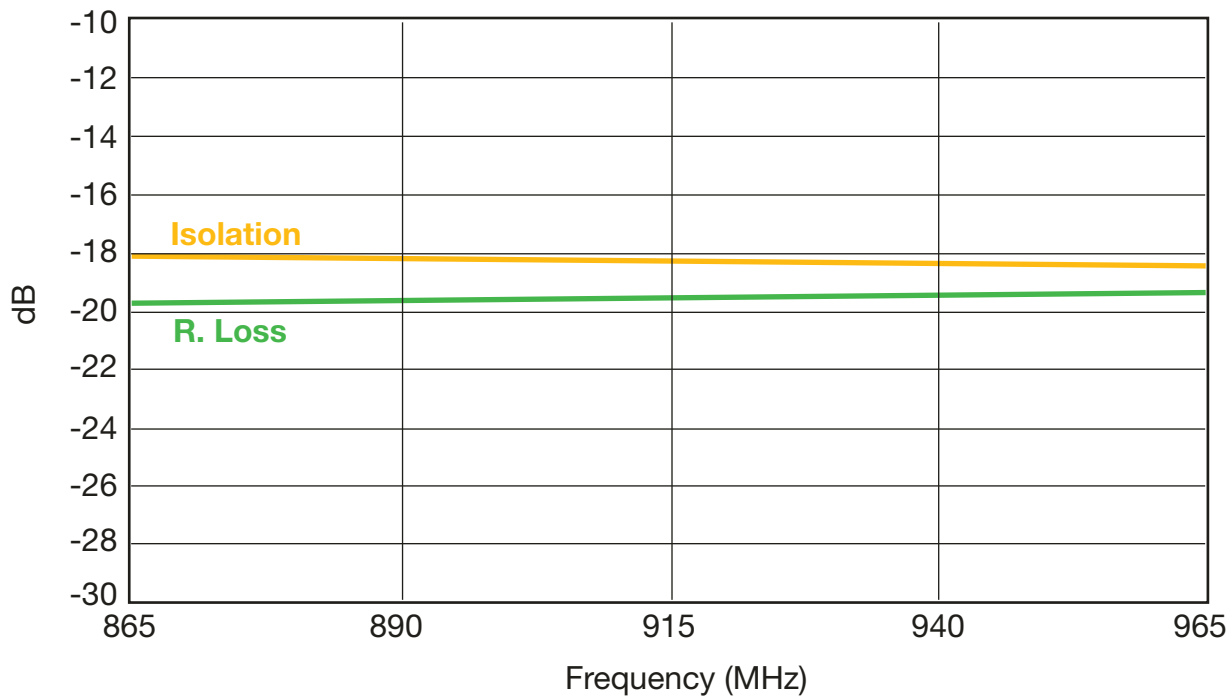
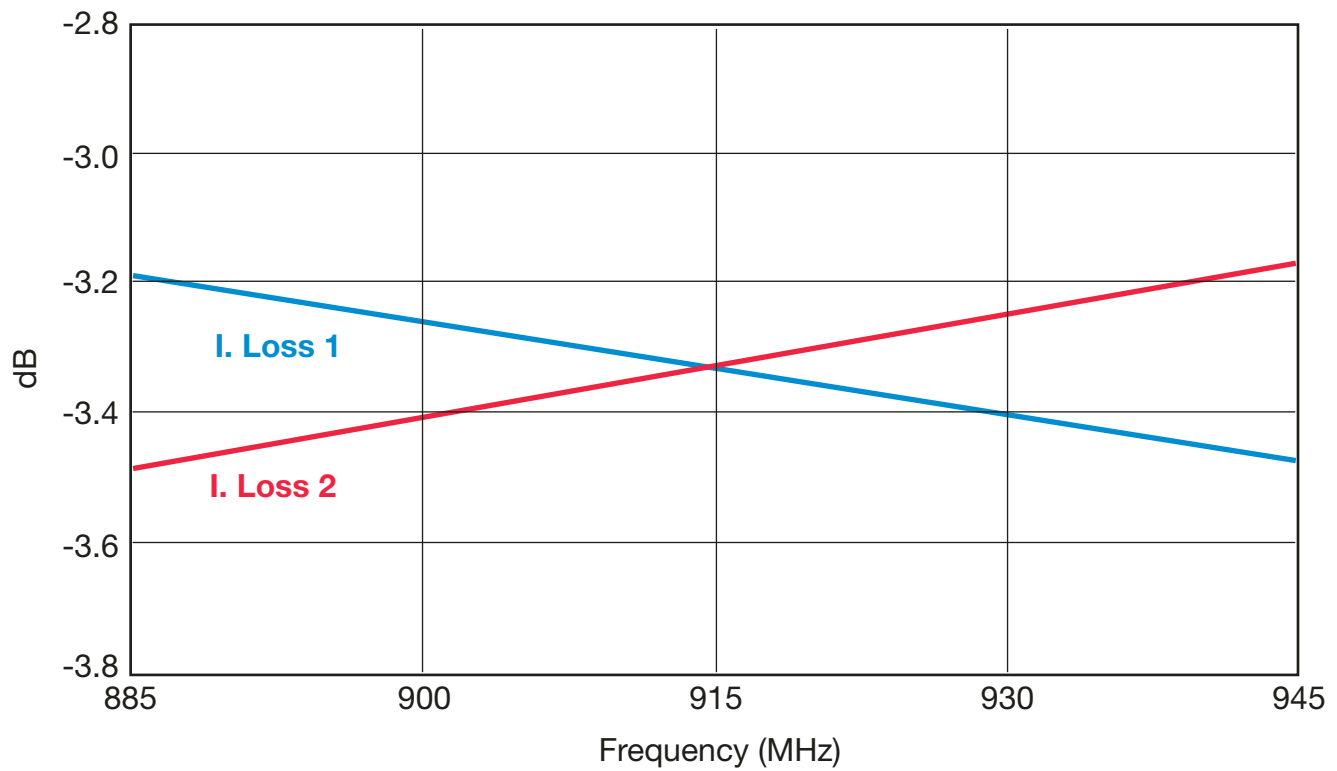


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



915  $\pm$  30MHz DB0805A0915AWTR

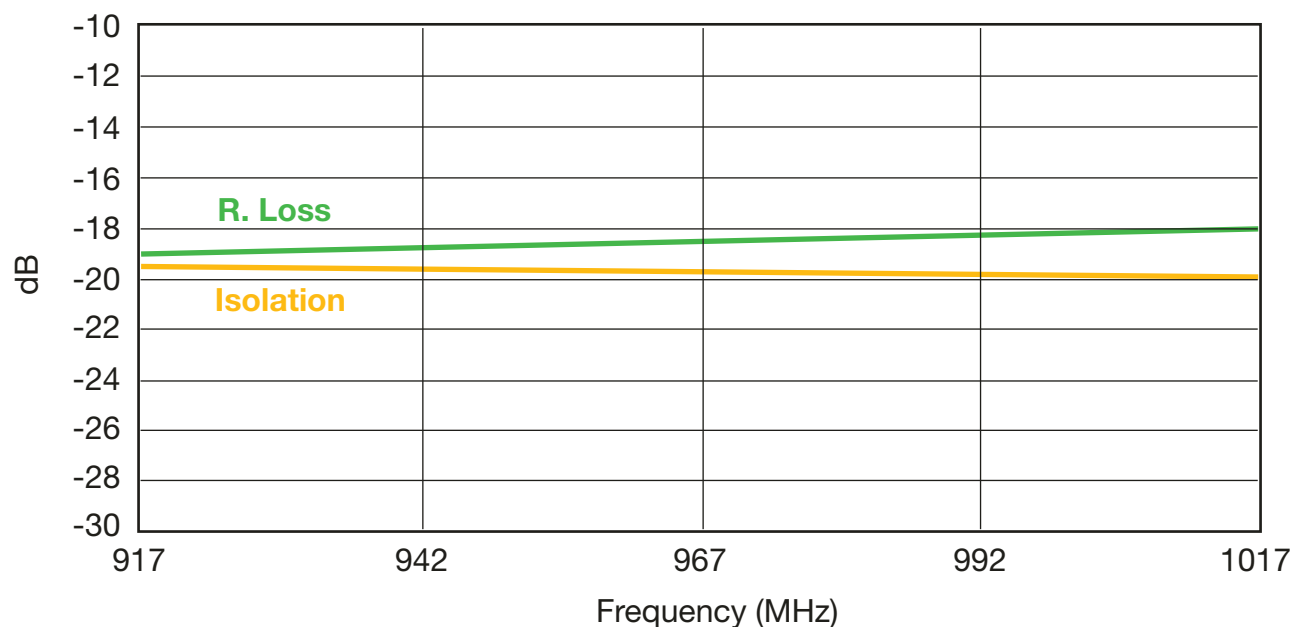
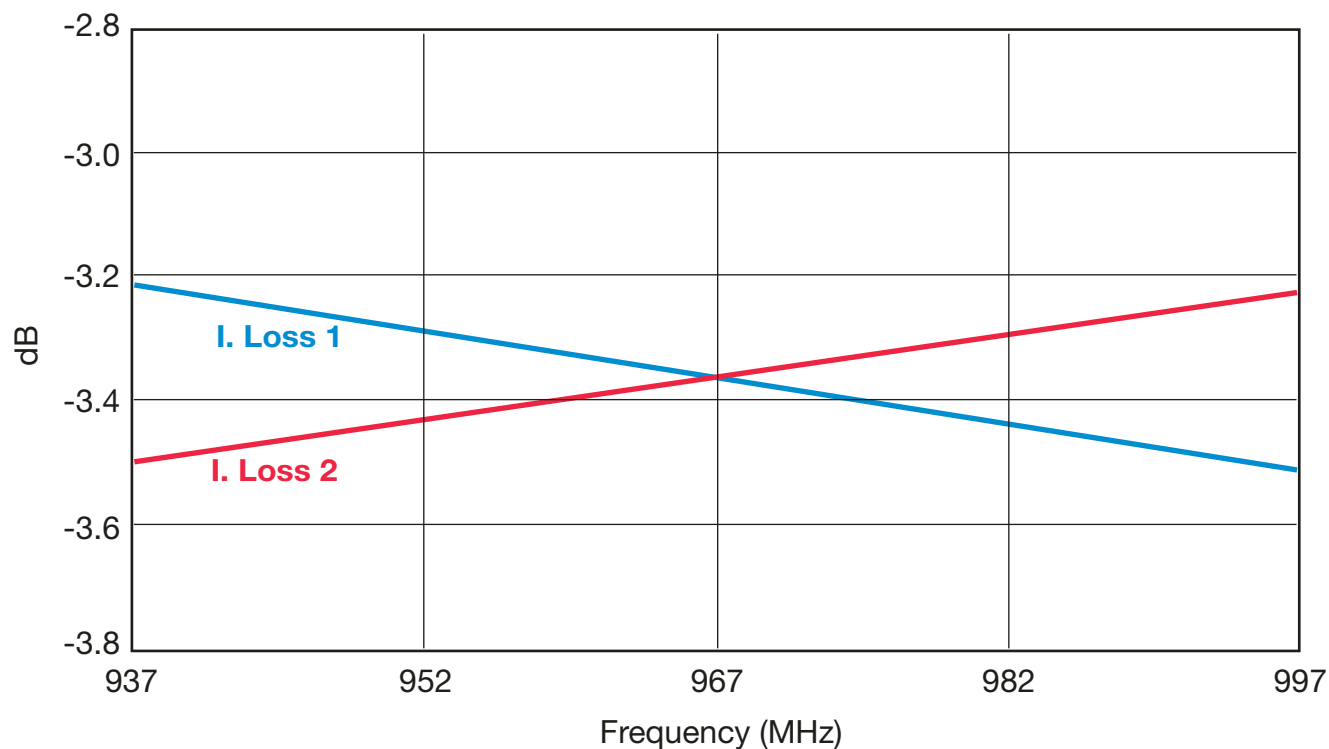


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



967± 30MHz DB0805A0967AWTR

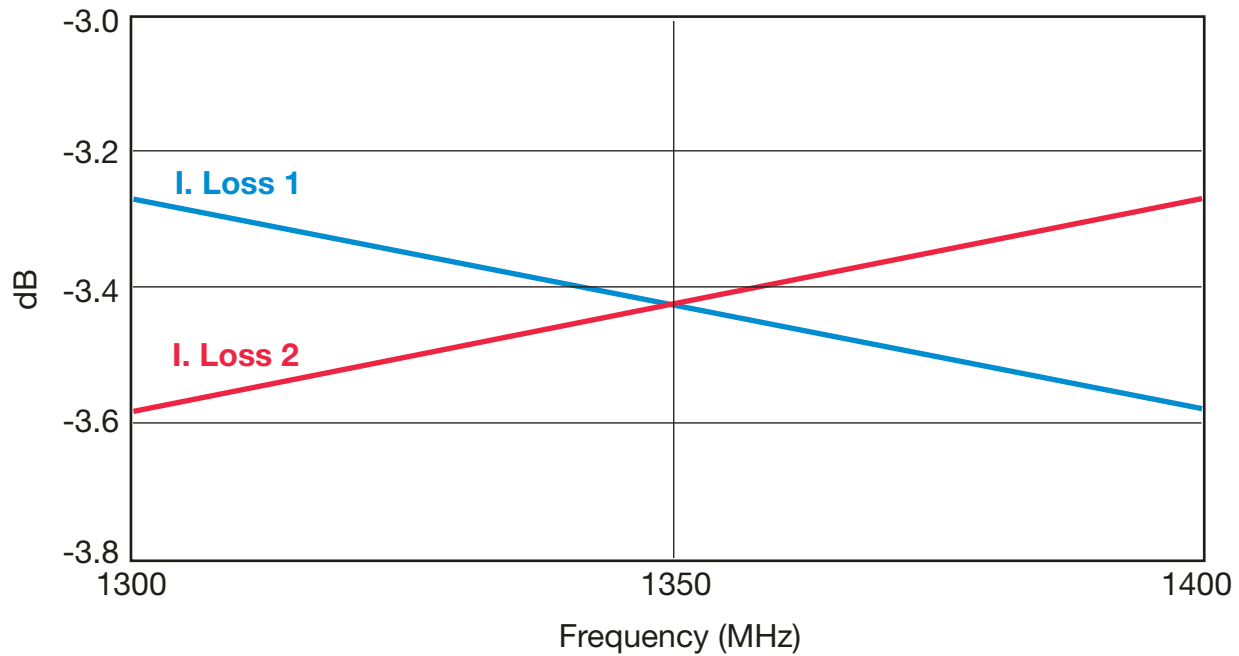


# Thin-Film Directional Couplers

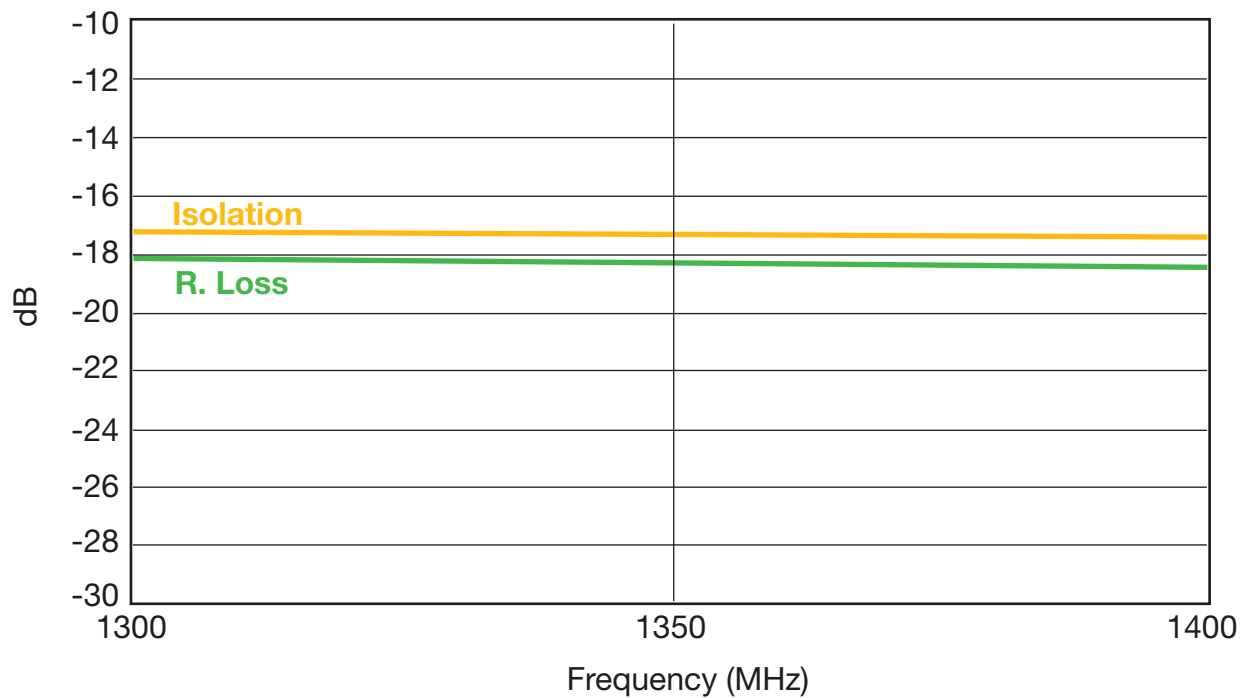
## DB0805 3dB 90° Couplers



1350 ± 50MHz DB0805A1350AWTR



3

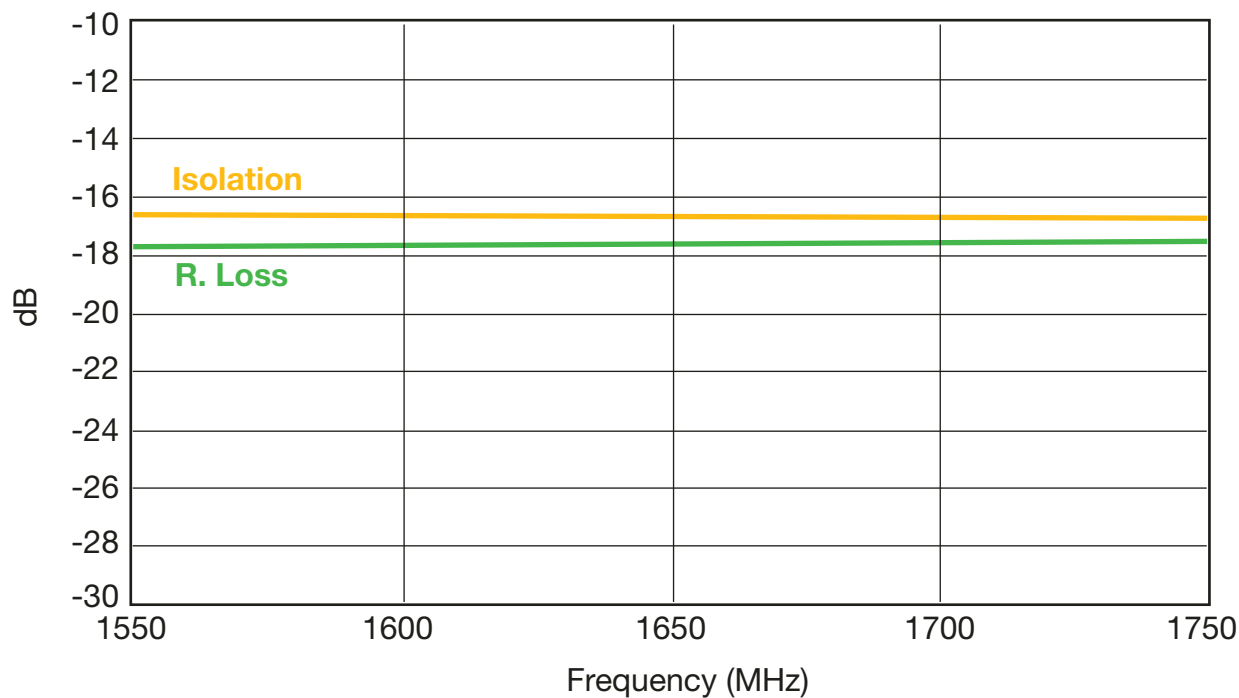
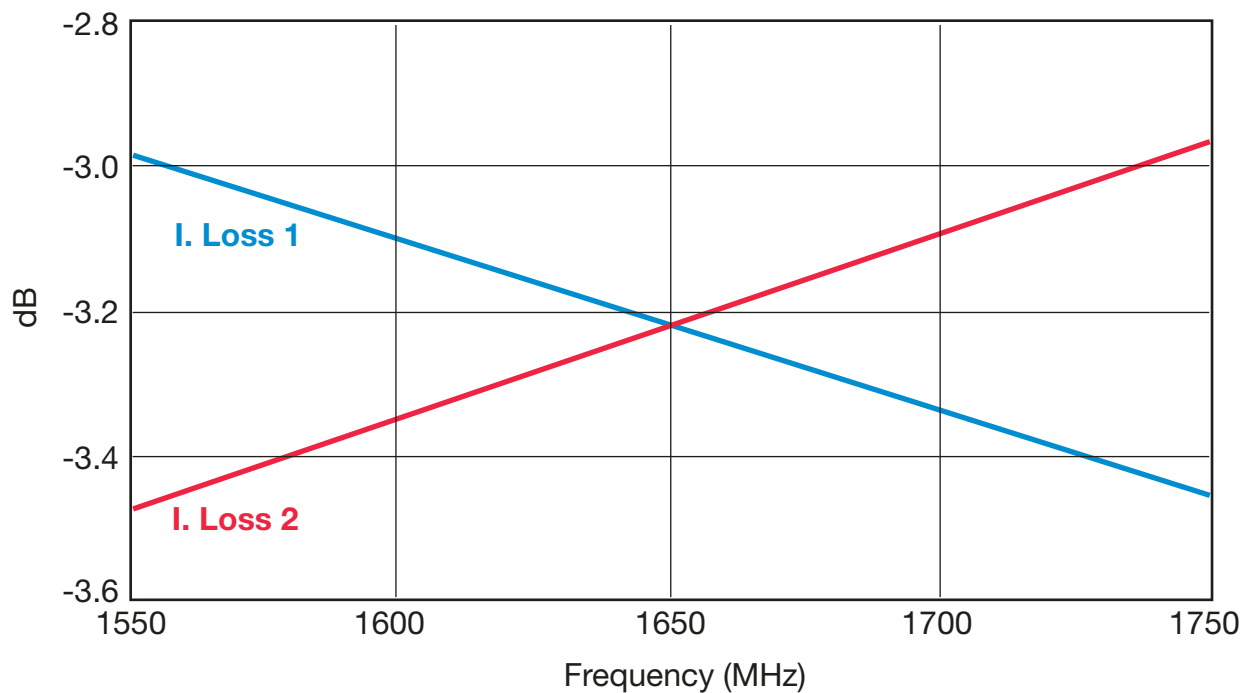


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



1650 ± 50MHz DB0805A1650AWTR

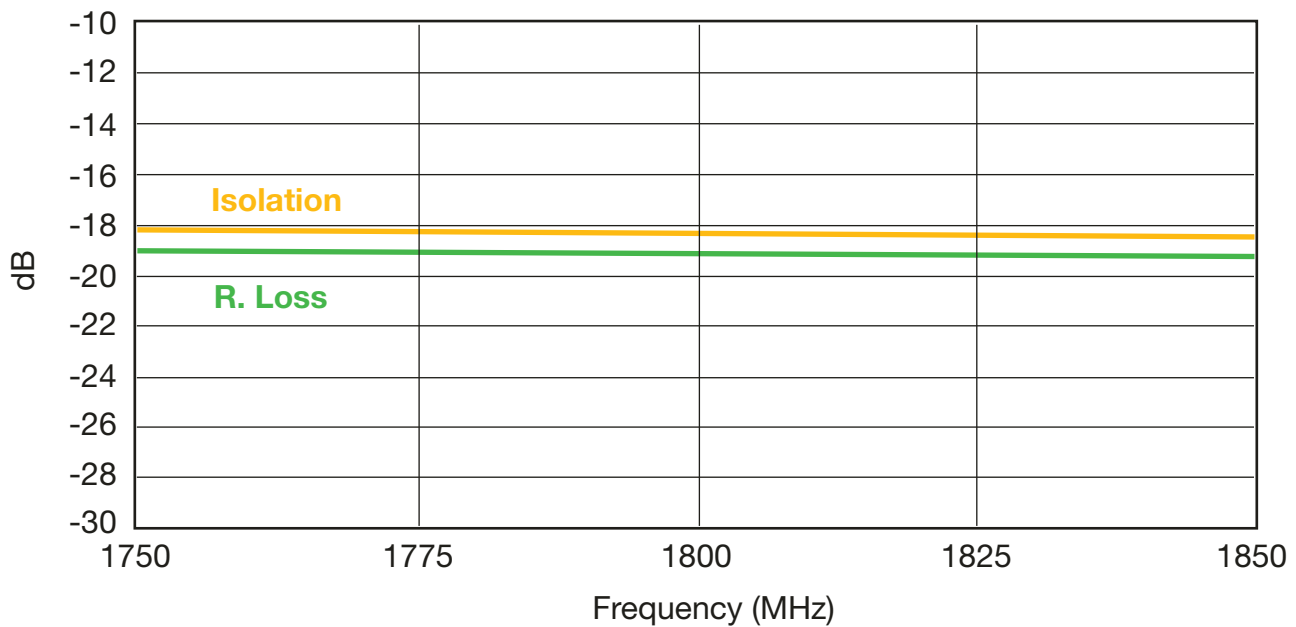
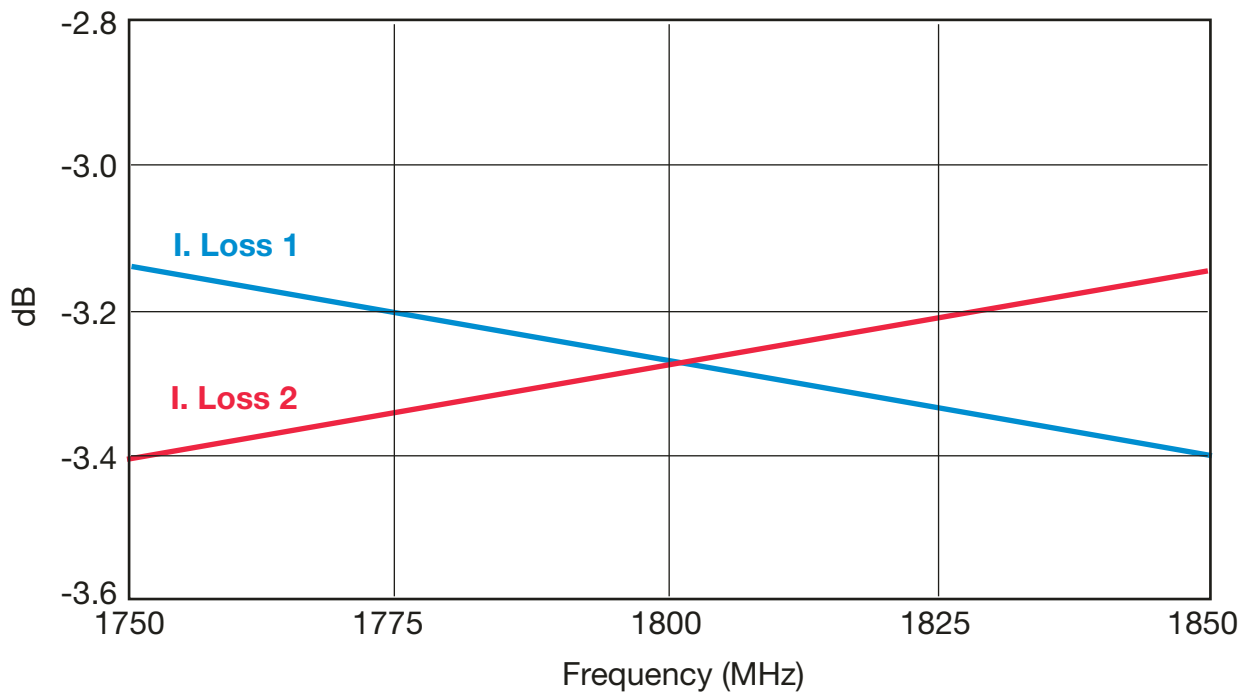


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



1800 ± 50MHz DB0805A1800AWTR

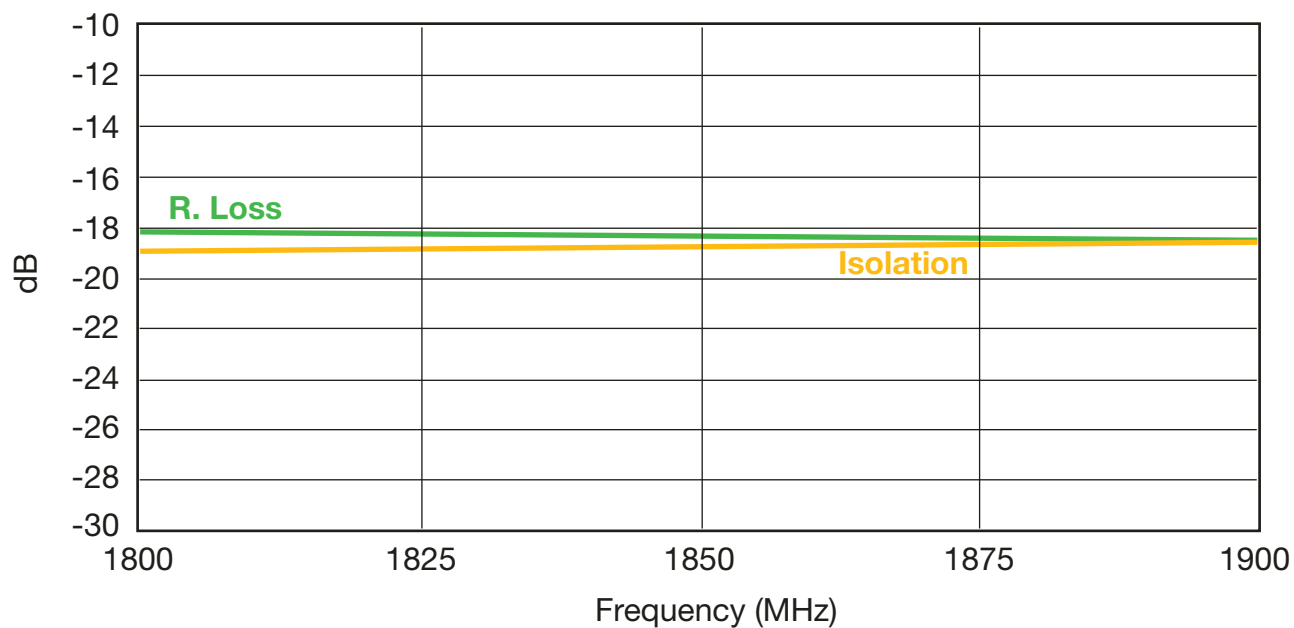
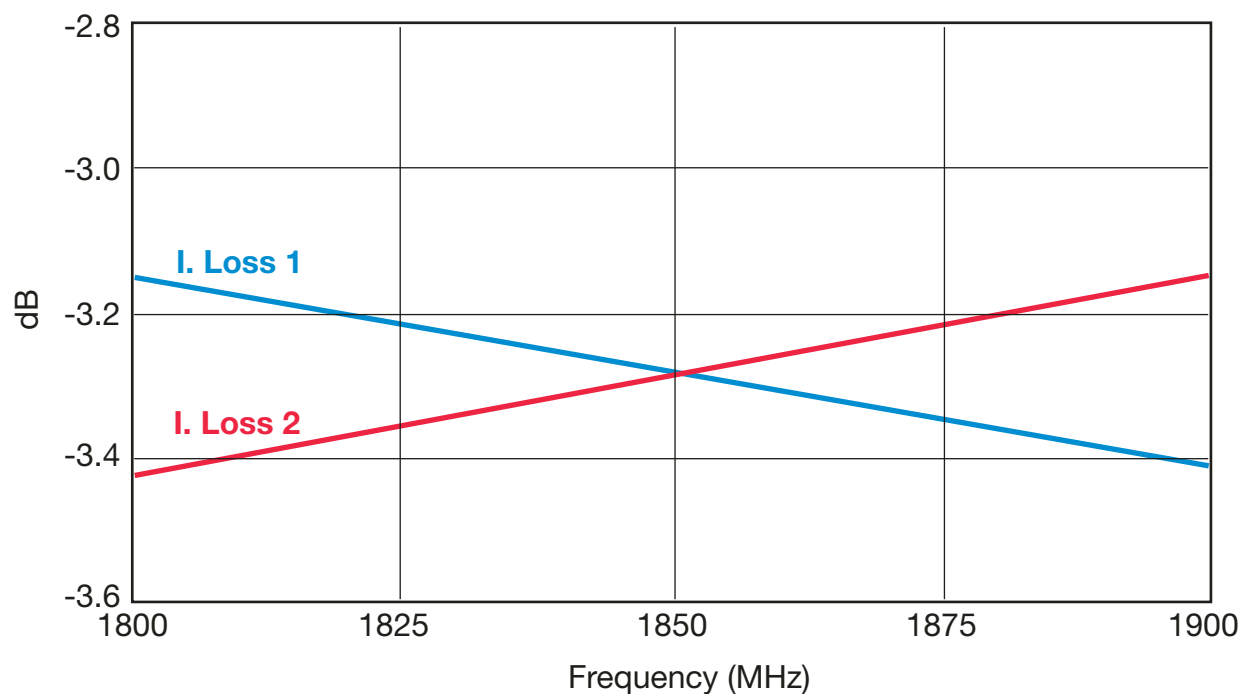


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



1850 ± 50MHz DB0805A1850AWTR

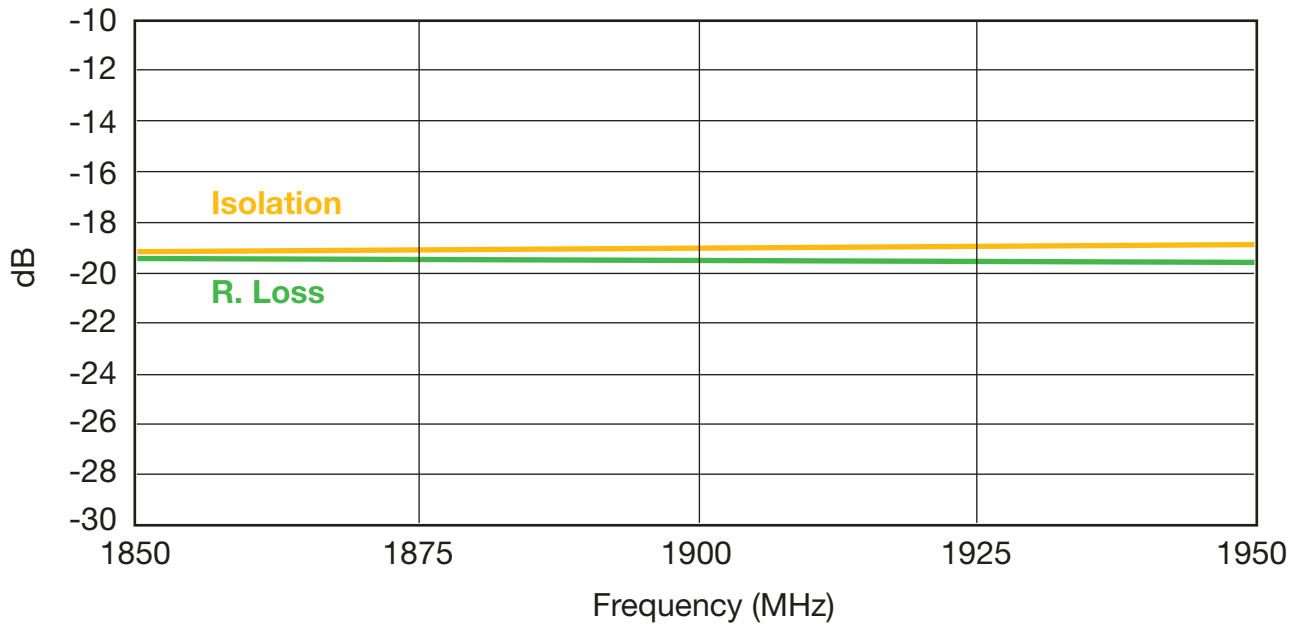
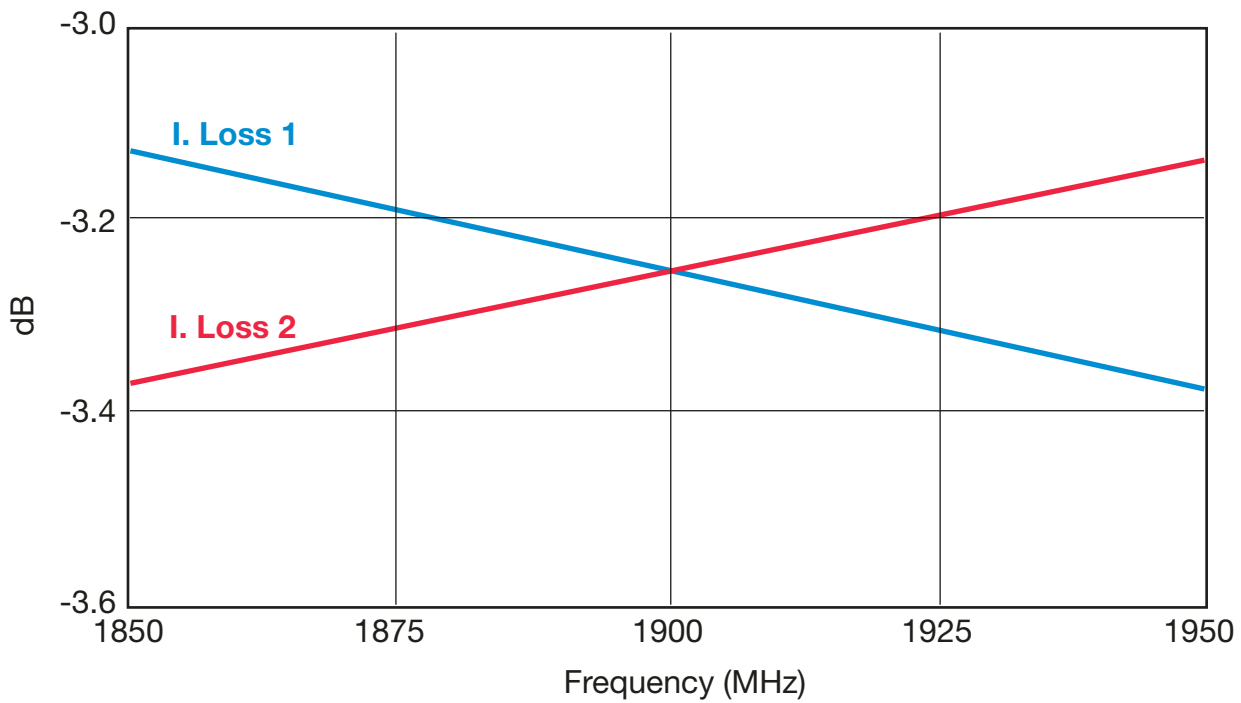


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



1900  $\pm$  50MHz DB0805A1900AWTR

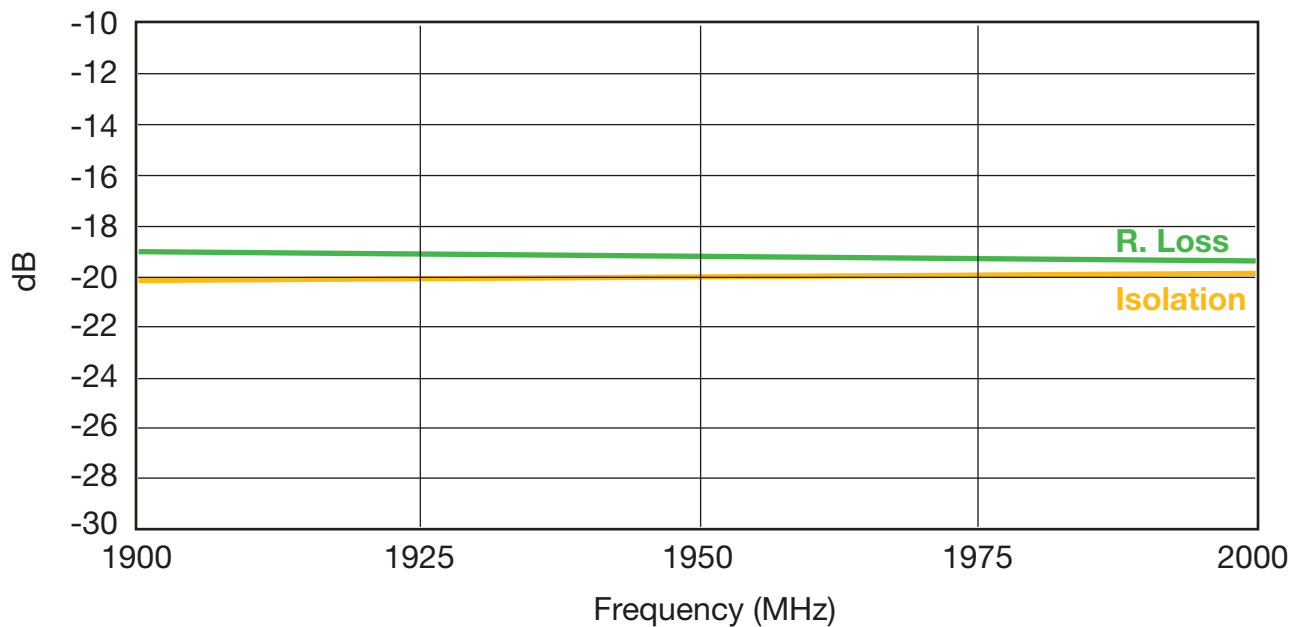
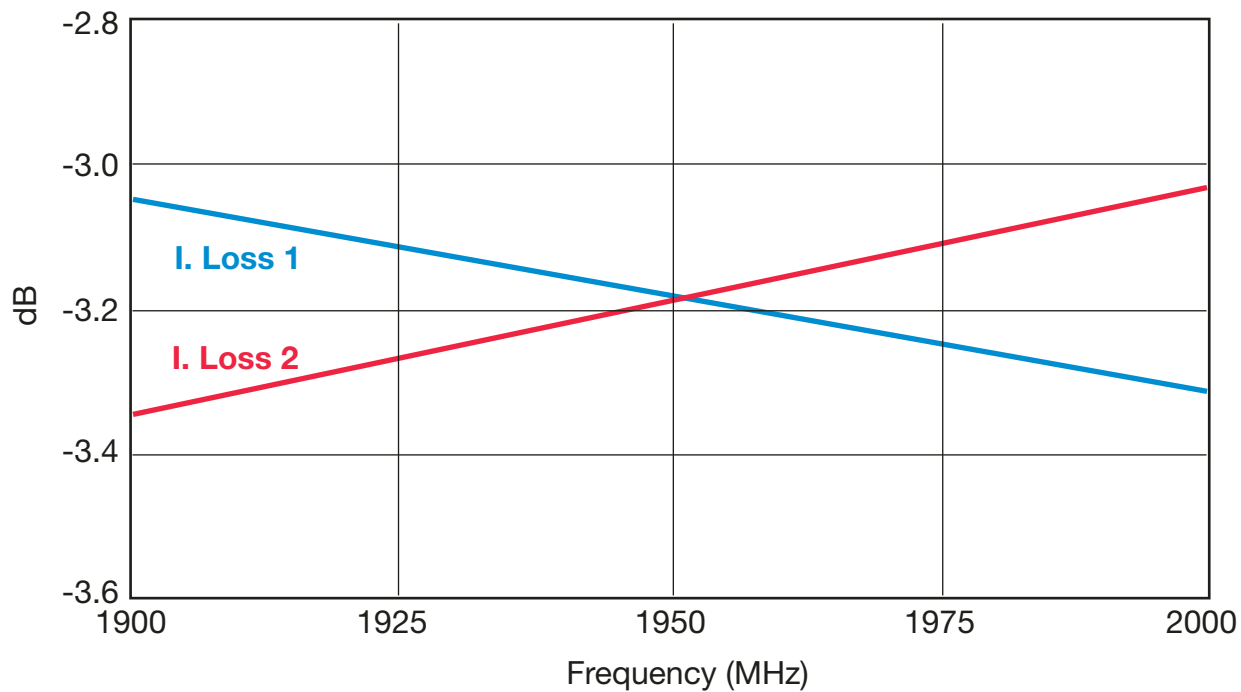


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



1950 ± 50MHz DB0805A1950AWTR

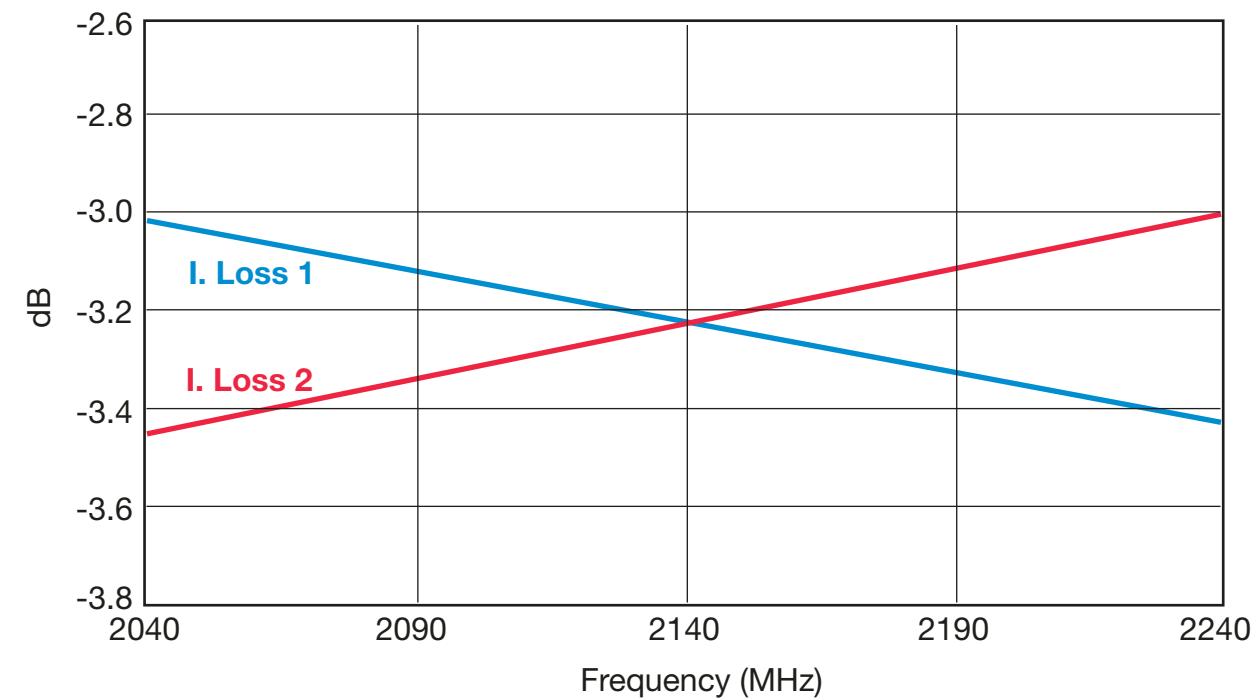


# Thin-Film Directional Couplers

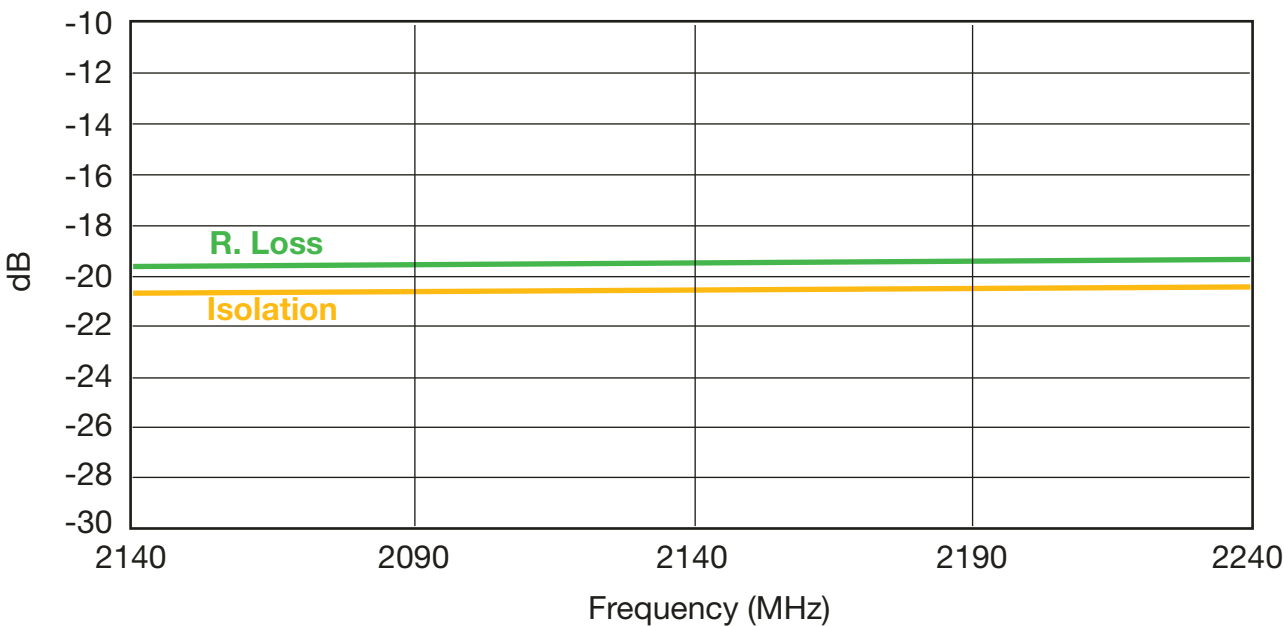
## DB0805 3dB 90° Couplers



2140 ± 50MHz DB0805A2140AWTR



3

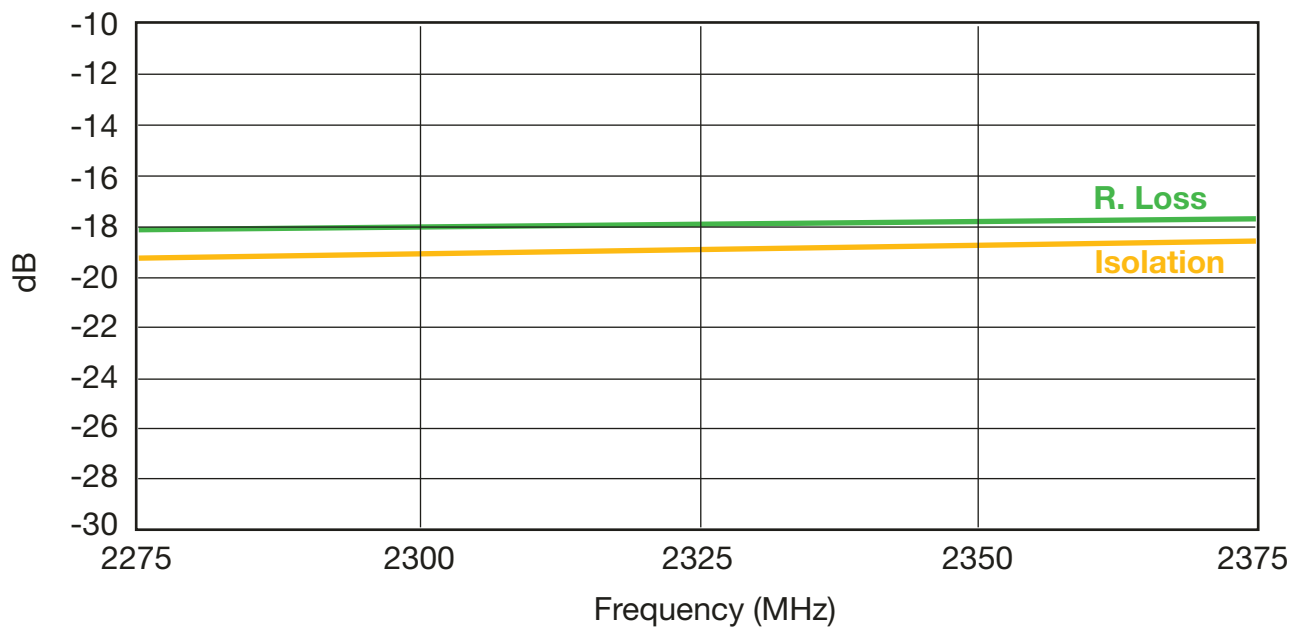
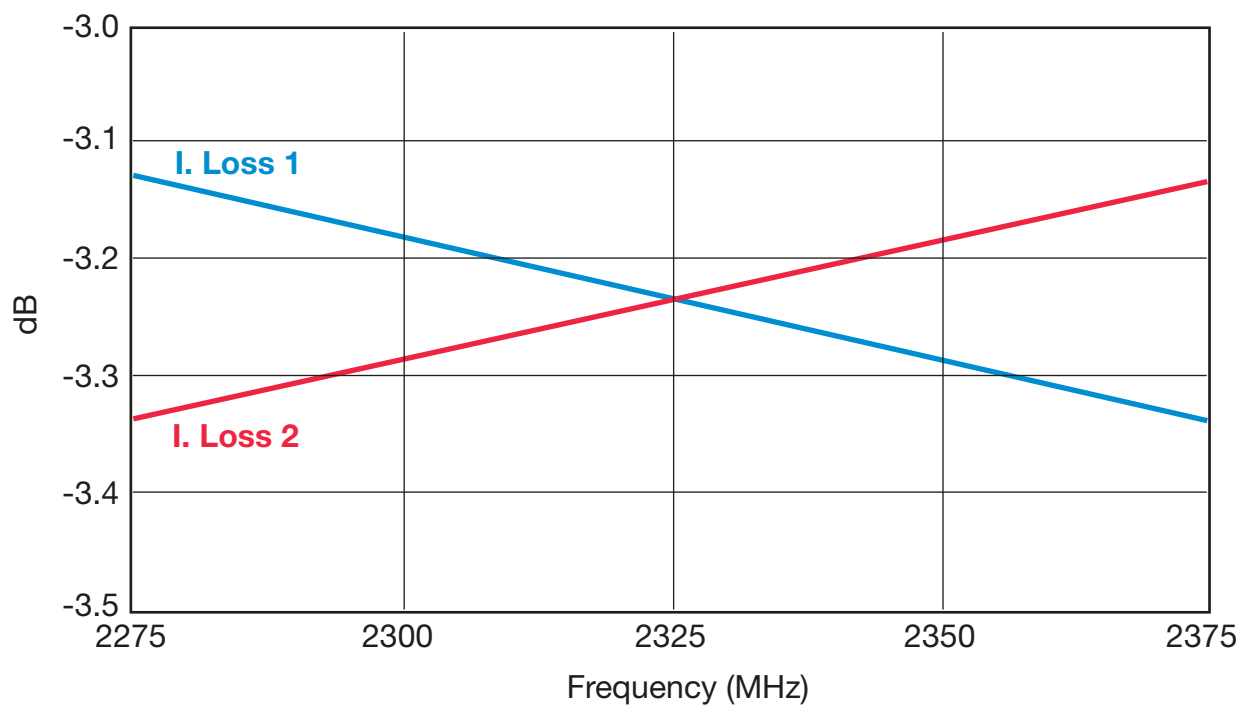


# Thin-Film Directional Couplers

## DB0805 3dB 90° Couplers



2325  $\pm$  50MHz DB0805A2325AWTR



## 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) | Output 1 (Coupler) ⚡ Connector 3 (Jig) |
| 50Ω (Coupler) ⚡ Connector 2 (Jig)   | Output 2 (Coupler) ⚡ Connector 4 (Jig) |

#### To measure [R. Loss](#) and [I. Loss 1](#) connect:

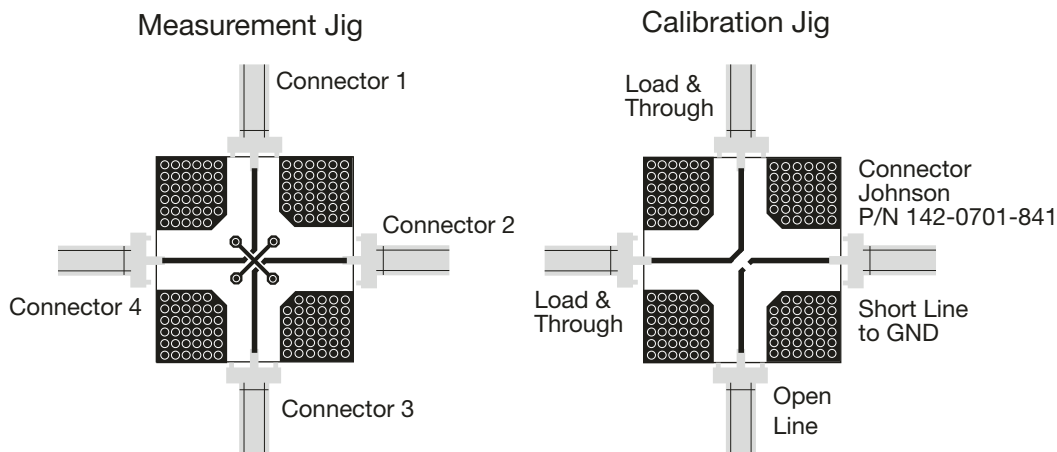
|                                  |                                  |
|----------------------------------|----------------------------------|
| Connector 1 (Jig) ⚡ Port 1 (VNA) | Connector 3 (Jig) ⚡ Port 2 (VNA) |
| Connector 2 (Jig) ⚡ 50Ω          | Connector 4 (Jig) ⚡ 50Ω          |

#### To measure [R. Loss](#) and [I. Loss 2](#) connect:

|                                  |                                  |
|----------------------------------|----------------------------------|
| Connector 1 (Jig) ⚡ Port 1 (VNA) | Connector 3 (Jig) ⚡ 50Ω          |
| Connector 2 (Jig) ⚡ 50Ω          | Connector 4 (Jig) ⚡ Port 2 (VNA) |

#### To measure [Isolation](#) connect:

|                         |                                  |
|-------------------------|----------------------------------|
| Connector 1 (Jig) ⚡ 50Ω | Connector 3 (Jig) ⚡ Port 1 (VNA) |
| Connector 2 (Jig) ⚡ 50Ω | Connector 4 (Jig) ⚡ Port 2 (VNA) |



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## AVX:

[DB0805A0915AWTR](#) [DB0805A2550AWTR](#) [DB0805A1900AWTR](#) [DB0805A1542ASTR](#) [DB0805A0915AWTR\500](#)  
[DB0805A0850AWTR](#) [DB0805A0880AWTR](#) [DB0805A0900AWTR](#) [DB0805A0920AWTR](#) [DB0805A0967AWTR](#)  
[DB0805A0967AWTR\500](#) [DB0805A1350AWTR](#) [DB0805A1452AWTR](#) [DB0805A1542AWTR](#) [DB0805A1575AWTR](#)  
[DB0805A1650AWTR](#) [DB0805A1800AWTR](#) [DB0805A1840AWTR](#) [DB0805A1850AWTR](#) [DB0805A1920AWTR](#)  
[DB0805A1950AWTR](#) [DB0805A1960AWTR](#) [DB0805A2140AWTR](#) [DB0805A2250AWTR](#) [DB0805A2325AWTR](#)  
[DB0805A2650AWTR](#) [DB0805A2017ASTR](#) [DB0805A2017ASTR\500](#) [DB0805A2325ASTR](#) [DB0805A1850ASTR\500](#)  
[DB0805A1850AWTR\500](#) [DB0805A1900ASTR\500](#) [DB0805A1920AWTR\500](#) [DB0805A1950ASTR\500](#)  
[DB0805A1950AWTR\500](#) [DB0805A1960AWTR\500](#) [DB0805A2140ASTR\500](#) [DB0805A2140AWTR\500](#)  
[DB0805A2250AWTR\500](#) [DB0805A2325ASTR\500](#) [DB0805A2325AWTR\500](#) [DB0805A2442AWTR\500](#)  
[DB0805A2640AWTR\500](#) [DB0805A2650AWTR\500](#) [DB0805A0880ASTR](#) [DB0805A0900ASTR](#) [DB0805A0915ASTR](#)  
[DB0805A0940ASTR](#) [DB0805A0967ASTR](#) [DB0805A1350ASTR](#) [DB0805A1575ASTR](#) [DB0805A1650ASTR](#)  
[DB0805A1800ASTR](#) [DB0805A1850ASTR](#) [DB0805A1900ASTR](#) [DB0805A1950ASTR](#) [DB0805A2140ASTR](#)  
[DB0805A2442AWTR](#) [DB0805A2640AWTR](#) [DB0805A0850AWTR\500](#) [DB0805A0880ASTR\500](#)  
[DB0805A0880AWTR\500](#) [DB0805A0900ASTR\500](#) [DB0805A0900AWTR\500](#) [DB0805A0915ASTR\500](#)  
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