

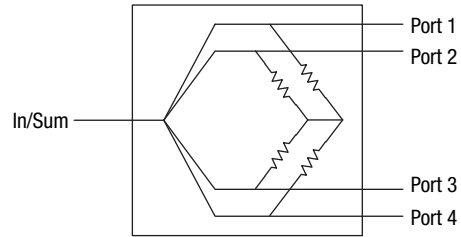
DATA SHEET

# PD4W09-59, PD4W09-59LF: Four-Way 0° Power Splitter/Combiner 0.81–0.96 GHz

## Features

- Low cost
- Low profile
- Available in small MSOP-8 package
- Available on tape and reel
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020


## Block Diagram



## Description

The PD4W09-59 is a monolithic four-way in-phase hybrid junction tuned for the 0.81–0.96 GHz band. It offers low loss, high isolation, good input/output matching and exceptional phase/amplitude balance. It is available in the MSOP-8 surface mount package.

**NEW** Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.

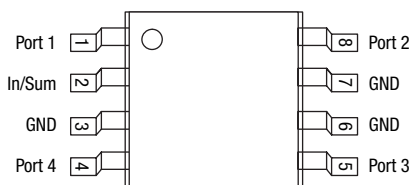


## Electrical Specifications at 25 °C

$Z_0 = 50 \Omega$ , unless otherwise noted

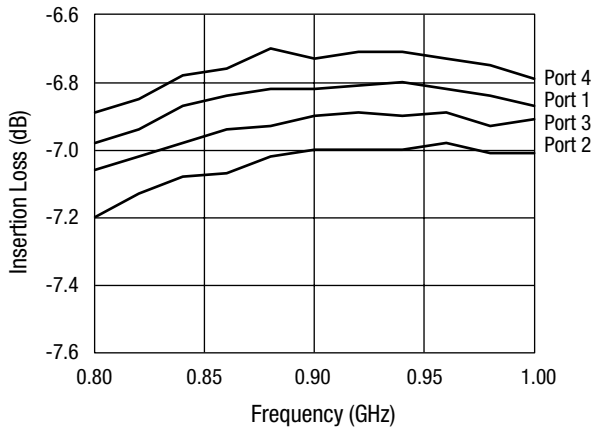
| Parameter                      | Frequency | Min. | Typ.  | Max.  | Unit |
|--------------------------------|-----------|------|-------|-------|------|
| Frequency                      |           | 0.81 |       | 0.96  | GHz  |
| Insertion loss less 6 dB split |           |      | 1.3   | 1.5   | dB   |
| Isolation                      |           | 20   | 23    |       | dB   |
| Input VSWR                     |           |      | 1.2:1 | 1.5:1 |      |
| Output VSWR                    |           |      | 1.2:1 | 1.5:1 |      |
| Amplitude balance              |           |      | ±0.4  | ±0.6  | dB   |
| Phase balance                  |           |      | ±6    | ±8    | Deg. |

## Pin Out

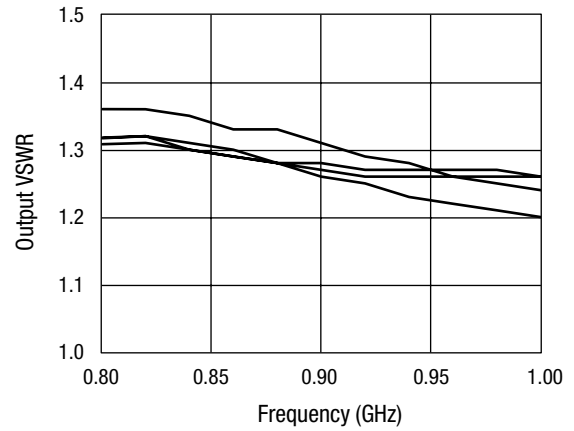


**Typical Performance Data**

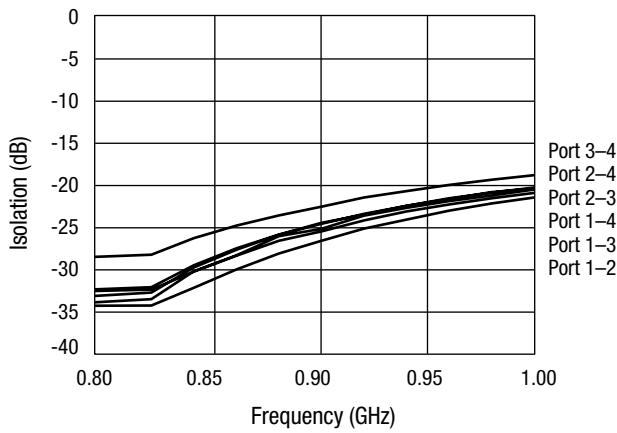
$Z_0 = 50 \Omega$ , unless otherwise noted



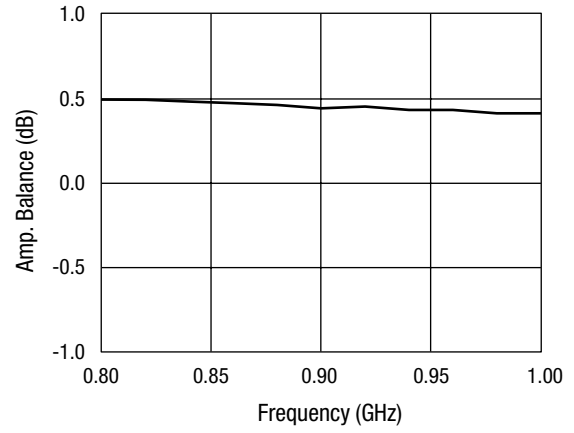
**Insertion Loss vs. Frequency**



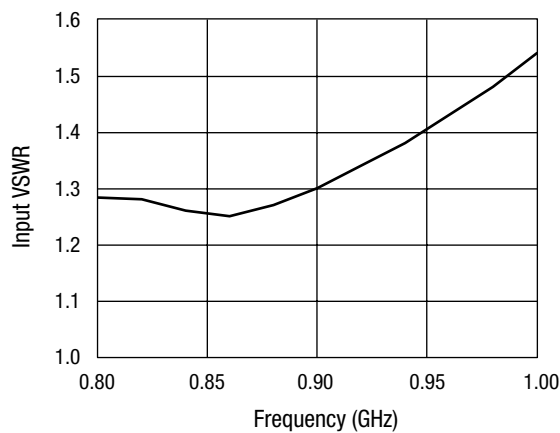
**Output VSWR vs. Frequency**



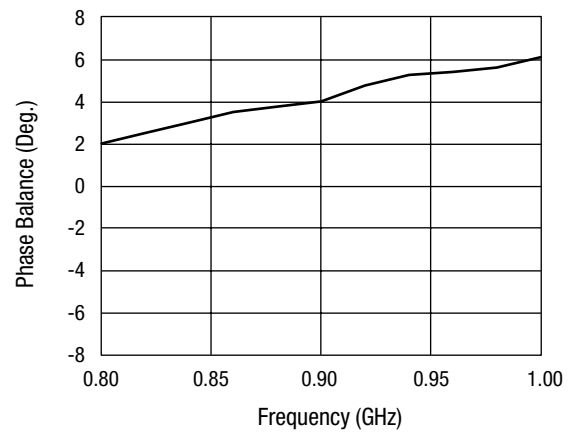
**Isolation vs. Frequency**



**Amp. Balance vs. Frequency**

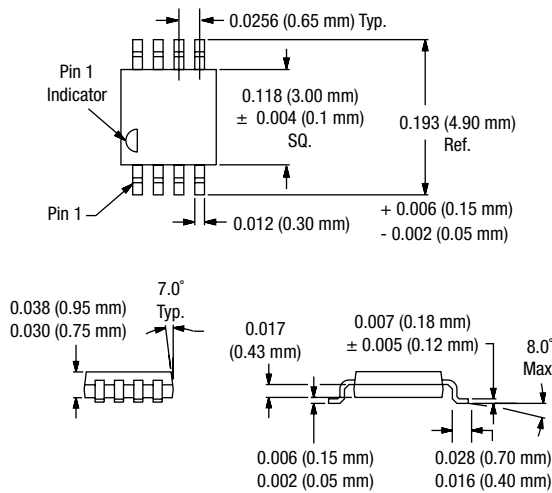


**Input VSWR vs. Frequency**

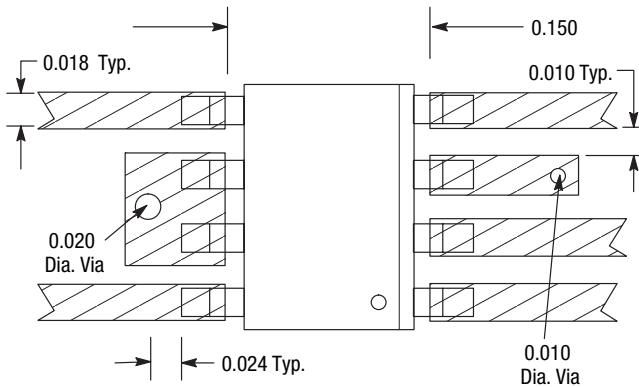


**Phase Balance vs. Frequency**

### MSOP-8



### Recommended Board Layout



Material is 10 mil FR4.

### Absolute Maximum Ratings

| Characteristic             | Value             |
|----------------------------|-------------------|
| Input power <sup>(1)</sup> | 1.5 W CW          |
| Input power <sup>(2)</sup> | 0.375 CW          |
| Operating temperature      | -40 °C to +85 °C  |
| Storage temperature        | -65 °C to +150 °C |

1. When used as a power divider with a 2.0:1 maximum VSWR on all ports.  
 2. When used as a power combiner with a 2.0:1 maximum VSWR on all ports.  
 Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

**CAUTION:** Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.

### Recommended Solder Reflow Profiles

Refer to the "Recommended Solder Reflow Profile" Application Note.

### Tape and Reel Information

Refer to the "Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation" Application Note.