

**DATA SHEET**

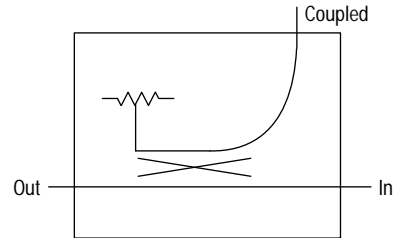
# DC09-73LF: Directional Coupler 0.81 to 0.96 GHz

**Features**

- Low cost
- Low profile
- Available in small SOT-6 package
- Available on tape and reel
- MSL1 @ 260 °C per JEDEC J-STD-020



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.

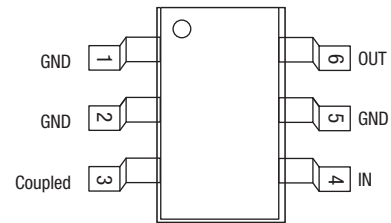


**Figure 1. DC09-73LF Block Diagram**

**Description**

The DC09-73LF is a monolithic directional coupler tailored to the 0.81 to 0.96 GHz band. It offers low loss, good isolation, good input/output matching and exceptional coupling repeatability. It is available in the SOT-6 surface mount package.

Figure 1 shows the DC09-73LF functional block diagram. Figure 2 shows the DC09-73LF pinout.



**Figure 2. DC09-73LF Pinout**

**Electrical and Mechanical Specifications**

The absolute maximum ratings for the DC09-73LF are shown in Table 1. Electrical specifications are provided in Table 2.

Typical performance characteristics are shown in Figures 3 through 8.

**Table 1. DC09-73LF Absolute Maximum Ratings (Note 1)**

Parameter	Symbol	Minimum	Maximum	Units
Input power (Note 2)	P <sub>IN</sub>		4.0 W CW	W
Operating temperature	T <sub>A</sub>	-40	+85	°C
Storage temperature	T <sub>STG</sub>	-65	+150	°C

**Note 1:** Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

**Note 2:** When operating with a 2.0 : 1 maximum VSWR on all ports.

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**CAUTION:** Although this device is designed to be as robust as possible, electrostatic discharge (ESD) 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 should be used at all times.

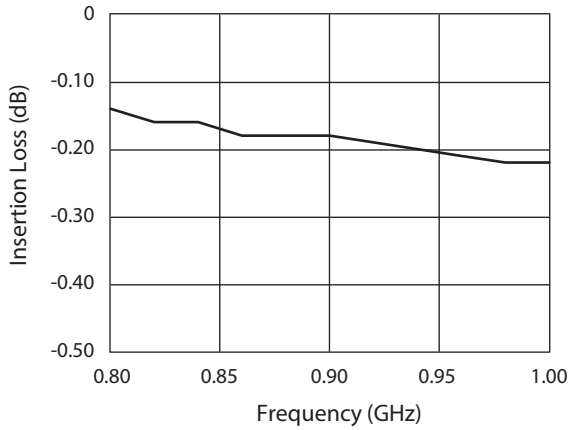
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**Table 2. DC09-73LF Electrical Specifications (Note 1)**  
**(T<sub>OP</sub> = 25 °C, Z<sub>0</sub> = 50 Ω, Unless Otherwise Noted)**

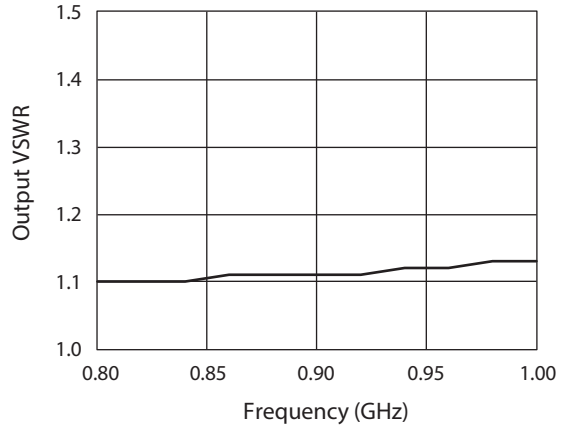
Parameter	Minimum	Typical	Maximum	Units
Frequency	0.81		0.96	GHz
Insertion loss		0.2	0.3	dB
Isolation	27	30		dB
Input VSWR		1.1 : 1	1.3 : 1	
Output VSWR		1.1 : 1	1.3 : 1	
Coupling	20.8	19.8	18.8	dB
Coupled port VSWR		1.1 : 1	1.3 : 1	

**Note 1:** Performance is guaranteed only under the conditions listed in this table.

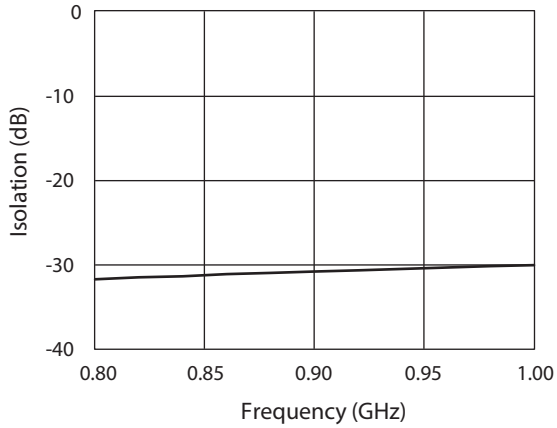
**Typical Performance Characteristics**  
**( $T_{op} = 25\text{ }^{\circ}\text{C}$ ,  $Z_0 = 50\text{ }\Omega$ , Unless Otherwise Noted)**



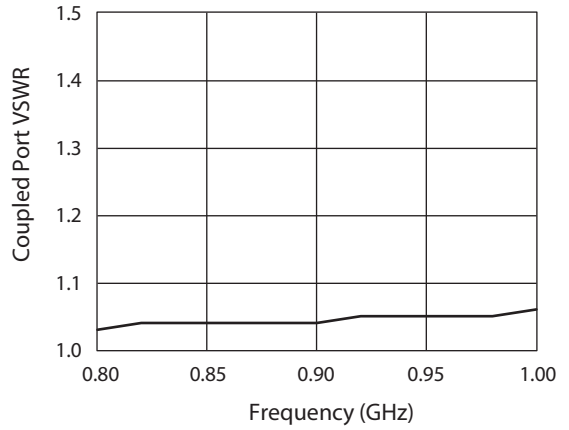
**Figure 3. Insertion Loss vs Frequency**



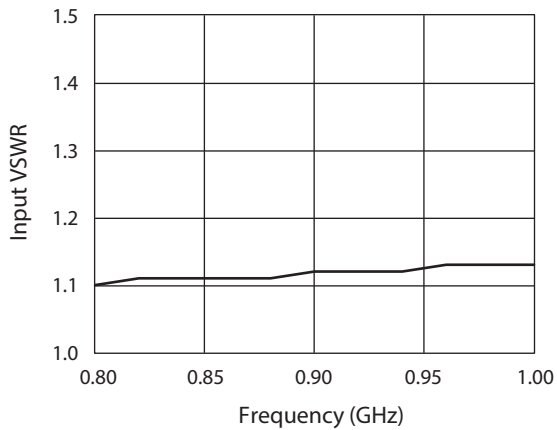
**Figure 4. Output VSWR vs Frequency**



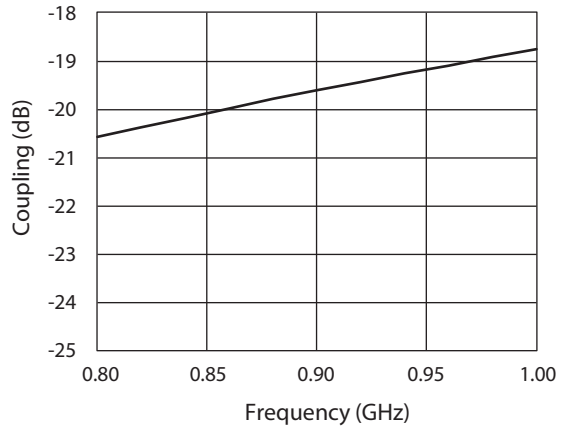
**Figure 5. Isolation vs Frequency**



**Figure 6. Coupled Port VSWR vs Frequency**



**Figure 7. Input VSWR vs Frequency**



**Figure 8. Coupling vs Frequency**

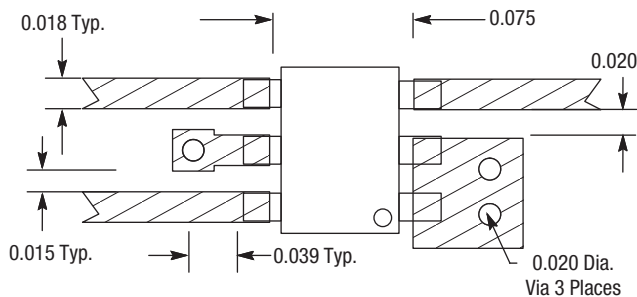
**Package and Handling Information**

The recommended board layout for the DC09-73LF is shown in Figure 9. Package dimensions for the device are shown in Figure 10.

Instructions on the shipping container label regarding exposure to moisture after the container seal is broken must be followed. Otherwise, problems related to moisture absorption may occur when the part is subjected to high temperature during solder assembly.

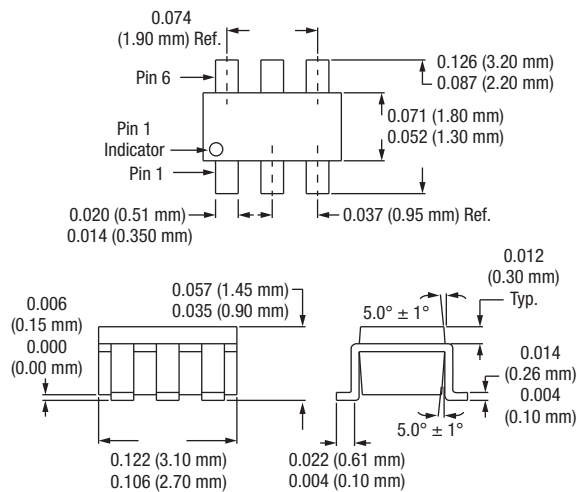
The DC09-73LF is rated to Moisture Sensitivity Level 1 (MSL1) at 260 °C. They can be used for lead or lead-free soldering. For additional information, refer to the Skyworks Application Note, *Solder Reflow Information*, document number 200164.

Care must be taken when attaching this product, whether it is done manually or in a production solder reflow environment. Production quantities of this product are shipped in a standard tape and reel format.



Material is 10 mil FR4.

**Figure 9. DC09-73LF Recommended Board Layout**



**Figure 10. DC09-73LF Package Dimensions**

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