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Skyworks Solutions Inc.
HY22-73LF

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SKYWORKS®

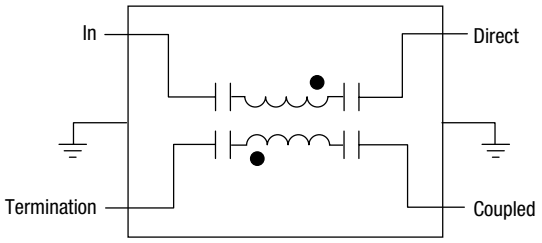
DATA SHEET

HY22-73, HY22-73LF: 90-Degree Hybrid 2.1–2.3 GHz

Features

- Low cost
- Low profile
- Small SOT-6 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 HY22-73 is a 50 Ω, 90-degree hybrid tuned for the 2.1–2.3 GHz band. The monolithic circuitry is 100% passive and offers low loss, high isolation and exceptional phase/amplitude balance. It is available in the SOT-6 surface mount package. HY22-73LF is packaged in a lead (Pb)-free, fully RoHS-compliant SOT-6 package and is electrically identical to HY22-73.

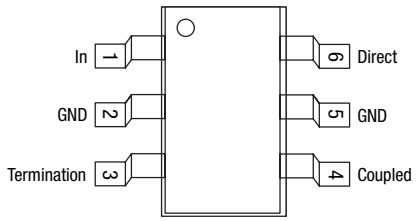
NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.

Electrical Specifications at 25 °C

Z_0 = 50 Ω, unless otherwise noted

Parameter	Frequency	Min.	Typ.	Max.	Unit
Frequency		2.1		2.3	GHz
Insertion loss less 3 dB split			0.55	0.7	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	±1.1	dB
Phase balance			±2	±4	Deg.

Pin Out

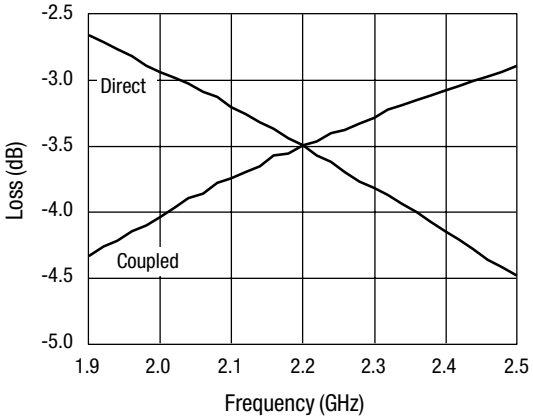


The Pin Out diagram shows the HY22-73 configured for a divider/coupler with Pin 1 as the input port and a 50 Ω termination to be placed at Pin 3. Since the HY22-73 is symmetric, any nonground pin may be used as the input port. The following table shows the possible pin connection combinations for the HY22-73 used as a divider/coupler:

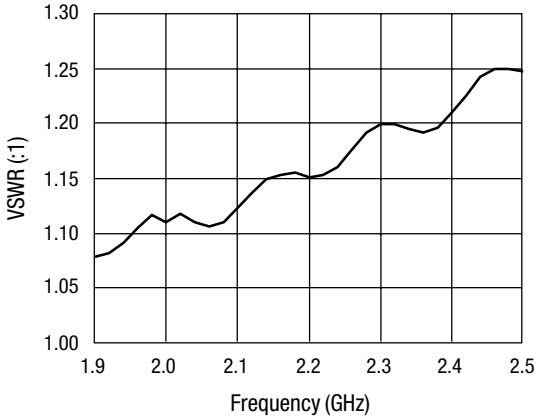
Input	Termination	Direct	Coupled
Pin 1	Pin 3	Pin 6	Pin 4
Pin 3	Pin 1	Pin 4	Pin 6
Pin 4	Pin 6	Pin 3	Pin 1
Pin 6	Pin 4	Pin 1	Pin 3

Typical Performance Data

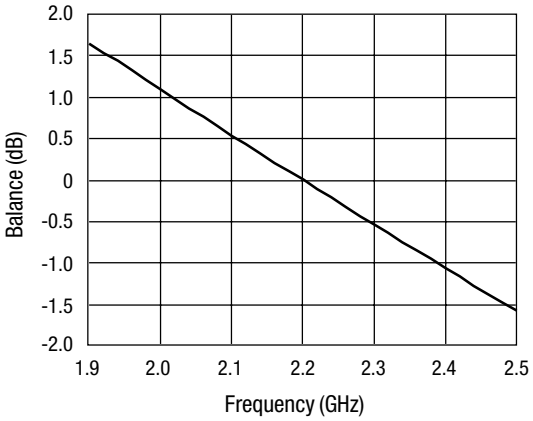
Z_0 = 50 Ω, unless otherwise noted



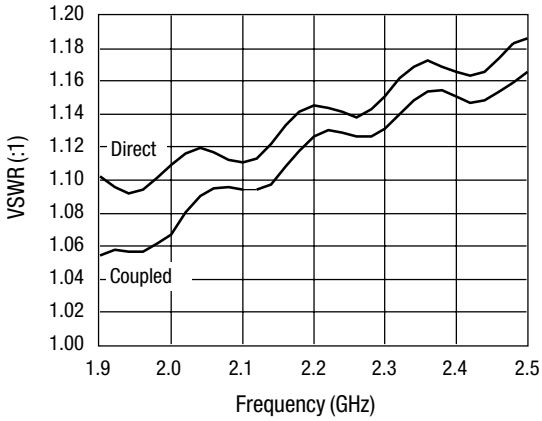
Path Losses vs. Frequency



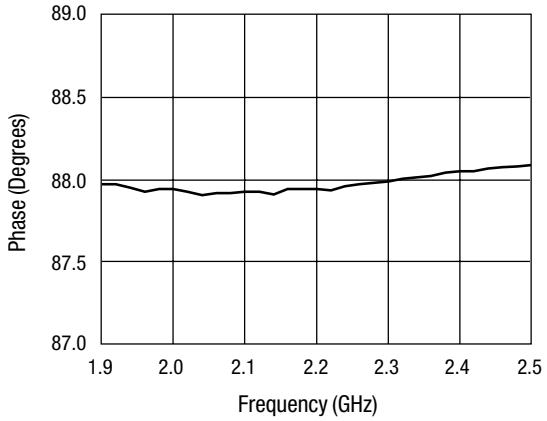
Input VSWR vs. Frequency



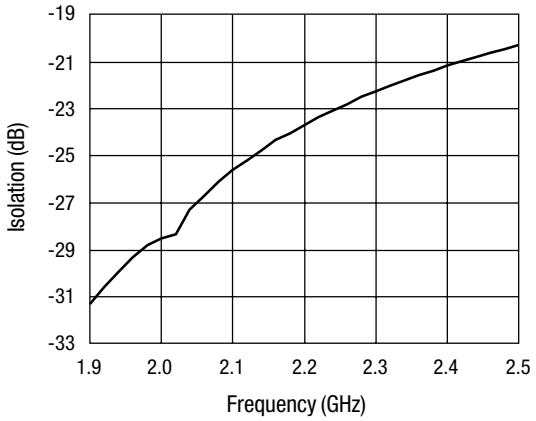
Amplitude Balance vs. Frequency



Output VSWR vs. Frequency



Coupled-Direct Phase vs. Frequency



Isolation vs. Frequency

Absolute Maximum Ratings

Characteristic	Value
Input power(1)	2 W CW
Input power(2)	1 W 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.*

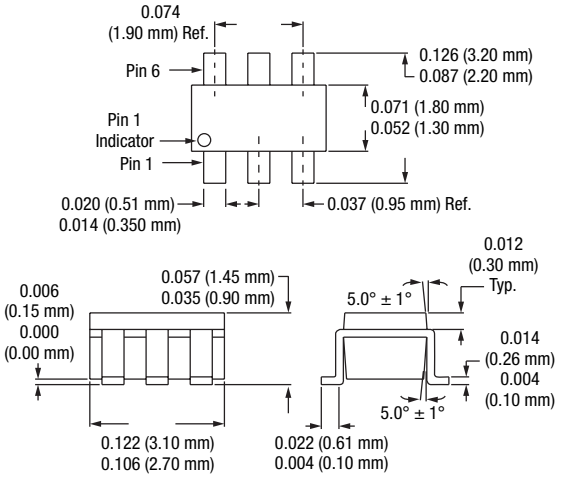
Recommended Solder Reflow Profiles

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

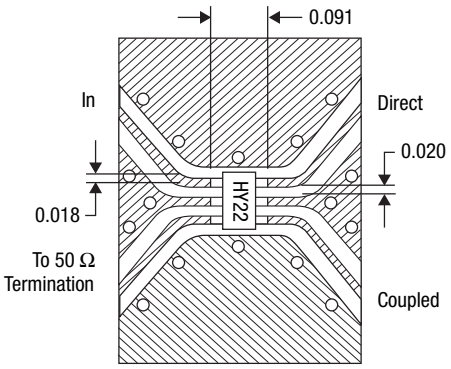
Tape and Reel Information

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

SOT-6



Recommended Board Layout



Material is FR-4. Dimensions are in inches.