

**PRELIMINARY DATA SHEET**

# SKY13264-340LF: 4 x 2 Switch Matrix 250 MHz–2.15 GHz

## Applications

- DBS switching applications, cable modems, cable TV

## Features

- Four inputs, two outputs
- Any input can be directed to either output
- Only 4 control lines required
- High interport isolation: 40 dB typ. up to 0.95 GHz
- Miniature QFN-20 4 x 4 mm package
- Available in lead (Pb)-free, RoHS compliant packaging

## Description

The SKY13264-340LF is a 4-input to 2-output switch in a low cost QFN-20 4 x 4 mm package. The SKY13264-340LF enables 16 states, directing any of the four inputs to either of the two outputs. States are selected by 4 positive voltage control inputs. The switch can operate over the temperature range of -40 °C to 85 °C.

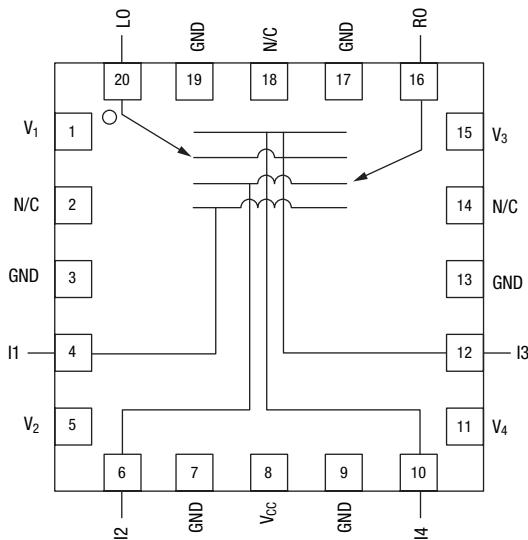
**NEW** Skyworks offers lead (Pb)-free “environmentally friendly” packaging that is RoHS compliant (European Parliament for the Restriction of Hazardous Substances).

## Electrical Specifications

**$V_{CTL} = 0 \text{ V/5V}$ ,  $T = 25 \text{ }^{\circ}\text{C}$ ,  $P_{INPUT} = -20 \text{ dBm}$ ,  $Z_0 = 50 \Omega$ , unless otherwise noted.**

Parameter	Conditions	Frequency	Min.	Typ.	Max.	Unit
Insertion loss		0.25–0.95 GHz 0.95–2.15 GHz		7.5 8.5	8.0 9.0	dB
Insertion loss flatness		0.25–0.95 GHz 0.95–2.15 GHz		1.0 1.0	1.5 1.5	dB dB
Isolation		0.25–0.95 GHz 0.95–2.15 GHz	38 30	40 33		dB dB
Return loss	I1, I2, I3, I4 L0, R0	0.25–2.15 GHz	10 8	15 10		dB dB

## Functional Block Diagram and Pin Out



## Operating Characteristics

**T = 25 °C, Z<sub>0</sub> = 50 Ω, unless otherwise noted**

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Input power for 1.0 dB compression	V <sub>CC</sub> = 5 V	0.25–2.15 GHz		15		dBm
Control voltages	V <sub>LOW</sub> = 0 V to 0.2 V @ 50 μA maximum V <sub>HIGH</sub> = 2.5 V to V <sub>CC</sub> @ 50 μA maximum					

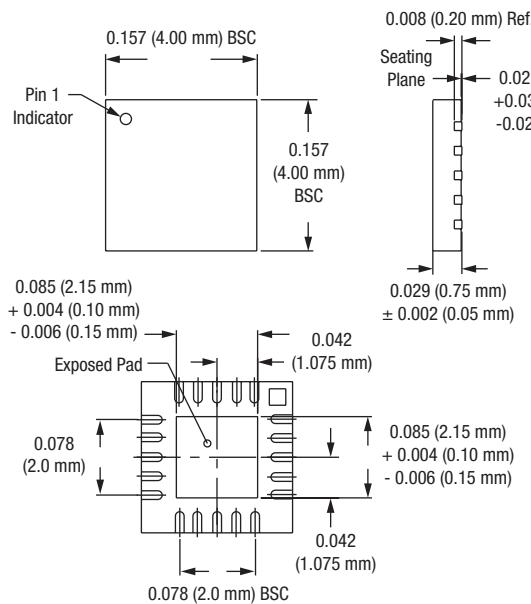
## Absolute Maximum Ratings

Characteristic	Value
RF input power	15 dBm
Supply voltage	6 V
Control voltage	0 ≤ V <sub>C</sub> ≤ 6 V
Operating temperature	-40 °C to +85 °C
Storage temperature	-65 °C to +150 °C

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, 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 must be employed at all times.**

## QFN-20 (4 x 4)



## Truth Table<sup>(1)</sup>

State	Signal Path (Insertion Loss Path) <sup>(1)</sup>	Controls					
		LO Left Output	RO Right Output	V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>
0	I1 → LO, I1 → RO	0	0	0	0	0	0
1	I1 → LO, I2 → RO	0	0	0	0	1	
2	I1 → LO, I3 → RO	0	0	1	0	0	0
3	I1 → LO, I4 → RO	0	0	1	1	1	
4	I2 → LO, I1 → RO	0	1	0	0	0	0
5	I2 → LO, I2 → RO	0	1	0	0	1	
6	I2 → LO, I3 → RO	0	1	1	1	0	0
7	I2 → LO, I4 → RO	0	1	1	1	1	
8	I3 → LO, I1 → RO	1	0	0	0	0	0
9	I3 → LO, I2 → RO	1	0	0	0	1	
10	I3 → LO, I3 → RO	1	0	1	0	0	0
11	I3 → LO, I4 → RO	1	0	1	1	1	
12	I4 → LO, I1 → RO	1	1	0	0	0	0
13	I4 → LO, I2 → RO	1	1	0	0	1	
14	I4 → LO, I3 → RO	1	1	1	0	0	0
15	I4 → LO, I4 → RO	1	1	1	1	1	

1. All other paths are in isolation state.

"1" = 5 V.

"0" = 0 V.

## Recommended Solder Reflow Profiles

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

Copyright © 2002, 2003, 2004, 2005, Skyworks Solutions, Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions, Inc. ("Skyworks") products. These materials are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials. Skyworks may make changes to its documentation, products, specifications and product descriptions at any time, without notice. Skyworks makes no commitment to update the information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from future changes to its documentation, products, specifications and product descriptions.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by or under this document. Except as may be provided in Skyworks Terms and Conditions of Sale for such products, Skyworks assumes no liability whatsoever in association with its documentation, products, specifications and product descriptions.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED OR OTHERWISE, RELATING TO SALE AND/OR USE OF SKYWORKS PRODUCTS INCLUDING WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. SKYWORKS FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THESE MATERIALS WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Skyworks products are not intended for use in medical, lifesaving or life-sustaining applications. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

The following are trademarks of Skyworks Solutions, Inc.: Skyworks®, the Skyworks logo, and Breakthrough Simplicity®. Product names or services listed in this publication are for identification purposes only, and may be trademarks of Skyworks or other third parties. Third-party brands and names are the property of their respective owners. Additional information, posted at [www.skyworksinc.com](http://www.skyworksinc.com), is incorporated by reference.