

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

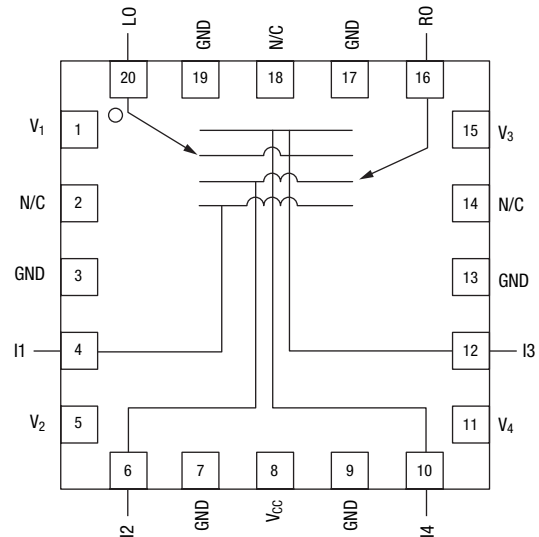
The SKY13264-340LF is a 4-input to 2-output switch in a low cost QFN-20 4 x 4 mm package. The SKY13264-340LF enables 16 states, directing any of the four inputs to either of the two outputs. States are selected by 4 positive voltage control inputs. The switch can operate over the temperature range of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

Functional Block Diagram and Pin Out



Electrical Specifications

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

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

Operating Characteristics

T = 25 °C, Z₀ = 50 Ω, unless otherwise noted

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

Absolute Maximum Ratings

| Characteristic | Value |
|-----------------------|--------------------------|
| RF input power | 15 dBm |
| Supply voltage | 6 V |
| Control voltage | 0 ≤ V _C ≤ 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.

Truth Table⁽¹⁾

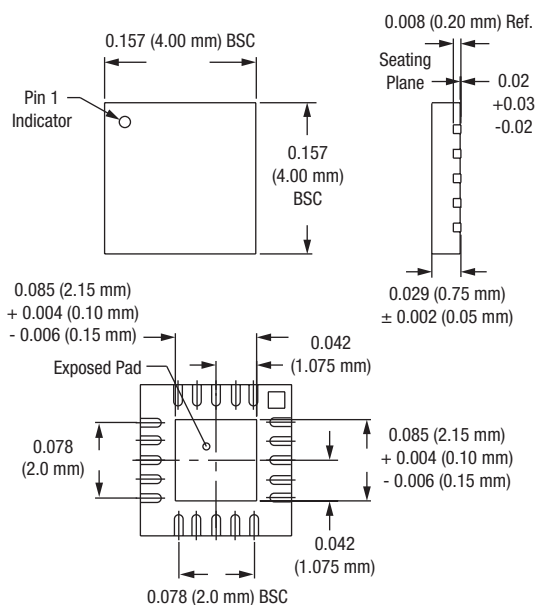
| | | Controls | | | |
|-------|---|----------------|----------------|-----------------|----------------|
| | | LO Left Output | | RO Right Output | |
| State | Signal Path (Insertion Loss Path) ⁽¹⁾ | V ₁ | V ₂ | V ₃ | V ₄ |
| 0 | I1 → LO, I1 → RO | 0 | 0 | 0 | 0 |
| 1 | I1 → LO, I2 → RO | 0 | 0 | 0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

1. All other paths are in isolation state.

"1" = 5 V.

"0" = 0 V.

QFN-20 (4 x 4)



Recommended Solder Reflow Profiles

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

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