SKY13277-355LF: GaAs IC SP3T Nonreflective Switch With Driver 0.5–2 GHz

Features

- Integrated driver 5 V supply voltage
- High isolation (62 dB @ 0.9 GHz)
- QFN-20 (5 x 5 mm) plastic package
- Nonreflective all ports
- Lead (Pb)-free and RoHS-compliant

Description

The SKY13277-355LF is a high-isolation SP3T FET IC nonreflective switch with driver. The insertion loss is 1.2 dB and isolation is 62 dB at 0.9 GHz. The switch is ideal for cellular base station switch matrices.

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

Functional Diagram
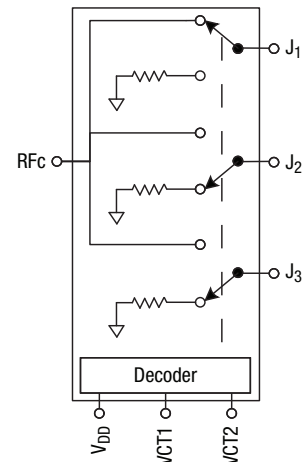
Electrical Specifications at 25 °C

V_{DD} = 5 V, Z_0 = 50 Ω, unless otherwise noted

Parameter[1]	Frequency	Min.	Typ.	Max.	Unit
Insertion loss[2]	0.5–2 GHz		1.2		dB
Isolation	0.5–2 GHz		62		dB
VSWR[3] on/off	0.5–2 GHz		1.5:1		

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes by 0.003 dB/°C.
3. Input/Output.

This data sheet represents a product in development. These are targeted specifications. Call factory for sample availability.

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Operating Characteristics at 25 °C

V_{DD} = 5 V, Z_0 = 50 Ω, unless otherwise noted

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching characteristics Rise, fall On, off Video feedthru	10/90% or 90/10% RF 50% CTL to 90/10% RF T_{RISE} = 1 ns, BW = 500 MHz			75 125 50		ns ns mV
Input power for 1 dB compression		0.50–2 GHz		26		dBm
Input intermodulation intercept point (IIP3)	For two-tone input power 13 dBm, each tone	0.50–2 GHz 0.05 GHz		40 29		dBm dBm
Thermal resistance				45		°C/W
Control voltages[1] Low High	V_{DD} = 5 V ± 0.2 V		0 2.4		0.5 5.0	V V
Supply voltage, V_{DD}[1]			4.8	5	5.2	V
Supply current	V_{DD} = 5 V			500		µA

1. V_{DD} must be powered on prior to a V_{CTL} high signal. A latch up condition may occur if a logic high signal is applied prior to the V_{DD} voltage.

Absolute Maximum Ratings

Characteristic	Value
RF input power	0.8 W > 500 MHz 0.2 W @ 50 MHz
Supply voltage	6 V
Control voltage	-0.2 V, +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 ratings. Exceeding any of the absolute maximum/minimum ratings 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.*
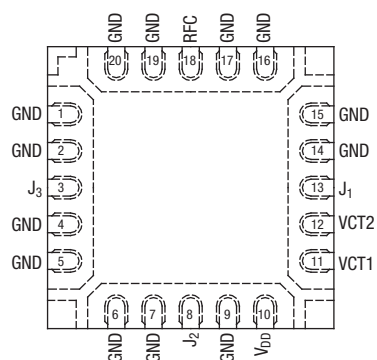
Truth Table

VCT1	VCT2	RFC to J_1	RFC to J_2	RFC to J_3
0	0	Insertion loss	Isolation	Isolation
1	0	Isolation	Insertion loss	Isolation
0	1	Isolation	Isolation	Insertion loss
1	1	undefined	undefined	undefined

"0" = 0 to 0.5 V.
"1" = 2.4 to 5 V.

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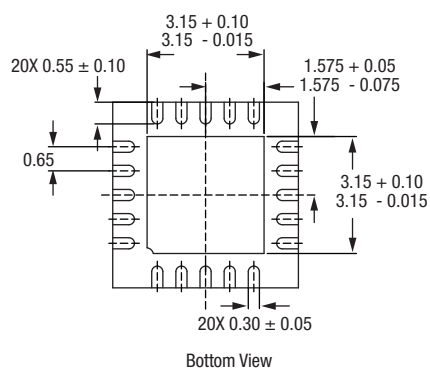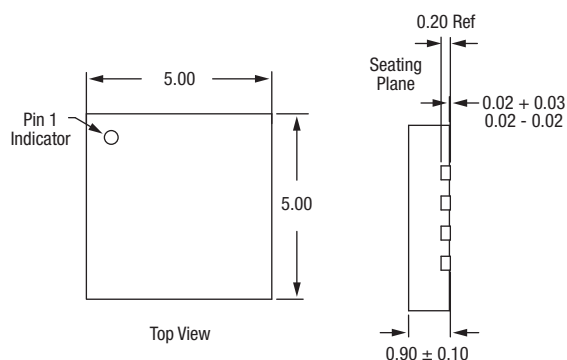
Pin Out (Top View)

DC blocking capacitors (C_{BL}) required for positive voltage operation.
C_{BL} = 47 pF for operation frequency >500 MHz.

QFN-20 (5 x 5 mm)

Top View

Bottom View

Dimensions in mm.

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