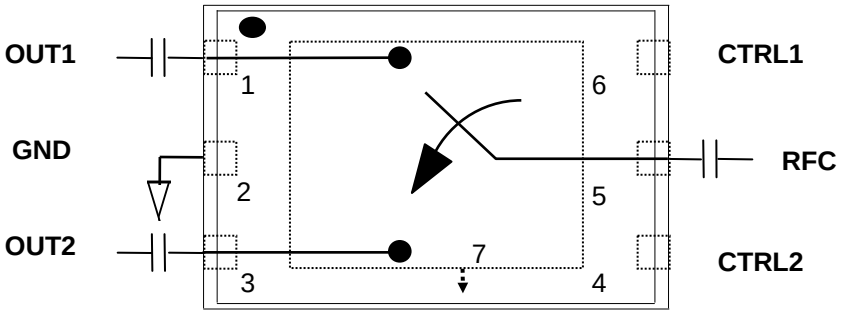
TQS5200E

Data Sheet

802.11a/b/g SPDT Switch in 6ETSLP Package

Functional Block Diagram



Product Description

The TQS5200E is a high power, single-pole double-throw switch configured for TX-RX or Antenna Diversity switching applications for the WLAN market. The device exhibits industry-leading insertion loss, isolation and power handling. It requires no fixed supply voltage and operates with a positive control voltage. The switch is manufactured using TriQuint's GaAs pHEMT process and is packaged in an ultra-small, low-profile 1.3mm x 2mm x 0.45mm 6ETSLP Pb-free package

Electrical Specifications

Parameter	Min	Typ	Max	Units
Frequency Range	2400	-	2500	MHz
Insertion Loss		0.6	0.8	dB
Isolation	23	28		dB
Return Loss	12.5	15		dB
Input P-1dB		31.5		dBm

Parameter	Min	Typ	Max	Units
Frequency Range	4900	-	6000	MHz
Insertion Loss		0.8	1.0	dB
Isolation	23	28		dB
Return Loss	12.5	15		dB
Input P-1dB		29		dBm

Note 1: Test Conditions: Ta=25°C; Pin=0dBm; Vcntrl=3.0V/0.0V as required

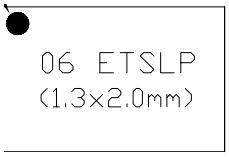
Features

- Integrated SPDT Switch for Single-band and Dual-band 802.11a/b/g WLAN Systems
- 1.0 to 6.0 GHz Frequency Coverage
- Low Insertion Loss
- High Isolation
- Positive Control Voltage
- GaAs PHEMT Technology
- Leadless 1.3 x 2.0 x 0.45 mm Lead Free SMT Package

Applications

- 802.11b WLAN
- 802.11g WLAN
- 802.11a WLAN
- WiMAX
- TX-RX Switching
- Antenna Diversity Switching

Package Style



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Absolute Maximum Ratings

Symbol	Parameter	Absolute Maximum Value	Units
V_{CNTRL}	Control Voltage Range	-5.0 to 5.0	VDC
Pin	RF Input Power	3	W
Tj	Junction Temperature @ 30dBm input power, 25°C baseplate temperature	50	°C
T_a	Storage Temperature	-40 to +150	°C
T_{oper}	Operating Temperature Range	-40 to +85	°C

Note: The part may not survive all maximums applied simultaneously.

DC Electrical Characteristics

Parameter	Min.	Typ/Nom	Max.	Units
Logic Level Low – State 0	0	-	0.2	V
Logic Level High – State 1	2.5	-	5.0	V
Gate Leakage		1	50	uA

General Electrical Characteristics[1,2,3]

Parameter	min	typ	max	min	typ	max	units
Frequency Range	2400	-	2500	4900	-	6000	MHz
Insertion Loss		0.6	0.8		0.8	1.0	dB
Isolation	23	28		23	28		dB
Return Loss	12.5	15		12.5	15		dB
Input P-1dB (with Vcntrl=3V/0.0V)		31.5			29		dBm
Harmonics, 2fo, Pin=+20dBm (with Vcntrl=3V/0.0V)		85			80		dBc
Harmonics, 3fo, Pin=+20dBm (with Vcntrl=3V/0.0V)		70			70		dBc

Note 1: Test Conditions: Ta = 25°C , Vcntrl=3V/0V unless otherwise specified.

Note 2: AC Performance is guaranteed at +25°C case temperature unless otherwise specified.

Note 3: TriQuint Test Board.

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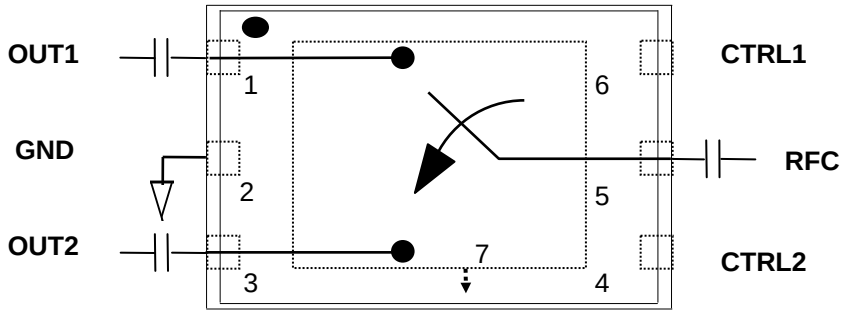
Pin Out and Assignments



Pin	Symbol	Description
1	OUT1	RF Output 1
2	GND	Ground
3	OUT2	RF Output 2
4	CTRL2	RF Output 2 Control
5	RFC	Common RF Port
6	CTRL1	RF Output 1 Control
7	GND	Ground

Truth Table

CTRL1	CTRL2	RFC – OUT1	RFC – OUT2
+2.5V to 5.0V	0.0V +/- 0.2V	ON	OFF
0.0V +/- 0.2V	+2.5V to 5.0V	OFF	ON

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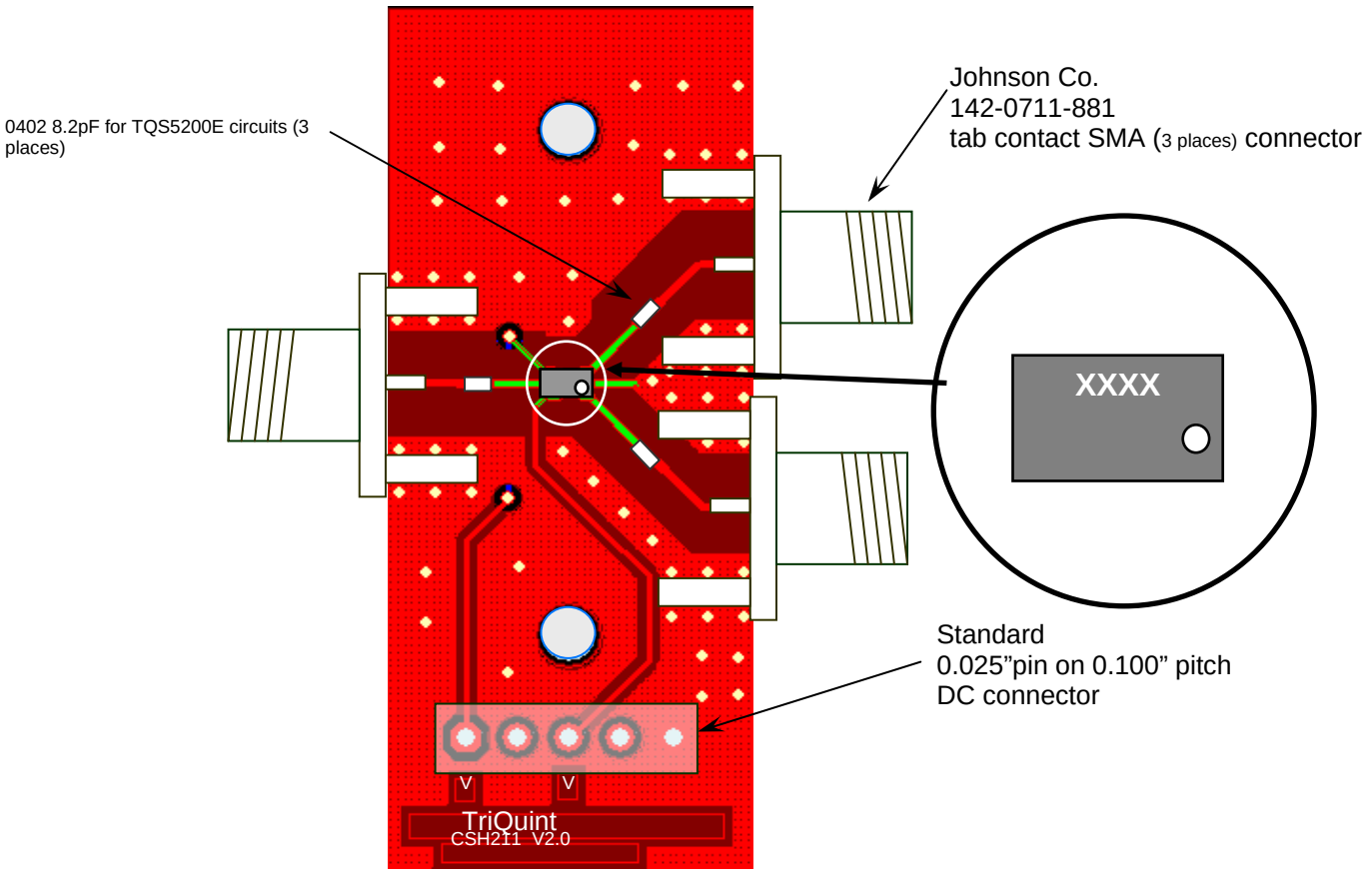
Typical Test Circuit

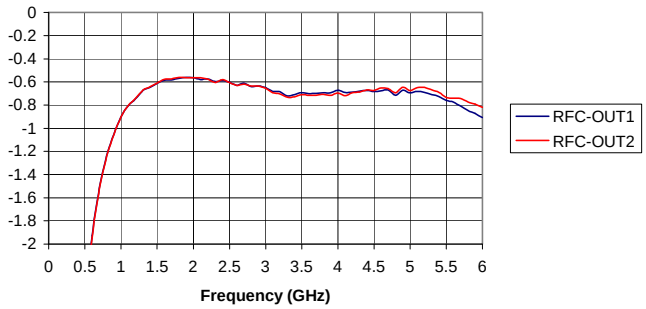


802.11a/b/g SPDT Switch in 6ETSLP Package

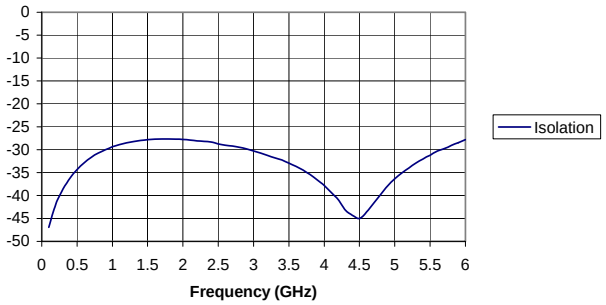
Typical TQS5200E Performance

Test Conditions (Unless Otherwise Specified): V_{CTRL} =3.0V/0V, Ta=+25°C

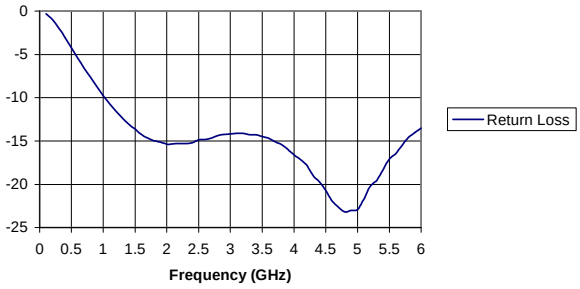
Insertion Loss



Isolation



Return Loss

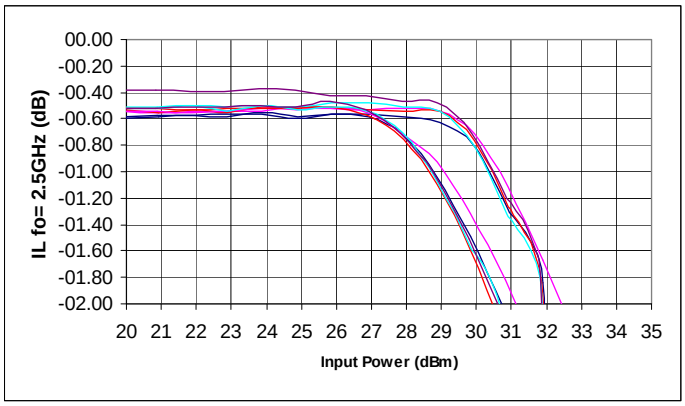


802.11a/b/g SPDT Switch in 6ETSLP Package

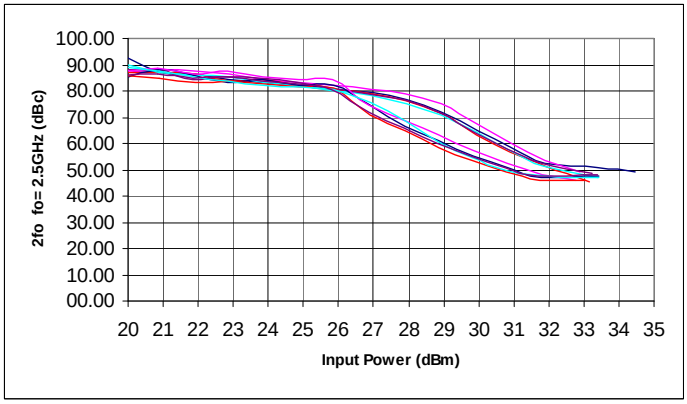
Typical TQS5200E Performance

Test Conditions (Unless Otherwise Specified): V_{CTRL} =3.0V/0V, Frequency = 2.5GHz, Ta=+25°C

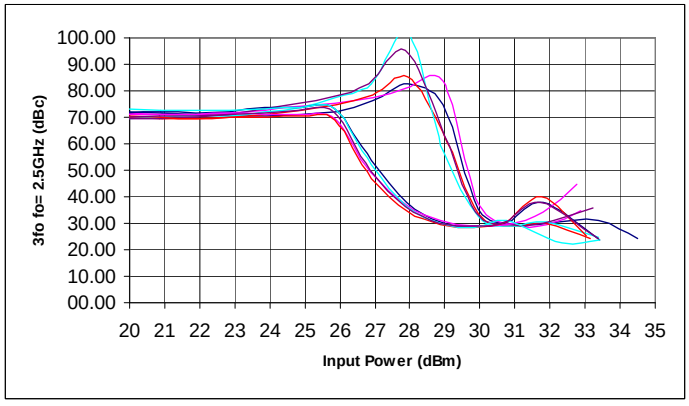
Insertion Loss versus Input Power



2nd Harmonic versus Input Power



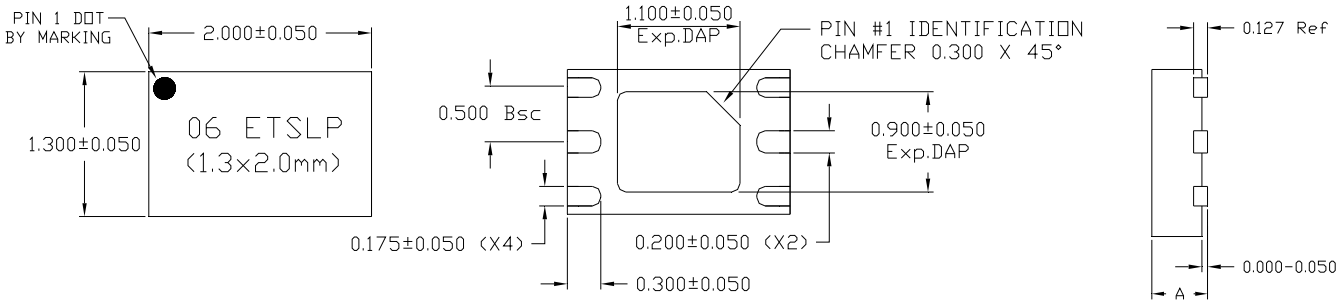
3rd Harmonic versus Input Power



802.11a/b/g SPDT Switch in 6ETSLP Package

Applications data

Package Outline – 6ETSLP

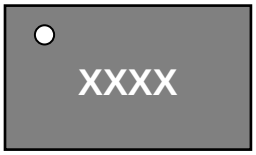


		ETSLP
A	MAX.	0.500
	NOM.	0.450
	MIN.	0.400

802.11a/b/g SPDT Switch in 6ETSLP Package

Packaging and Ordering Information

Package Marking



Pin 1

Line 1: XXXX Last 4 digits of TQS lot number

Ordering Information

Type	Marking	Package
TQS5200E	**XXXX**	**6ETSLP**

ESD: **E**lectro**s**tatic **d**ischarge sensitive device
Observe handling Precautions!

Additional Information [1]

1 For latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

Web: www.triquint.com Tel: (503) 615-9000

Email: info_wireless@tqs.com Fax: (503) 615-8902

For technical questions and additional information on specific applications:

Email: info_wireless@tqs.com