

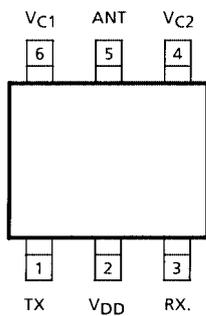
# TG2205F

RF SPDT Switch  
(Application: PHS)

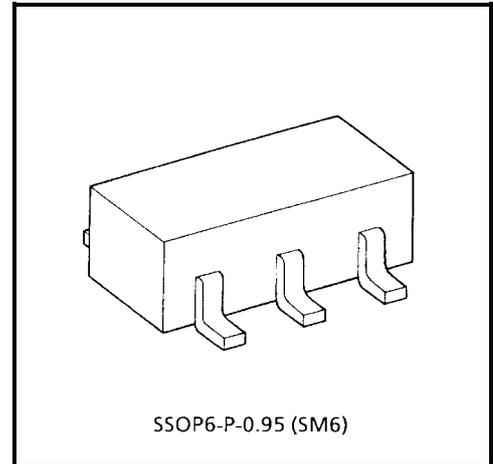
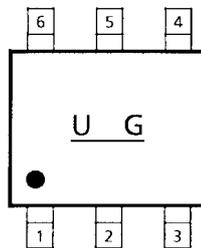
## Features

- Low insertion loss: LOSS = 0.5dB (typ.)
- High isolation: ISL = 25dB (typ.)
- Control voltage: 0 V/3 V

## Pin Assignment (top view)



## Marking



Weight: 0.014 g (typ.)

## Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V <sub>DD</sub>	5	V
Control voltage	V <sub>C1</sub>	5	V
	V <sub>C2</sub>	5	V
Input power	P <sub>i</sub>	1	W
Operating temperature range	T <sub>opr</sub>	-40~85	°C
Storage temperature range	T <sub>stg</sub>	-55~125	°C

## Caution

This device is electrostatic sensitivity. Please handle with caution.

## Electrical Characteristics ( $V_{DD} = 3\text{ V}$ , $f = 1.907\text{ GHz}$ , $T_a = 25^\circ\text{C}$ , $Z_g = Z_l = 50\ \Omega$ )

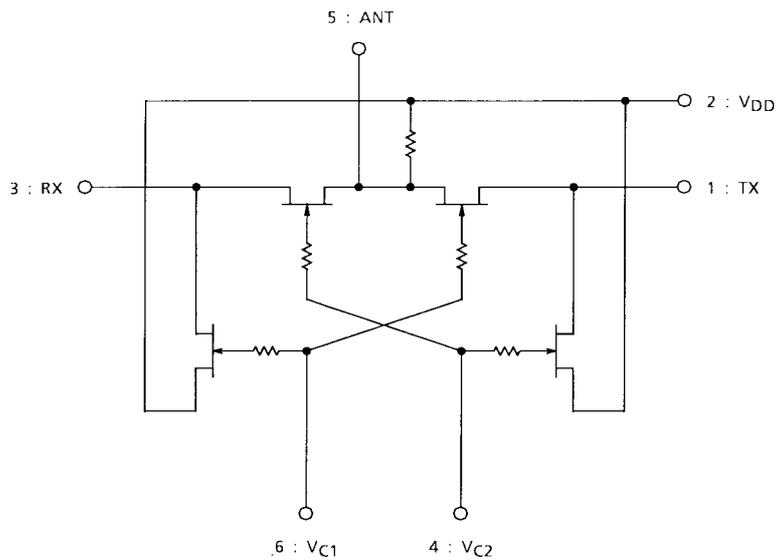
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Insertion loss	LOSS (1)	1	$V_{C1} = 3\text{ V}$ , $V_{C2} = 0\text{ V}$ , $P_i = 22\text{dBmW}$	—	0.5	1.0	dB
	LOSS (2)	1	$V_{C1} = 0\text{ V}$ , $V_{C2} = 3\text{ V}$ , $P_i = 0\text{dBmW}$	—	0.5	1.0	
Isolation	ISL (1)	1	$V_{C1} = 3\text{ V}$ , $V_{C2} = 0\text{ V}$ , $P_i = 22\text{dBmW}$	20	25	—	dB
	ISL (2)	1	$V_{C1} = 0\text{ V}$ , $V_{C2} = 3\text{ V}$ , $P_i = 0\text{dBmW}$	20	25	—	
Switching time	$t_{SW}$	—	$V_{C1} = 3\text{ V}$ , $V_{C2} = 0\text{ V}$ or $V_{C1} = 0\text{ V}$ , $V_{C2} = 3\text{ V}$	—	0.01	—	$\mu\text{s}$
Supply current	$I_{DD}$	—		—	—	0.01	mA
Control Current	$I_{C1}$	—		—	—	0.01	mA
	$I_{C2}$	—		—	—	0.01	
Output power at 1dB gain compression	$P_{O1dB}$	1	$V_{C1} = 3\text{ V}$ , $V_{C2} = 0\text{ V}$	—	24	—	dBmW
Adjacent channel leakage power ratio	Padj	1	$V_{C1} = 3\text{ V}$ , $V_{C2} = 0\text{ V}$ , $P_i = 22\text{dBmW}$ (Note 1) $\Delta f = 600\text{kHz}$	—	—	-60	dB

Note 1: Input signal is modulated to  $\pi/4$ QPSK ( $\alpha = 0.5$ ). Bit rate is 384 kbps.

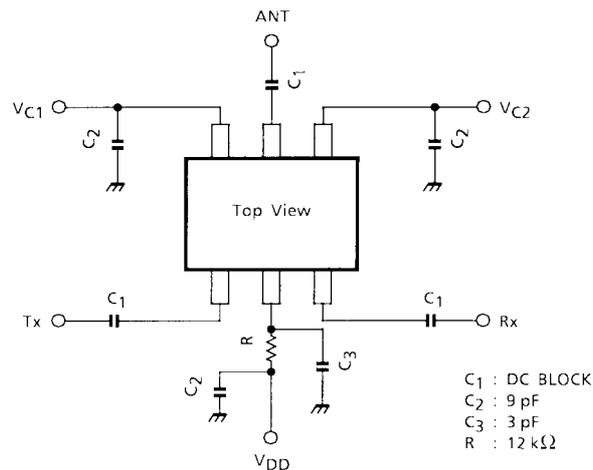
## Truth Table

Control Voltage		Switch Condition	
$V_{C1}$	$V_{C2}$	ANT-RX	ANT-TX
3 V	0 V	OFF	ON
0 V	3 V	ON	OFF

**Equivalent Circuit**



**Test Circuit 1 (RF Test Circuit)**



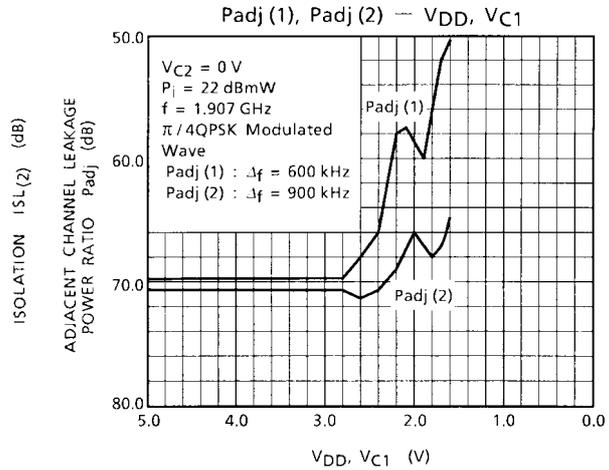
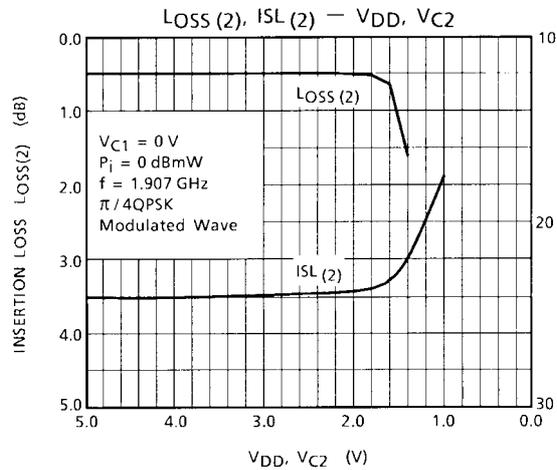
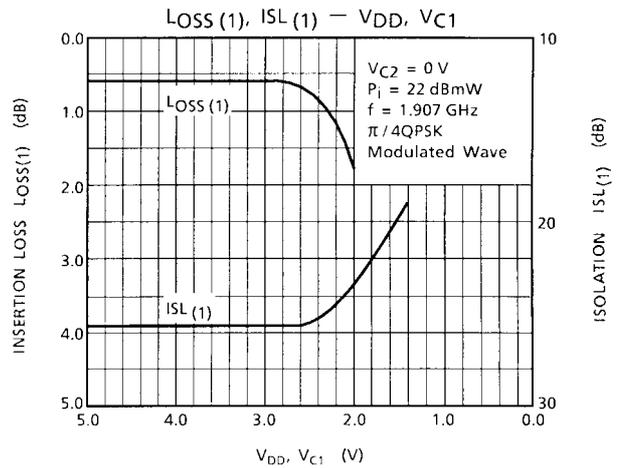
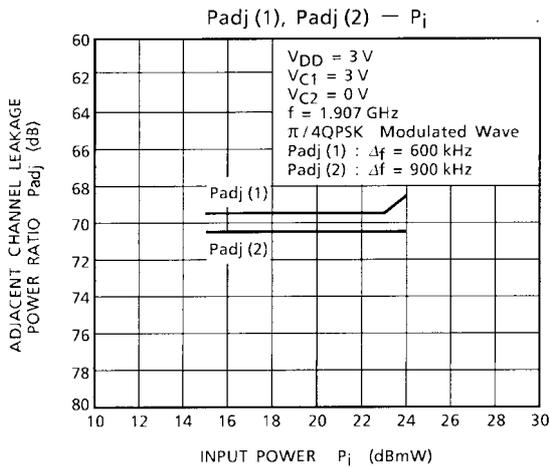
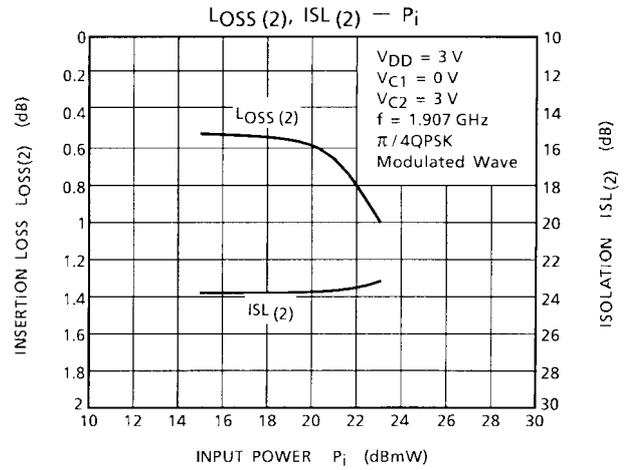
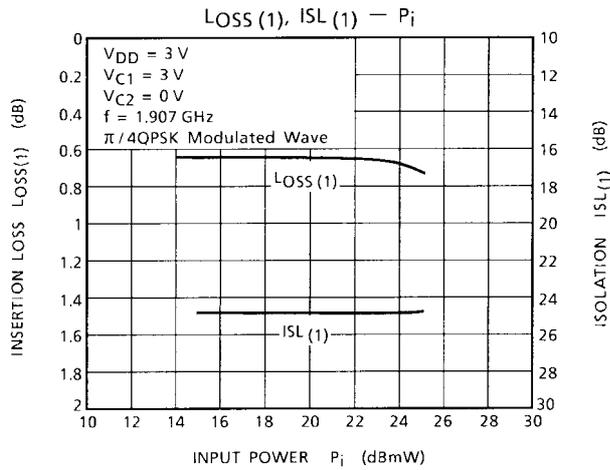
**Notice**

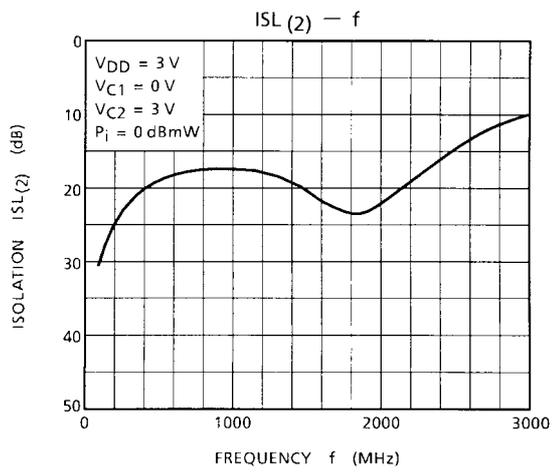
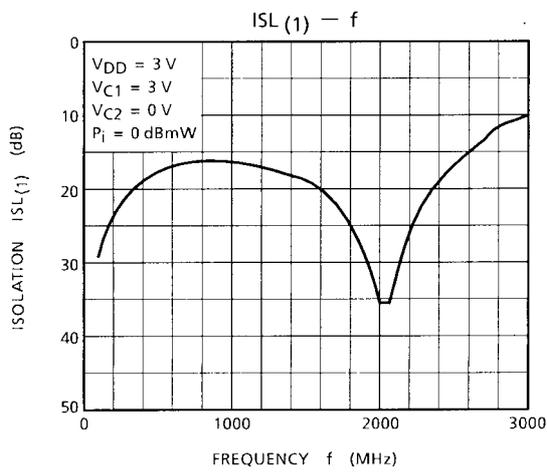
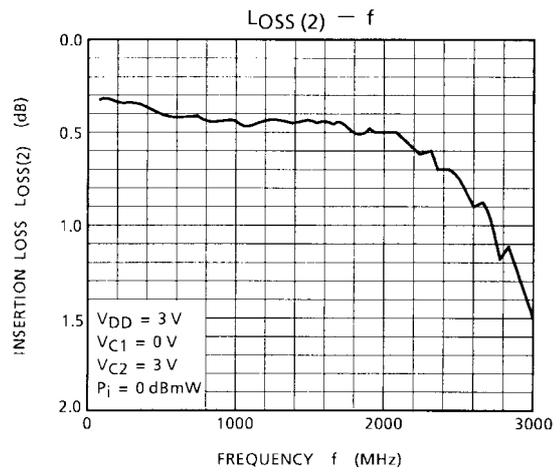
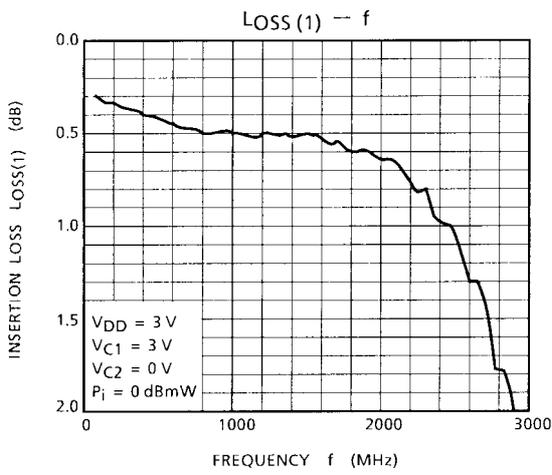
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

Moreover, these example application circuits are not intended for mass production, since the high-frequency characteristics (the AC characteristics) of these devices will be affected by the external components which the customer uses, by the design of the circuit and by various other conditions.

It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

TOSHIBA assume no responsibility for the integrity of customer circuit designs or applications.

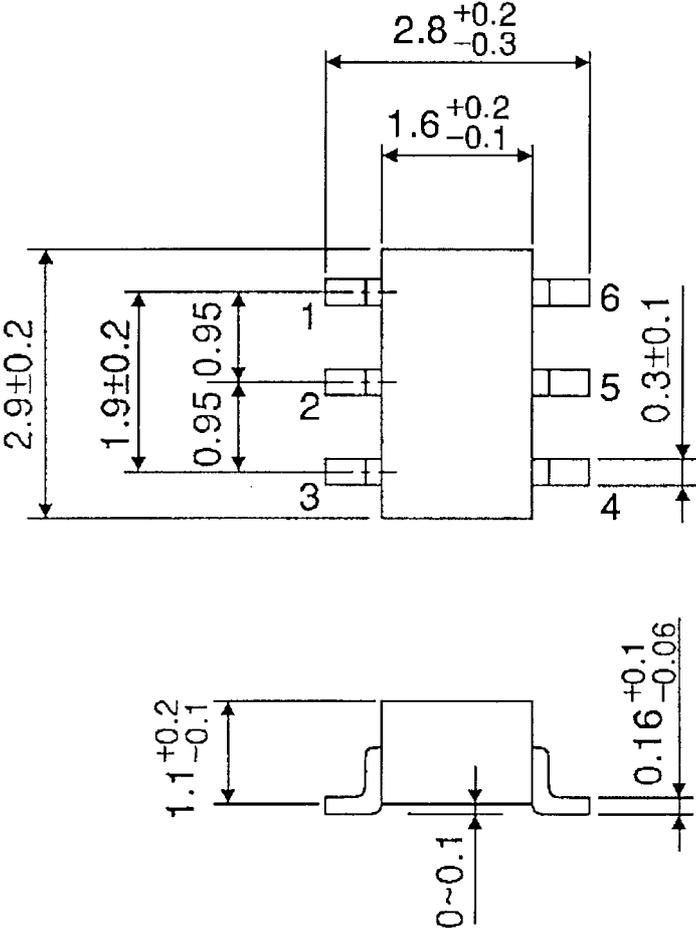




**Package Dimensions**

SSOP6-P-0.95

Unit : mm



Weight : 0.014 g (Typ.)

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020704EBC

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