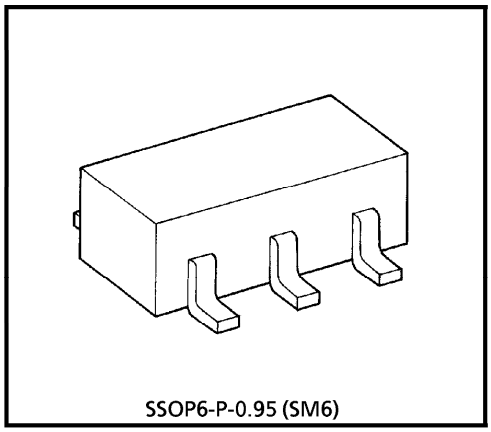
TOSHIBA GaAs LINEAR INTEGRATED CIRCUIT GaAs MONOLITHIC

TG2205F

RF SPDT SWITCH
(APPLICATION : PHS)

FEATURES

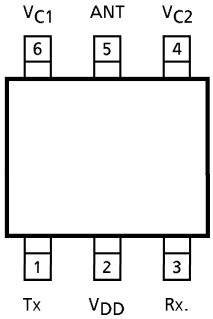
- LOW INSERTION LOSS : L_{OSS} = 0.5 dB (Typ.)
- HIGHT ISOLATION : ISL = 25 dB (Typ.)
- CONTROL VOLTAGE : 0 V / 3 V



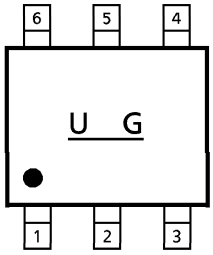
SSOP6-P-0.95 (SM6)

Weight : 0.014 g (Typ.)

PIN CONNECTION (TOP VIEW)



MARKING



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	5	V
Control Voltage	V_{C1}	5	V
	V_{C2}	5	V
Input Power	P_i	1	W
Operating Temperature Range	T_{opr}	−40~85	°C
Storage Temperature Range	T_{stg}	−55~125	°C

CAUTION

This device is electrostatic sensitivity. Please handle with caution.

980910EBC1

ELECTRICAL CHARACTERISTICS (V_{DD} = 3 V, f = 1.907 GHz, Ta = 25°C, $Z_g = Z_l$ = 50 Ω)

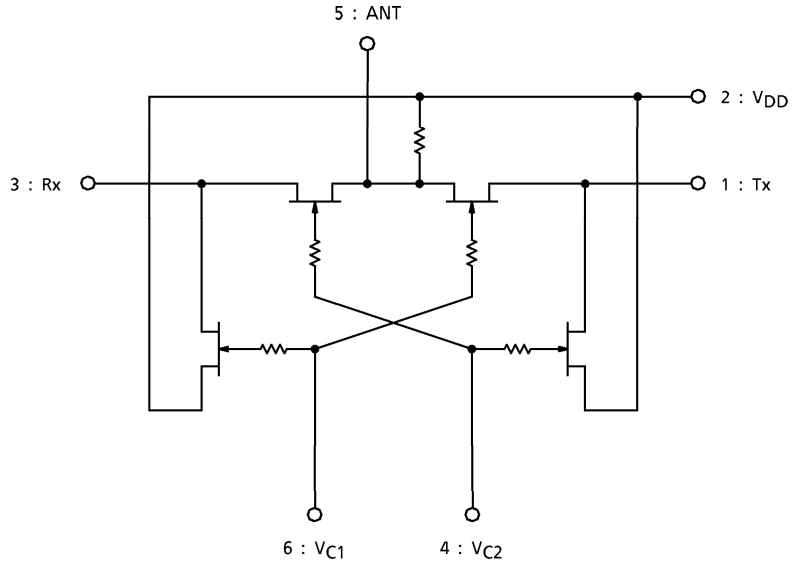
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Insertion Loss	L_{OSS} (1)	1	V_{C1} = 3 V, V_{C2} = 0 V, P_i = 22 dBmW	—	0.5	1.0	dB
	L_{OSS} (2)	1	V_{C1} = 0 V, V_{C2} = 3 V, P_i = 0 dBmW	—	0.5	1.0	dB
Isolation	ISL (1)	1	V_{C1} = 3 V, V_{C2} = 0 V, P_i = 22 dBmW	20	25	—	dB
	ISL (2)	1	V_{C1} = 0 V, V_{C2} = 3 V, P_i = 0 dBmW	20	25	—	dB
Switching Time	t_{sw}	—	V_{C1} = 3 V, V_{C2} = 0 V or V_{C1} = 0 V, V_{C2} = 3 V	—	0.01	—	μs
Supply Current	I_{DD}	—		—	—	0.01	mA
Control Current	I_{C1}	—		—	—	0.01	mA
	I_{C2}	—		—	—	0.01	mA
Output Power at 1dB Gain Compression	P_{o1dB}	1	V_{C1} = 3 V, V_{C2} = 0 V	—	24	—	dBmW
Adjacent Channel Leakage Power Ratio	Padj	1	V_{C1} = 3 V, V_{C2} = 0 V, P_i = 22 dBmW (Note), Δf = 600 kHz	—	—	−60	dB

(Note) : Input signal is modulated to π / 4QPSK (α = 0.5). Bit rate is 384 kbps.

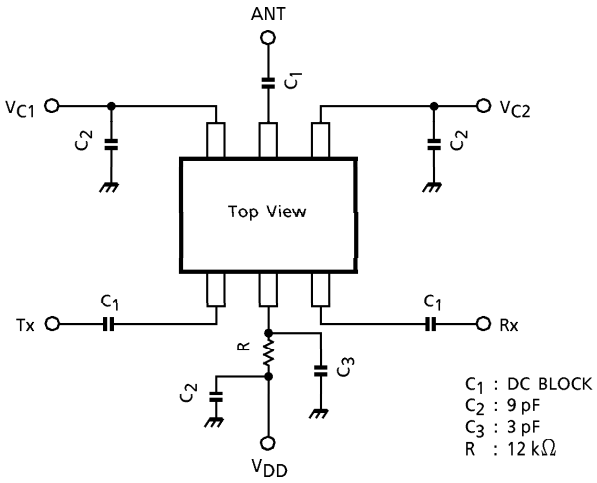
TRUTH TABLE

CONTROL VOLTAGE		SWITCH CONDITION	
V_{C1}	V_{C2}	ANT-Rx	ANT-Tx
3V	0V	OFF	ON
0V	3V	ON	OFF

EQUIVALENT CIRCUIT



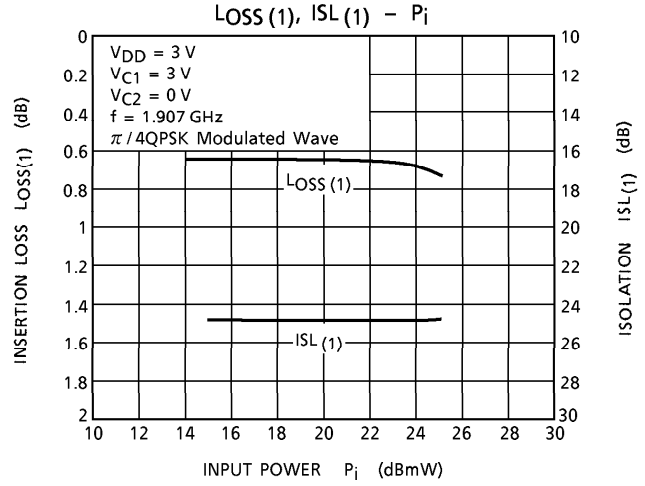
TEST CIRCUIT1 (RF TEST CIRCUIT)



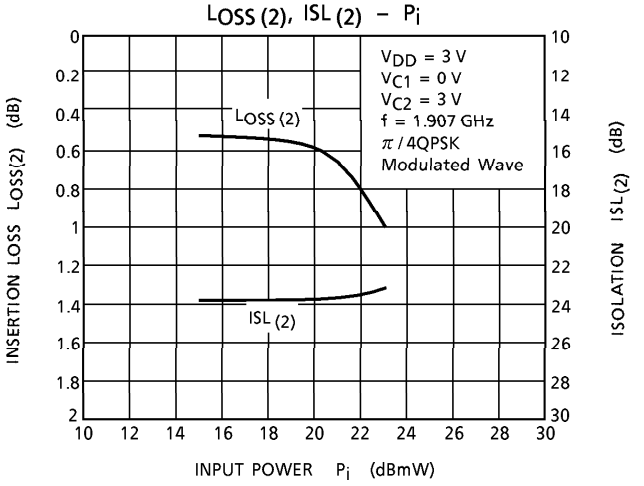
NOTICE

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.

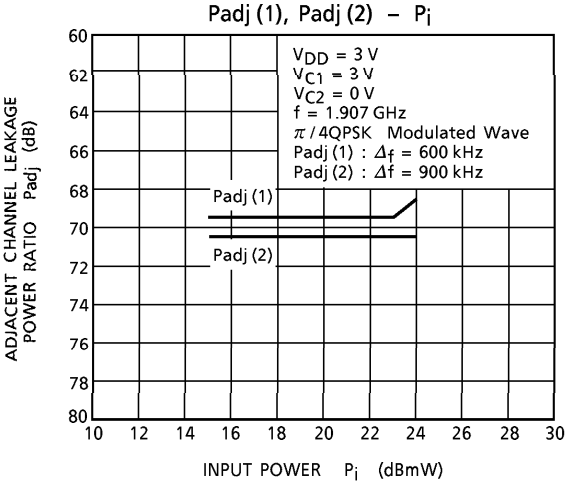
L_{OSS} (1), ISL (1) – P_i



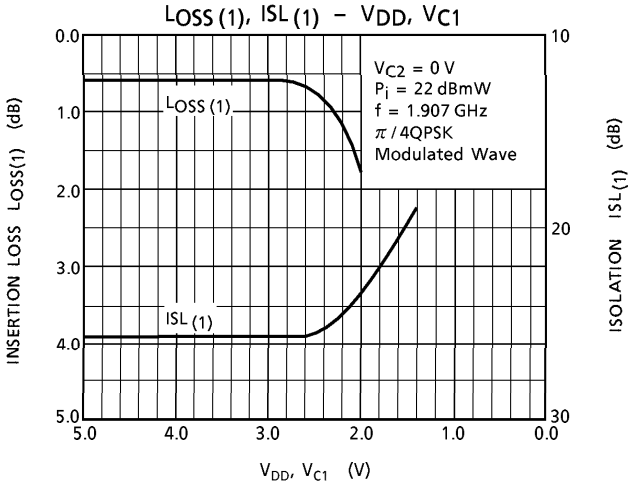
L_{OSS} (2), ISL (2) – P_i



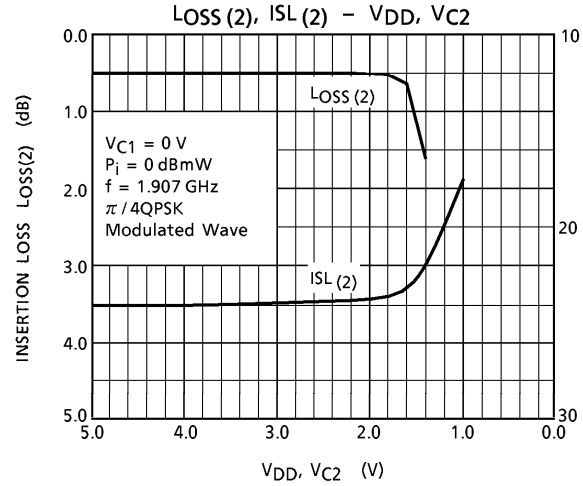
Padj (1), Padj (2) – P_i



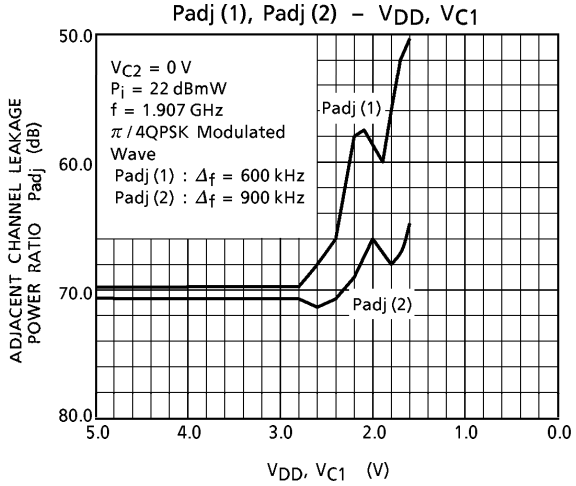
L_{OSS} (1), ISL (1) – V_{DD}, V_{C1}

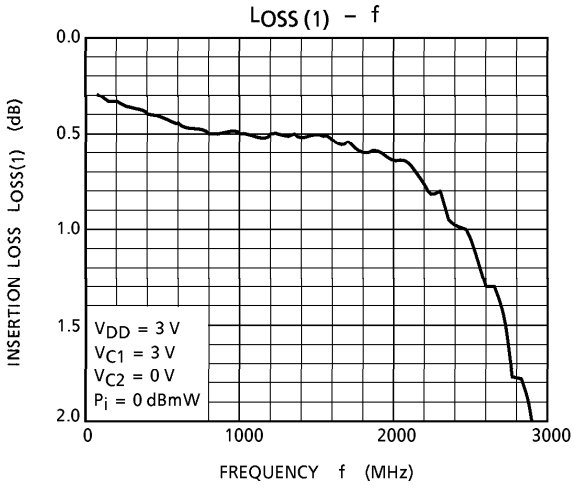


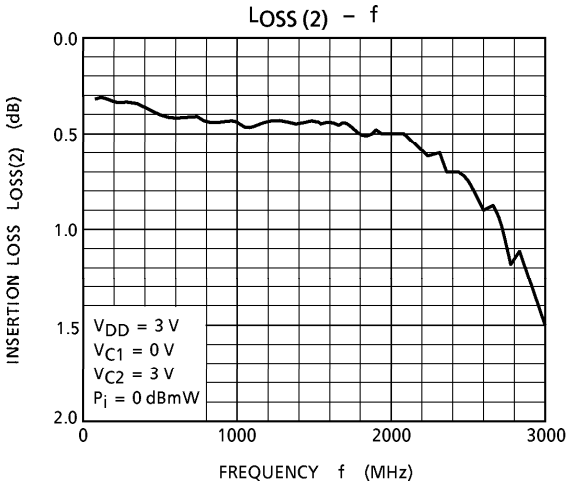
L_{OSS} (2), ISL (2) – V_{DD}, V_{C2}

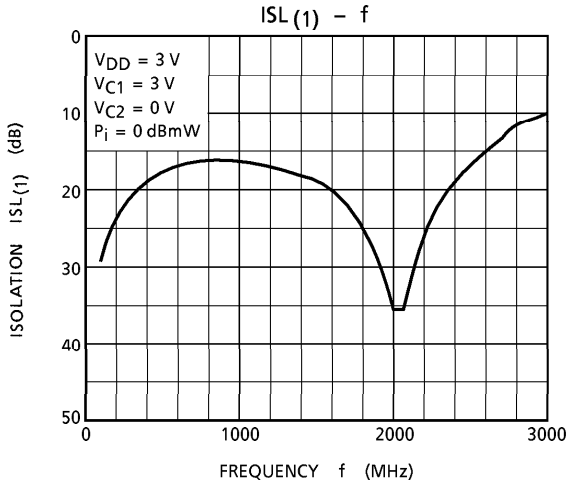


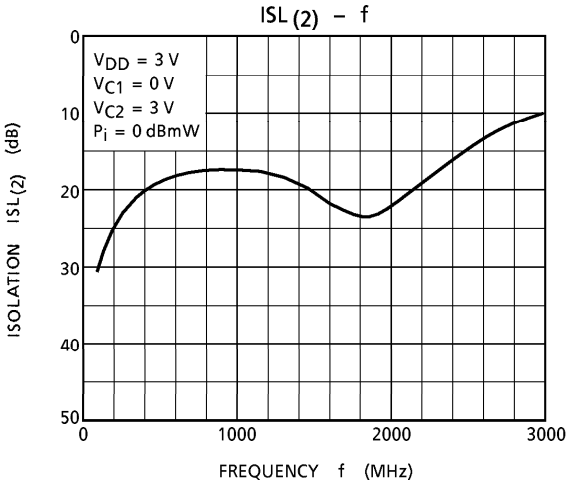
Padj (1), Padj (2) – V_{DD}, V_{C1}




LOSS (1) – f
INSERTION LOSS LOSS(1) (dB)
0.0
0.5
1.0
1.5
2.0
VDD = 3 V
VC1 = 3 V
VC2 = 0 V
Pi = 0 dBmW
0
1000
2000
3000
FREQUENCY f (MHz)


LOSS (2) – f
INSERTION LOSS LOSS(2) (dB)
0.0
0.5
1.0
1.5
2.0
VDD = 3 V
VC1 = 0 V
VC2 = 3 V
Pi = 0 dBmW
0
1000
2000
3000
FREQUENCY f (MHz)

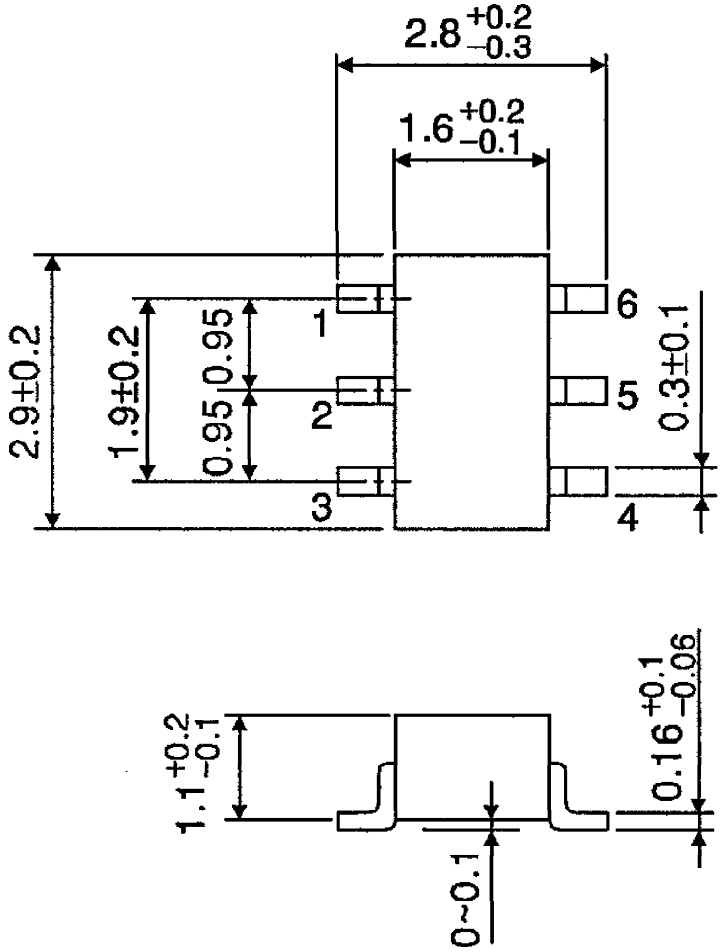

ISL (1) – f
ISOLATION ISL(1) (dB)
0
10
20
30
40
50
VDD = 3 V
VC1 = 3 V
VC2 = 0 V
Pi = 0 dBmW
0
1000
2000
3000
FREQUENCY f (MHz)


ISL (2) – f
ISOLATION ISL(2) (dB)
0
10
20
30
40
50
VDD = 3 V
VC1 = 0 V
VC2 = 3 V
Pi = 0 dBmW
0
1000
2000
3000
FREQUENCY f (MHz)

PACKAGE DIMENSIONS

SSOP6-P-0.95

Unit : mm



Weight : 0.014 g (Typ.)