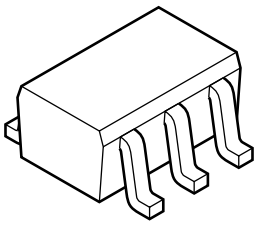
TOSHIBA GaAs Linear Integrated Circuit GaAs Monolithic

T G 2 2 1 0 F T

RF SPDT Switch

Switch the receive filter for mobile communication
Switch the diversity antenna
Switch the local signal



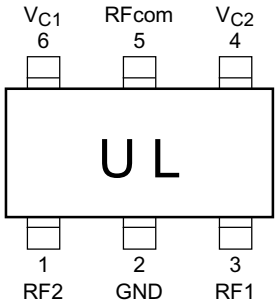
SSOP6-P-0.65

Weight: 0.008 g (typ.)

Features

- Low insertion Loss: L_{OSS} = 0.4dB (typ.)
- High isolation: ISL = 30dB (typ.)
- Low voltage operation: V_C = 0 V/2.5 V
- Small package: TU6 package (2.0 × 1.25 × 0.6 mm)

Pin Connection, Marking (top view)



Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
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

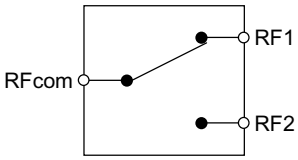
This device is sensitive to electrostatic discharge. When using this device, please ensure that all tools and equipment are earthed.

000707EAC2

Electrical Characteristics (f = 1 GHz, Ta = 25°C, Zg = Zl = 50 Ω)

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Insertion L_{OSS}	L_{OSS} (1)	1	V_{C1} = 2.5 V, V_{C2} = 0 V, P_i = 0dBmW	—	0.4	0.7	dB
	L_{OSS} (2)	1	V_{C1} = 0 V, V_{C2} = 2.5 V, P_i = 0dBmW	—	0.4	0.7	dB
Isolation	ISL (1)	1	V_{C1} = 2.5 V, V_{C2} = 0 V, P_i = 0dBmW	27	30	—	dB
	ISL (2)	1	V_{C1} = 0 V, V_{C2} = 2.5 V, P_i = 0dBmW	27	30	—	dB
Input power at 1dB gain compression	P_{i1dB}	1	V_{C1} = 2.5 V, V_{C2} = 0 V or V_{C1} = 0 V, V_{C2} = 2.5 V	18	—	—	dBmW
Control current	I_{C1}	—	V_{C1} = 0 V, V_{C2} = 3 V or V_{C1} = 3 V, V_{C2} = 0 V	—	—	0.01	mA
	I_{C2}	—		—	—	0.01	mA
Switching time	t_{sw}	—	V_{C1} = 0 V, V_{C2} = 2.5 V or V_{C1} = 2.5 V, V_{C2} = 0 V	—	200	—	ns

Block Diagram

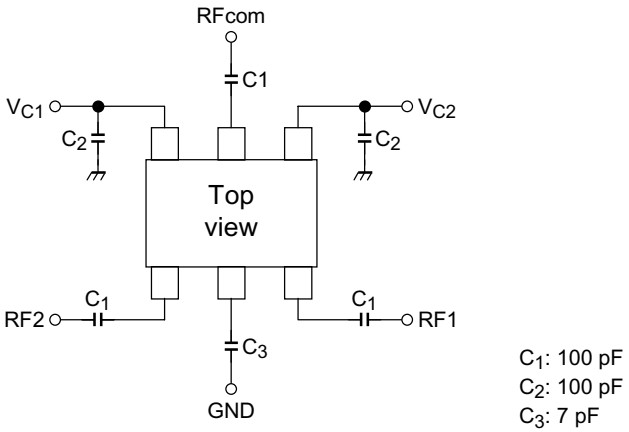


Switch Condition

Control Voltage	Switch Condition
V_{C1} = 2.5 V V_{C2} = 0 V	RFcom — RF1 OFF RFcom — RF2 ON
V_{C1} = 0 V V_{C2} = 2.5 V	RFcom — RF1 ON RFcom — RF2 OFF

000707EAC2

Test Circuit 1 (RF Test Circuit)



Please fix the value of each capacity for using frequency and circuit.

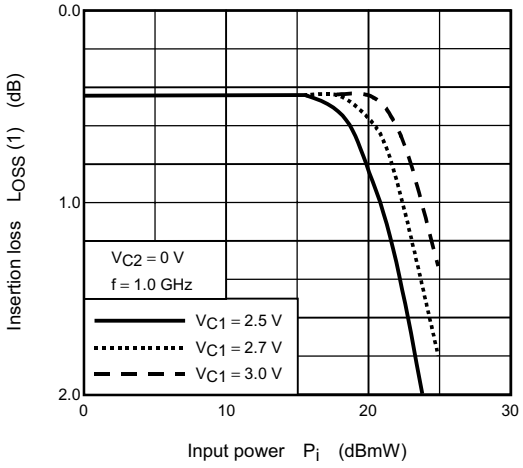
Recommend Capacity

	1 GHz	1.6 GHz	2.4 GHz
C_1	100 pF	100 pF	100 pF
C_2	100 pF	100 pF	100 pF
C_3	7 pF	3 pF	1.5 pF

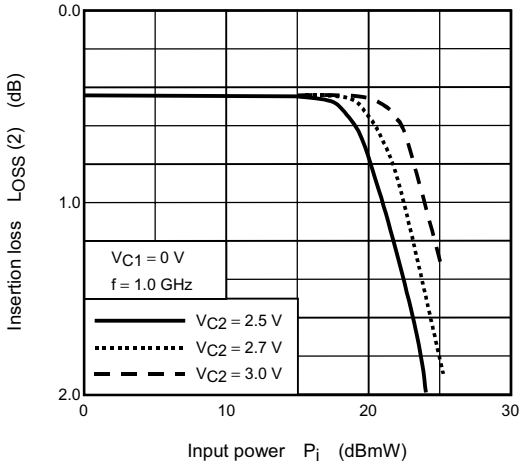
Notice

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.

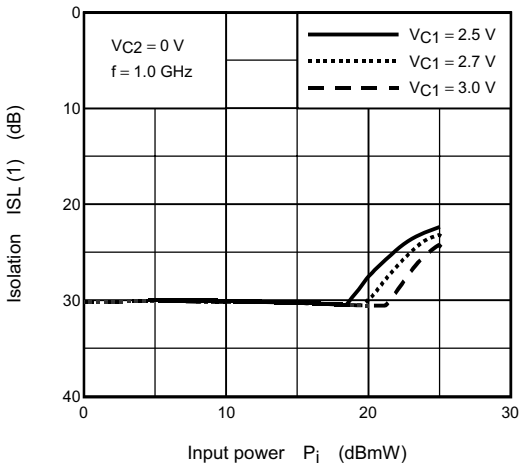
L_{OSS} (1) – P_i



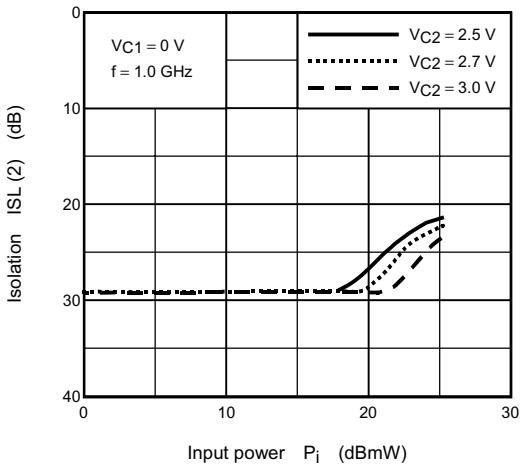
L_{OSS} (2) – P_i



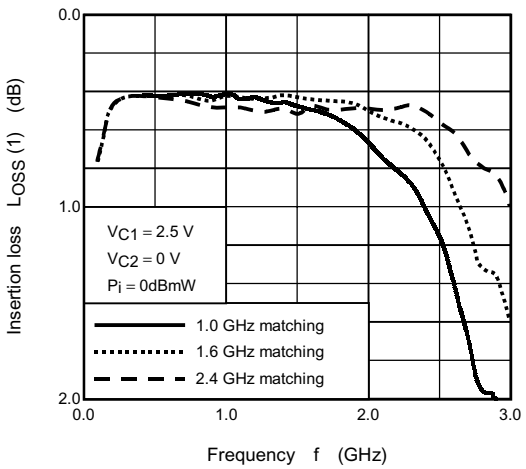
ISL (1) – P_i



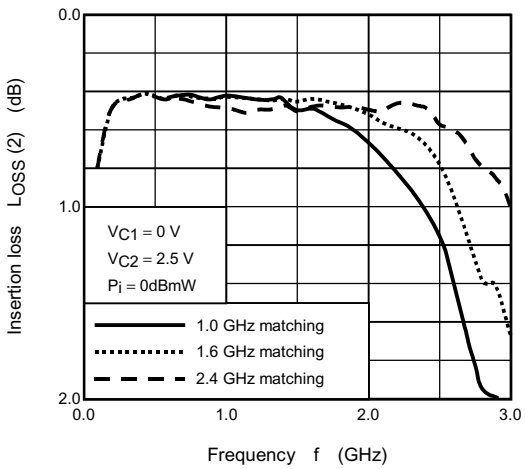
ISL (2) – P_i



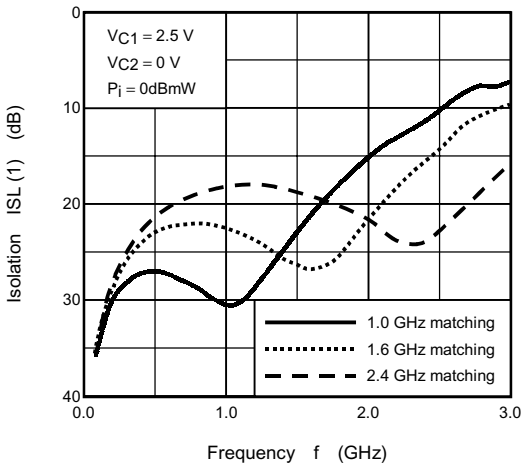
L_{OSS} (1) – f



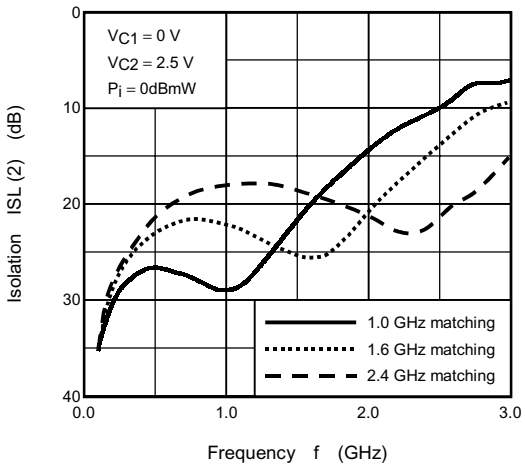
L_{OSS} (2) – f



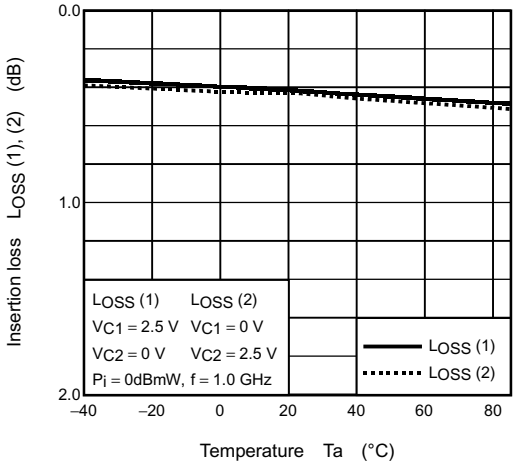
ISL (1) – f



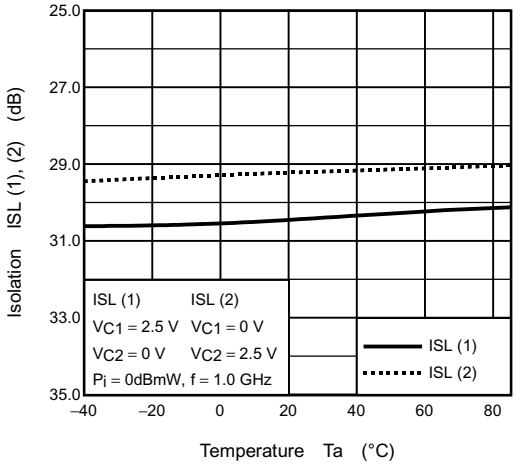
ISL (2) – f



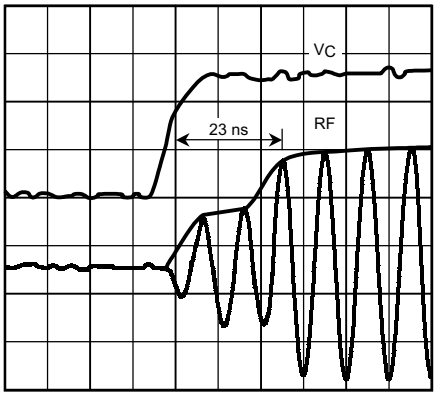
LOSS (1), (2) – Ta



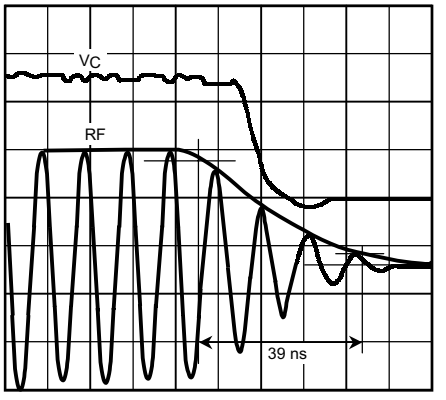
ISL (1), (2) – Ta



Switching Time (RAISE)

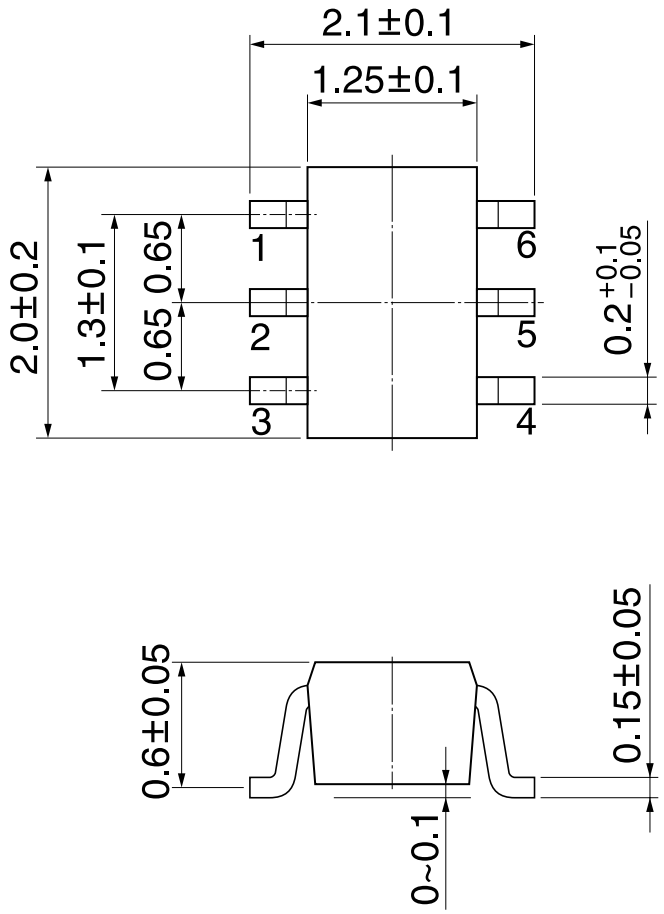


Switching Time (FALL)



Package Dimensions

SSOP6-P-0.65 Unit: mm



Weight: 0.008 g (typ.)