TOSHIBA GaAs Linear Integrated Circuit GaAs Monolithic

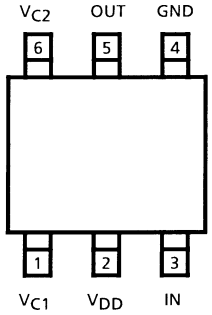
TG2202F

1.9 GHz Band Attenuator
(PHS Digital Cordless Telephone)

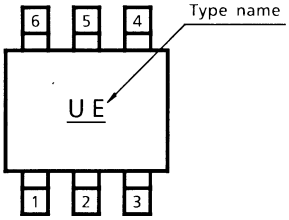
Features

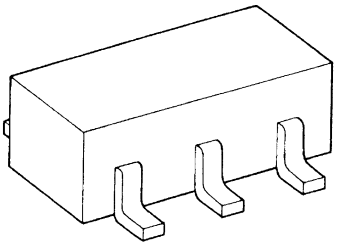
- Attenuation: ATT = 22dB (typ.)
- Control voltage: 0 V/3 V

Pin Assignment (top view)



Marking





SSOP6-P-0.95

Weight: 0.014 g (typ.)

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	100	mW
Operating temperature range	T_{opr}	−40~85	°C
Storage temperature range	T_{stg}	−55~125	°C

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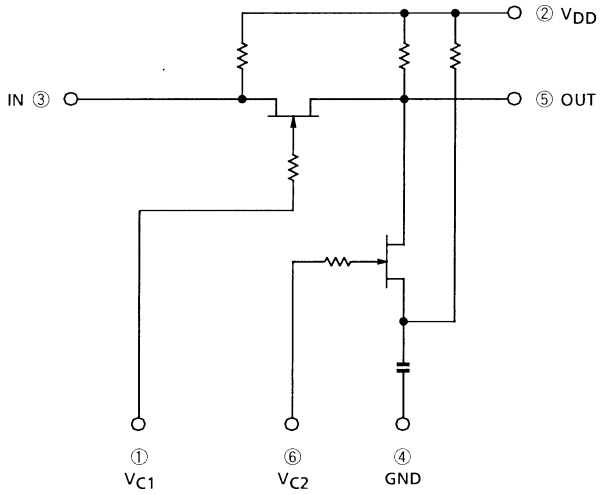
Electrical Characteristics (V_{DD} = 3 V, Ta = 25°C, $Z_g = Z_l$ = 50 Ω)

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Frequency range	f_{range}	—	—	1895	—	1918	MHz
Insertion loss	L_{OSS}	1	V_{C1} = 3 V, V_{C2} = 0 V, P_i = 0dBmW	—	0.7	1.5	dB
Attenuation	ATT	1	V_{C1} = 0 V, V_{C2} = 3 V, P_i = 0dBmW	19	22	25	dB
Supply current	I_{DD}	—	V_{C1} = 3 V, V_{C2} = 0 V or V_{C1} = 0 V, V_{C2} = 3 V	—	—	0.1	mA
Control Current	I_{C1}			—	—	0.1	mA
	I_{C2}			—	—	0.1	mA
Input VSWR	$VSWR_{in}$	1	V_{C1} = 3 V, V_{C2} = 0 V P_i = 0dBmW	—	1.4	2.0	—
Output VSWR	$VSWR_{out}$			—	1.4	2.0	—
Output power at 1dB gain compression	Po1dB			—	10	—	dBmW

Truth Table

Control Voltage		Attenuator Condition
V_{C1}	V_{C2}	IN-OUT
3 V	0 V	Attenuator OFF
0 V	3 V	Attenuator ON

Equivalent Circuit



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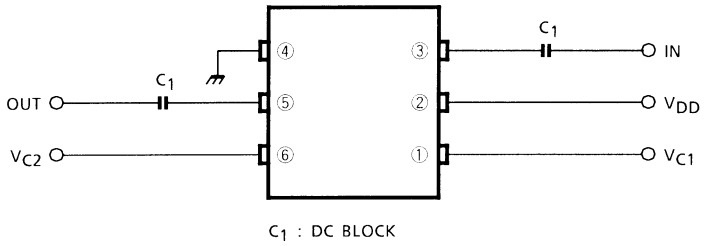
- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

Test Circuit 1



C_1 : DC BLOCK

Note 1: V_{C1}, V_{C2} and V_{DD} are connected to GND by capacitor (9 pF) in order to measure dependence on frequency of L_{OSS} and ATT.

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.

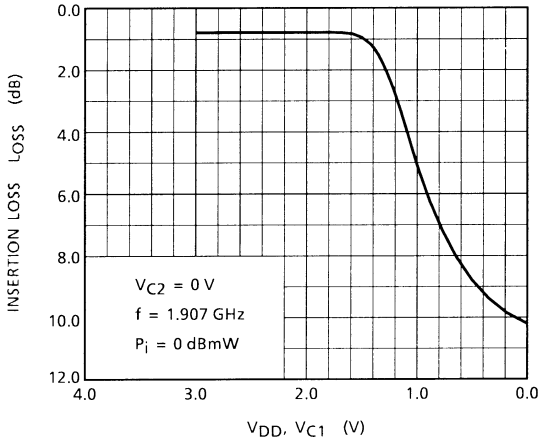
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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

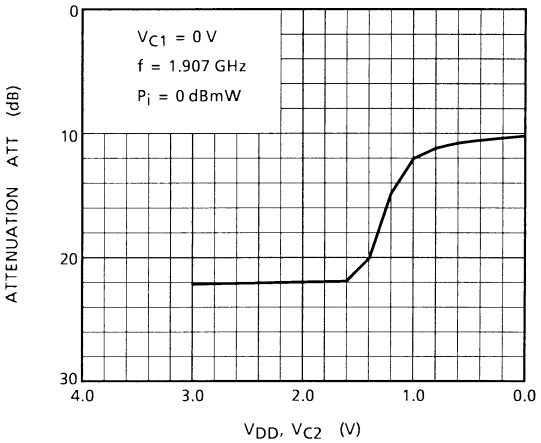
Caution

This device is electrostatic sensitivity. Please handle with caution.

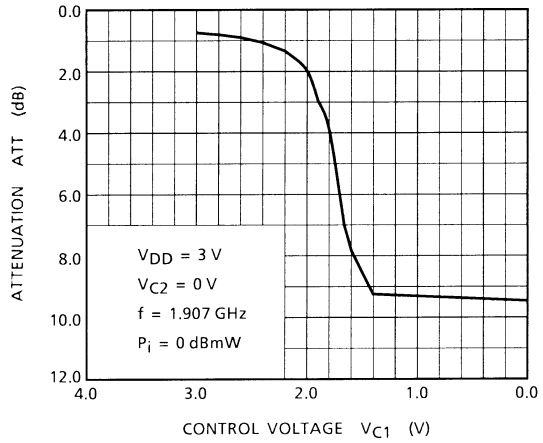
L_{OSS} — V_{DD}, V_{C1}



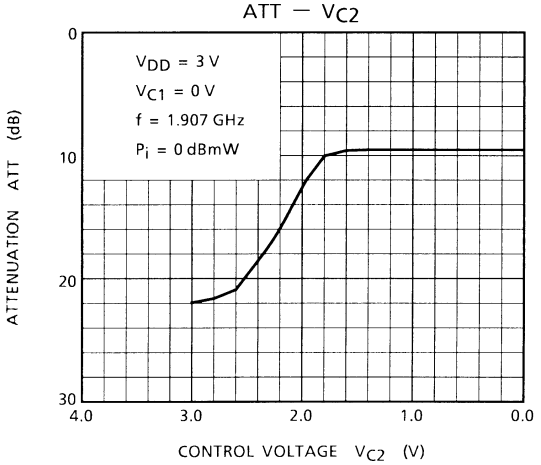
ATT — V_{DD}, V_{C2}



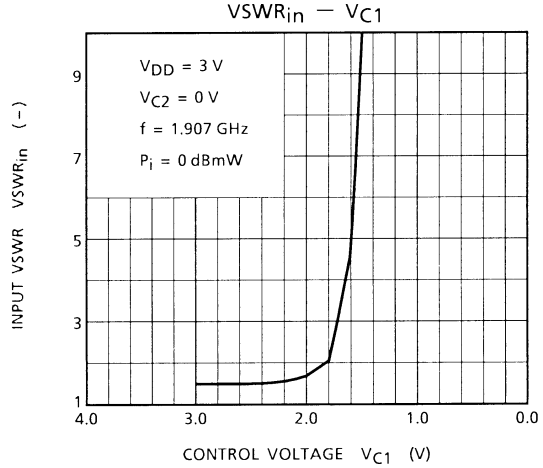
ATT — V_{C1}



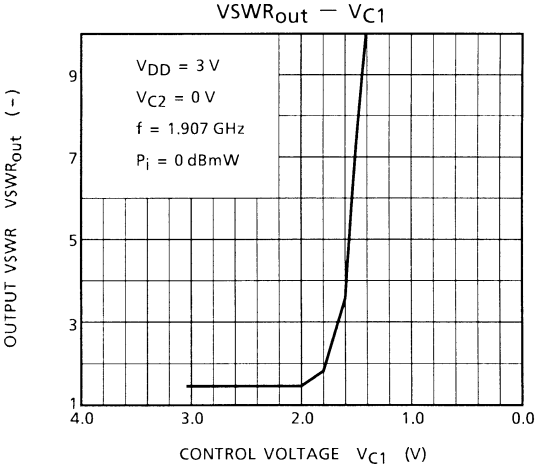
ATT — V_{C2}



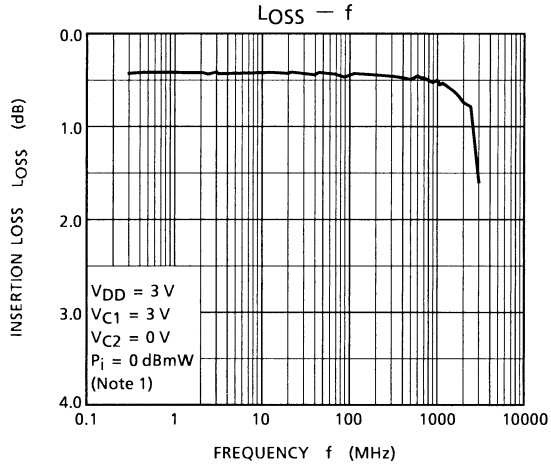
$VSWR_{in}$ — V_{C1}



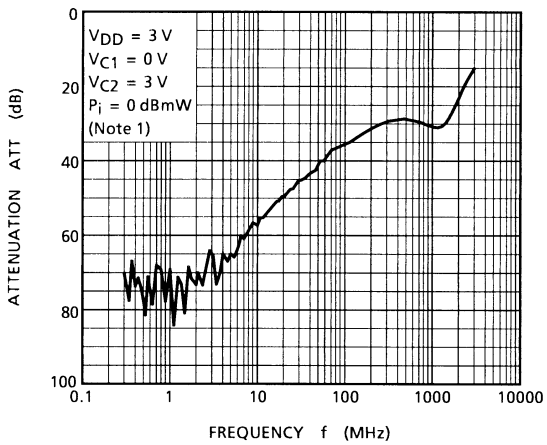
$VSWR_{out}$ — V_{C1}



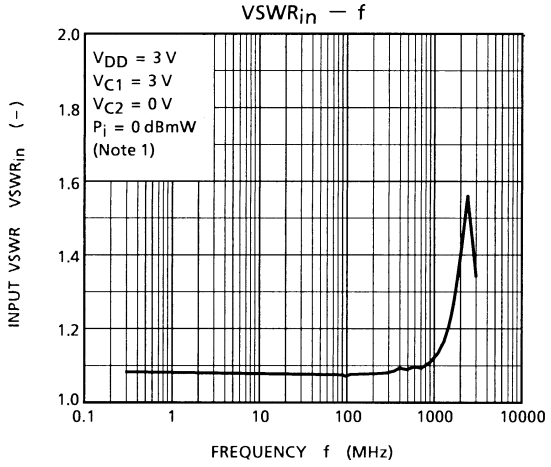
L_{OSS} — f



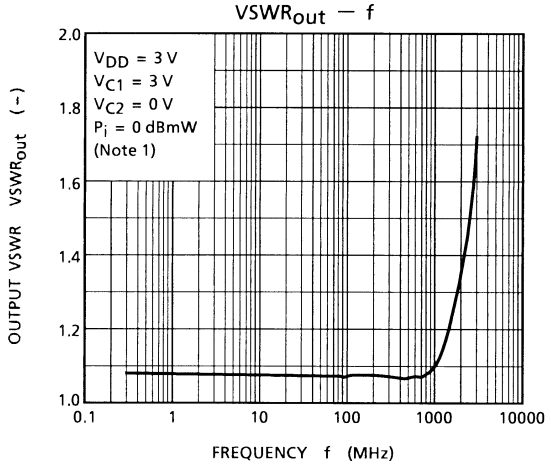
ATT — f



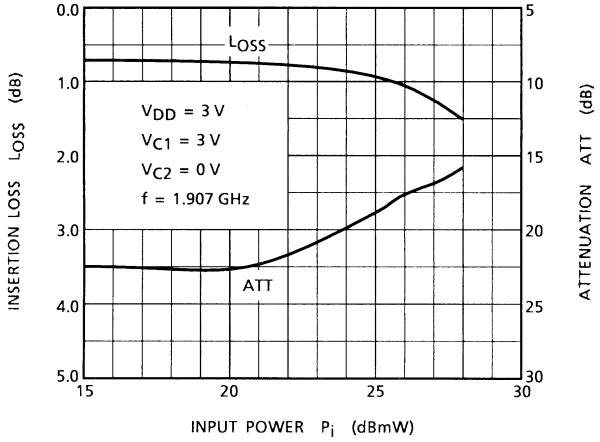
$VSWR_{in}$ — f



$VSWR_{out}$ — f

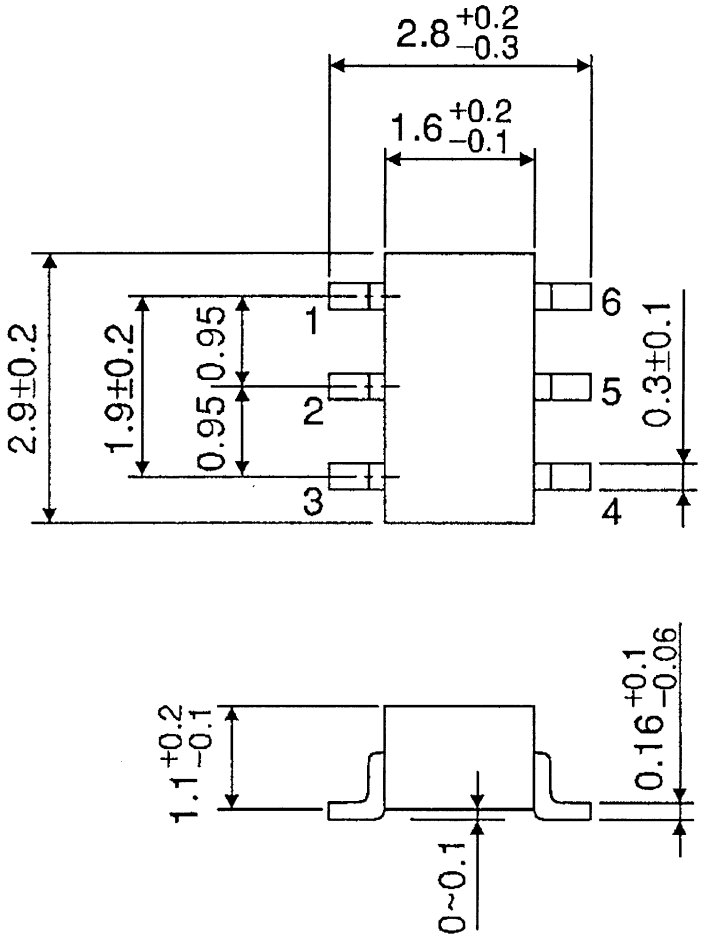


L_{OSS}, ATT — P_i



Package Dimensions

SSOP6-P-0.95 Unit : mm



Weight : 0.014g (Typ.)