

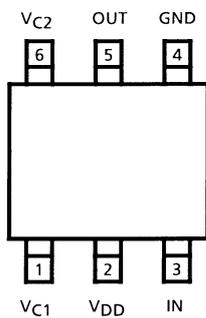
TG2202F

1.9 GHz Band Attenuator
(PHS Digital Cordless Telephone)

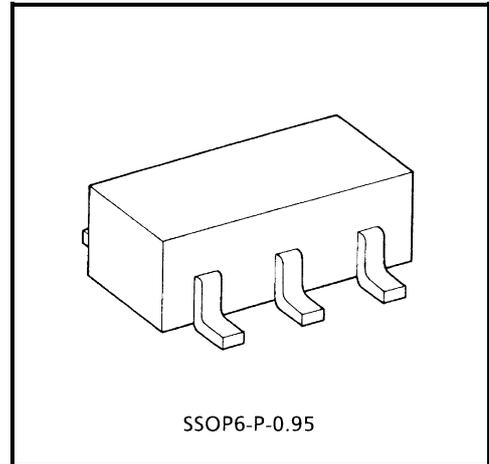
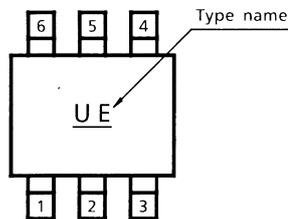
Features

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

Pin Assignment (top view)



Marking



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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• TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..

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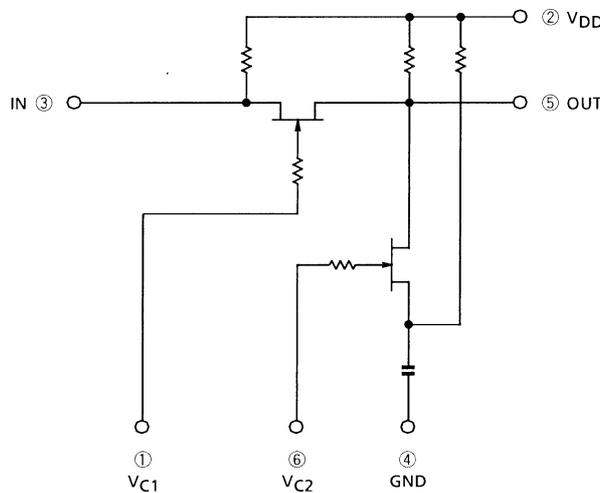
Electrical Characteristics ($V_{DD} = 3\text{ V}$, $T_a = 25^\circ\text{C}$, $Z_g = Z_l = 50\ \Omega$)

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Frequency range	f_{range}	—	—	1895	—	1918	MHz
Insertion loss	LOSS	1	$V_{C1} = 3\text{ V}$, $V_{C2} = 0\text{ V}$, $P_i = 0\text{ dBmW}$	—	0.7	1.5	dB
Attenuation	ATT	1	$V_{C1} = 0\text{ V}$, $V_{C2} = 3\text{ V}$, $P_i = 0\text{ dBmW}$	19	22	25	dB
Supply current	I_{DD}	—	$V_{C1} = 3\text{ V}$, $V_{C2} = 0\text{ V}$ or $V_{C1} = 0\text{ V}$, $V_{C2} = 3\text{ V}$	—	—	0.1	mA
Control Current	I_{C1}			—	0.1	mA	
	I_{C2}			—	0.1	mA	
Input VSWR	$VSWR_{\text{in}}$	1	$V_{C1} = 3\text{ V}$, $V_{C2} = 0\text{ V}$ $P_i = 0\text{ dBmW}$	—	1.4	2.0	—
Output VSWR	$VSWR_{\text{out}}$			—	1.4	2.0	—
Output power at 1dB gain compression	P_{o1dB}			—	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

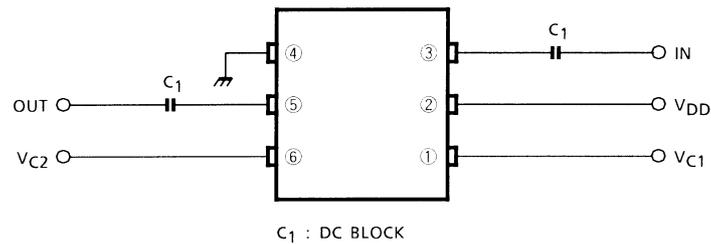
Equivalent Circuit



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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



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 LOSS 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.

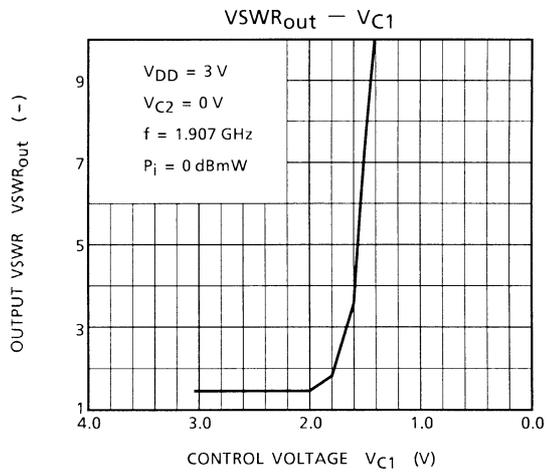
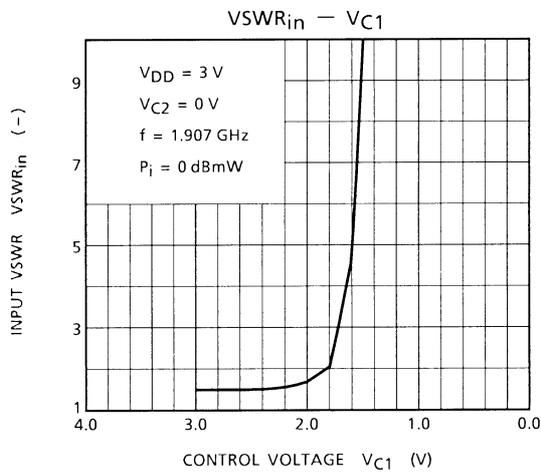
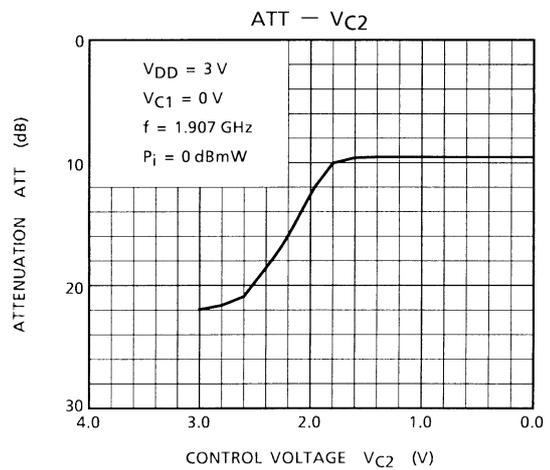
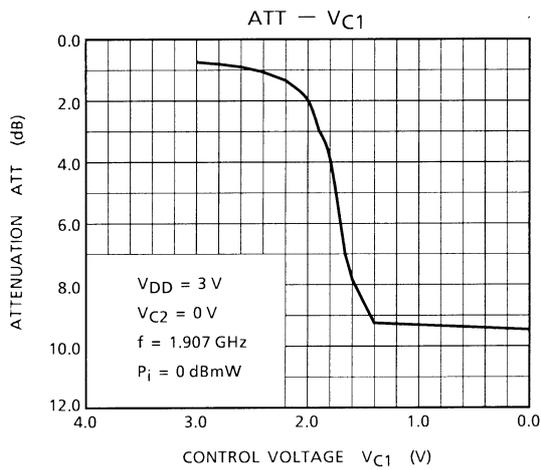
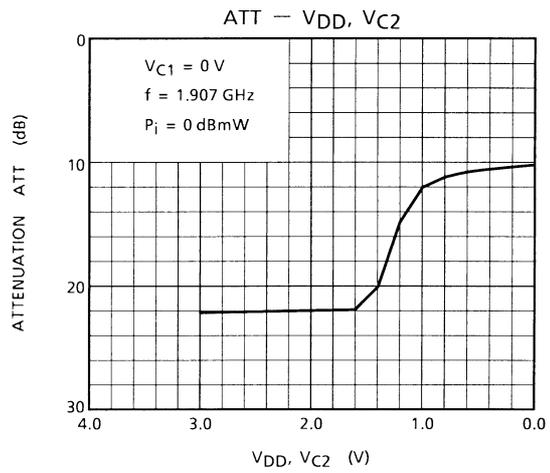
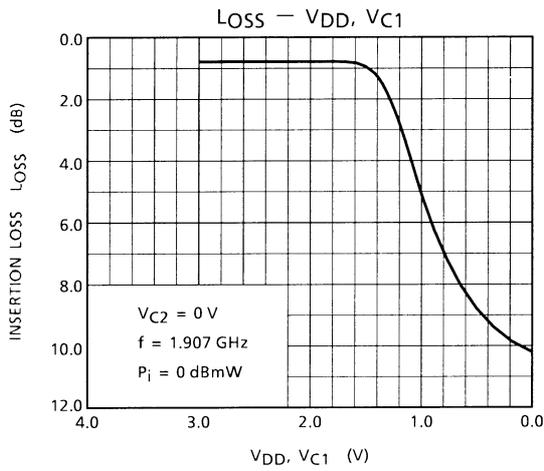
Moreover, these example application circuits are not intended for mass production, since the high-frequency characteristics (the AC characteristics) of these devices will be affected by the external components which the customer uses, by the design of the circuit and by various other conditions.

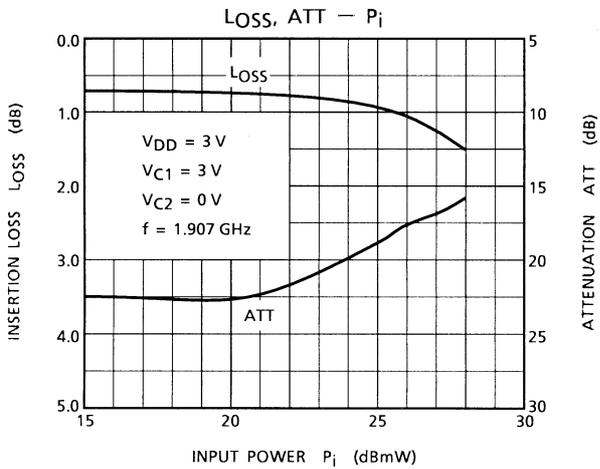
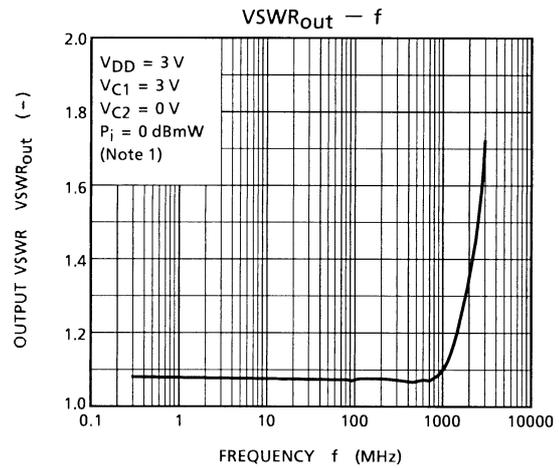
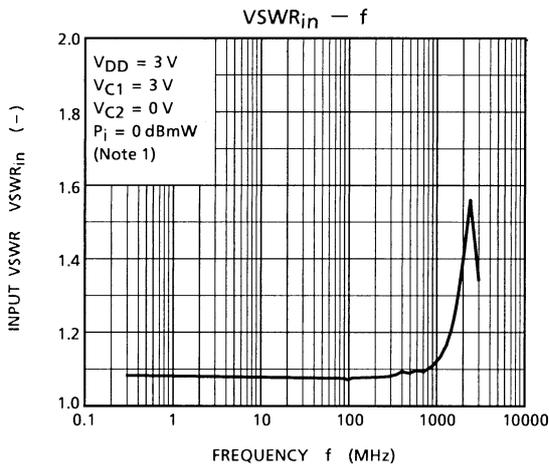
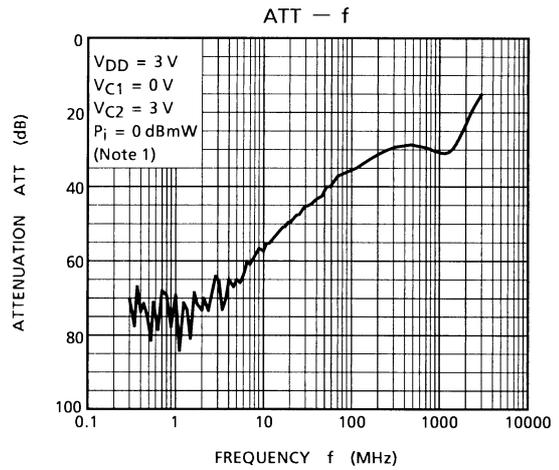
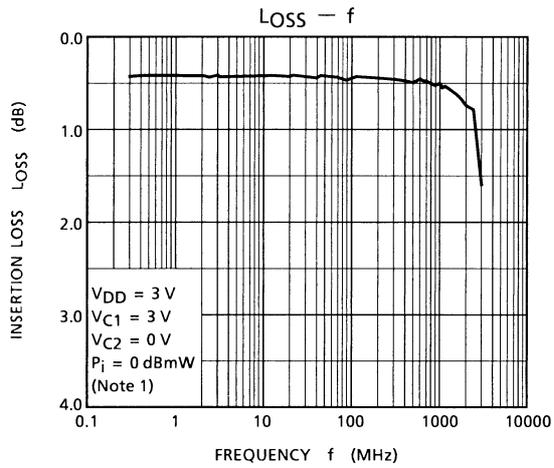
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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

Caution

This device is electrostatic sensitivity. Please handle with caution.

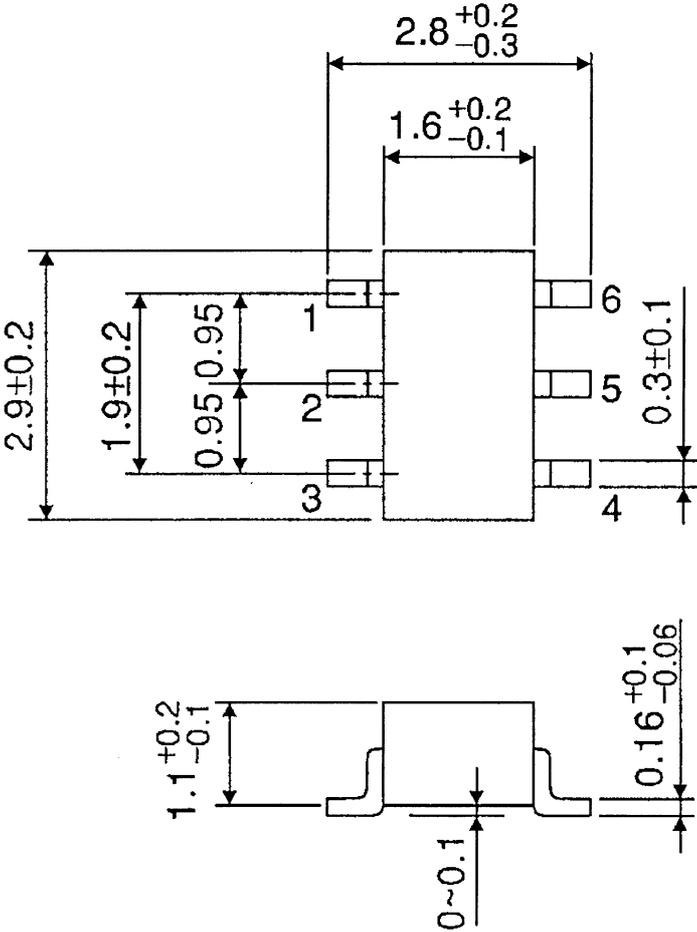




Package Dimensions

SSOP6-P-0.95

Unit : mm



Weight : 0.014g (Typ.)