SPDT SWITCH

NJG1501V

(Ver.3 Apr.10 1996)

NJG1501V is a Sub-Microwave GaAs SPDT Switch IC. This switch can operate from 100MHz to 3GHz with very low voltage of positive supply, having the low insertion loss and high isolation. It is suitable for use in switching applications for digital cordless telephone and so on.

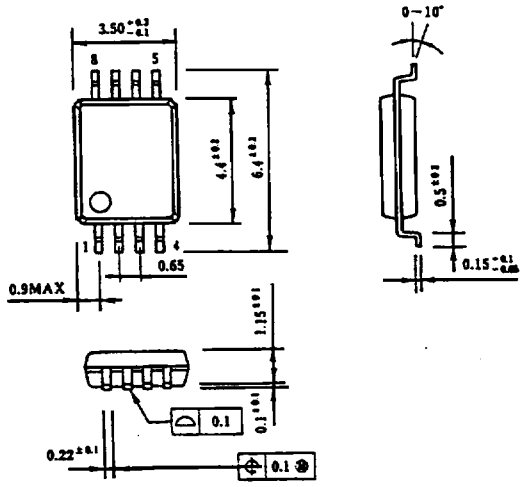
■ Features

- Low, Positive Voltage Operation (+2.7~+4V)
- Low Insertion Loss (0.6dB Typ.)
- Low Power Consumption
- Small Package (SSOP-8)

■ Absolute Maximum Ratings (Ta=25°C)

Input Power	Pin	26dBm
Supply Voltage	VDD	5V
Control Voltage	VCTR	5V
Power Dissipation	PD	320mW
Operating Temperature Range	Topr	-20°C~+75°C
Storage Temperature Range	Tstg	-40°C~+150°C

■ Package Outline



Unit:mm

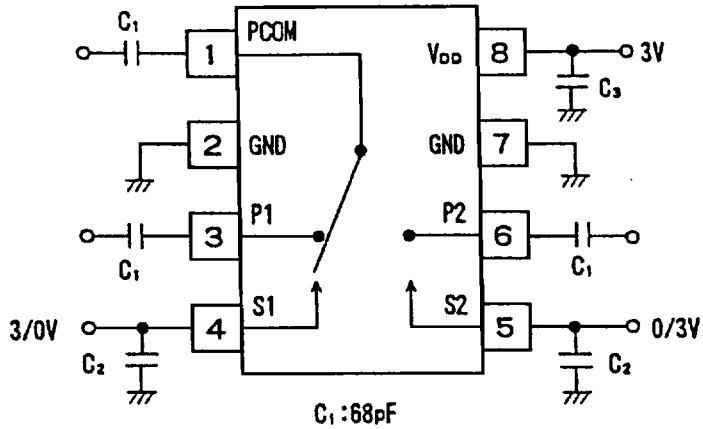
■ Electrical Characteristics

fin=1.9GHz Zs=Zo=50ohm (Ta=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage	VDD	VCTR=0/VDD	2.7	—	4.0	V
Control Voltage(L)	VCTR(L)	Pin=22dBm	0	—	0.1	V
Control Voltage(H)	VCTR(H)	Pin=22dBm	VDD-0.1	—	VDD	V
Supply Current	IDD	VDD=2.7V,VCTR=0/2.7V,Pin=22dBm	—	5	30	uA
Control Current	ICTR	VDD=2.7V,VCTR=0/2.7V,Pin=22dBm	—	—	1	uA
Insertion Loss	LOSS	VDD=2.7V,VCTR=0/2.7V	—	0.6	0.8	dB
Isolation (PCOM-P1,PCOM-P2, P1-P2)	ISL	VDD=2.7V,VCTR=0/2.7V	20	25	—	dB
Output Power at 1dB Compression	P1dB	VDD=2.7V,VCTR=0/2.7V	22	—	—	dBm
VSWR (PCOM,P1,P2)	VSWR	VDD=2.7V,VCTR=0/2.7V	—	1.4	2.0	
Switching Speed	TSW		—	15	—	nS

This specification is subject to change without notice.

■ RECOMENDED CIRCUIT



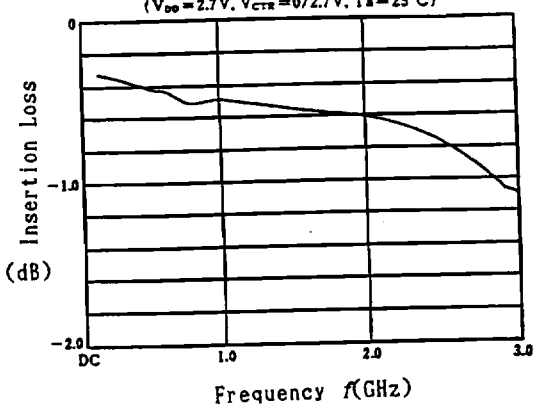
C_1:68pF
C_2:10pF
C_3:100~1000pF

NOTE)This IC can operate with the V_{DD} terminal open.
But in this case, I_{CTR} increases by the value of I_{DD}, and P_{1dB} may decrease by about 0.5dBm.

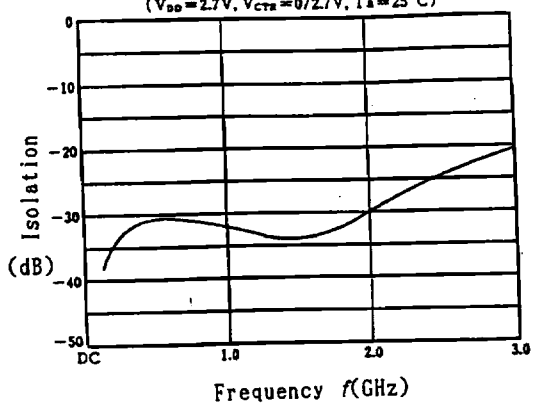
The reflow method is recommended for installation of this device.

■TYPICAL CHARACTERISTICS

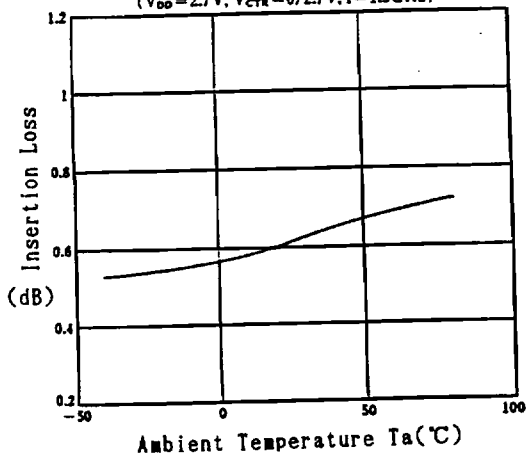
Insertion Loss vs. Frequency
(V_{DD}=2.7V, V_{CTR}=0/2.7V, Ta=25°C)



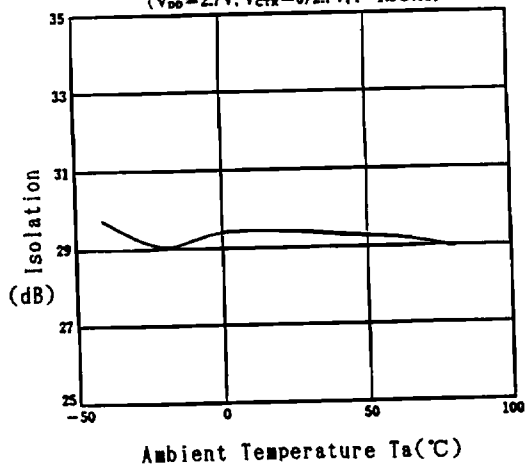
Isolation vs. Frequency
(V_{DD}=2.7V, V_{CTR}=0/2.7V, Ta=25°C)



Insertion Loss vs. Ambient Temperature
(V_{DD}=2.7V, V_{CTR}=0/2.7V, f=1.9GHz)



Isolation vs. Ambient Temperature
(V_{DD}=2.7V, V_{CTR}=0/2.7V, f=1.9GHz)



P1dB vs. V_{DD}/V_{CTR}
(f=1.9GHz, Ta=25°C)