

GN04042N

GaAs N-Channel IC

High-frequency high-power output SP3T switch
for Mobile Communication

The terminal for CDMA/PCS/GPS

■ Features

- Low insertion: LOSS = 0.27 dB (CDMA)
- High isolation: ISO = 30 to 35 dB (CDMA)
- Small package

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

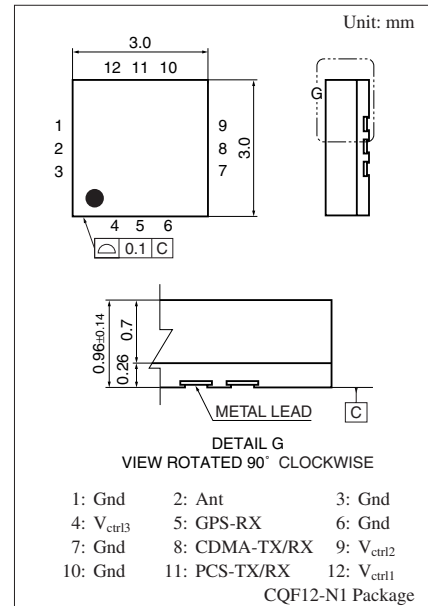
Parameter	Symbol	Rating	Unit	
Power dissipation	P_D	150	mW	
Control current	$V_{\text{ctrl(H)}} - V_{\text{ctrl(L)}}$	+5	V	
Maximum input power	CDMA, PCS	P_{IN}	35	dBm
	GPS		20	
Operating ambient temperature	T_{opr}	-30 to +90	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +120	$^\circ\text{C}$	

■ Electrical Characteristics

- CDMA ($V_{\text{ctrl(L)}} = 0\text{ V}$, $V_{\text{ctrl(H)}} = 3.0\text{ V}$, $f = 824\text{ MHz to }894\text{ MHz}$, $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss	LOSS	ANT-CDMA_TX/RX ($P_{\text{IN}} = 26\text{ dBm}$)		0.27	0.50	dB
Isolation	ISO	ANT-PCS_TX/RX (Correspond of ANT-CDMA_TX/RX ON)	25.0	30.0		dB
		ANT-GPS_RX (Correspond of ANT-CDMA_TX/RX ON)	30.0	34.8		
Voltage standing wave ratio *	VSWR	ANT-CDMA_TX/RX		1.20	1.35	—
Input 0.1 dB compression	$P_{\text{IN}(0.1\text{ dB})}$	ANT-CDMA_TX/RX	30	33		dBm
2nd harmonics *	$2f_O$	ANT-CDMA_TX/RX ($P_{\text{IN}} = 26\text{ dBm}$) Non-modulation signal		-76	-65	dBc
3rd harmonics *	$3f_O$	ANT-CDMA_TX/RX ($P_{\text{IN}} = 26\text{ dBm}$) Non-modulation signal		-75	-68	dBc
Control current	I_{ctrl}	ANT-CDMA_TX/RX		0.16	9.0	μA

Note) *: Designed specification



■ Electrical Characteristics (continued)

- PCS ($V_{ctrl(L)} = 0\text{ V}$, $V_{ctrl(H)} = 3.0\text{ V}$, $f = 1\,850\text{ MHz to }1\,990\text{ MHz}$, $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss *	LOSS	ANT-PCS_TX/RX ($P_{IN} = 24.0\text{ dBm}$)		0.33	0.50	dB
Isolation *	ISO	ANT-CDMA_TX/RX (Correspond of ANT-PCS_TX/RX ON)	19.0	22.0		dB
		ANT-GPS_RX (Correspond of ANT-PCS_TX/RX ON)	20.0	26.0		
Voltage standing wave ratio *	VSWR	ANT-PCS_TX/RX		1.10	1.30	—
Input 0.1 dB compression *	$P_{IN(0.1\text{ dB})}$	ANT-PCS_TX/RX	30	33		dBm
2nd harmonics *	$2f_O$	ANT-PCS_TX/RX ($P_{IN} = 24.0\text{ dBm}$) Non-modulation signal		-76	-65	dBc
3rd harmonics *	$3f_O$	ANT-PCS_TX/RX ($P_{IN} = 24.0\text{ dBm}$) Non-modulation signal		-78	-74	dBc
Control current *	I_{ctrl}	ANT-PCS_TX/RX		0.14	9.0	μA

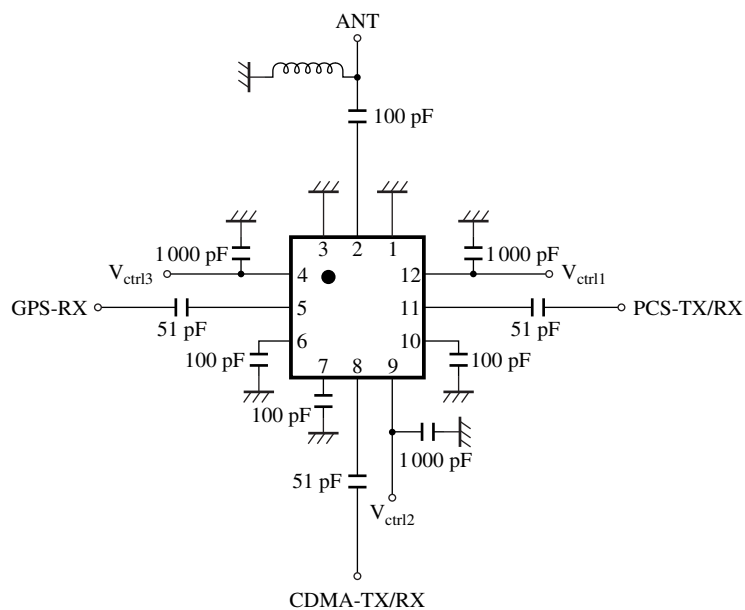
Note) *: Designed specification

- GPS ($V_{ctrl(L)} = 0\text{ V}$, $V_{ctrl(H)} = 3.0\text{ V}$, $f = 1\,574\text{ MHz to }1\,577\text{ MHz}$, $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss *	LOSS	ANT-GPS_RX ($P_{IN} = 10.0\text{ dBm}$)		0.32	0.55	dB
Isolation *	ISO	ANT-CDMA_TX/RX (Correspond of ANT-GPS_RX ON)	20.0	24.0		dB
		ANT-PCS_TX/RX (Correspond of ANT-GPS_RX ON)	20.0	25.0		
Voltage standing wave ratio *	VSWR	ANT-GPS_RX		1.1	1.35	—
Control current *	I_{ctrl}	ANT-GPS_RX		0.16	9.0	μA

Note) *: Designed specification

■ Test Circuit



■ Logic Table

ON Course	V _{ctrl1}	V _{ctrl2}	V _{ctrl3}
ANT-CDMA_TX/RX	L	H	L
ANT-PCS_TX/RX	H	L	L
ANT-GPS_RX	L	L	H

Caution for Safety

 **DANGER**

■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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