1. $V_{CTL(H)}$=1.8V / f=0.5 - 3.0GHz APPLICATION

1-1 SUMMARY

This is $V_{CTL(H)}$=1.8V / f=0.5 - 3.0GHz application note of NJG1801K75.
This application note shows the typical electrical characteristics and application circuit.

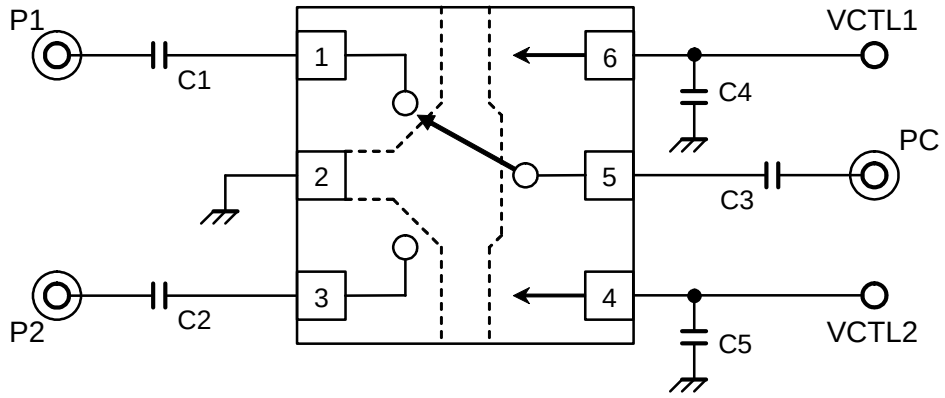
1-2 MEASURED DATA

General conditions: $V_{CTL(L)}$=0V, $V_{CTL(H)}$=1.8V, T_a=+25°C, Z_S=Z_l=50Ω

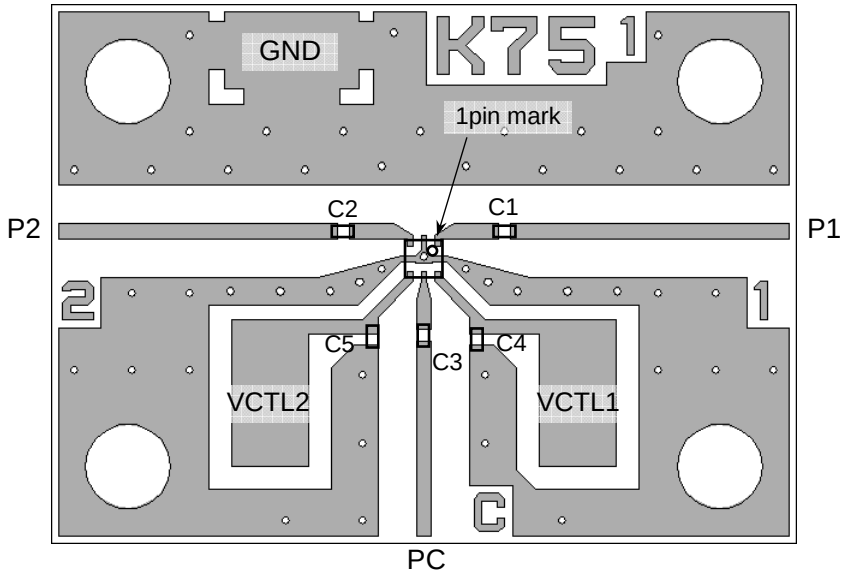
PARAMETERS	SYMBOL	CONDITIONS	DATA	UNITS
Control Current	I_{CTL}	$V_{CTL(H)}$=1.8V, No RF input	2.7	μA
Insertion loss1	LOSS1	f=0.5GHz	0.30	dB
Insertion loss2	LOSS2	f=1.0GHz	0.31	dB
Insertion loss3	LOSS3	f=2.0GHz	0.33	dB
Insertion loss4	LOSS4	f=2.7GHz	0.34	dB
Isolation1	ISL1	f=0.5GHz	34.8	dB
Isolation2	ISL2	f=1.0GHz	30.0	dB
Isolation3	ISL3	f=2.0GHz	27.5	dB
Isolation4	ISL4	f=2.7GHz	27.6	dB
Return loss1	RL1	f=0.5GHz	18.9	dB
Return loss2	RL2	f=1.0GHz	23.8	dB
Return loss3	RL3	f=2.0GHz	28.3	dB
Return loss4	RL4	f=2.7GHz	29.9	dB
Input power at 1dB compression point1	P_{-1dB}1	f=1.0GHz	24.8	dBm
Input power at 1dB compression point2	P_{-1dB}2	f=2.0GHz	24.0	dBm
Switching time	T_{SW}	50% VCTL to 10%/90% RF	272	ns

1-3 APPLICATION CIRCUIT

Top View



1-4 PCB DESIGN



PCB: FR-4, t=0.2mm
Capacitor Size: 0603 (0.6 x 0.3 mm)
Strip Line Width: 0.4mm
PCB Size: 19.4 x 14.0mm
Through Hole Diameter: 0.2mm

■ Loss of PCB, capacitor and connectors

Frequency (GHz)	Loss (dB)
0.5	0.15
1.0	0.17
2.0	0.26
2.7	0.34

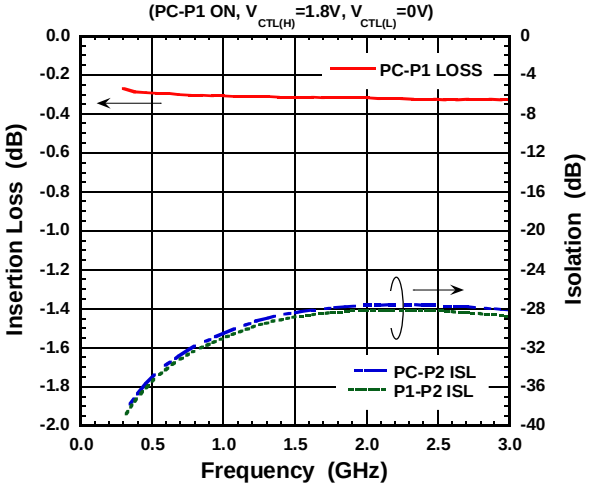
PARTS LIST

Parts ID	Constants	Comment
C1 to C3	56pF	Murata MFG (GRM03 series)
C4 to C5	10pF	

1-5-1 Characteristics

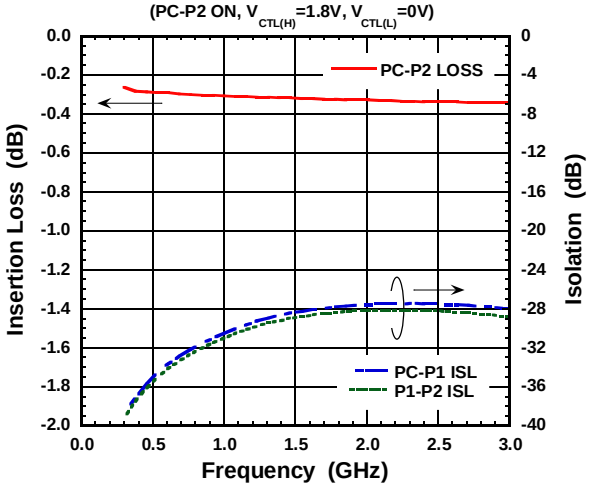
Loss, ISL vs Frequency

(PC-P1 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)



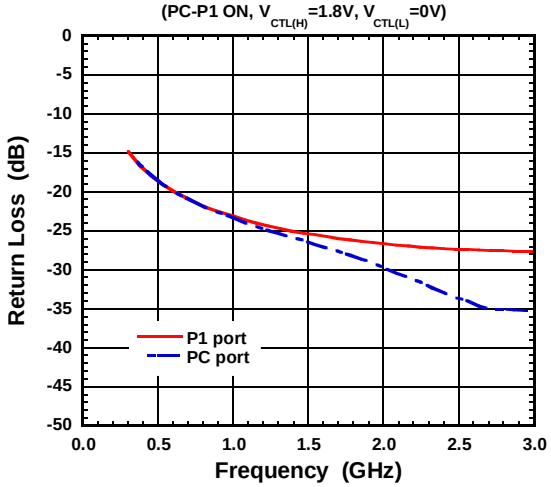
Loss, ISL vs Frequency

(PC-P2 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)



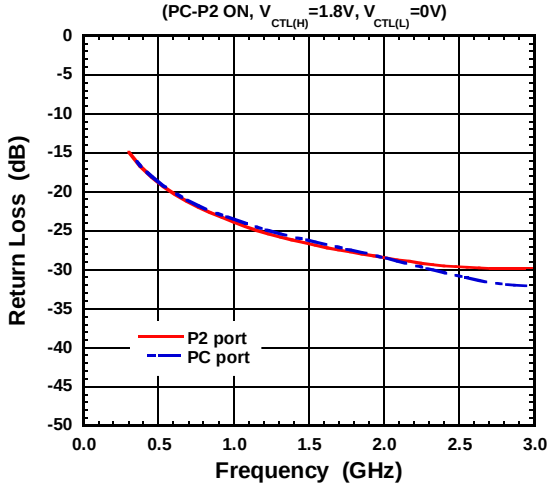
Return Loss vs Frequency

(PC-P1 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)



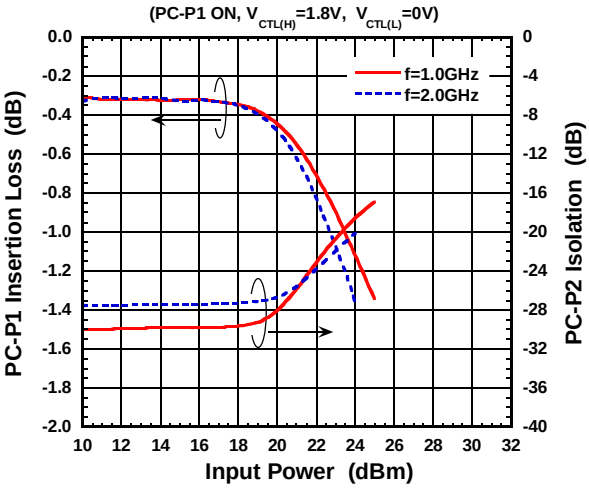
Return Loss vs Frequency

(PC-P2 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)



Loss, ISL vs Input Power

(PC-P1 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)



Loss, ISL vs Input Power

(PC-P2 ON, $V_{CTL(H)}$=1.8V, $V_{CTL(L)}$=0V)