

GaAs IC High Power SPDT Switch

Applications

AMPS, GPS, PCS, W-CDMA, TD-SCDMA, WiMAX
and other RF applications.

Features

- Positive Voltage Control
- Pin0.5dB (@+2.6V).....35dBm typ. @ 1-2GHz / 32.5dBm typ. @ 3.5GHz
- Low Insertion Loss.....0.3dB @1GHz / 0.35dB @3.5GHz
- High Isolation.....30dB @ 1GHz / 32dB @2GHz (Cellular band tuned)
30dB @ 2.5GHz (2.5GHz WiMAX band tuned)
28dB @ 3.5GHz (3.5GHz WiMAX band tuned)
- Logic Function Included
- Small / Thin Package12pin Leadless Package
(2.5mm × 2.5mm × 0.75mm, RoHS Compliant)
- MSL3

Absolute Maximum Ratings

Symbol	Parameter	Conditions	Rating	Unit
VDD/CTL	Control Voltage	Ta = 25°C	4.0	V
Pin	RF Input Power	Ta = 25°C	35	dBm
Top	Operating Temperature	-	-40 to 85	°C
Tstg	Storage Temperature	-	-55 to 150	°C

Electrical Specifications (Ta=25°C, VDD=2.6V, VCTL(H)=2.6V, VCTL(L)=0V)

Cellular band tuned (C4,C5=4pF)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
IDD	Current Consumption	-	-	-	150	μA
f0	Operation Frequency	-	0.8	-	2.0	GHz
IL	Insertion Loss	ANT-Port1/2	-	0.3	0.5	dB
ISO	Isolation	ANT-Port1/2@2.0GHz	25	30	-	dB
		Port1-Port2@2.0GHz	25	30	-	dB
Pin0.5dB	Input Power for 0.5dB Compression	ANT-Port1/2@2.0GHz	32	35	-	dBm

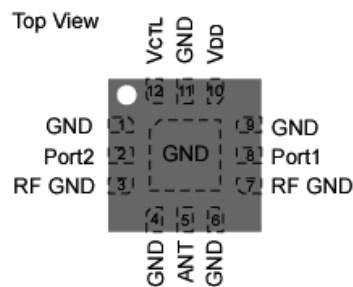
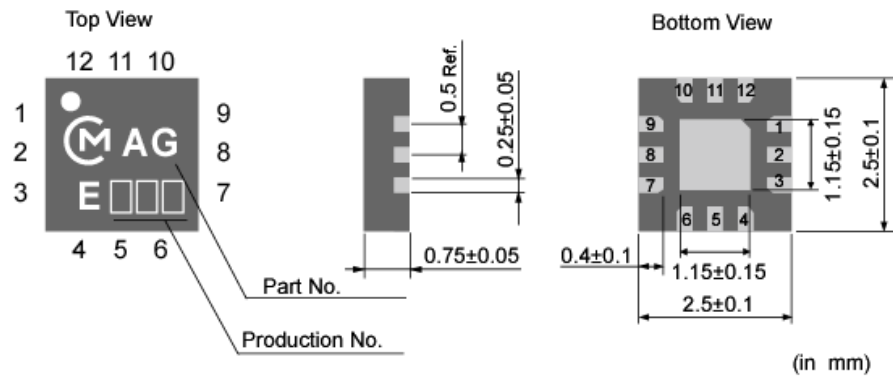
2.5GHz WiMAX band tuned (C4,C5=2pF)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _{DD}	Current Consumption	-	-	-	150	μA
f ₀	Operation Frequency	-	2.3	-	2.7	GHz
IL	Insertion Loss	ANT-Port1/2	-	0.3	0.55	dB
ISO	Isolation	ANT-Port1/2@2.5GHz	27	40	-	dB
		Port1-Port2@2.5GHz	25	30	-	dB
P _{in0.5dB}	Input Power for 0.5dB Compression	ANT-Port1/2@2.5GHz	31	34	-	dBm

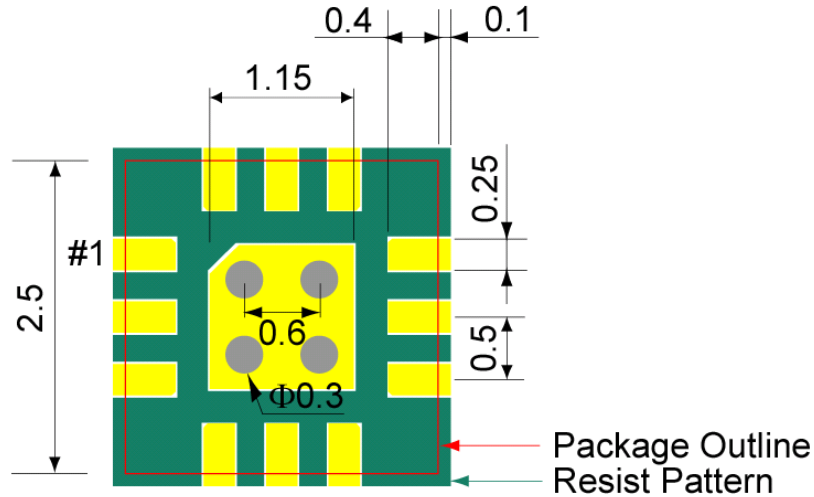
3.5GHz WiMAX band tuned (C4,C5=1pF)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _{DD}	Current Consumption	-	-	-	150	μA
f ₀	Operation Frequency	-	3.3	-	3.8	GHz
IL	Insertion Loss	ANT-Port1/2	-	0.35	0.65	dB
ISO	Isolation	ANT-Port1/2@3.5GHz	25	30	-	dB
		Port1-Port2@3.5GHz	20	25	-	dB
P _{in0.5dB}	Input Power for 0.5dB Compression	ANT-Port1/2@3.5GHz	29.5	32.5	-	dBm

Pin Connections



Land Pattern



Truth Table

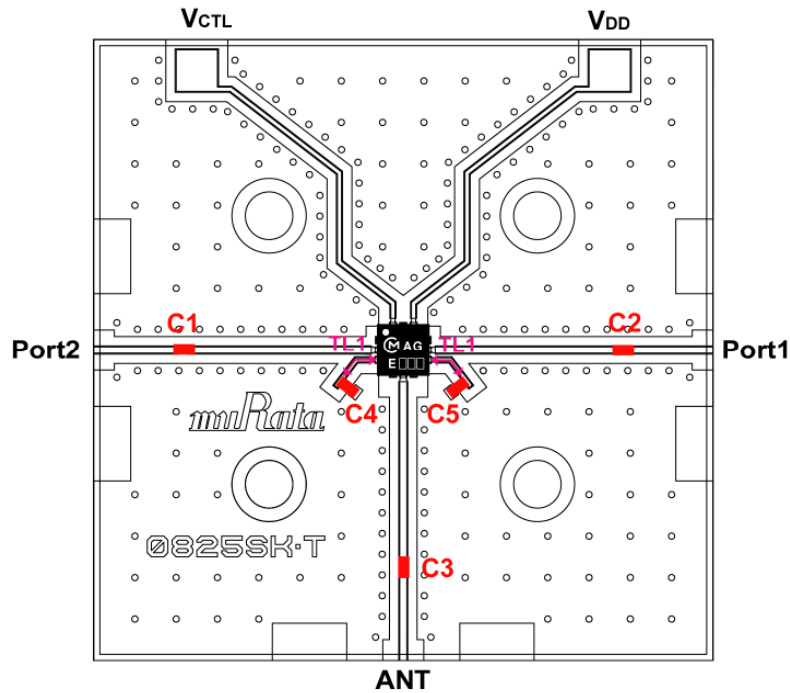
VDD=2.6V

ON PORT	VCTL
ANT-Port1	H
ANT-Port2	L

H: +1.8V~VDD

L: 0V

Evaluation Board



Parts List C1-C3 value

Frequency	Products	Value
0.8-3.8GHz	GRM155(Murata)	47 pF

C4,C5 value

Frequency	Products	Value
0.8-2.5GHz	GRM155(Murata)	4 pF
2.3-2.7GHz		2 pF
3.3-3.8GHz		1pF

Substrate

Transmission Line: 50Ω

Material :FR4 ($\epsilon_r = 4.4$)

Size : 30mm x 30mm

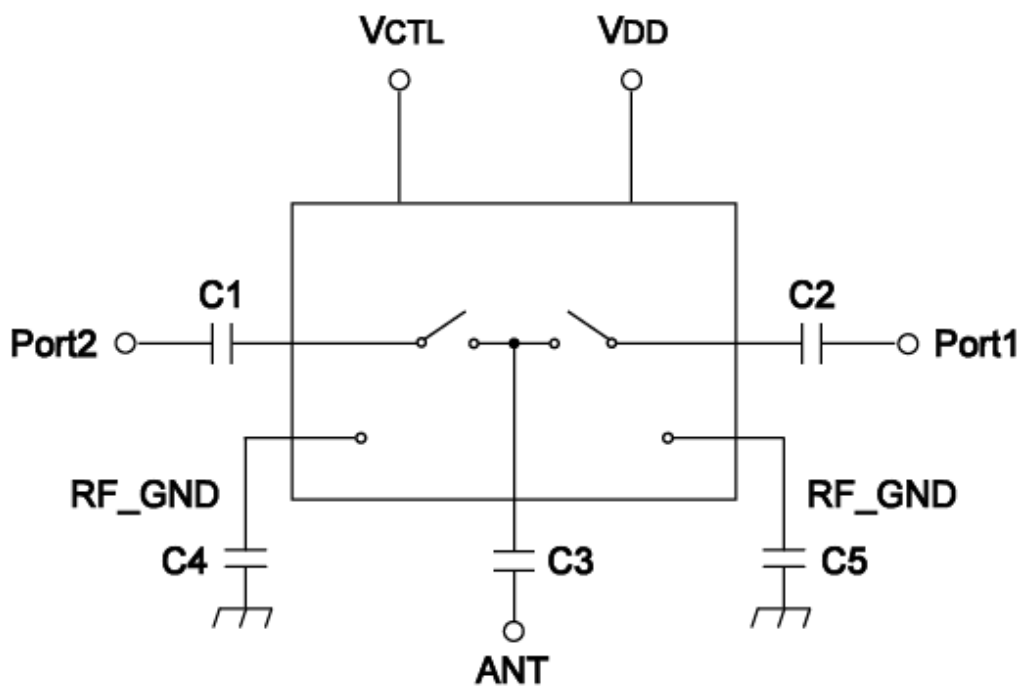
Thickness : 0.2mm + Dummy 0.4mm

TL1

Width: 0.2mm

Length: 2mm

□ Evaluation Circuit



Cellular band tuned (C4,C5=4pF)

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

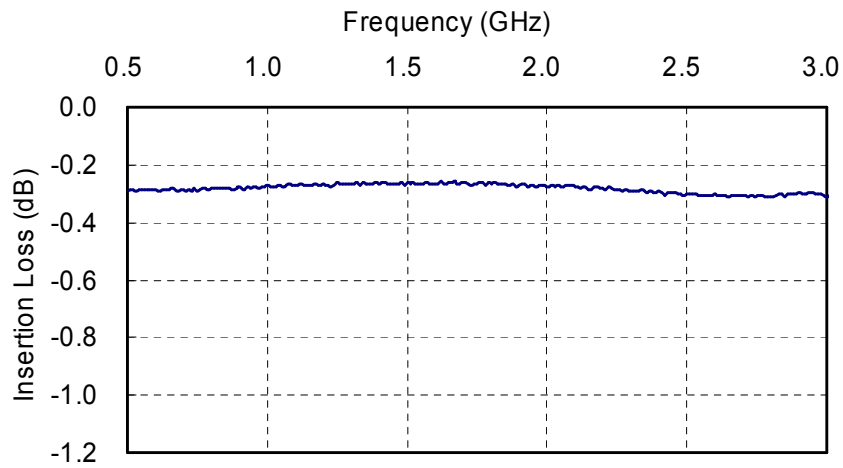


Fig.1 Insertion Loss vs. Frequency

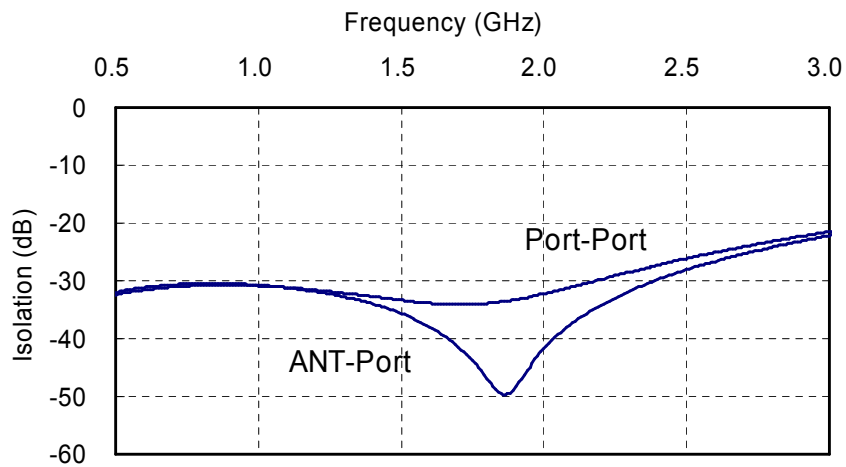


Fig.2 Isolation vs. Frequency

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

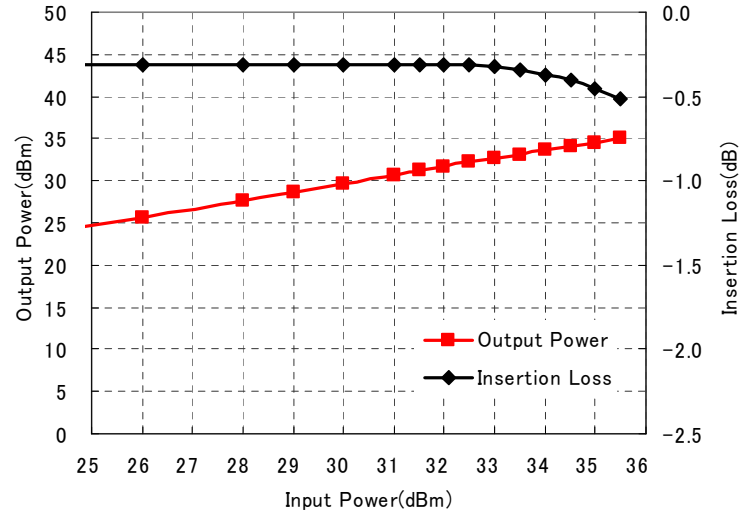


Fig.3 Output Power and Insertion Loss vs. Input Power (f=2.0GHz)

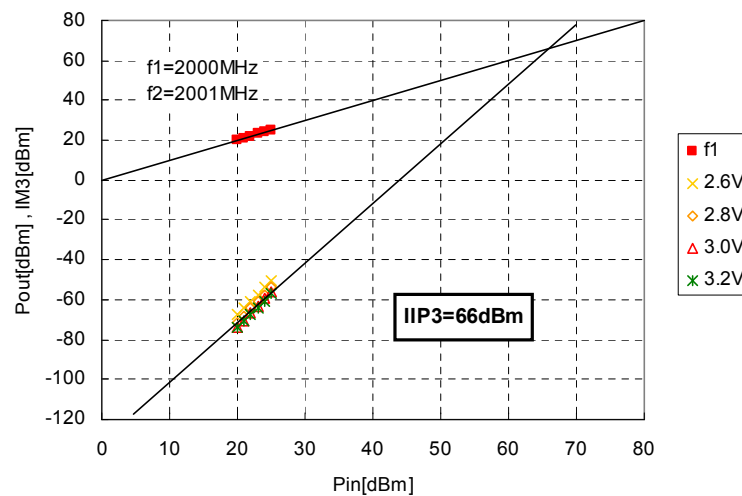


Fig.4 Input IIP3 (f=2.0GHz)

2.5GHz WiMAX band tuned (C4,C5=2pF)

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

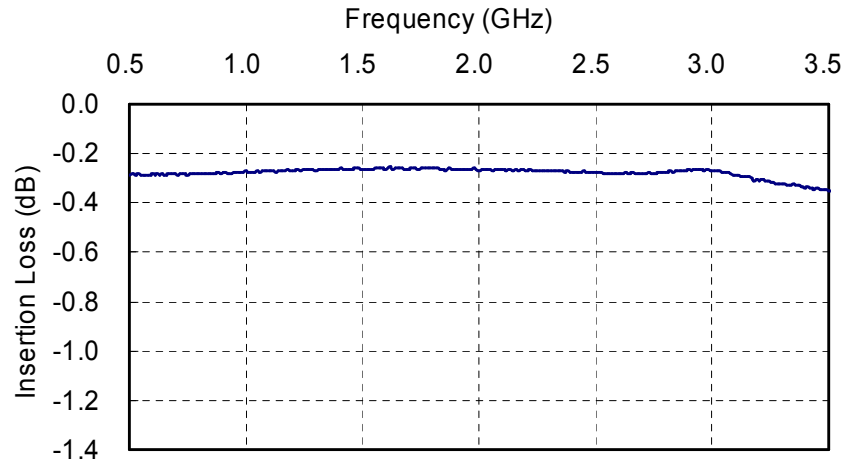


Fig.5 Insertion Loss vs. Frequency

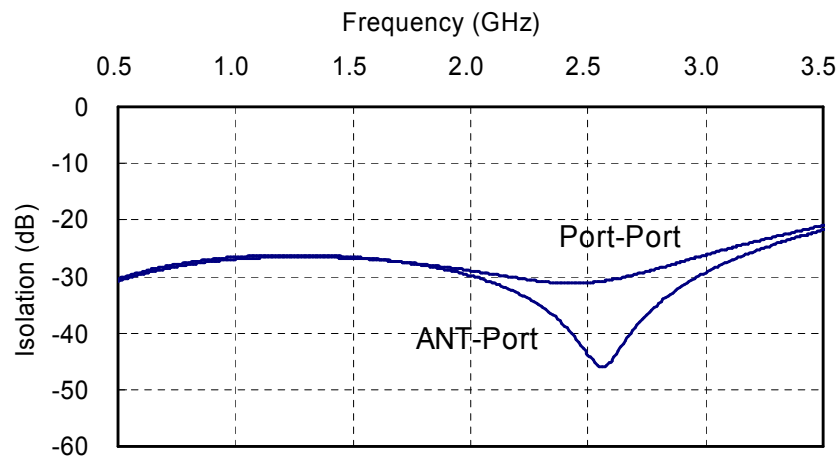


Fig.6 Isolation vs. Frequency

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

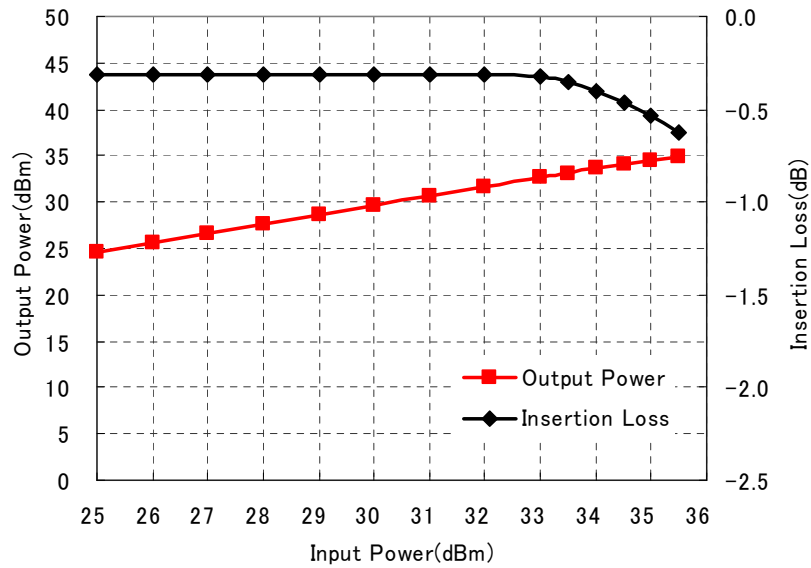


Fig.7 Output Power and Insertion Loss vs. Input Power (f=2.5GHz)

3.5GHz WiMAX band tuned (C4,C5=1pF)

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

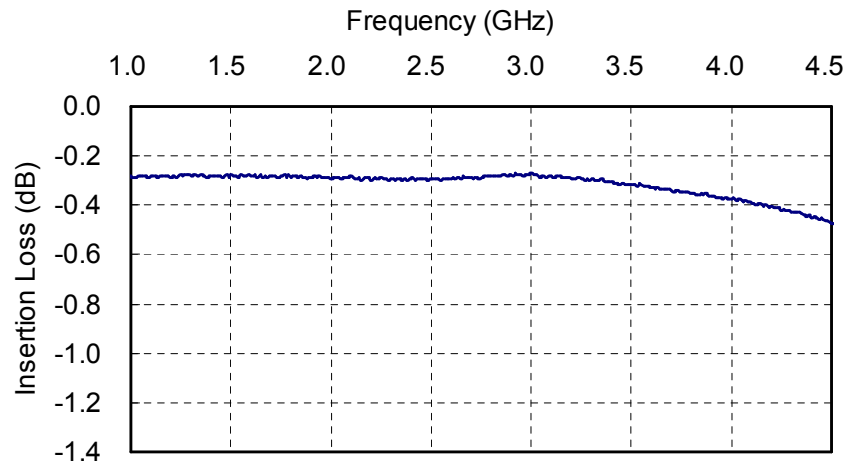


Fig.8 Insertion Loss vs. Frequency

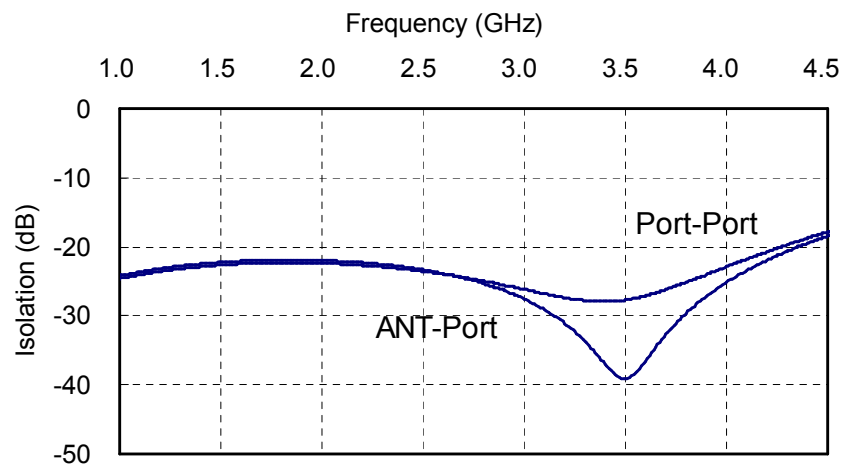


Fig.9 Isolation vs. Frequency

□ Typical Performance Data (On Evaluation Board, Fixture's Loss de-embedded)

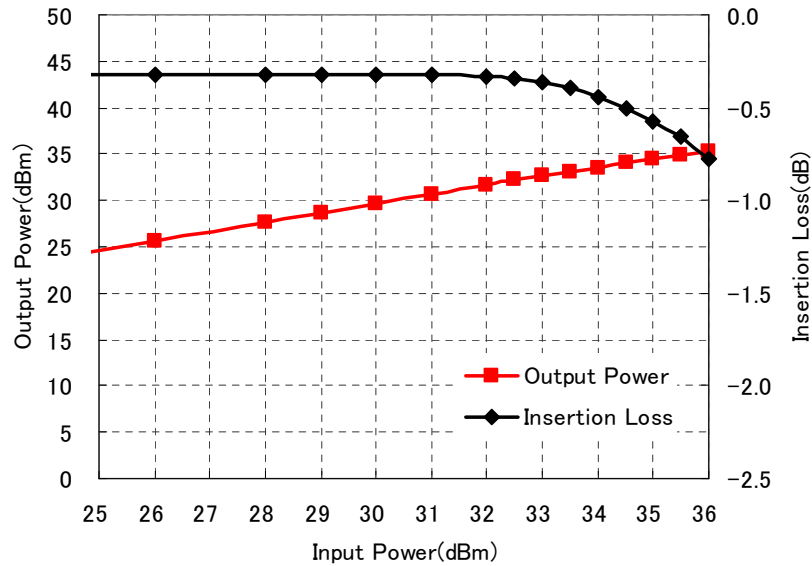


Fig.10 Output Power and Insertion Loss vs. Input Power (f=3.5GHz)

**CAUTION -Limitation of Applications-**

The product is designed and manufactured for consumer application only and is not available for any application listed below which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property.

- Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Transportation equipment (vehicles, trains, ships, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.

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