



SUMITOMO ELECTRIC INDUSTRIES, LTD.

00.04.28

P0501913H-A

1.9 GHz band

Power Amplifier Module

◆ Features

- 1.9 GHz frequency band
- Typical 30 dBm output power
- Low power consumption 3.1 W typ.
- Excellent adjacent leakage power
- Typical 26 dB power gain
- Cost-effective metal package
- Low thermal resistance structure



◆ Applications

- Final stage power amplifier of base station for PHS

◆ Description

The P0501913H-A is a high performance 1.9 GHz band power amplifier module capable of 30 dBm output power with a typical 26 dB gain at 1.9 GHz band, housed in a cost effective metal package. This device features a low power consumption owing to the excellent linearity and high gain of the pulse-doped GaAs MESFET developed by SEI, dissipating 530 mA typical.

The P0501913H-A is designed to perform the output power of 160 mW/time-slot at antenna for use in a base station, called 7 channel type, of personal handy phone system (PHS) in Japan. It operates from +5.8 V and -3 V power supplies.

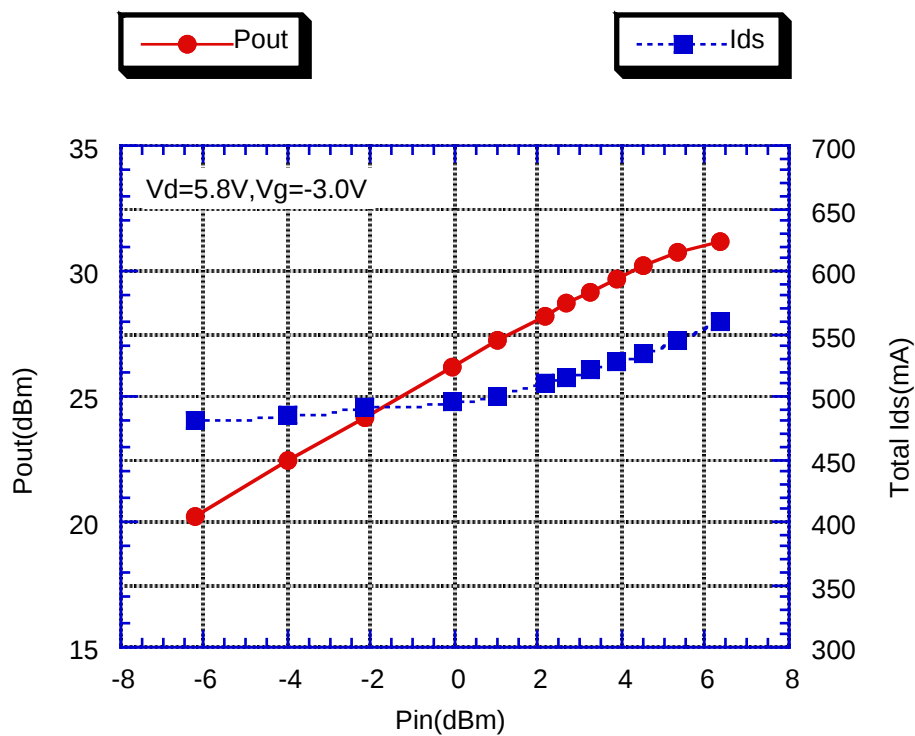
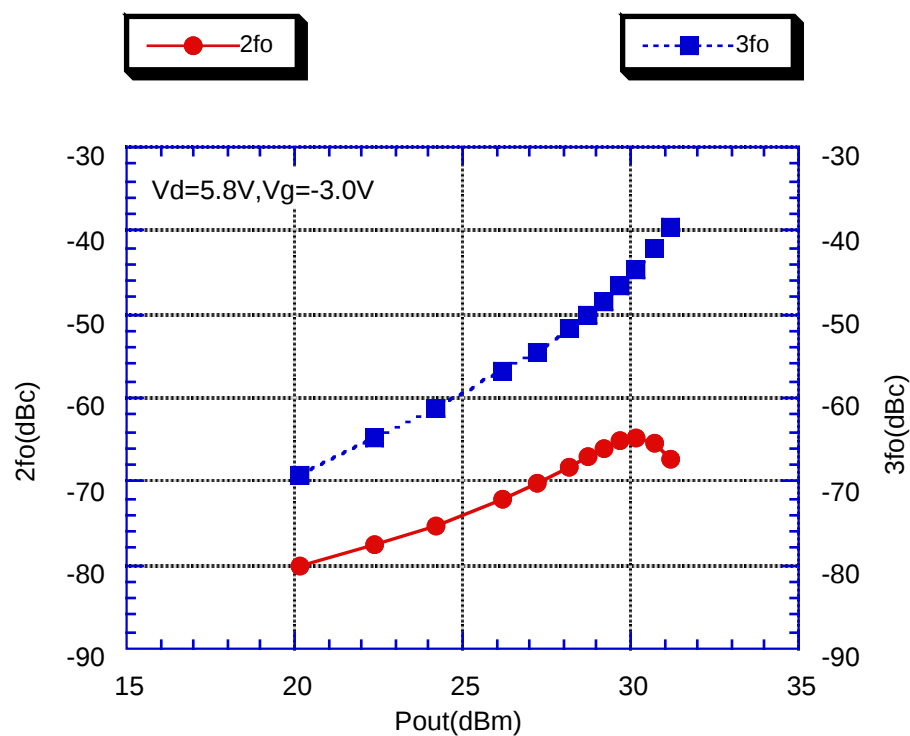
◆ **Absolute Maximum Ratings**Case Temperature T_c=25 °C

Parameter	Symbol	Value	Units
DC Supply Voltage	Vd1, Vd2	8 *	V
	Vg1, Vg2	- 5	V
Input Power	P _{in}	10	dBm
Storage Temperature	T _{stg}	-40 to + 90	°C
Operating Case Temperature	T _{opt}	-20 to + 75	°C

Notes: Operating of this device above any one of these parameters may cause permanent damage.

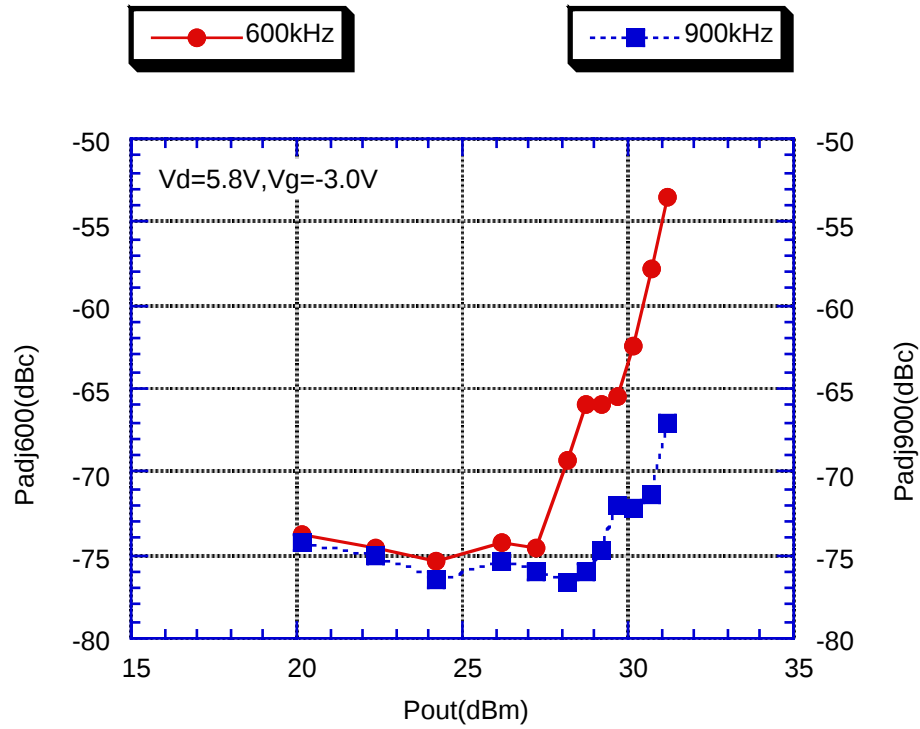
*V_{g1}, V_{g2}=-3.0 V◆ **Electrical Specifications**Case Temperature T_c=25 °C

Parameter	Symbol	Test Conditions	Value			Units
			Min.	Typ.	Max.	
Frequency	f		1893.5	—	1916.6	MHz
Supply Current (under operation)	I _d	P _{out} =30 dBm V _{d1} =5.8 V V _{d2} =5.8 V V _{g1} =-3.0 V V _{g2} =-3.0 V	—	530	550	mA
Gate Current	I _g		—	—	5	mA
Power Gain	G _a		24	26	—	dB
Input VSWR	—		—	1.5	3.0	—
Harmonic Distortion	2f ₀		—	-60	-35	dBc
	3f ₀		—	-50	-40	dBc
Adjacent Channel Leakage Power	P _{adj1}	600 kHz offset	—	-61	-56	dBc
	P _{adj2}	900 kHz offset	—	-68	-61	dBc
Occupied Frequency Bandwidth	—	—	—	250	270	kHz
Reverse IM3	IM3	P _{out} =30 dBm f ₂ =f ₁ ±600 kHz P _{in} (f ₂)=-10 dBm	—	-65	-59	dBc

◆ **Power Characteristics** $f=1906.55\text{ MHz}$, $V_{d1}, V_{d2}=5.8\text{ V}$, $V_{g1}, V_{g2}=-3.0\text{ V}$ ◆ **Harmonic Distortion** $f=1906.55\text{ MHz}$, $V_{d1}, V_{d2}=5.8\text{ V}$, $V_{g1}, V_{g2}=-3.0\text{ V}$ 

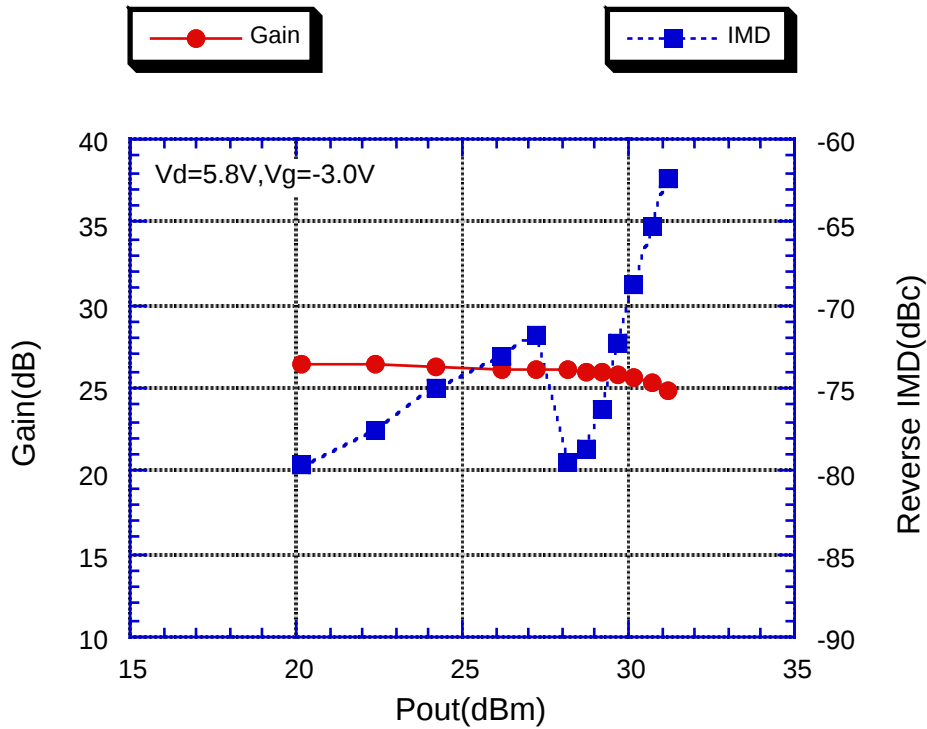
◆ *Adjacent Channel Leakage Power*

$f=1906.55\text{ MHz}$, $V_{d1},V_{d2}=5.8\text{ V}$, $V_{g1},V_{g2}=-3.0\text{ V}$

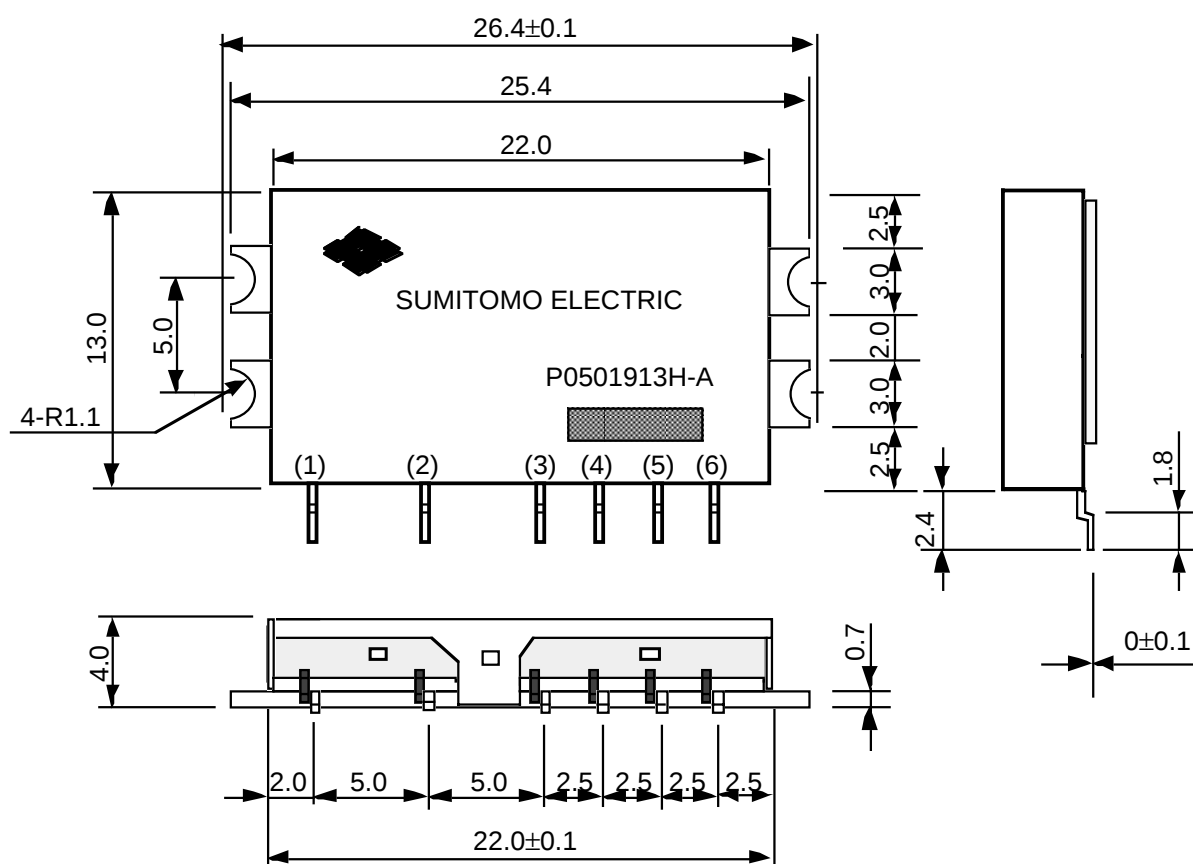


◆ *Harmonic Distortion*

$f=1906.55\text{ MHz}$, $V_{d1},V_{d2}=5.8\text{ V}$, $V_{g1},V_{g2}=-3.0\text{ V}$



◆ **Package Drawings (Dimensions are mm)**



Note: (1)Lead Size : 0.25x0.5
 (2)Nominal Variation of Lead Pitch : ±0.3
 (3)Nominal Variation of parts undescribed : ±0.3

◆ **Pin Assignment**

(1) RFin	(2) Vg1	(3) Vd1	Case: GND
(4) Vg2	(5) Vd2	(6) RFout	

◆ Evaluation Board Layout (Dimensions are mm)

