



 SUMITOMO ELECTRIC

Preliminary

03.05.08

P0531981H

1.9 GHz band

Power Amplifier Module

◆ **Features**

- 1.9 GHz frequency band
- Typical 36 dBm output power
- Low power consumption 18 W typ.
- Excellent adjacent leakage power
- Typical 35 dB power gain
- Cost-effective metal package
- Low thermal resistance structure



◆ **Applications**

- Final stage power amplifier of base station for PHS

◆ **Description**

The P0531981H is a high performance 1.9 GHz band power amplifier module capable of 36 dBm output power with a typical 35 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 1500 mA typical. It operates from +12 V and -4.9 V power supplies.

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

Parameter	Symbol	Value	Units
DC Supply Voltage	Vd1, Vd2	14 *	V
	Vg1, Vg2	- 7	V
Input Power	Pin	10	dBm
Storage Temperature	Tstg	-40 to + 95	°C
Operating Case Temperature	Topt	-25 to + 80	°C

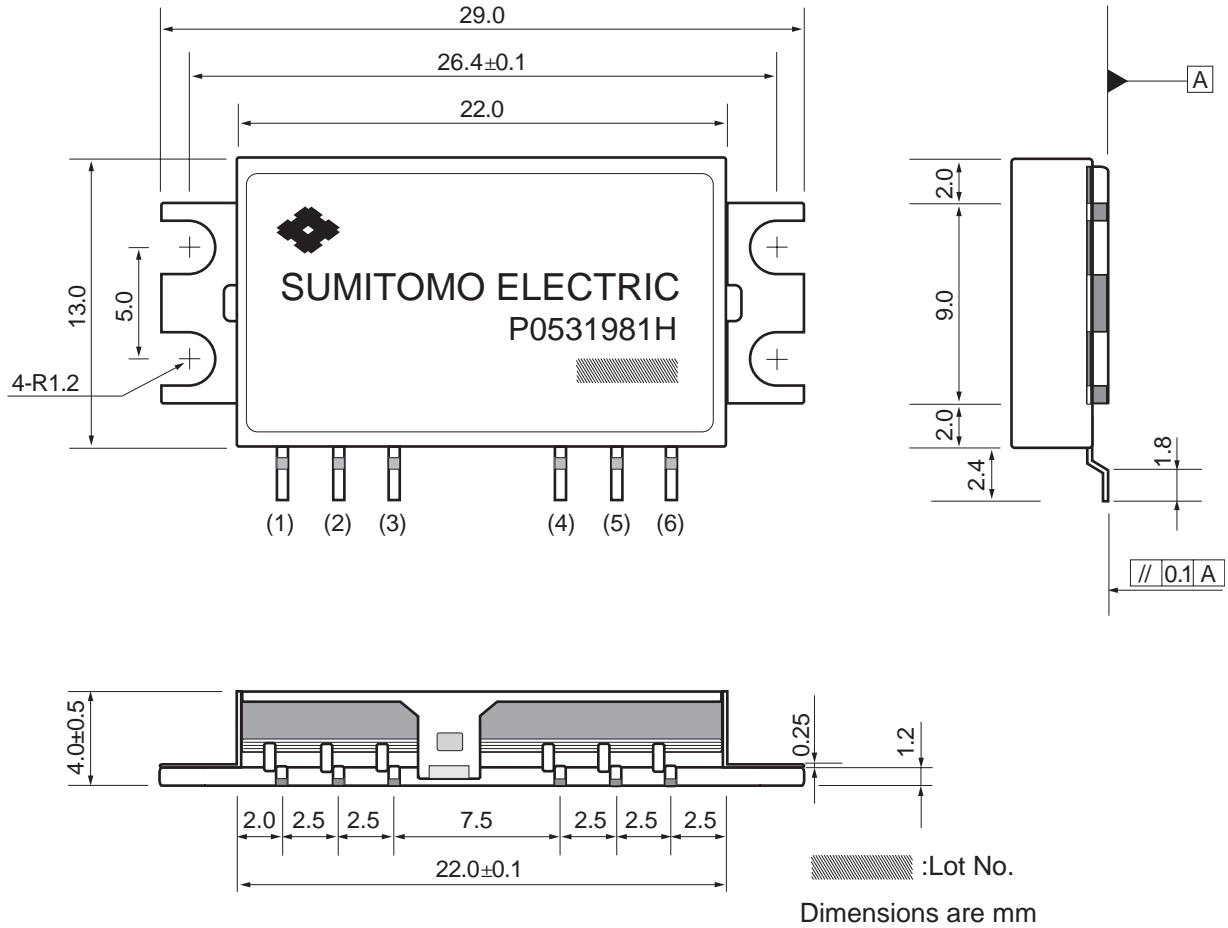
Notes: Operating of this device above any one of these parameters may cause permanent damage.

*Vg1,Vg2=-4.9V

◆ **Electrical Specifications**Case Temperature T_c=25 °C

Parameter	Symbol	Test Conditions	Value			Units
			Min.	Typ.	Max.	
Frequency	f		1880	—	1920	MHz
Supply Current (under operation)	I _d	P _{out} =36.0 dBm V _{d1} =12 V V _{d2} =12 V V _{g1} =-4.9 V V _{g2} =-4.9 V	—	1500	1650	mA
Gate Current	I _g		—	8	15	mA
Power Gain	G _a		34	35	—	dB
Input VSWR	i _n		—	1.5	2.5	—
Harmonic Distortion	2f ₀		—	-45	-35	dBc
	3f ₀		—	-45	-35	dBc
Adjacent Channel Leakage Power	P _{adj1}		600 kHz offset	—	-70	-67
	P _{adj2}	900 kHz offset	—	-74	-72	dBc

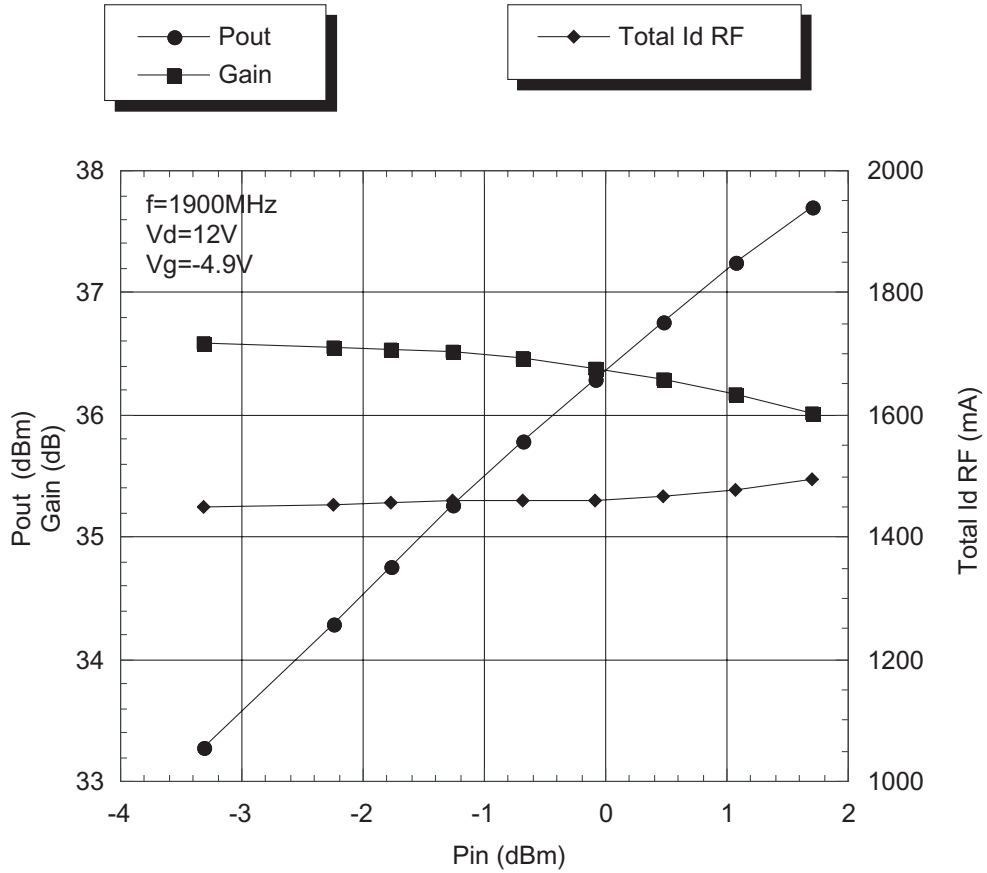
◆ Package Drawings (Dimensions are mm)



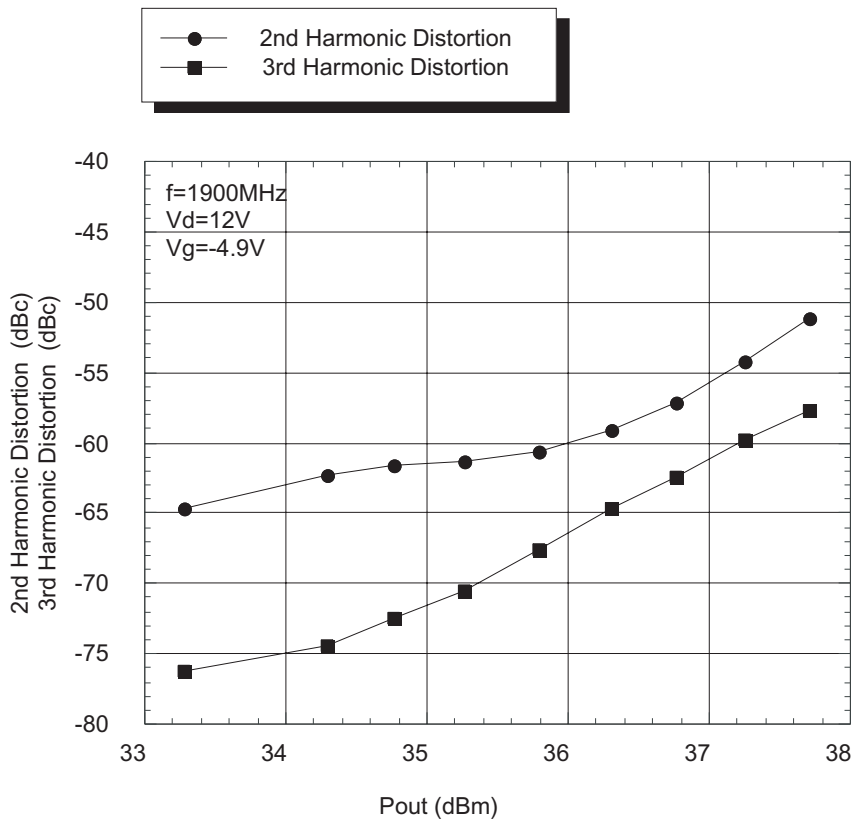
◆ Pin Assignment

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

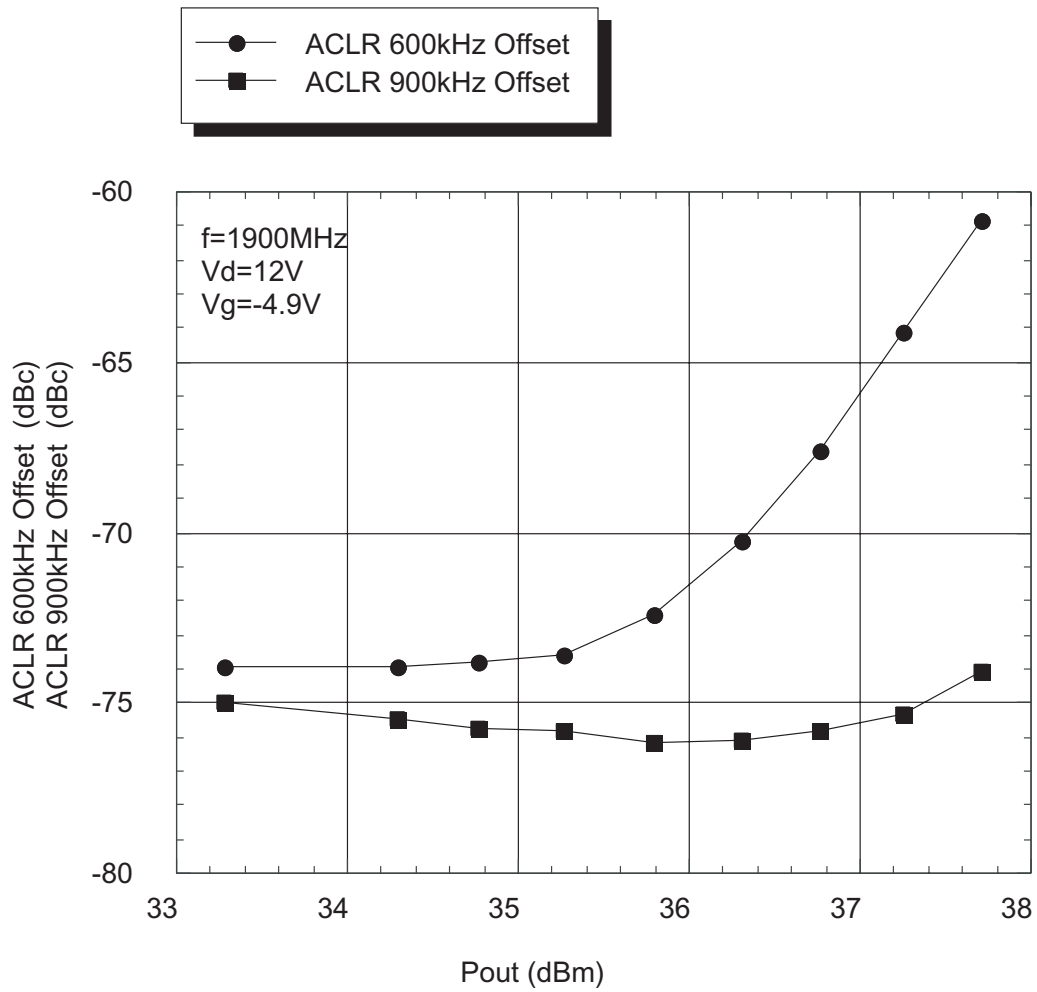
◆ Power Characteristics



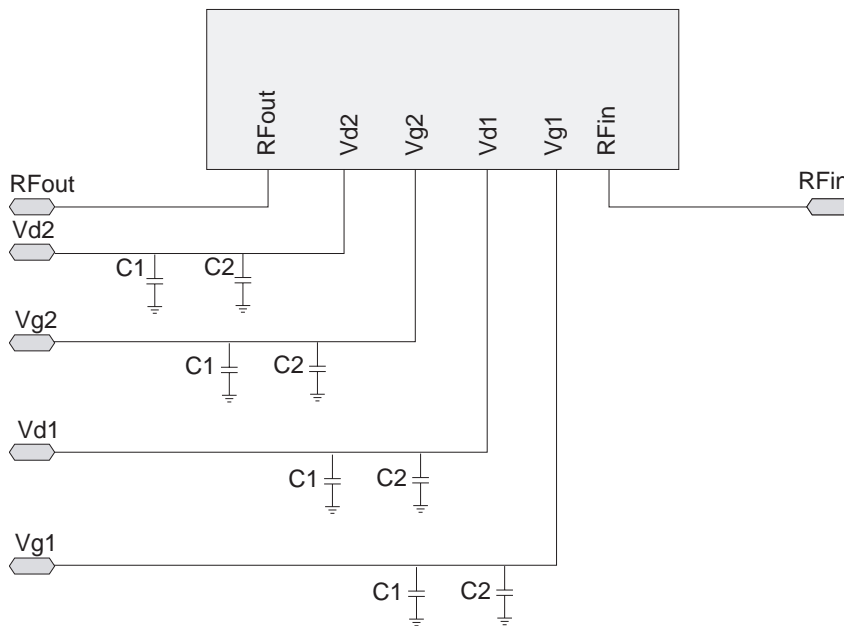
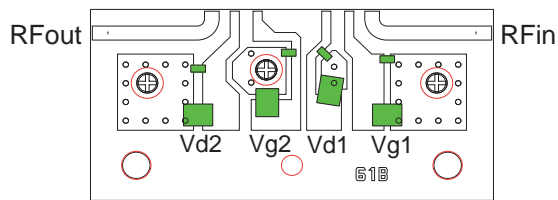
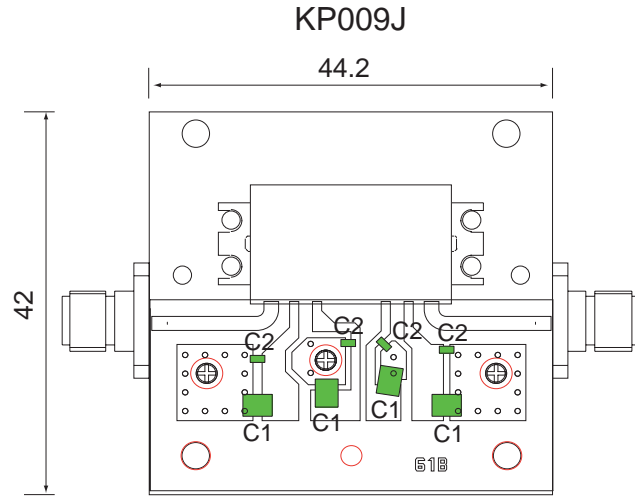
◆ Harmonic Distortion



◆ Adjacent Channel Leakage Power



◆ Evaluation Board Layout (Dimensions are mm)



DESIGNATION	VALUE
C1	1µF
C2	0.1µF