



# MA1065-1

For 1.9 GHz - High Power Amplifier

MA1065-1

## DESCRIPTION

The MA1065-1 are 1.9 GHz band power amplifier modules ( $P_o = +4.0W$ ), constructed by driver-amp, highpower-amp, power-monitor and control-circuit. Input and Output impedances are designed to  $50\Omega$ .

## FEATURES

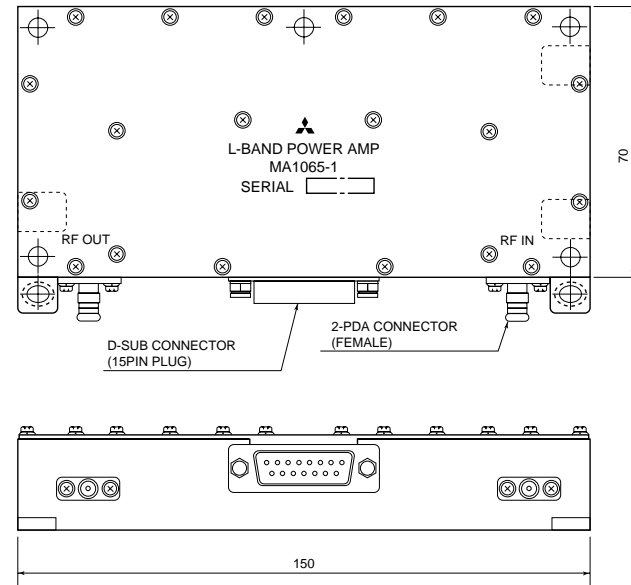
MA1065-1:  $P_o = +22.4 \sim 36.4$  dBm (8 step,  $P_{in} = -9.0$  dBm) @1.9 GHz  
 $V_s = +12.0V$ ,  $V_g = -7.0V$ ,  
 $V_{cont} = +5.0V$

## APPLICATION

Power amplifier module for PHS base station/Japan.

## OUTLINE DRAWING

### 3. Demensions and Pin Layout



2-1 Noise from Primary Power Supply  
 $+12V$ : 200 mVp-pmax  
 $-10V$ : 100mVp-pmax

2-2 D-sub Connector pin assign

1	$V_s$	+12V Power Supply
2	$V_s$	+12V Power Supply
3	GND	Analog GND
4	$V_g$	-10V Power Supply
5	GND	Analog GND
6	GND	Digital GND
7	N/C	N/C
8	N/C	N/C
9	$V_s$	+12V Power Supply
10	GND	Analog GND
11	GND	Analog GND
12	GND	Analog GND for $V_p$
13	$V_p$	RF monitor for ALC
14	N/C	N/C
15	TXE	Transmission ON/OFF Control (PA Control)

2-3 PA Control

PA	TXE
OFF	0
ON	1

Unit : mm

Outside View

## Amplifier Specifications (MA1065-1)

### 1. Maximum Ratings

No.	Items	Symbol	Standard	Condition
1	Voltage	+12 V	$V_s$	+16 V $T_a = +25^\circ C$
		-10 V	$V_g$	- 12.5V $T_a = +25^\circ C$
2	Input RF Power	$P_{in}$	+5 dBm	$T_a = +25^\circ C$ , $f = 1895 \sim 1918$ MHz
3	Operating Temperature	$T_{op}$	-20 ~ +80°C	Base Plate Temperature
4	Storage Temperature	$T_{stg}$	-40 ~ +90°C	
5	Humidity	Rh	+50°C, 95% R.H	

### 2. Electrical Performances

No.	Items	Condition	Standard			Unit
			Min	Typ	Max	
1	Frequency		1895	---	1918	MHz
2	Output Power	$f = 1895, 1906, 1918$ MHz $P_{in} = -9.0$ dBm	35.9	36.4	36.9	dBm
	Ripple		---	---	0.6	dBp-p
	Temperature drift		---	---	$\pm 2.0$	dB
3	ACP	$f = 1895, 1906, 1918$ MHz $P_{out} = 36.4$ dBm $\pi / 4$ Shift QPSK Modulation	---	---	---	
	600 kHz deviation		---	---	-69.0	dBc
	900 kHz deviation		---	---	-74.0	dBc
4	Input/Output VSWR	$f = 1895, 1906, 1918$ MHz $P_{in} \leq -9.0$ dBm	---	---	1 : 1.5	
	Load VSWR		With Load VSWR of less than 1:2.0 There is no abnormal Oscillation with Load VSWR of more than 1:2.0			
5	Spurious		---	---	---	
	In-band	$f = 1895 \sim 1918$ MHz $P_{out} = 36.4$ dBm	---	---	-75.0	dBc
	Out of band	$f = 100$ kHz ~ 6 GHz (Except In-band) $P_{out} = 36.4$ dBm	---	---	-65.0	dBc
6	Drain Current +12V (1) Transmission (2) Non Transmission	$f = 1906$ MHz $\pi / 4$ Shift QPSK Modulation $P_{out} = 36.4$ dBm	---	---	3.3 A max 200 mA	
7	Carrier-off leak power	$P_{in} = -75$ dBm	---	---	-70.0	dBm/200kHz
8	Burst Transmission Response		---	---	2.6	$\mu S$
9	Output Power Monitor	$P_{out} = 39.4$ dBm $f = 1895, 1906, 1918$ MHz Without modulation	---	---	---	
	Output Voltage		2.0	---	3.0	V
	Slope		---	400	---	mV/dB
	Frequency and Temperature drift		---	---	1.0	dBp-p
	Output Voltage under Burst off time		---	---	0.5	V