

Features

- Ideal for PHS Applications
- Linear Output Power: +24 dBm Typical @ 3.6 V
- Small Signal Gain: 36 dB Typical
- Low Current: 200 mA at +21 dBm Pout
- Passes 1KV ESD rating
- Micro-Amp Shutdown
- Operates from 2.8 V to 4.2 V
- Lead-Free 3 mm, 12-Lead PQFN Package
- 100% Matte Tin Plating over Copper
- Halogen-Free "Green" Mold Compound
- RoHS* Compliant and 260°C Reflow Compatible

Description

The MAAP-000082 is a three stage power amplifier designed for PHS applications. This power amplifier is packaged in a lead-free standard outline 3 mm, 12-lead PQFN plastic package.

Ordering Information^{1,2}

Part Number	Package
MAAP-000082-TR3000	3000 piece reel
MAAP-000082-001SMB	Sample Test Board 1880 - 1930 MHz Tuning

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

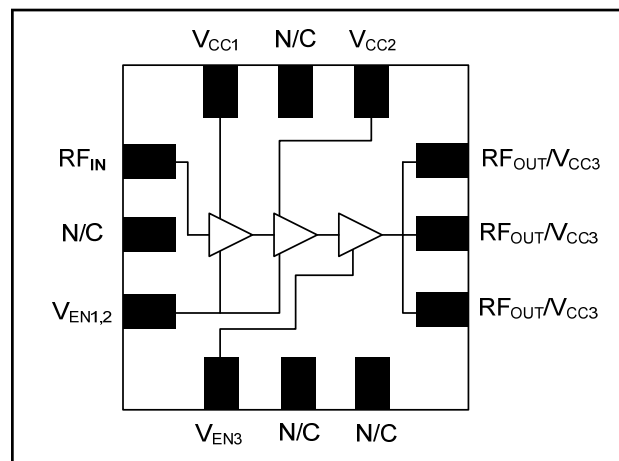
Absolute Maximum Ratings^{3,4}

Parameter	Absolute Maximum
Input Power	0 dBm
Operating Supply Voltage	+4.2 Volts
Operating Control Voltage	+3.0 Volts
Operating Temperature	-40°C to +85°C
Channel Temperature	+150 °C
Storage Temperature	-50°C to +150°C

3. Exceeding any one or combination of these limits may cause permanent damage to this device.
4. M/A-COM does not recommend sustained operation near these survivability limits.

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

Functional Block Diagram



Pin Configuration

Pin No.	Pin Name	Description
1	RF _{IN}	RF Input
2	N/C	No Connection
3	V _{EN1,2}	Power Enable
4	V _{EN3}	Power Enable
5	N/C	No Connection
6	N/C	No Connection
7	RF _{OUT} / V _{CC3}	RF Output, 3rd Stage Supply
8	RF _{OUT} / V _{CC3}	RF Output, 3rd Stage Supply
9	RF _{OUT} / V _{CC3}	RF Output, 3rd Stage Supply
10	V _{CC2}	2nd Stage Supply
11	N/C	No Connection
12	V _{CC1}	1st Stage Supply
Pad ⁵	GND	RF & DC Ground

5. The exposed pad centered on the package bottom must be connected to RF and DC ground.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Electrical Specifications: $F = 1905 \text{ MHz}$, $T_A = +25^\circ\text{C}$, $V_{CC} = 3.6 \text{ V}$, $V_{EN} = 3.0 \text{ V}$, $Z_O = 50 \Omega$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Gain	$P_{OUT} = +21 \text{ dBm}$	dB	34	36	38
Input Return Loss	—	dB	—	15	—
ACPR	$P_{OUT} = +21 \text{ dBm}$, 600 KHz offset	dBc	—	-63	-60
	$P_{OUT} = +24 \text{ dBm}$, 600 KHz offset	dBc	—	-60	—
ALT	$P_{OUT} = +21 \text{ dBm}$, 900 KHz offset	dBc	—	-72	-69
	$P_{OUT} = +24 \text{ dBm}$, 900 KHz offset	dBc	—	-70	—
P1dB	—	dBm	—	26.5	—
PAE	$P_{OUT} = +21 \text{ dBm}$	%	—	17	—
	$P_{OUT} = +24 \text{ dBm}$	%	—	25	—
Operating Current	$P_{OUT} = +21 \text{ dBm}$	mA	—	200	240
	$P_{OUT} = +24 \text{ dBm}$	mA	—	280	—
Idle Current	No RF applied	mA	—	90	150
Current, Off	$V_{EN} = 0 \text{ V}$	μA	—	3	—
Enable Current	$V_{EN} = 3.0 \text{ V}$	mA	—	4	—
Forward Isolation	$V_{EN} = 0 \text{ V}$	dB	—	39	—
Stability	$P_{OUT} < 27 \text{ dBm}$, $VSWR < 4:1$, $-20^\circ\text{C} < T_A < +70^\circ\text{C}$		All spurs $< -60 \text{ dBc}$		

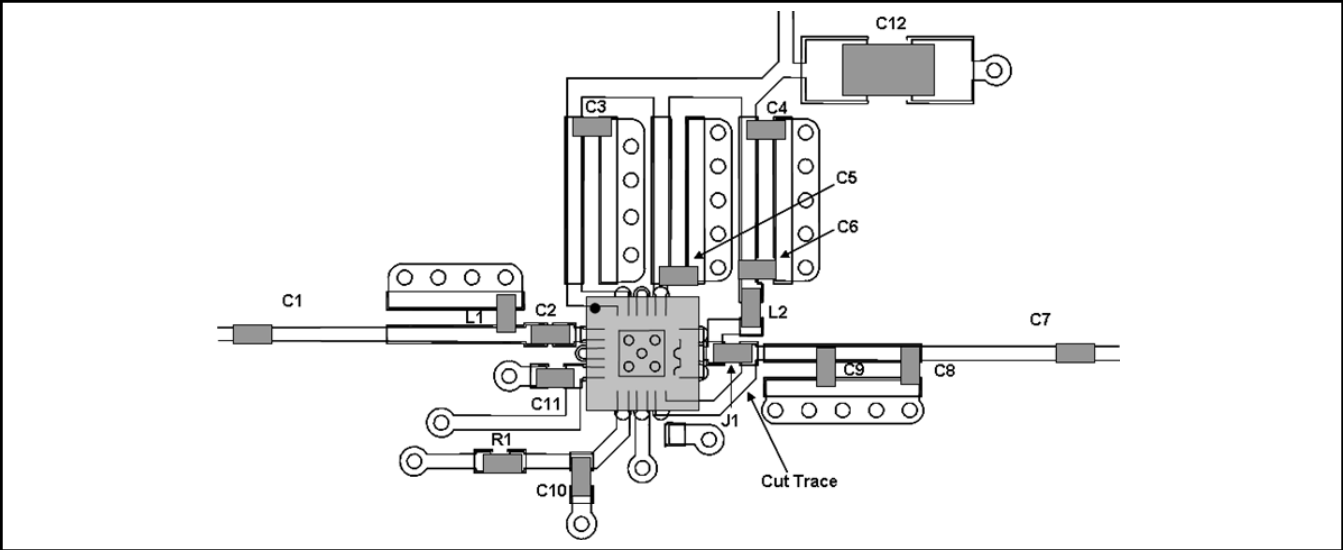
Handling Procedures

Please observe the following precautions to avoid damage:

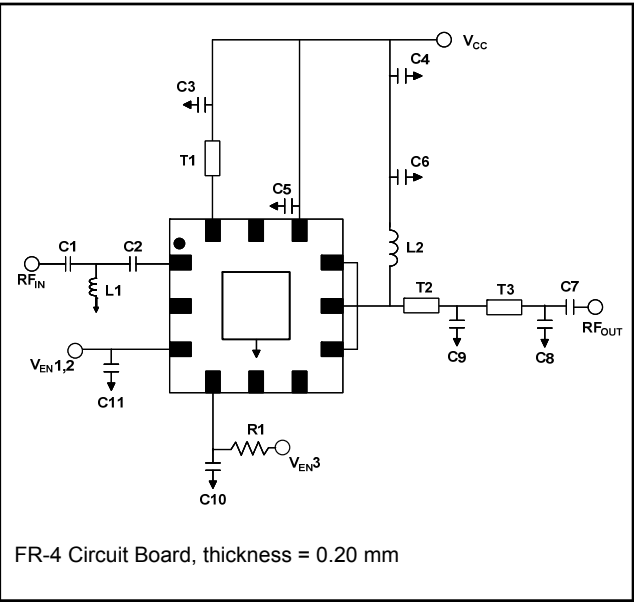
Static Sensitivity

Silicon germanium Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Recommended PCB Configuration



Schematic



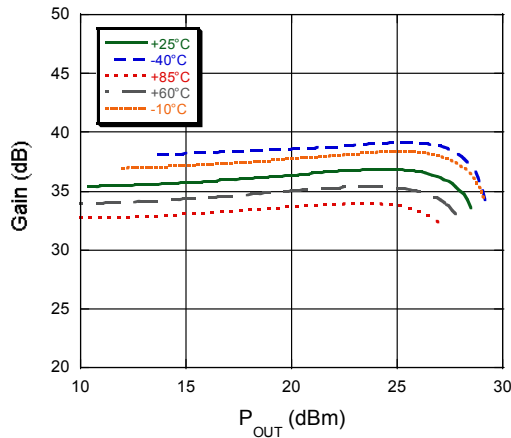
External Parts List

Designator	Value	Foot Print	Manufacturer
C1	1000 pF	0402	Murata
C2	18 pF	0402	Murata
C3, C4, C5, C10, C11	0.1 μ F	0402	Murata
C6	15 pF	0402	Murata
C7	47 pF	0402	Murata
C8	0.5 pF	0402	Murata
C9	2.7 pF	0402	Murata
L1	2.2 nH	0402	Coilcraft
L2	15 nH	0402	Coilcraft
R1	820 Ω	0402	Panasonic

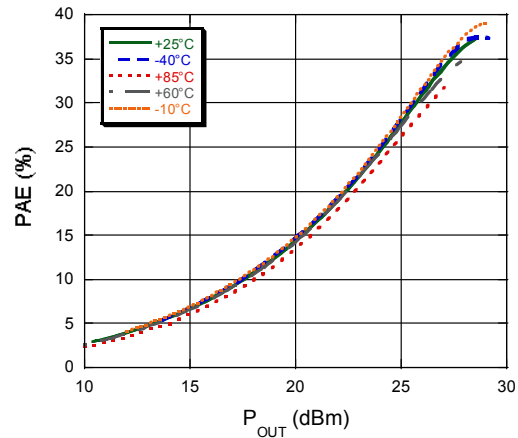
Frequency = 1905 MHz		
	Impedance	Electrical Length (mils)
T1	50 Ω	200
T2	50 Ω	120
T3	50 Ω	70

Typical Characteristics @ +25°C, -40°C, +85°C, +60°C, -10°C, $V_{CC} = 3.6\text{ V}$

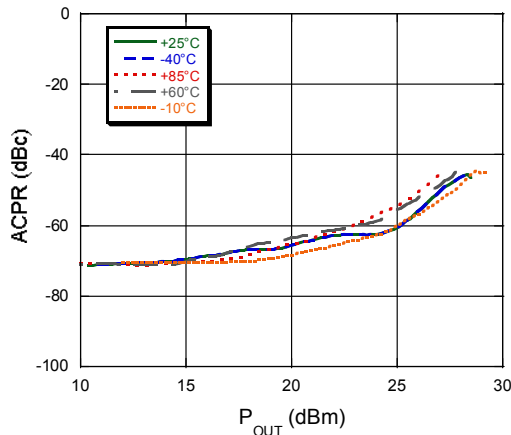
Gain vs. P_{OUT} @ 1905 MHz



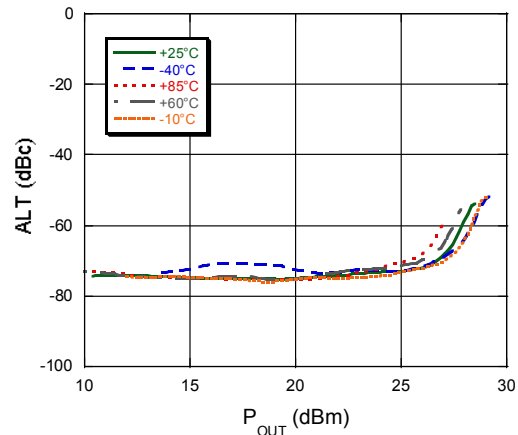
PAE vs. P_{OUT} @ 1905 MHz



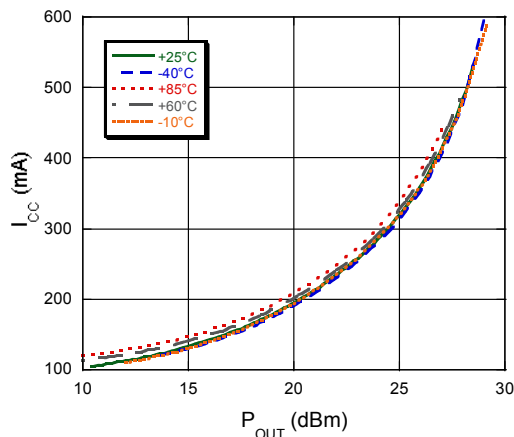
ACPR vs. P_{OUT} @ 1905 MHz



ALT vs. P_{OUT} @ 1905 MHz

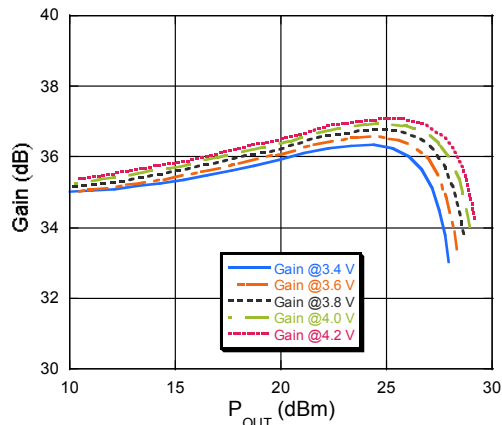


I_{CC} vs. P_{OUT} @ 1905 MHz

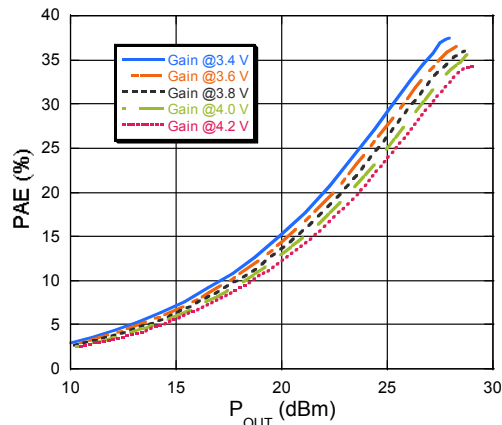


Typical Performance Curves, 1905 MHz, V_{CC} swept from 3.4 V to 4.2 V by 0.2 steps

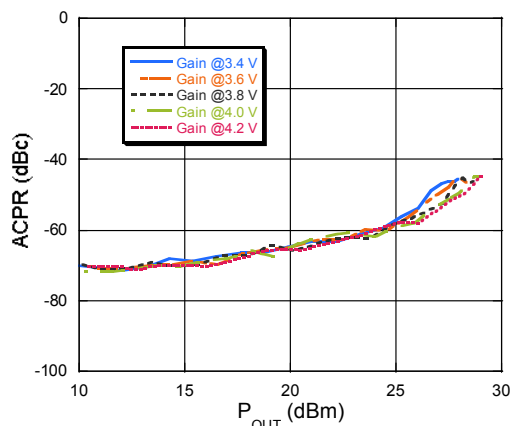
Gain vs. P_{OUT}



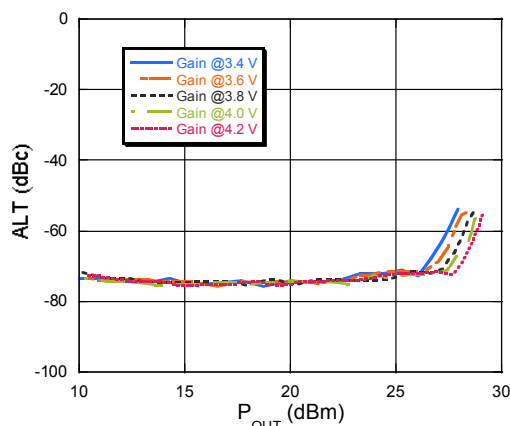
PAE vs. P_{OUT}



ACPR vs. P_{OUT}



ALT vs. P_{OUT}



I_{CC} vs. P_{OUT}

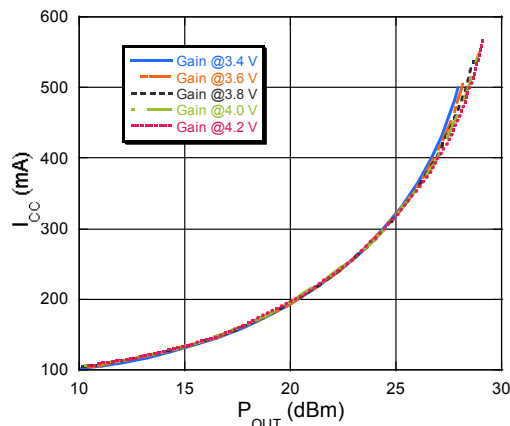


Figure 1: Dimensions of the S2083 package. The figure includes three views: a top view, a side view, and a bottom view. The top view shows a square package with a 12-pin connector on one side. Dimensions include a 1.181 inch square body, a 0.0354 inch pin pitch, and a 0.90 inch pin width. The side view shows a 0.0079 inch pin height and a 0.0020 inch pin thickness. The bottom view shows a 0.0197 inch pin width and a 0.0394 inch pin spacing. The package is labeled with a date code, lot number, and part number.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.



**Стандарт
Электрон
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331