

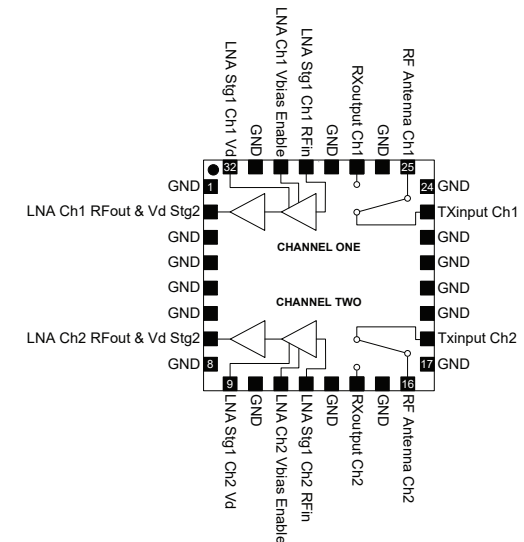
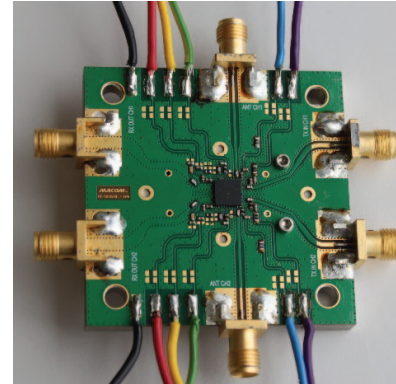
MAMF-011069

Dual Channel SW/LNA Module for 5G M-MIMO

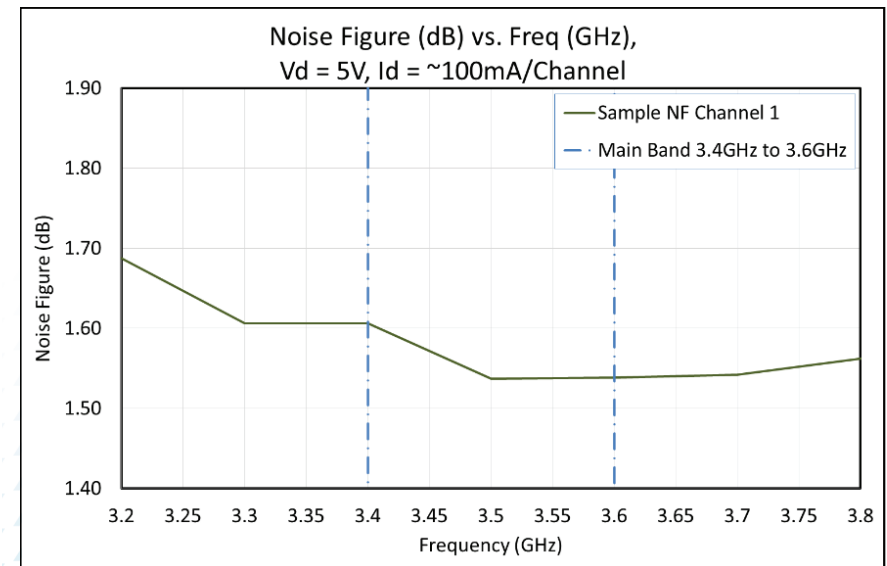
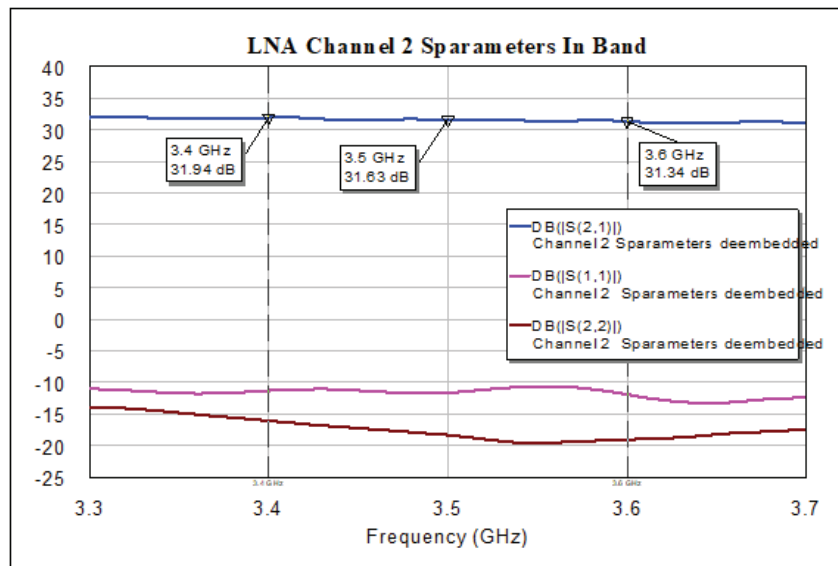
MACOMTM
Partners from RF to Light

Features

- Covers 1.9 – 3.9 GHz
- Dual Channel architecture
 - 2 x 2-Stage Low Noise Amplifiers
 - S2 x High power (20W CW) switches
- 31 dB Gain
- 1.5 dB Noise Figure
- Lead-Free 5 x 5 mm 32 Lead QFN Package
- Samples available



MAMF-011069 Tuned for the 3.5 GHz Application



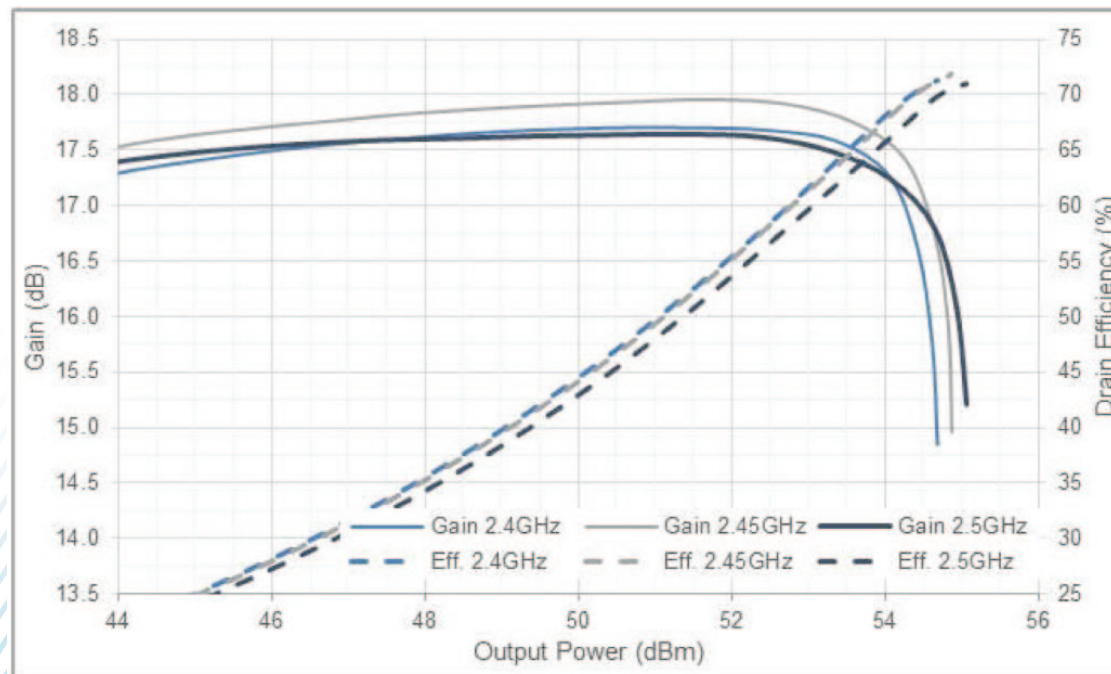
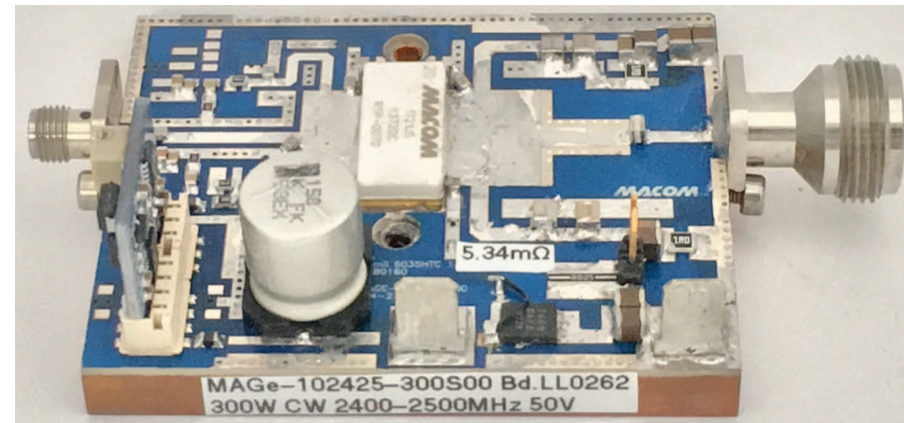
MAGe-102425-300S00 without Isolator

300 W @ 2400-2500 MHz

MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 200\text{ mA}$
- Freq. = 2400 - 2500 MHz
- $TCASE = 35\text{ }^{\circ}\text{C}$
- $P_{2dB} > 289\text{ W}$
- $GP > 15.6\text{ dB @ } P_{2dB}$
- $\eta_D > 70.8\% @ P_{2dB}$
- Continuous Wave



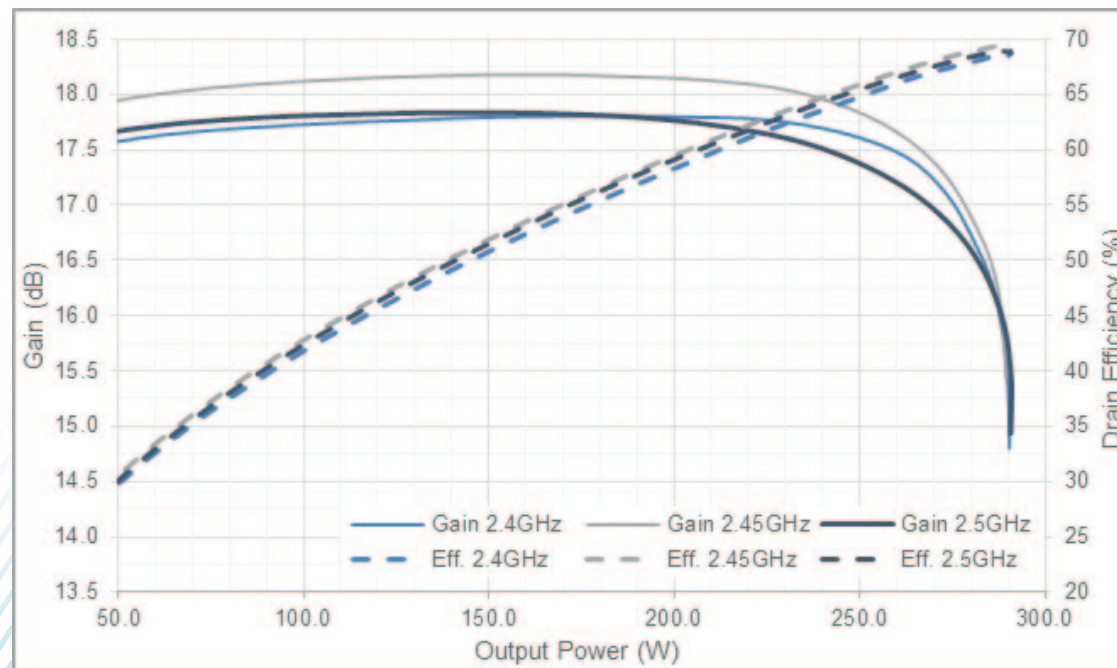
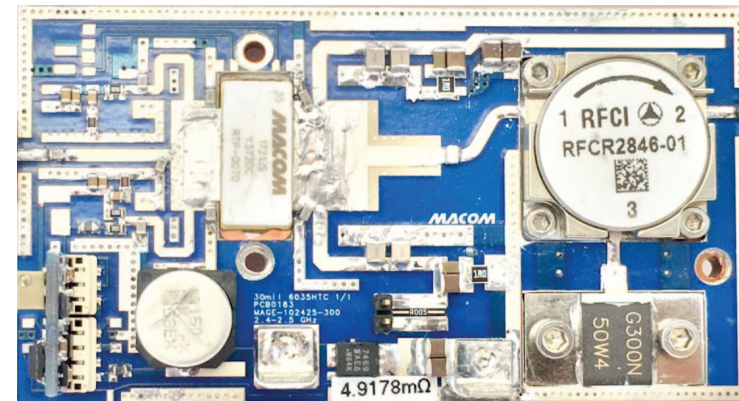
MAGe-102425-300S00 with Isolator

300 W @ 2400-2500 MHz

MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $IDQ = 200\text{ mA}$
- Freq. = 2400 - 2500 MHz
- $TCASE = 35\text{ }^{\circ}\text{C}$
- $P_{2dB} > 288\text{ W}$
- $GP > 15.8\text{ dB @ } P_{2dB}$
- $\eta_D > 68.6\% @ P_{2dB}$
- Continuous Wave



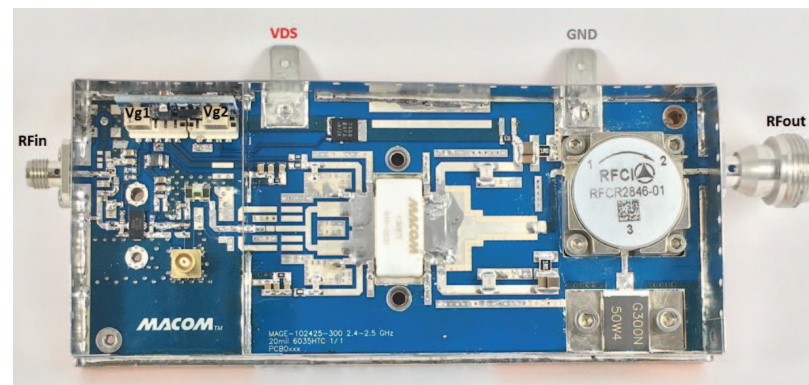
***Performance above is including circulator losses**

MAGe-100027-010S0P + MAGe-102425-300S0P + circulator 2 Stage 300 W; 2400-2500 MHz

MACOMTM
Partners from RF to Light

Features

- VDS = 50 V
- Freq. = 2400 - 2500 MHz
- TWATER = 20 °C
- P2dB > 275 W
- GP > 28.4 dB @ P2dB
- η_D > 63% @ P2dB
- Continuous Wave



Frequenc y (GHz)	Gain (dB)	Pout. (dBm)	Pout (W)	Eff. (%)	Plate Temp. (°C)
2400	28.41	54.41	275.9	63.2	27.9
2425	28.44	54.44	277.8	63.6	27.6
2450	28.42	54.42	276.9	63.8	27.7
2475	28.44	54.44	277.9	64.0	27.7
2500	28.44	54.44	277.8	63.5	28.0

*Performance above includes circulator losses



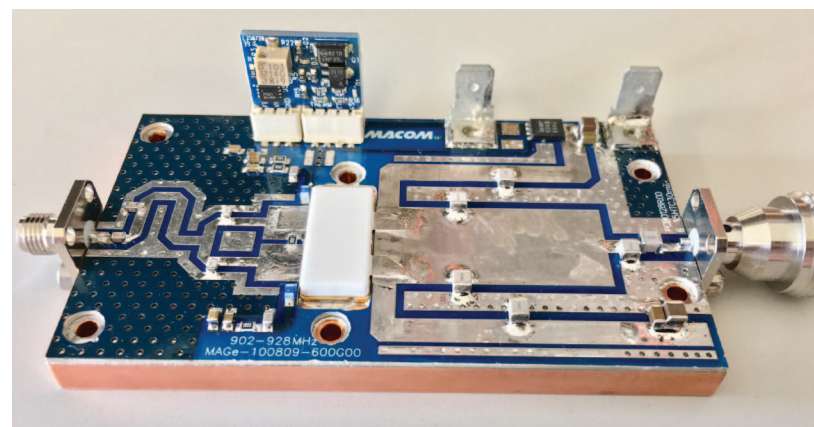
MAGe-100809-500G00

500 W @ 896-928 MHz

MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50 \text{ V}$
- $I_{DQ} = 380 \text{ mA}$
- Freq. = 910 - 920 MHz
- $TCu = 35 \text{ }^{\circ}\text{C}$
- $P_{2dB} > 508 \text{ W}$
- $GP > 16.35 \text{ dB @ } P_{2dB}$
- $\eta_D > 80\% \text{ @ } P_{2dB}$
- Continuous Wave



Symbol	Parameter	Meas. on Cold Plate (20°C Water)	Meas. on Heat-sink with fan	Unit
Freq.	Frequency	910 - 920	910 - 920	MHz
V_{DS}	Supply Voltage	50	50	V
I_{DQ}	Quiescent Current	380	380	mA
T_{max}^{**}	Maximum Temp. at base of copper Plate.	30 - 35	60 - 65	$^{\circ}\text{C}$
P_{out}	Output power CW @ 2dB gain comp.	508 - 575	495 - 555	W
GP_{2dB}	Gain @ 2dB gain comp.	16.35	15.6	dB
G_{flat}	Gain flatness @ 2dB gain compression	<0.1	0.1	dB
Eff_{P2dB}	Efficiency at 2dB gain compression	80 - 80.5	77 - 77.5	%



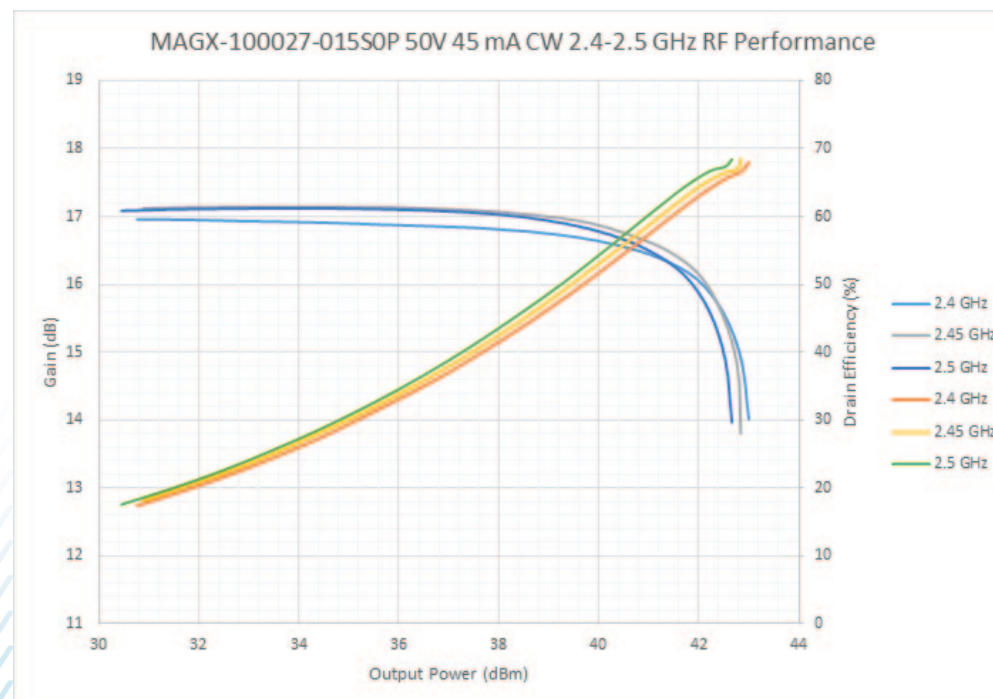
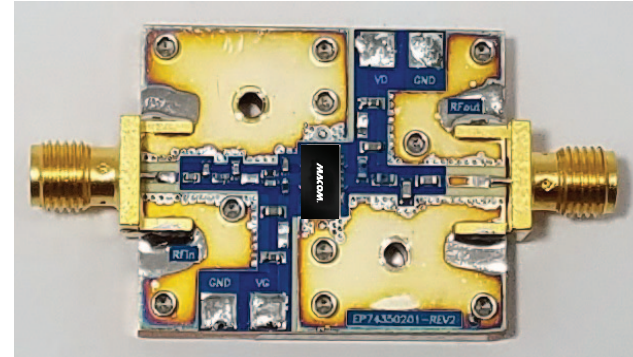
MAGX-100027-015S0P

15 W @ 2400-2500 MHz

MACOMTM
Partners from RF to Light

Features

- ▶ $V_{DS} = 50\text{ V}$
- ▶ $IDQ = 45\text{ mA}$
- ▶ Freq. = 2400 - 2500 MHz
- ▶ $T_{WATER} = 20\text{ }^{\circ}\text{C}$
- ▶ $P_{2dB} > 15\text{ W}$
- ▶ $GP > 15\text{ dB @ } P_{2dB}$
- ▶ $\eta_D > 66\% @ P_{2dB}$
- ▶ Continuous Wave



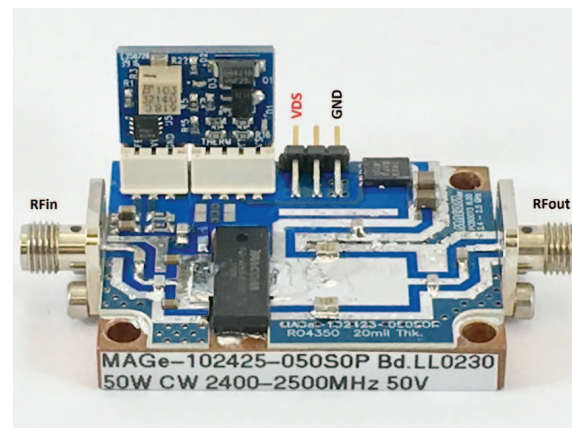
MAGe-102425-050S0P

50 W @ 2400-2500 MHz

MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 75\text{ mA}$
- Freq. = 2400 - 2500 MHz
- $TWATER = 20\text{ }^{\circ}\text{C}$
- $P_{2dB} > 60\text{ W}$
- $GP > 17\text{ dB @ } P_{2dB}$
- $\eta_D > 70\% @ P_{2dB}$
- Continuous Wave



Symbol	Parameter	Min.	Typ.	Max.	Unit
Freq.	Frequency	2.4		2.5	GHz
V_{DS}	Supply Voltage		50		V
I_{DQ}	Quiescent Current		75		mA
P_{out}	Output power CW @ 31.0 dBm Pin.	62.9		65.3	W
G	Gain @ 31.0 dBm Pin	17.0		17.15	dB
Gcomp.	Gain compression @ 31.0 dBm Pin	1.9		2.2	dB
Eff	Efficiency @ 31.0 dBm Pin.	70.7		71.3	%

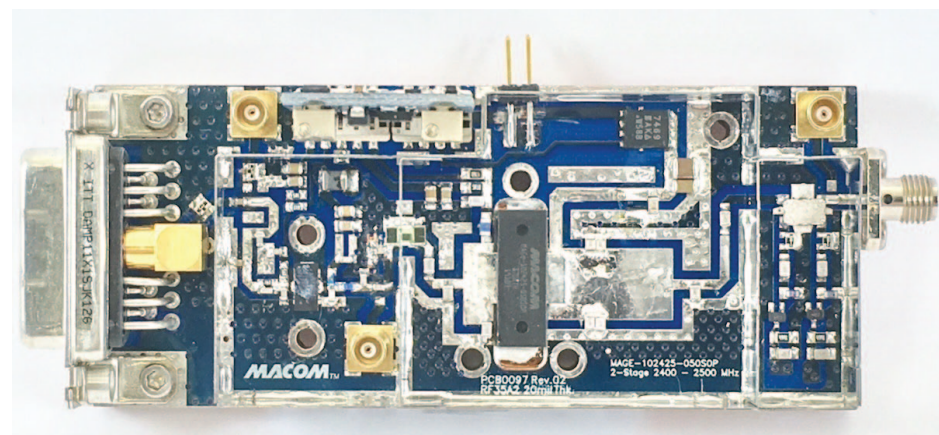
MAGe-100027-002S0P + MAGe-102425-050S0P **MACOM**TM

2 Stage 50 W; 2400-2500 MHz

Partners from RF to Light

Features

- VDS = 50 V
- Freq. = 2400 - 2500 MHz
- TWATER = 20 °C
- P2dB > 60 W
- GP > 28.5 dB @ P2dB
- η_D > 69% @ P2dB
- Continuous Wave



Frequency (GHz)	Gain (dB)	Gain Comp. (dB)	Pout. (dBm)	Pout (W)	Eff. (%)
2.40	30.49	2.0	47.99	63.0	69.8
2.425	30.49	1.8	47.99	63.0	70.4
2.45	30.50	1.7	48.00	63.0	70.2
2.475	30.51	1.6	48.01	63.3	69.8
2.50	30.55	1.7	48.05	63.9	69.4

***Performance above includes output coupler losses**

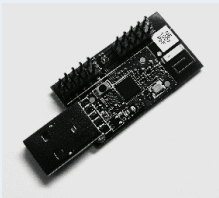


MACOM Development Tool Kits

Easy to use application “development tool kits”

Functionality: all attributes (frequency, level, phase and PWM modulation) of the generated RF signal can be controlled either by the embedded powerful micro controller or from external (host-) controller.

Hot switch between DLL and ALL

PA Module Line-ups	Controllers	Couplers	Control Software & App Dev
- High efficiency - Gen4 GaN-Si	- Analog Single channel (ALL) - Digital Multi-channel (DLL) - Or both combined (ADLL)	One standard design for all kits	Application dependant versions
			
Power levels: 50 W (2,45 GHz) 300 W (2.45 GHz) 500 W (915 MHz)	ALL: key feature is fast feedback loop (usec) 2.45 GHZ DLL: key feature is flexibility however with a slower feedback loop (msec) 2.45 GHz & 915 MHz	High power robust coupler.	Partners such as pinkRF can support customer directly

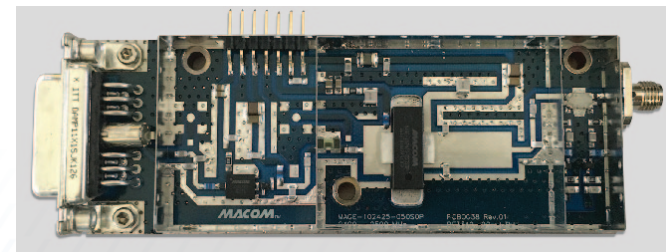
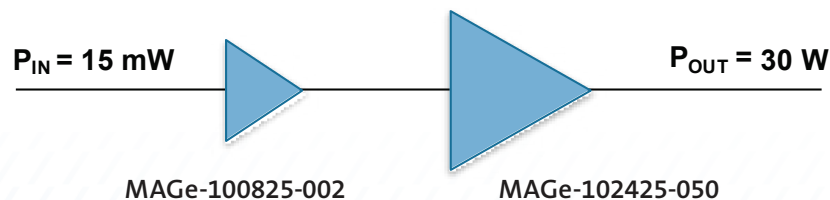
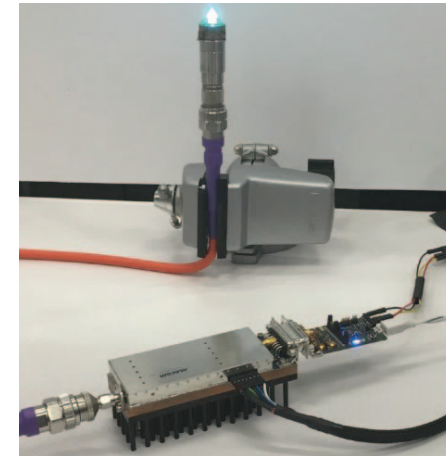
Plasma Lighting Application

Using 2-Stage Gen4 GaN on Si RF Energy Module

MACOMTM
Partners from RF to Light

MACOM Gen4 GaN on Si

- All Plastic Packaging Lineup
- Driver: MAGE-100825-002
- Final: MAGE-102425-050
- VDS = 30 V (50 V Capable)
- Freq. = 2.4 – 2.5 GHz
- P_{OUT} > 30 W (Continuous Wave)
- Power Gain = 33 dB (CW)
- Line-up Drain Efficiency = 67% (CW)
- Integrated FWD and REV Power Detection
- Using MACOM Proprietary Exciter and Controller



Solid-State Cooking Application

Using 2-Stage Gen4 GaN on Si RF Energy Module

MACOMTM
Partners from RF to Light

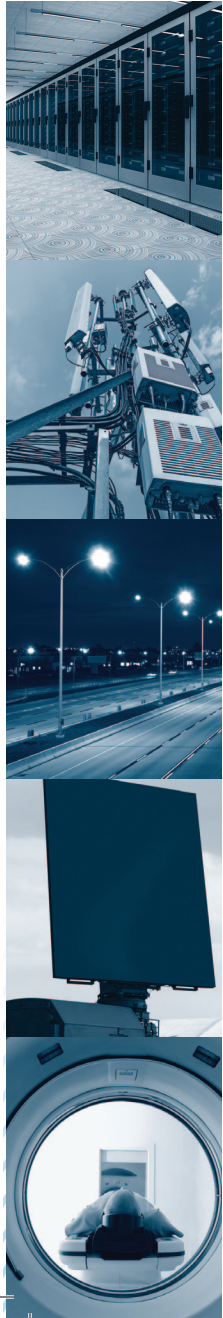
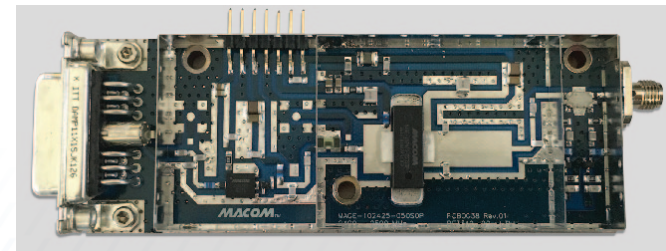
Easy To Use Gen4 GaN on Si Enables Excellent Cooking

MACOM Gen4 GaN on Si

- All Plastic Packaging Lineup
- Driver: MAGE-100825-010
- Final: MAGE-102425-300
- VDS = 50 V
- Freq. = 2.4 – 2.5 GHz
- P_{OUT} > 300 W (Continuous Wave)
- Power Gain = 33 dB (CW)
- Line-up Drain Efficiency = 67% (CW)
- Integrated FWD and REV Power Detection
- Using MACOM Proprietary Exciter and Controller



Solid-State Cooking



MAGX-100027-010SOP

150 W @ 960-1215 MHz

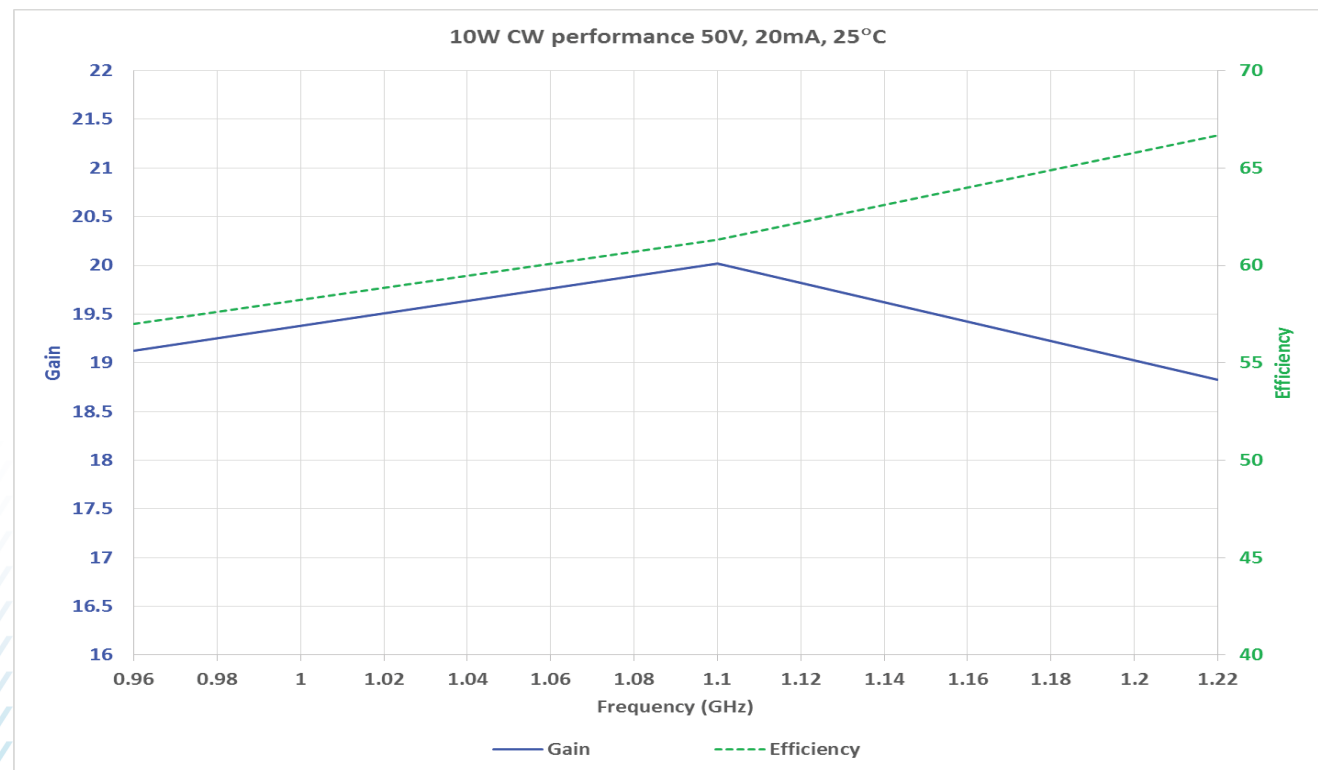
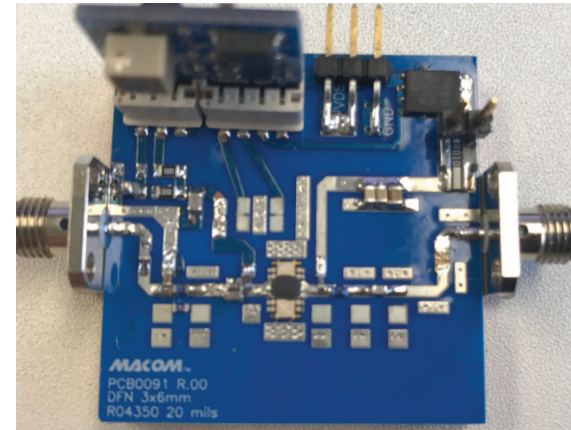
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 20\text{ mA}$
- Freq. = 960 - 1215 MHz
- $TCASE = 25\text{ }^{\circ}\text{C}$
- $P_{2dB} > 14\text{ W}$
- $GP > 18.5\text{ dB @ }10\text{ W}$
- $\eta_D > 56\% @ 10\text{ W}$

Signal

- CW



MAGX-100914-125

125 W @ 960-1215 MHz

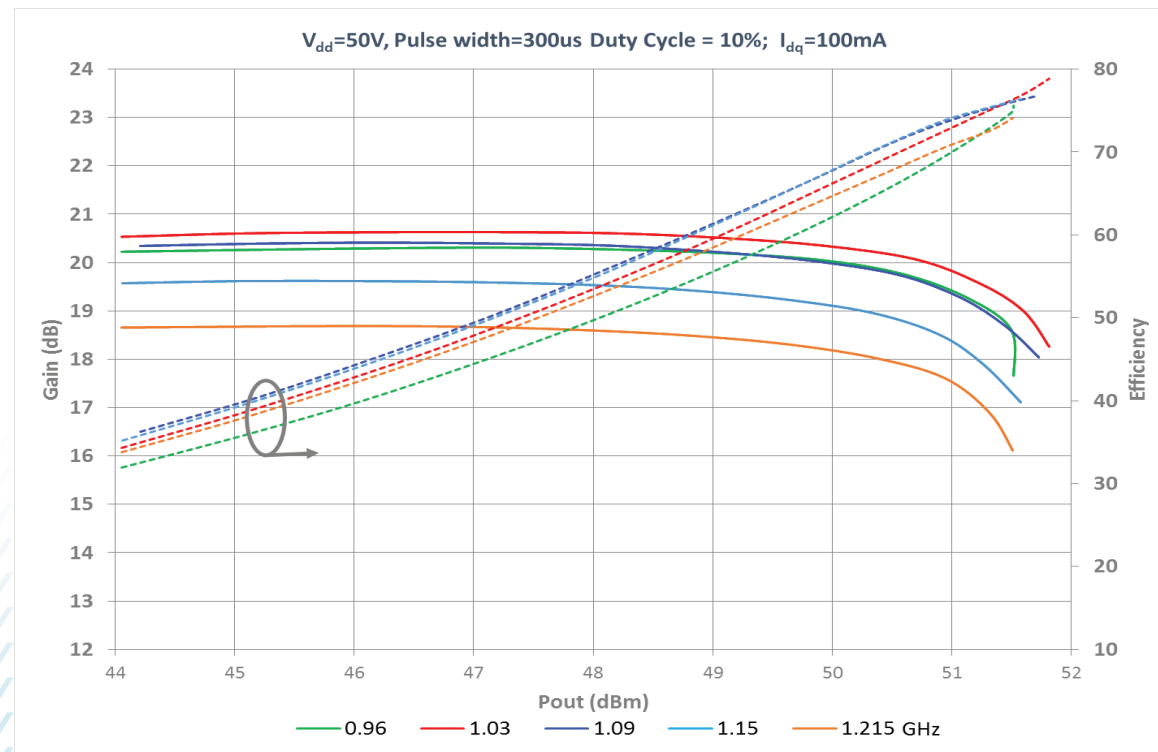
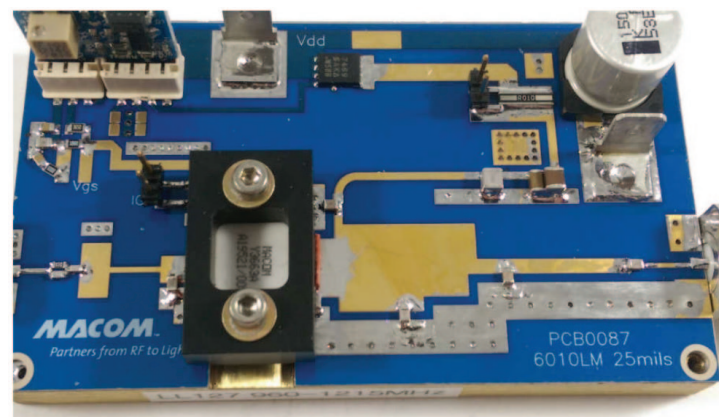
MACOMTM
Partners from RF to Light

Features

- ▶ $V_{DS} = 50\text{ V}$
- ▶ $IDQ = 100\text{ mA}$
- ▶ Freq. = 960 - 1215 MHz
- ▶ $TCASE = 25\text{ }^{\circ}\text{C}$
- ▶ $P_{2dB} > 135\text{ W}$
- ▶ $GP > 16.7\text{ dB @ } P_{2dB}$
- ▶ $\eta_D > 73\% @ P_{2dB}$

Signal

- ▶ 300 usec, 10% duty



MAGX-100914-125

125 W @ 1200-1400 MHz

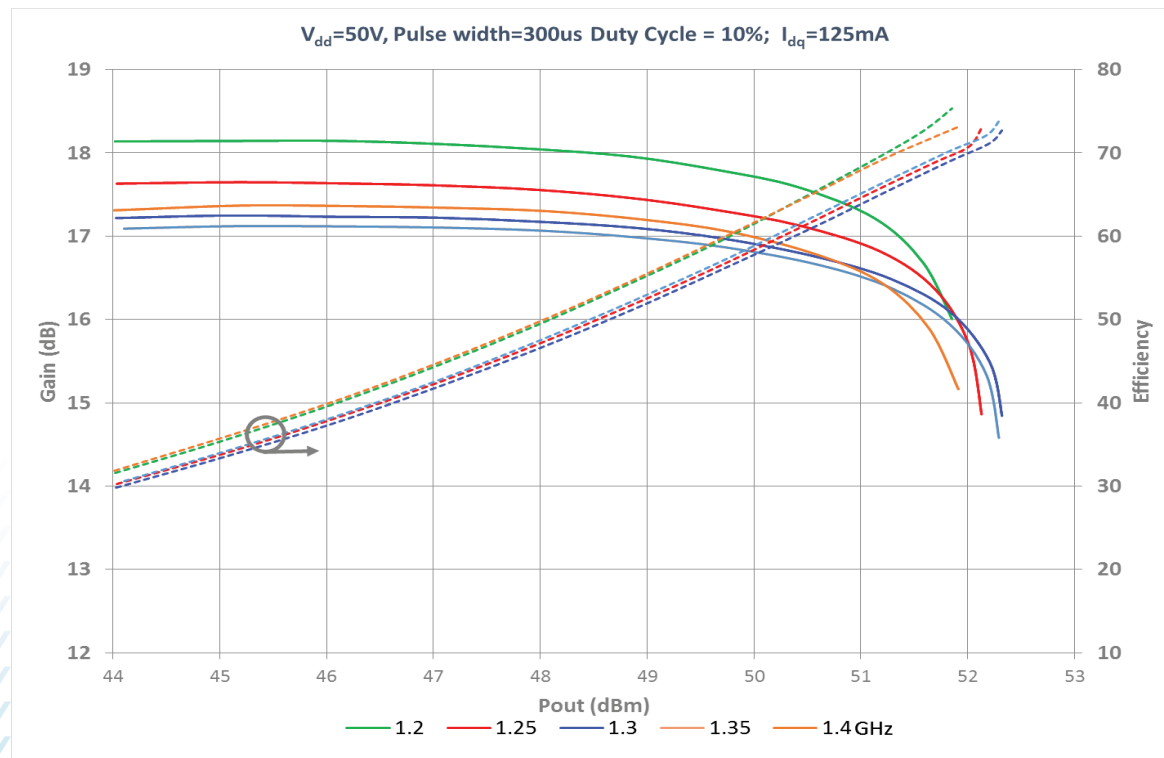
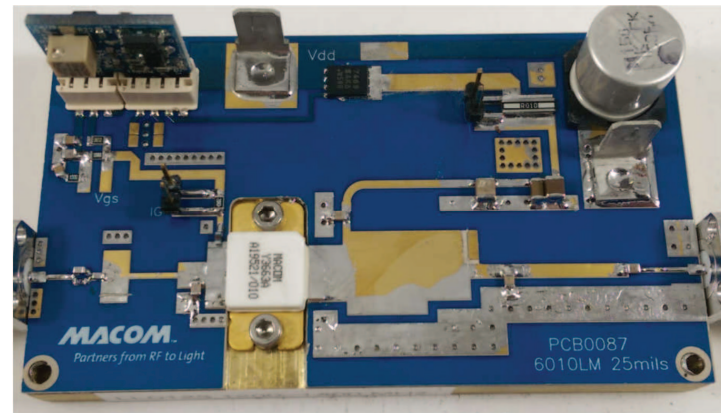
MACOMTM
Partners from RF to Light

Features

- ▶ $V_{DS} = 50\text{ V}$
- ▶ $IDQ = 100\text{ mA}$
- ▶ Freq. = 1200 - 1400 MHz
- ▶ TCASE = 25 °C
- ▶ $P_{2dB} > 150\text{ W}$
- ▶ $GP > 15.1\text{ dB @ } P_{2dB}$
- ▶ $\eta_D > 71\% @ P_{2dB}$

Signal

- ▶ 300 usec, 10% duty



MAGX-100914-250

250 W @ 960-1215 MHz

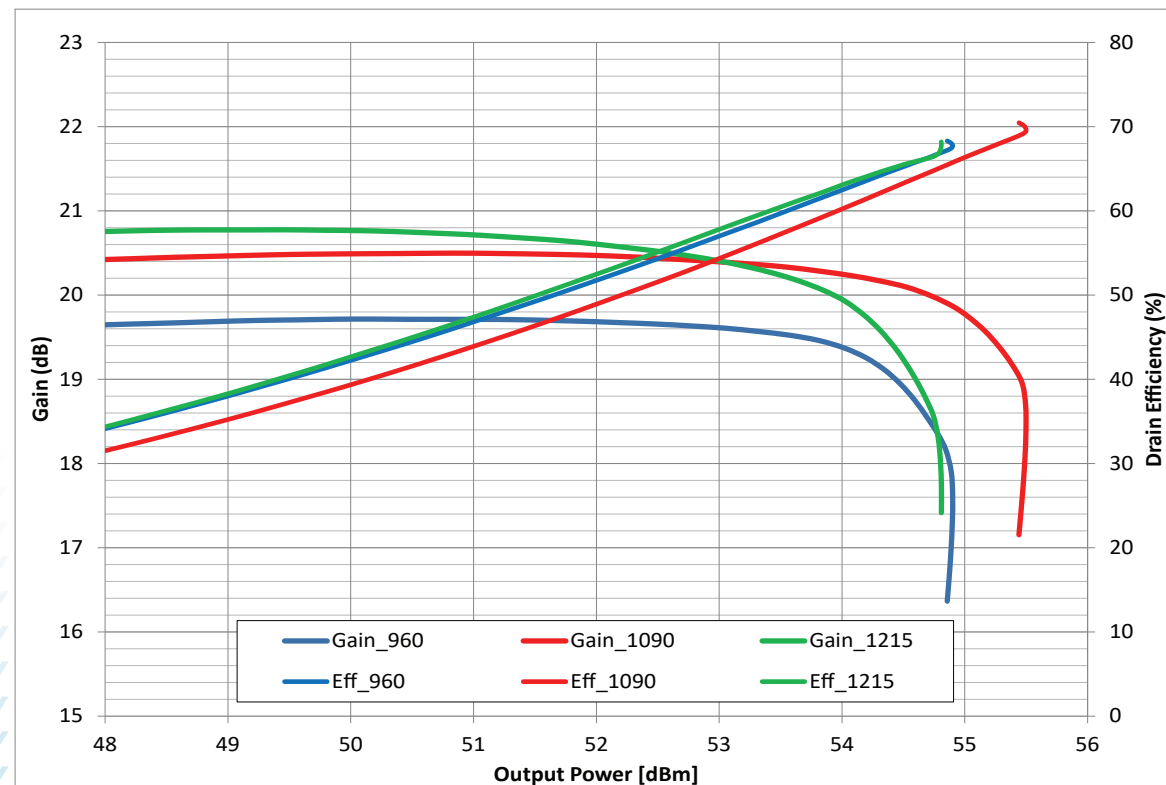
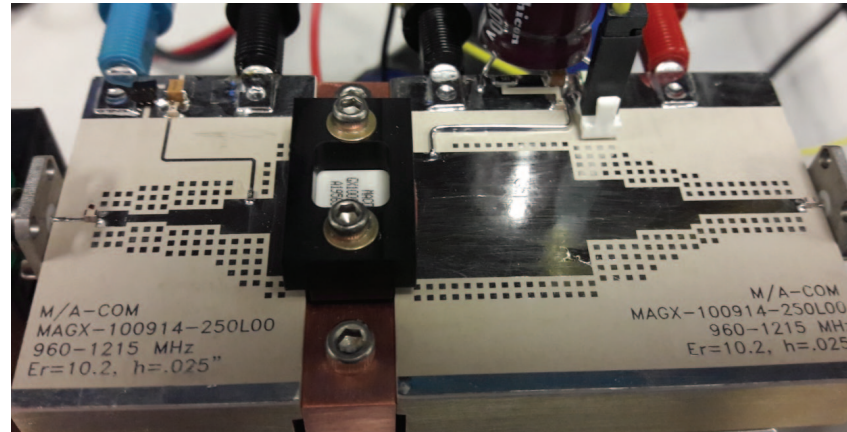
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 200\text{ mA}$
- Freq. = 960 - 1215 MHz
- TCASE = 25 °C
- P2dB > 330 W
- GP > 18.2 dB @ P2dB
- $\eta_D > 68\%$ @ P2dB

Signal

- 300 usec, 10% duty



MAGX-100914-250

250 W @ 1200-1400 MHz

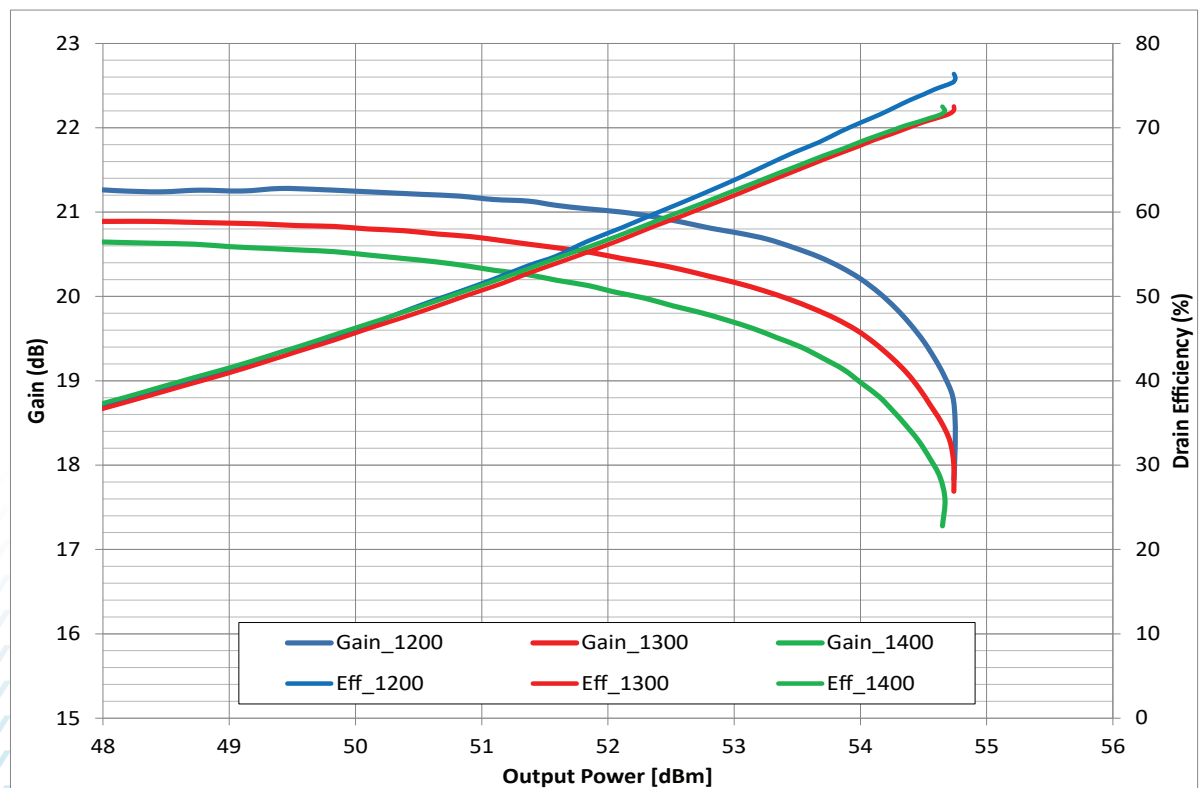
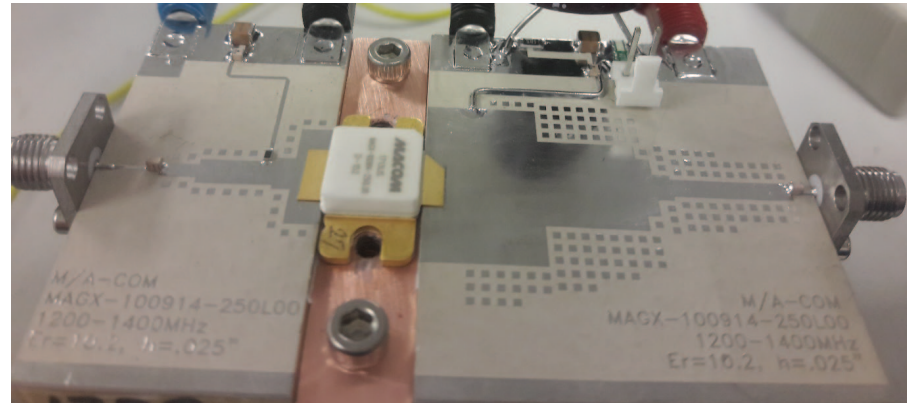
MACOMTM
Partners from RF to Light

Features

- ▶ VDS = 50 V
- ▶ IDQ = 200 mA
- ▶ Freq. = 1200 - 1400 MHz
- ▶ TCASE = 25 °C
- ▶ P2dB > 295 W
- ▶ GP > 18.7 dB @ P2dB
- ▶ η_D > 68% @ P2dB

Signal

- ▶ 300 usec, 10% duty



MAGX-100912-500

500 W @ 1030-1090 MHz

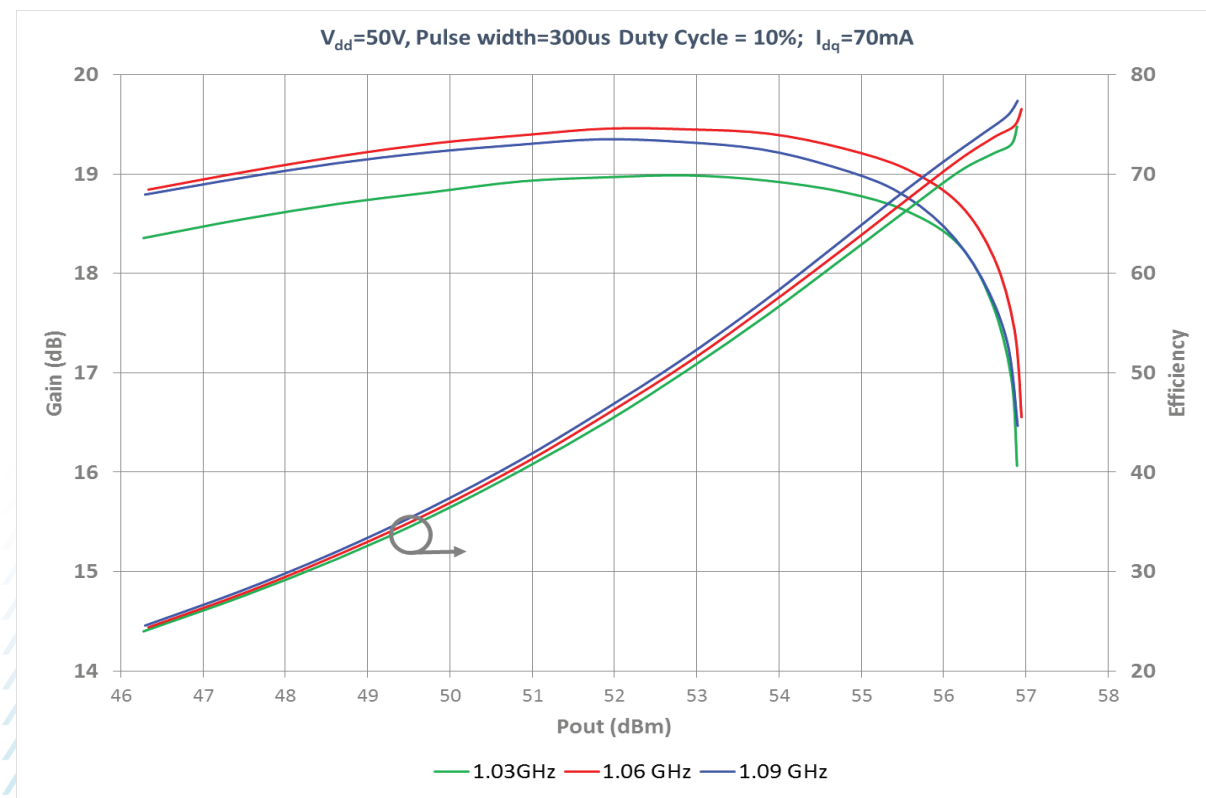
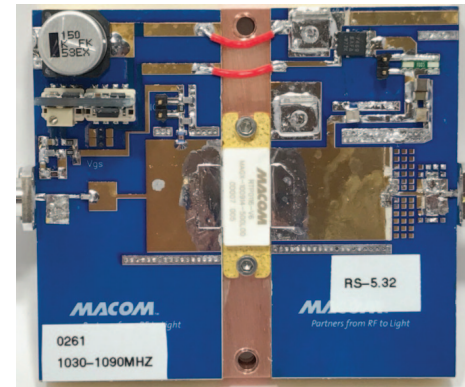
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 200\text{ mA}$
- Freq. = 1030 - 1090 MHz
- TCASE = 25 °C
- P2dB > 295 W
- GP > 17.5 dB @ P2dB
- $\eta_D > 72.5\%$ @ P2dB

Signal

- 300 usec, 10% duty
- Mode -S



MAGX-101214-500

500 W @ 1200-1400 MHz

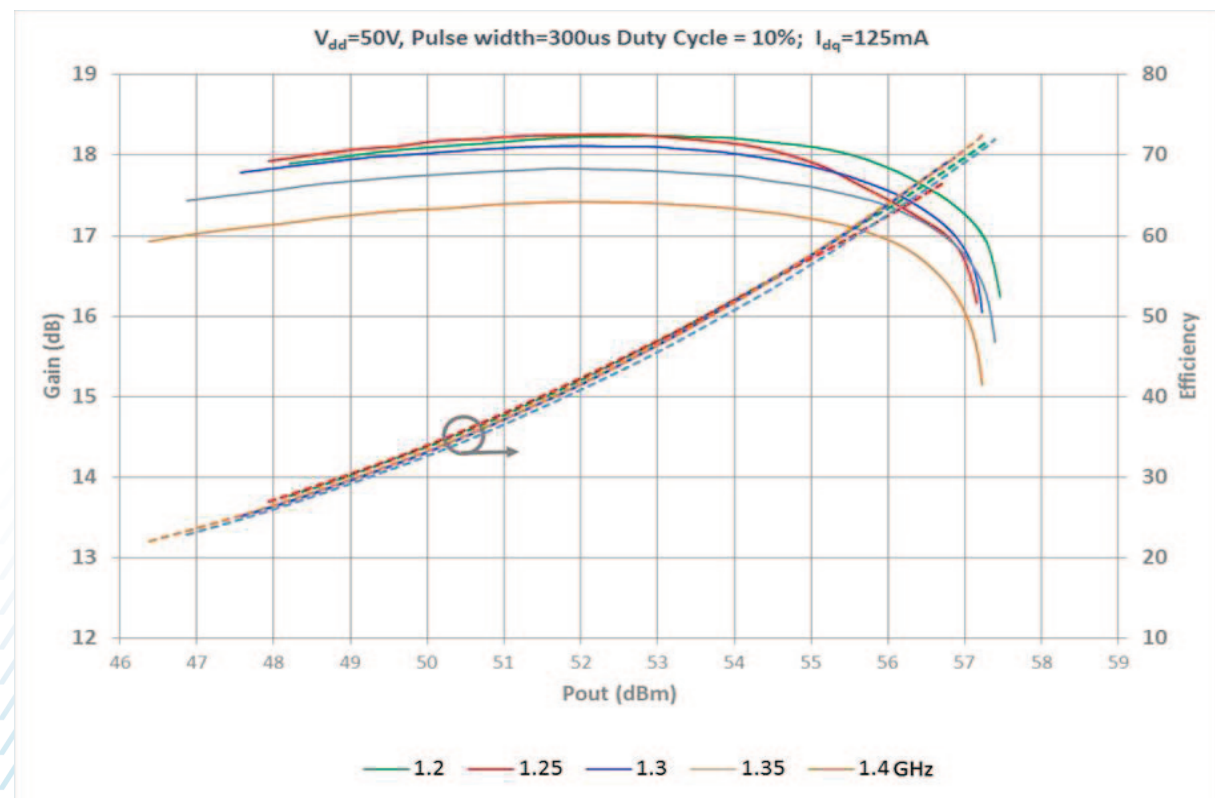
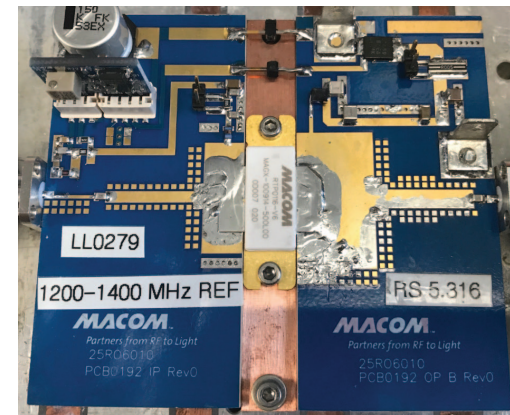
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 200\text{ mA}$
- Freq. = 1200 - 1400 MHz
- $TCASE = 25\text{ }^{\circ}\text{C}$
- $P_{2dB} > 500\text{ W}$
- $GP > 15.5\text{ dB @ } P_{2dB}$
- $\eta_D > 69\% @ P_{2dB}$

Signal

- 300 usec, 10% duty



MAGP-102730-350

350 W @ 2700-3000 MHz

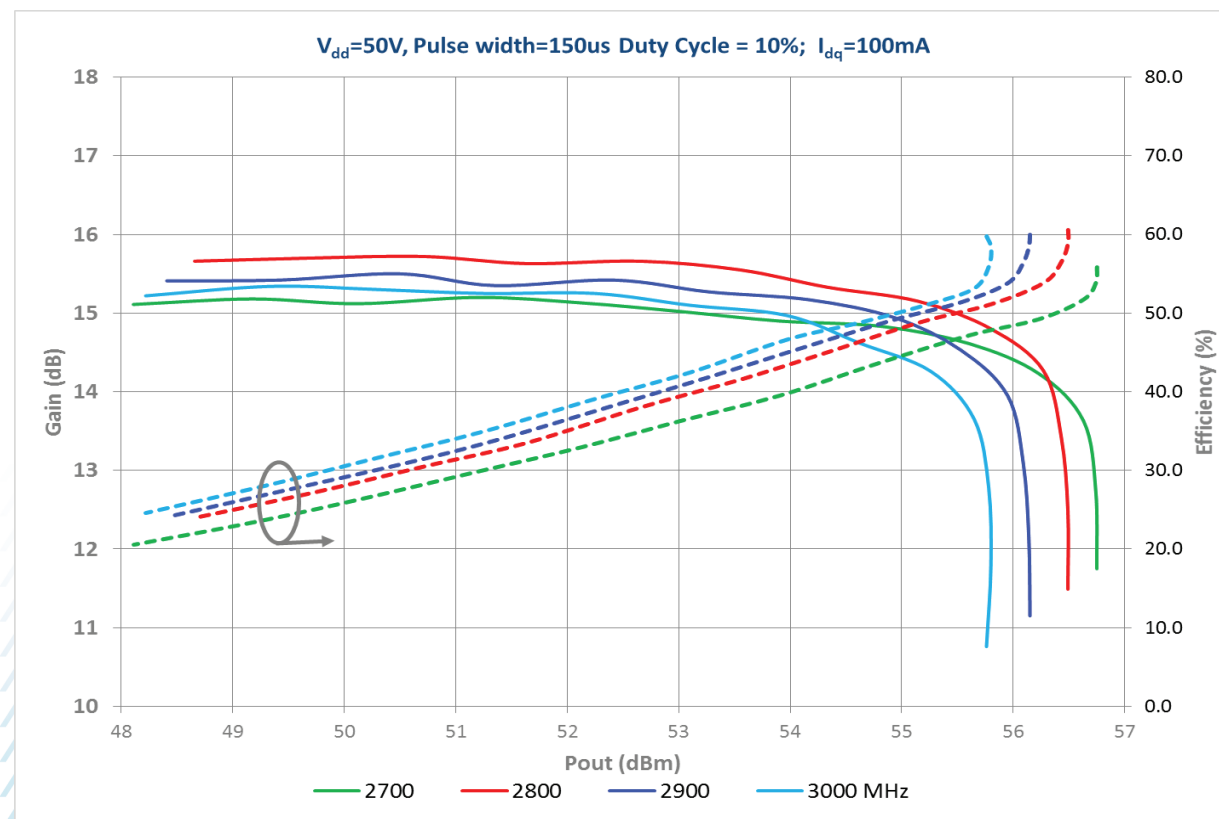
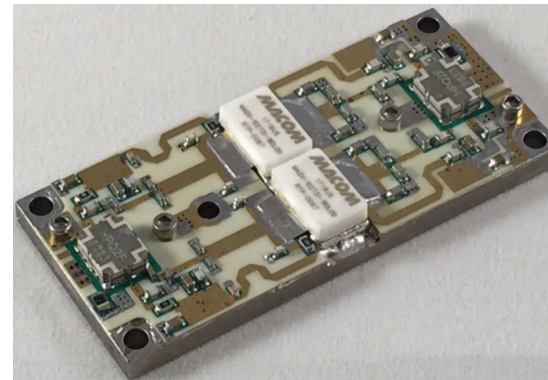
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 100\text{ mA}$
- Freq. = 2700 - 3000 MHz
- TCASE = 25 °C
- P2dB > 380 W
- GP > 13 dB @ P2dB
- $\eta_D > 55\%$ @ P2dB

Signal

- 150 usec, 10% duty



MAGX-103135-145

150 W @ 3100-3500 MHz

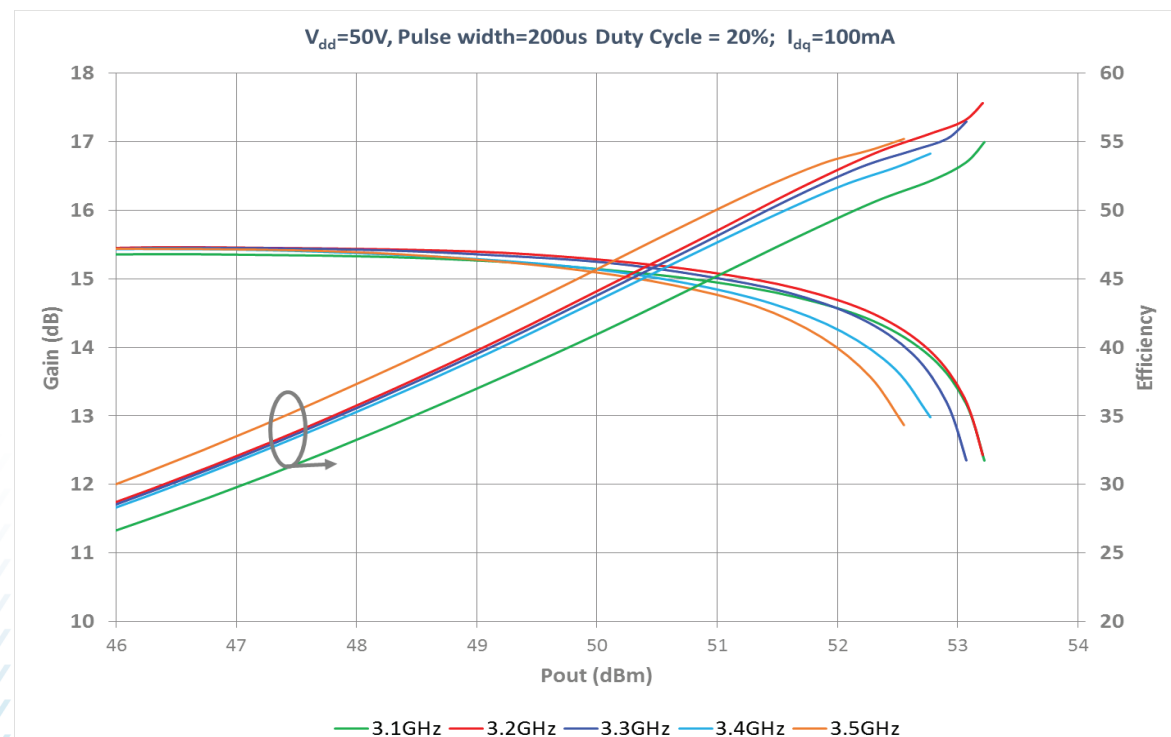
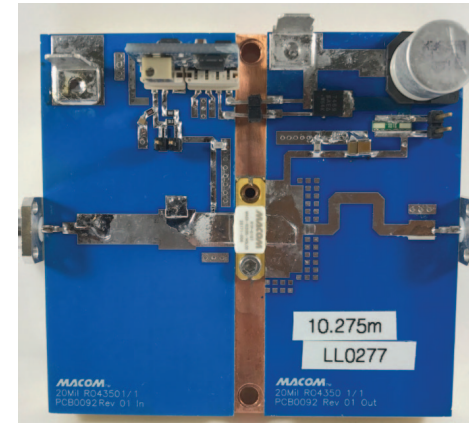
MACOMTM
Partners from RF to Light

Features

- $V_{DS} = 50\text{ V}$
- $I_{DQ} = 100\text{ mA}$
- Freq. = 3100 - 3500 MHz
- TCASE = 25 °C
- $P_{2dB} > 170\text{ W}$
- $GP > 13.3\text{ dB @ } P_{2dB}$
- $\eta_D > 53\% @ P_{2dB}$

Signal

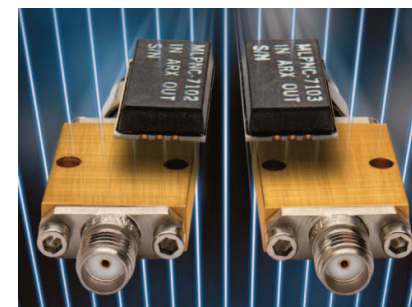
- 200 usec, 20% duty



Non-Linear Transmission Line Comb Generators

NLTL Comb Generators offer five key advantages relative to “typical SRD” products:

- **Lower Phase Noise** – improved phase noise performance of multiplied source
- **Lower Input Power** – reduced PA requirements and power consumption
- **Range of Input Frequency** – enables use of single part in several designs or use with a tunable source (up to 3x instead of a few %)
- **Higher Harmonic Power at Higher Frequencies** – SRD-based comb generators output power rapidly rolls off above 20 GHz
- **Reliable Construction** – based on monolithic circuits

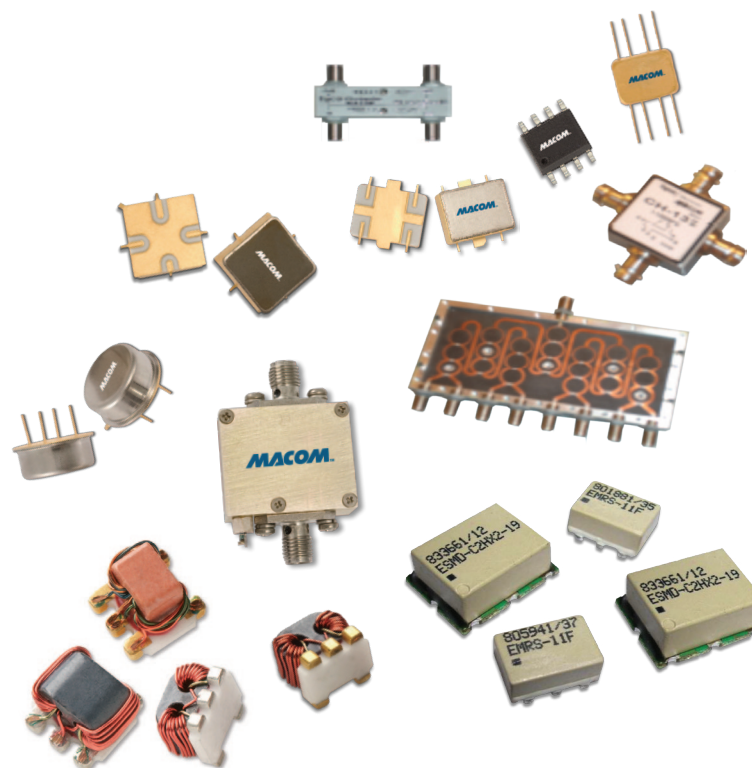


Part Number	Power (dBm)		Output Harmonics (dBm)		
	Min	Max			
MLPNC-7100-SMA800	20 @ 100 MHz	24 @ 400 MHz	> -8 @ 4 GHz	> -18 @ 12 GHz	> -35 @ 20 GHz
MLPNC-7100-SMT680	20 @ 100 MHz	24 @ 400 MHz	> -8 @ 4 GHz	> -18 @ 12 GHz	> -35 @ 20 GHz
MLPNC-7100S1-SMA800	18 @ 75 MHz	24 @ 250 MHz	> -24 @ 4 GHz	N/A	N/A
MPLNC-7100S1-SMT580	18 @ 75 MHz	24 @ 250 MHz	> -24 @ 4 GHz	N/A	N/A
MLPNC-7102-SMA800	21 @ 400 MHz	23 @ 600 MHz	> -8 @ 4 GHz	> -16 @ 12 GHz	> -20 @ 20 GHz
MLPNC-7102-SMT680	21 @ 400 MHz	23 @ 600 MHz	> -8 @ 4 GHz	> -16 @ 12 GHz	> -20 @ 20 GHz
MLPNC-7102S1-SMA800	18 @ 300 MHz	24 @ 700 MHz	> -10 @ 4 GHz	> -22 @ 12 GHz	N/A
MLPNC-7102S1-SMT580	18 @ 300 MHz	24 @ 700 MHz	> -10 @ 4 GHz	> -22 @ 12 GHz	N/A
MLPNC-7103-SMA800	21 @ 800 MHz	23 @ 1.3 GHz	> -5 @ 6 GHz	> -15 @ 18 GHz	> -20 @ 30 GHz
MLPNC-7103-SMT680	21 @ 800 MHz	23 @ 1.3 GHz	> -5 @ 6 GHz	> -15 @ 18 GHz	> -20 @ 30 GHz
MLPNC7103S1-SMA800	18 @ 600 MHz	24 @ 1.5 GHz	> 0 @ 4 GHz	> -14 @ 15 GHz	N/A
MLPNC7103S1-SMT580	18 @ 600 MHz	24 @ 1.5 GHz	> 0 @ 4 GHz	> -14 @ 15 GHz	N/A

MACOM Standard Catalog RF and Microwave Signal Processing Hybrid Components and Passive Products

MACOMTM
Partners from RF to Light

- RF and Microwave Amplifiers
- Signal Limiters and Limiting Amplifiers
- Analog and Digital Voltage Controlled Attenuators
- RF and Microwave Mixers
- Stripline Couplers, Power Dividers, and Combiners
- Junction Hybrids
- RF Switches, Attenuators with Drivers (SMT)
- Drivers
- Heritage Component Product Lines
 - Watkins-Johnson
 - Stellex Microwave Systems
 - Adams Russell/Anzac/RHG
 - Phoenix Microwave
 - Omni-Spectra
- Screening available on Standard Hybrid Component Products
- Passive 50 OHM Products
 - Transformers
 - Mixers
 - Power Dividers
 - Couplers

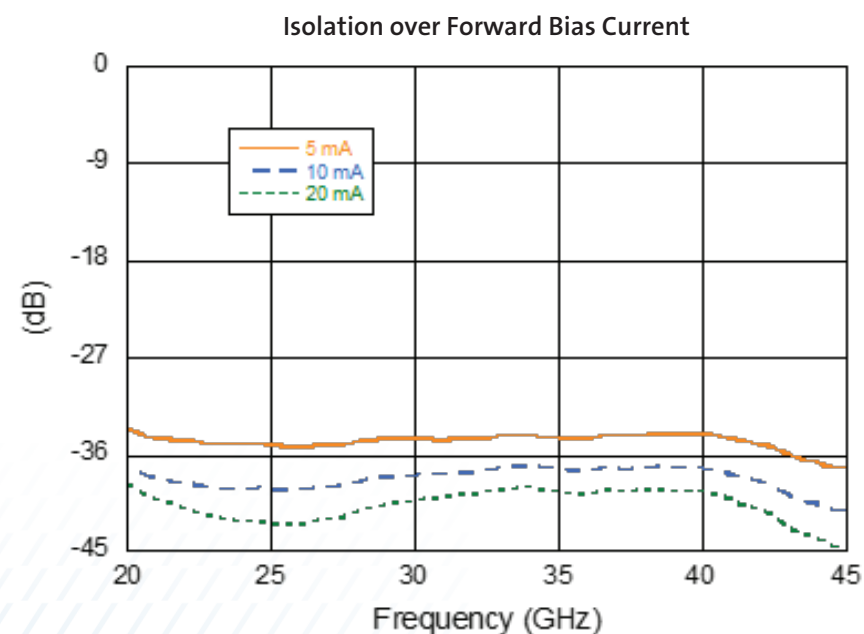
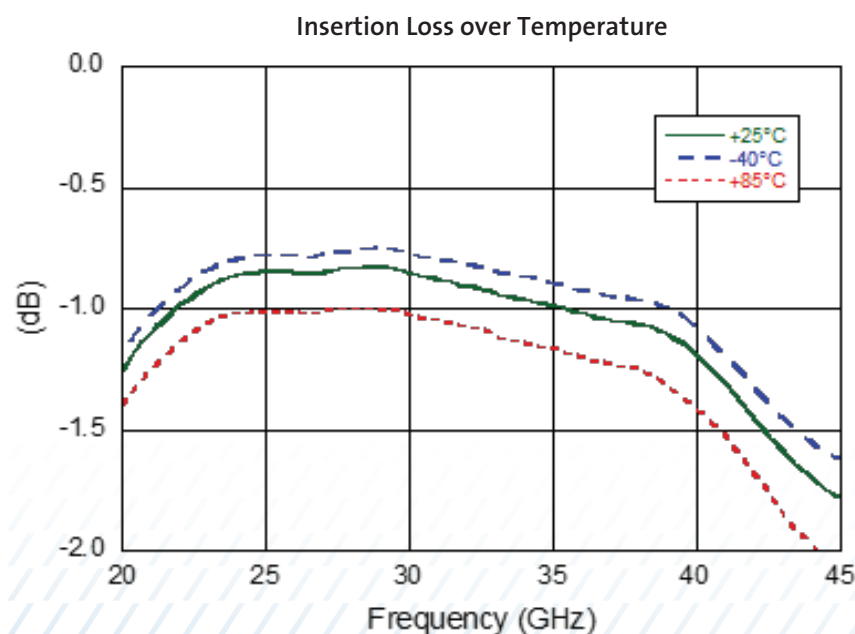


New High Performance Surface Mount 26 – 40 GHz SPDT Switch MASW-011098



Key Attributes

- Wideband Performance
- Surface Mount for easy integration
- Low Insertion Loss / High Isolation
- Up to 13 W CW Power Handling
- Well matched (20 dB Return Loss)



Ideal for 5G Applications

New Silicon Based Solutions Extend High Performance Narrowband VCO Portfolio



Key Attributes

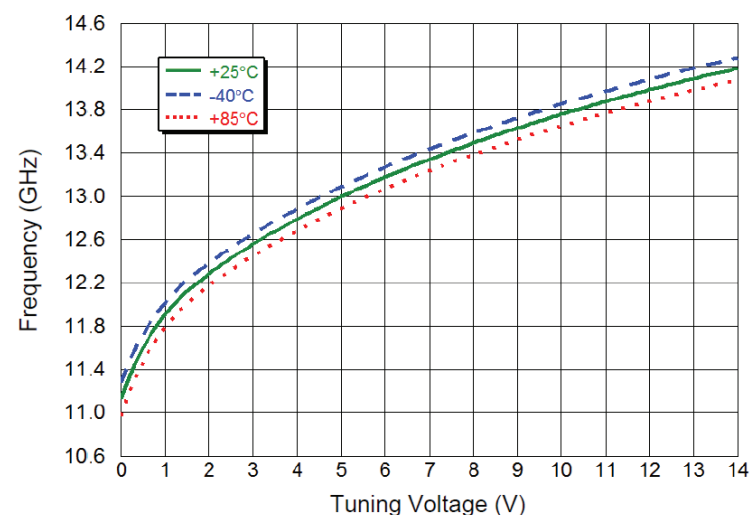
- Low current consumption (90 - 120 mA)
- Excellent phase noise performance
- Industry standard footprint
- Cost effective Silicon
- Custom frequency variants with quick turn

Recent additions to the MACOM portfolio include:

Part #	Freq (GHz)	Typical PN @ 10 kHz Offset	Typical PN @ 100 kHz Offset
MAOC-113100	12.5 – 13.7	-81	-109
MAOC-112675	12.2 – 13.15	-81	-109
MAOC-111100	10.8 – 11.415	-88	-113
MAOC-110820	10.55 – 11.05	-88	-113

Feature: MAOC-113100

Output Frequency vs. Tuning Voltage - RF Port

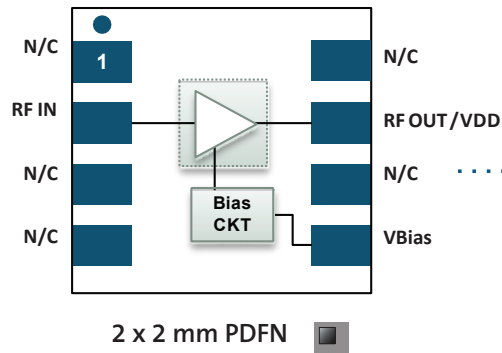


Ask how MACOM can address your VCO needs

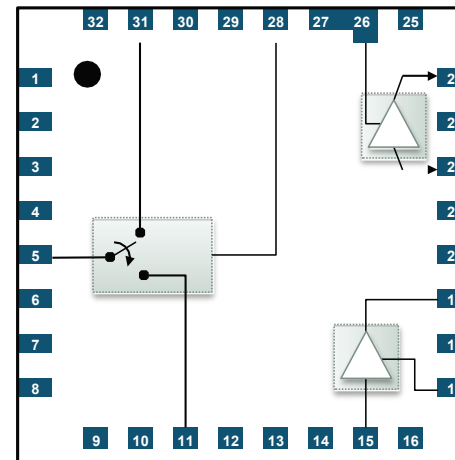
Complete Portfolio of Wireless Access Front-End Components and Modules

MACOMTM
Partners from RF to Light

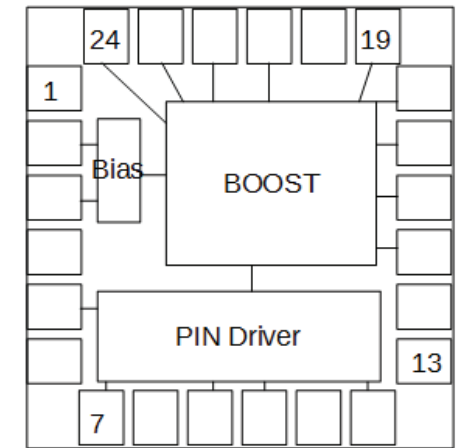
MAAL-011078
(High gain, up to 6 GHz)



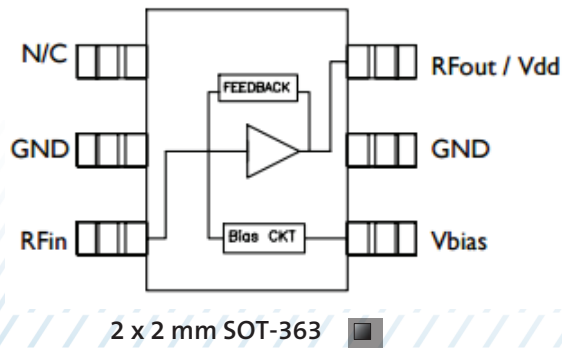
MAIA-011002
(High Power Switch + LNA)



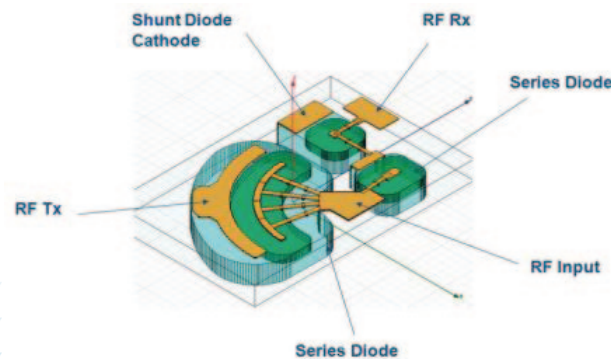
MABC-011026
(DC - DC and Switch/LNA Bias Controller)



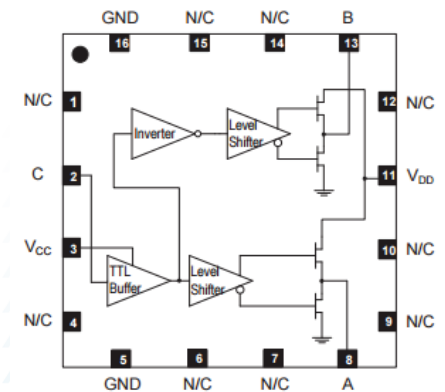
MAAL-010704
(High Linearity)



MASW-000834 (50 W)
MASW-000932 (80 W)
MASW-000936 (120 W)



MADR-009150
(Switch Bias Controller)



4 x 4 mm QFN

3 x 3 mm QFN

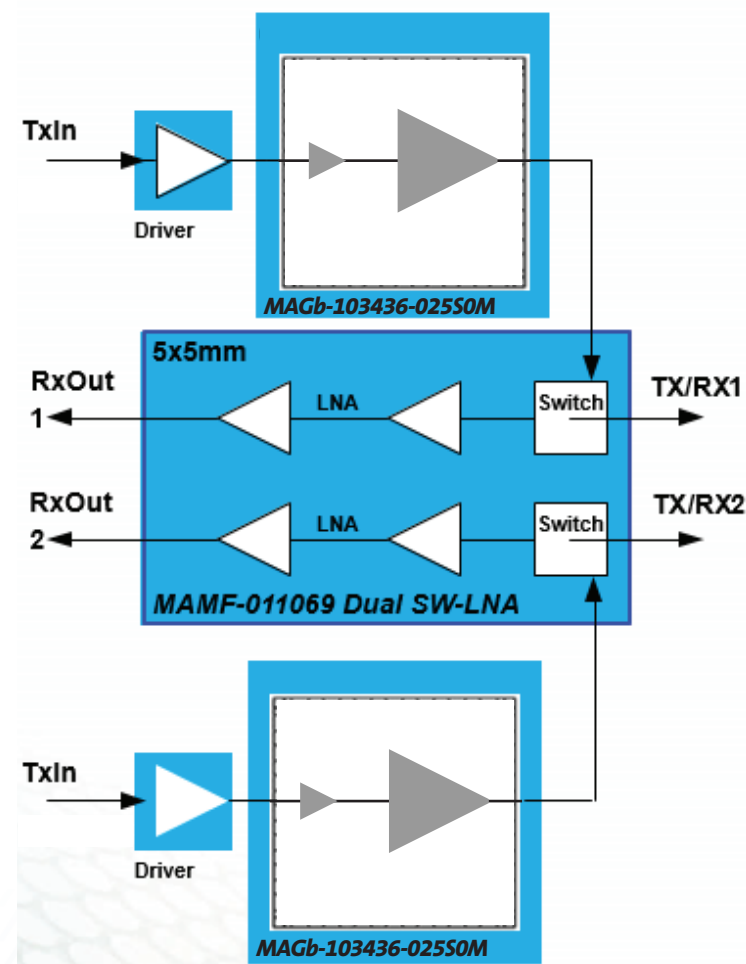
Compact Tx and Rx FEMs for 5G M-MIMO Applications

MAGb-103436-025S0M GaN on Si PA

- Freq: 3.4 - 3.6 GHz
- $P_{avg} = 3\text{ W}$
- $P_{sat} > 44\text{ dBm}$
- IBW $> 100\text{ MHz}$
- $Eff > 37\% @ 35\text{ dBm}$
- Gain $> 27\text{ dB}$
- ACPR $> 26\text{ dBc}$

MAMF-011069 Dual LNA/Switch

- Freq: 1.8 - 3.9 GHz
- Gain $> 31\text{ dB}$
- NF $< 1.5\text{ dB}$
- OIP3 $> 35\text{ dBm}$
- ISO Rx-Rx: $> 45\text{ dB}$
- $V_{ds} = 5\text{ V}$
- $I_{ds} < 200\text{ mA}$
- Power handling $> 20\text{ W}$



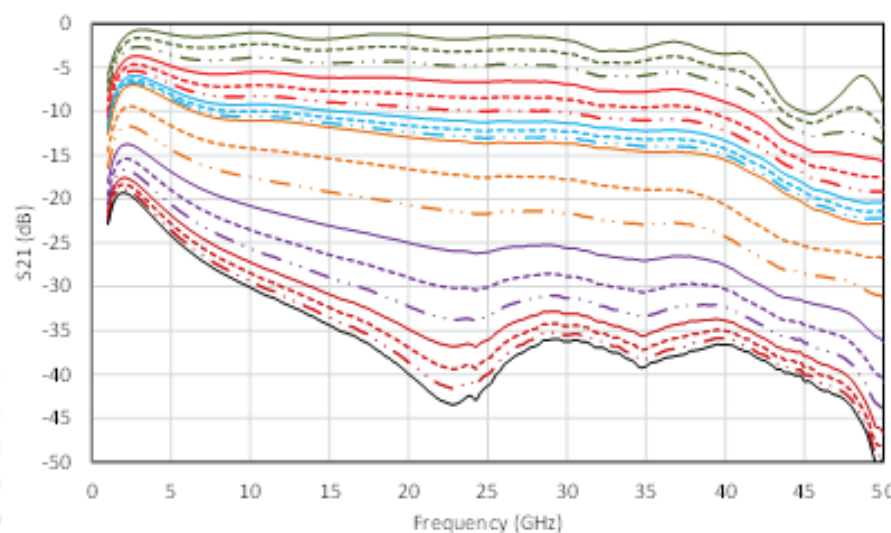
New Voltage Variable Attenuator Covering 5 – 45 GHz MAAV-011013

MACOMTM
Partners from RF to Light

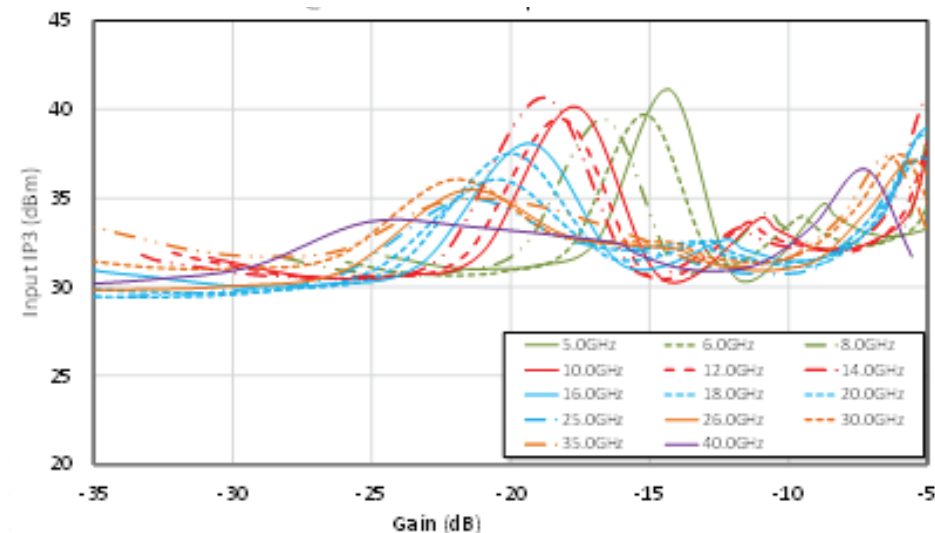
Key Attributes

- Medium power handling
- Surface Mount for easy integration
- Small footprint (3 mm x 3 mm)
- Excellent dynamic range (> 30 dB)
- High Linearity (30 dBm IIP3)

Insertion Loss v's Control Voltage



Input IP3 vs. Attenuation, SCL PIN = 12 dBm



Wideband Performance for Multiple Applications

Fast MRI Protection Diode

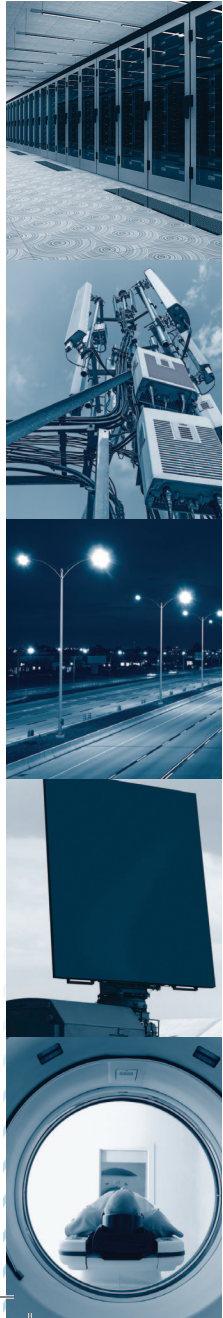
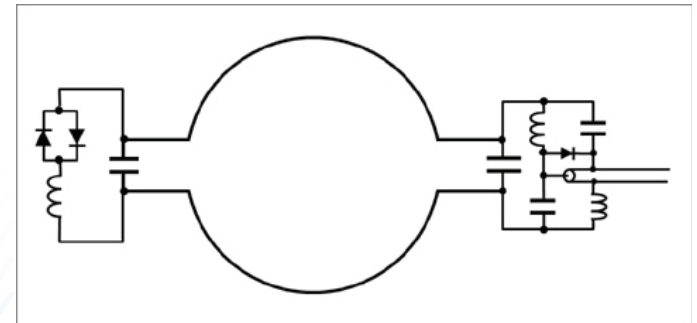
MADP-009989-14320T (Surface Mount MELF Diode)

MADP-009989-14340T (Axial Leaded Diode)

MACOMTM
Partners from RF to Light

Key Attributes

- Ultra Low-Magnetic Construction
- Glass Package
- High Current Handling
- Surface Mount or Axial Leaded Versions Available
- Low loss / High Isolation



K/Ka-Band SP4T Switch MASW-011087

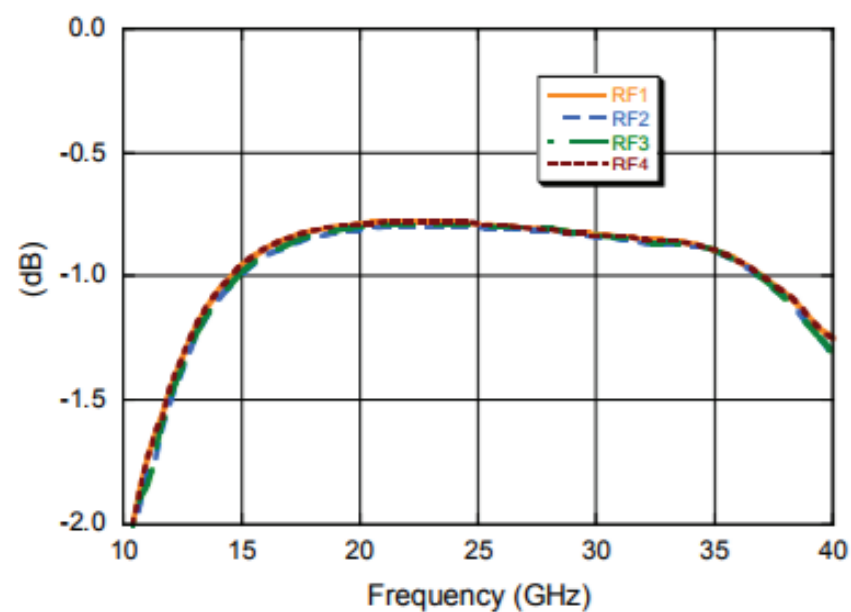
MACOMTM
Partners from RF to Light

Key Attributes

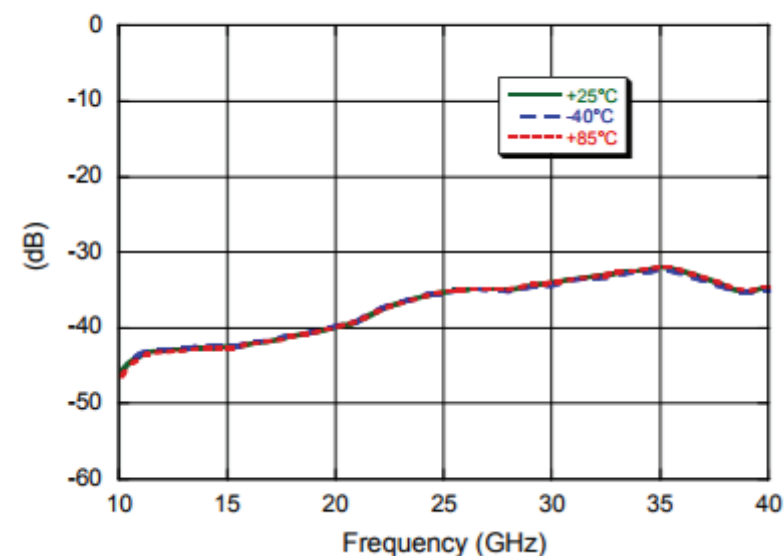
- Operating Frequency 14 - 38 GHz
- Integrated Bias Network
- Broadband Performance
- Low Loss/ High Isolation
- Small Cell Backhaul Applications



Insertion Loss



Isolation RF_{COMMON} to RF2, RF3 over Temperature

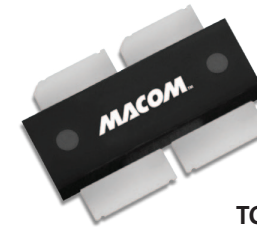


40 W B3 GaN on Si Basestation Applications

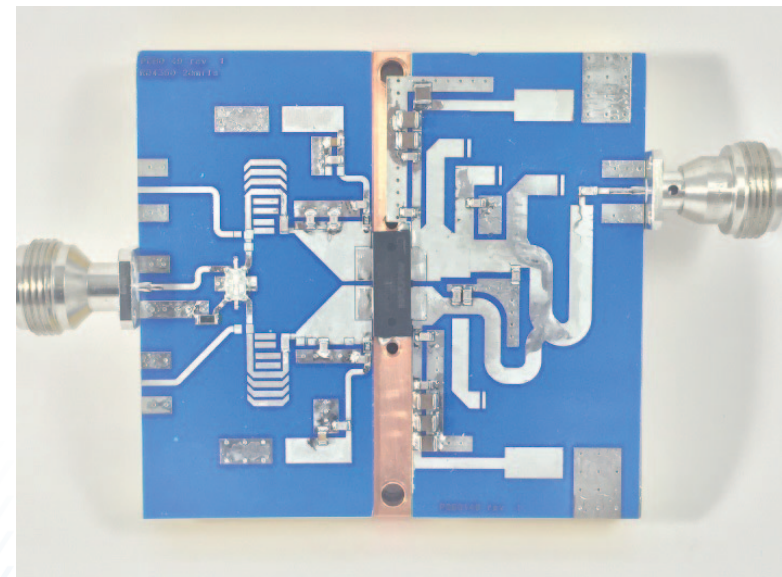
High Efficiency Opens New Opportunities For Basestation

MAGb-101822-360A0P

- Asymmetrical Doherty
- Plastic TO-272S-4 Package
- Freq. = 1805 - 1880 MHz B3, $V_{ds} = 50\text{ V}$
- Peak Power > 350 W
- @ $P_{OUT} = 47.5\text{ dBm}$ (7.8 dB OBO)
 - w/ 1C LTE 7.5 dB PAR
 - $dEff > 54\%$
 - Gain = 16 dB
- @ $P_{OUT} = 48.3\text{ dBm}$ (7 dB OBO)
 - w/ 1C LTE 7.5 dB PAR
 - $dEff > 56\%$
 - Gain = 15.5 dB



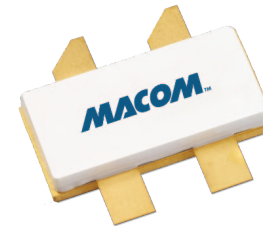
TO-272S-4



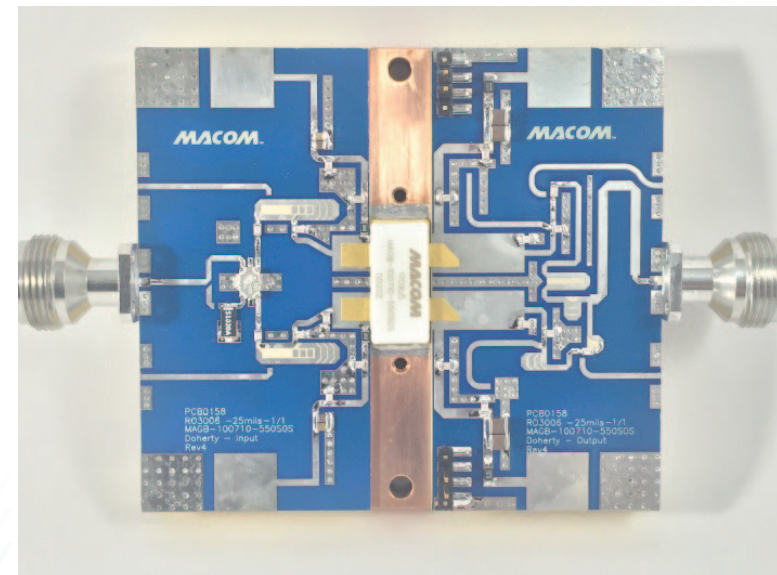
60 W B5 GaN on Si Basestation Applications

MAGb-100710-550S0S

- Symmetrical Doherty
- Freq. = 869 - 894 MHz B5, $V_{ds} = 50\text{ V}$
- Peak Power > 550 W
- @ $P_{OUT} = 49.5\text{ dBm}$ (8.1 dB OBO)
 - w/ 1C LTE 7.5 dB PAR
 - $d_{Eff} > 57\%$
 - Gain = 19.5 dB
- @ $P_{OUT} = 50.6\text{ dBm}$ (7 dB OBO)
 - w/ 1C LTE 7.5 dB PAR
 - $d_{Eff} > 60\%$
 - Gain = 19.2 dB

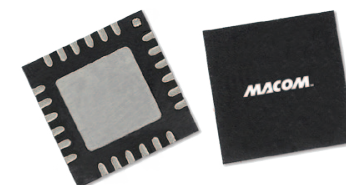


Ceramic AC-780S-4 Package



Family of New Broadband VCOs

- Best in Class Phase Noise
- Excellent Temperature Stability
- +5 V Bias Operation
- Low Current Consumption
- Lead-Free 24-Lead 4 mm QFN Package

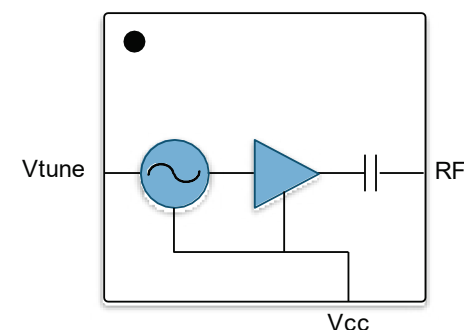
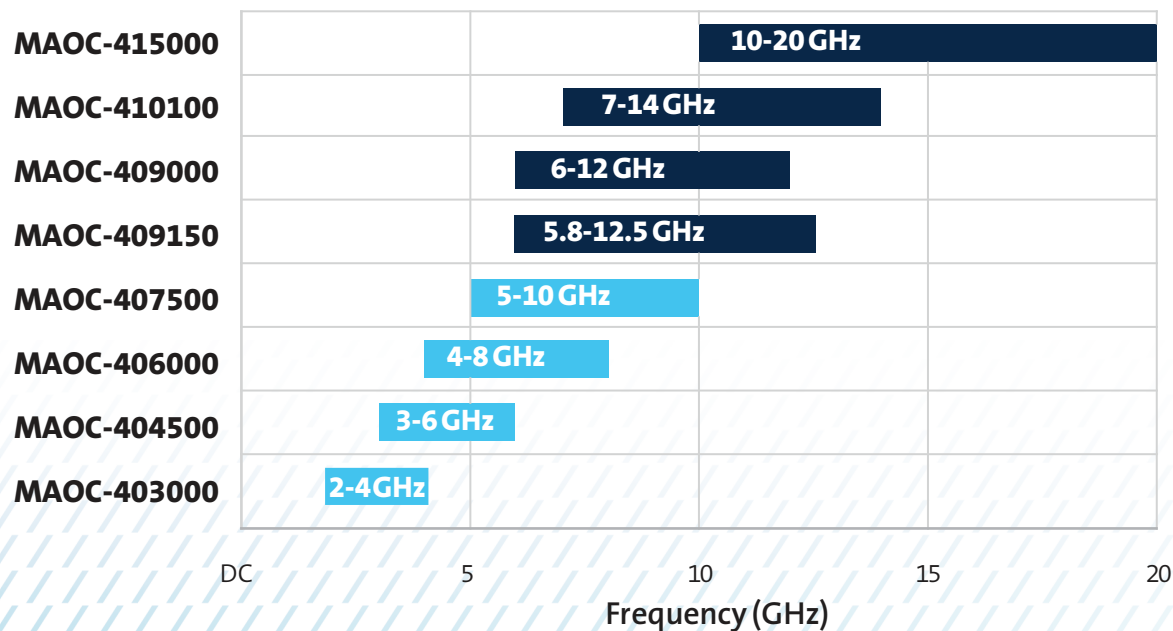


4 x 4 mm QFN Package

Part Number

Pre-Release

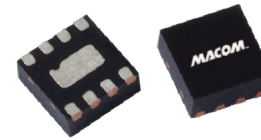
In Development



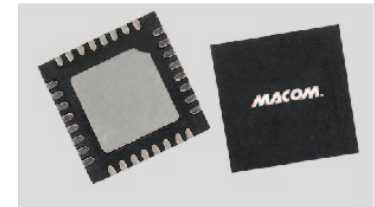
Family of New Wideband Low Noise Amplifiers DC-40 GHz

MACOMTM
Partners from RF to Light

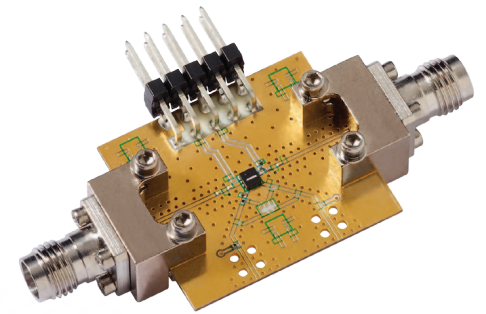
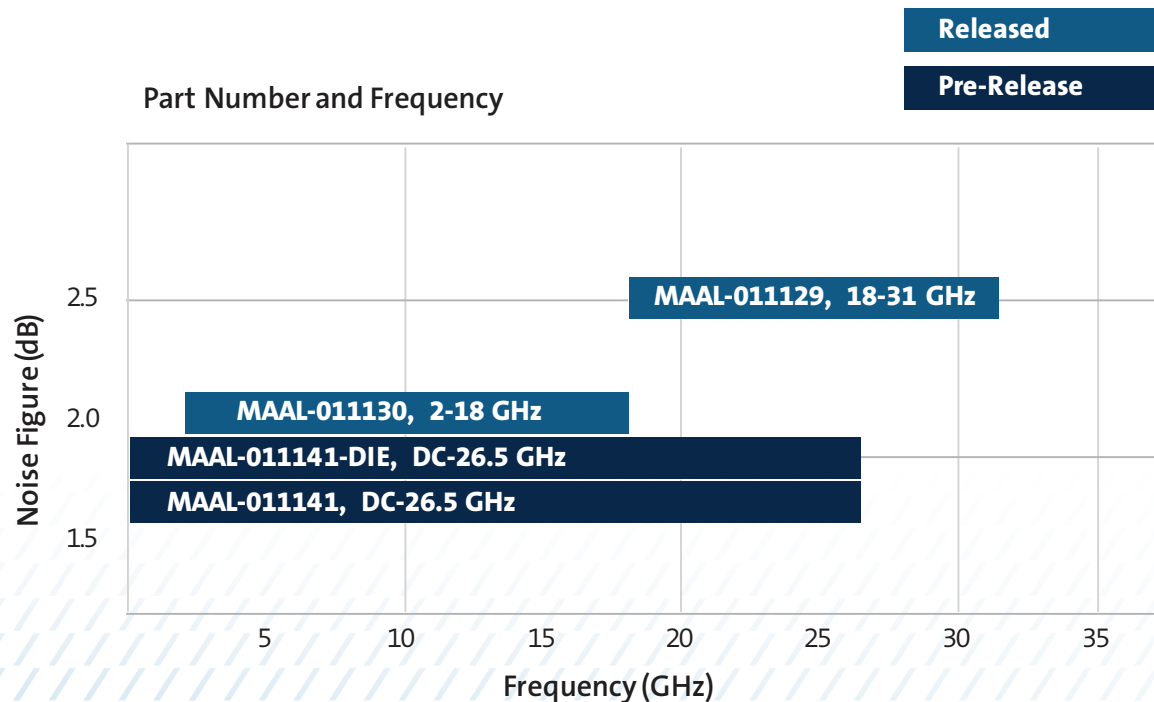
- Fully Matched Across Band
- Positive Bias Operation
- 2 mm and 5 mm QFN Packages



2 x 2 mm DFN Package



5 x 5 mm QFN Package

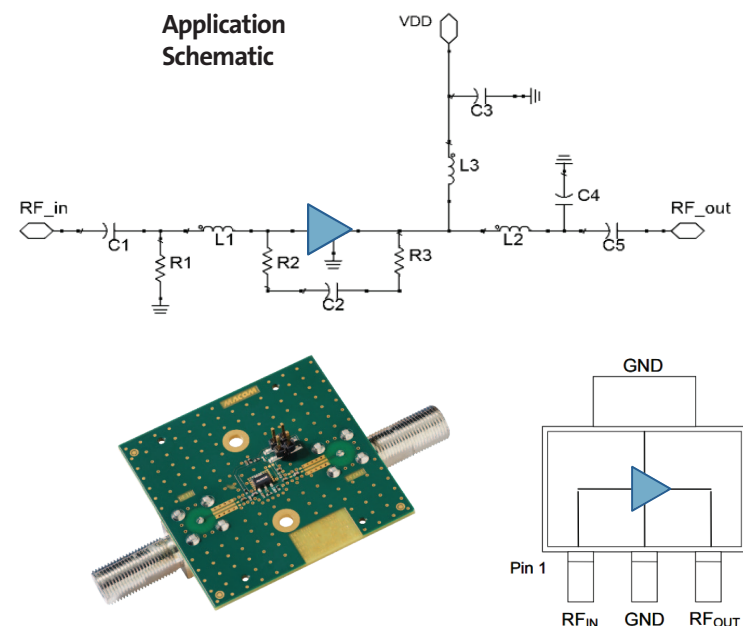


Wired Broadband Family of New Single Ended Wideband Amplifiers



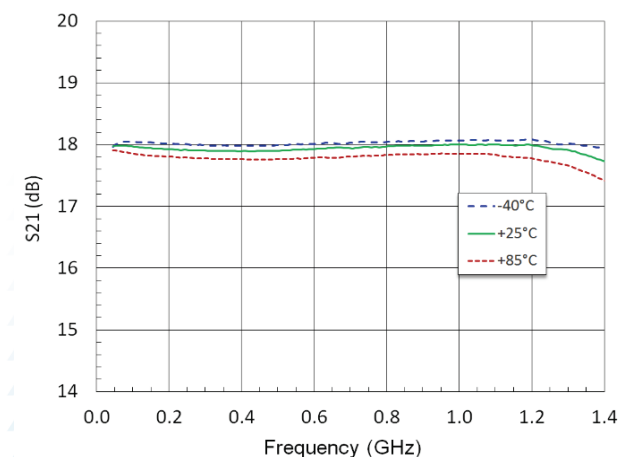
75 Ω Single Ended Amplifier Family

- 5-1218 MHz
- 5 V with adjustable current bias
- Flat gain response across the full band
- Downstream or Upstream applications
- Layout compatible product family
- Industry standard SOT-89 lead free package



Parameter	Units	MAAL-011139	MAAM-011162	MAAM-011251	MAAM-011258
Frequency	MHz	5-1218	5-1218	5-1218	5-1218
Gain	dB	21.5	18	15	12
Noise Figure	dB	1.2	2.0	2.3	2.5
IRL/ORL	dB	23/23	20/20	18/20	18/20
OIP2	dBm	42	48	48	48
OIP3	dBm	34	36	37	37
P1dB	dBm	19	19	18	18
Voltage	V	5	5	5	5
Current	mA	85	110	100	100

MAAM-011162
Gain

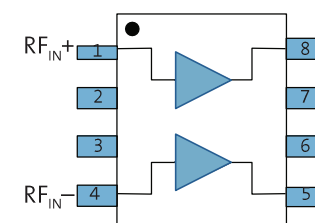
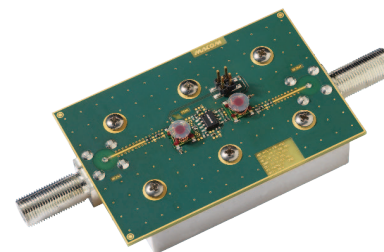
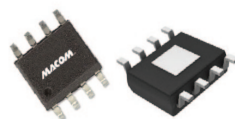
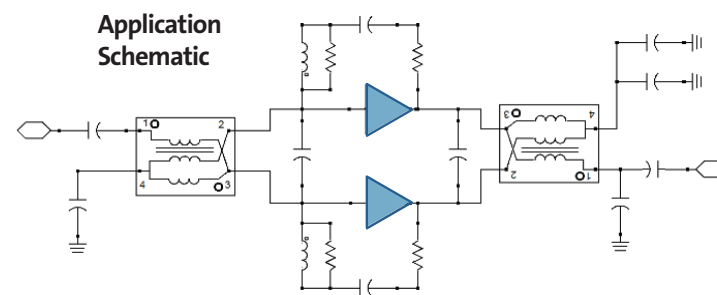


Wired Broadband Family of New Differential Wideband Amplifiers



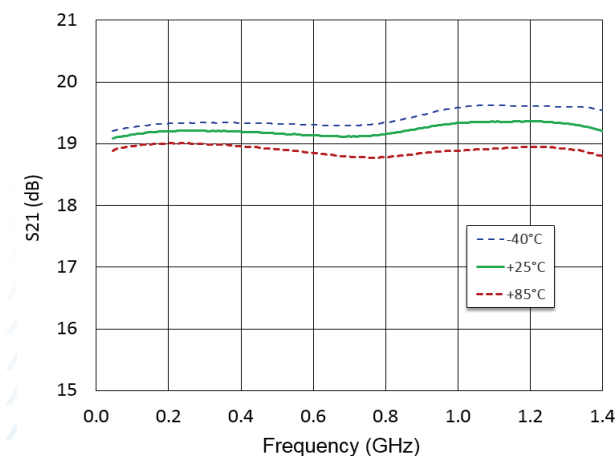
75 Ω Differential Amplifier Family

- 5-1218 MHz
- 5 V with adjustable current bias
- Flat gain response across the band
- Downstream or Upstream applications
- Layout compatible product family
- Industry standard SOIC-8EP lead free package



Parameter	Units	MAAM-011163	MAAM-0111240	MAAM-011250
Frequency	MHz	5-1218	5-1218	5-1218
Gain	dB	19	17	15
Noise Figure	dB	2.4	2.6	2.8
IRL/ORL	dB	20/20	20/20	20/20
OIP2	dBm	62	63	63
OIP3	dBm	42	44	44
P1dB	dBm	25	25	25
Voltage	V	5	5	5
Current	mA	290	290	290

MAAM-011163
Gain

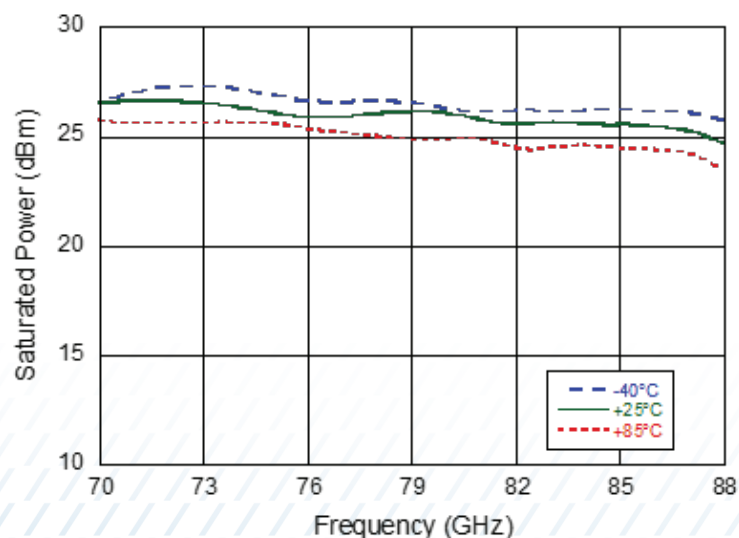


E-Band Tx & Rx Modules

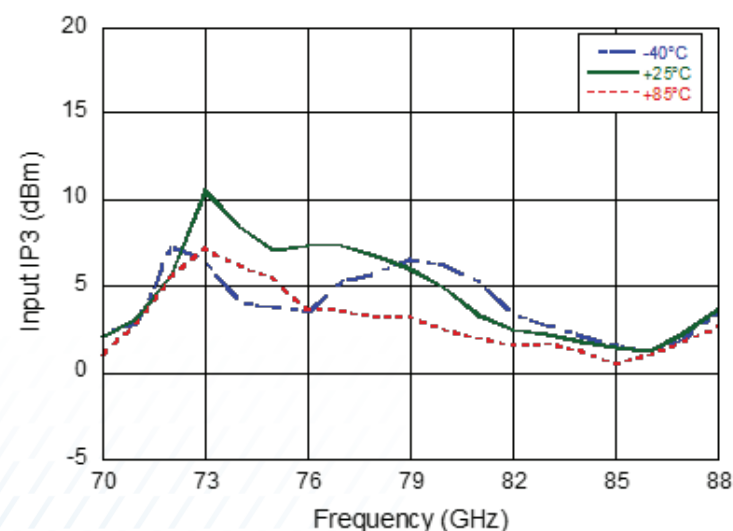
- Wideband 71 - 86 GHz Performance
- Surface Mount for easy integration (all high frequency components contained within module enabling the use of low cost radio board material)
- Waveguide I/P (Rx) & O/P (Tx)
- Tx module integrates IQ Mixer, O/P Driver Amplifier, O/P Power Amplifier, LOx8 Multiplier, LO Buffer Amplifiers & Power Detectors

- Rx Module integrates IQ Mixer, LNA, LOx8 Multiplier & LO Buffer Amplifiers
- Direct Conversion or IF Operation
- Excellent Turn down performance
- Matching VCO Solutions available

MAMF-011057 Psat @ 21.4 Mhz IF



MADC-011014 Input IP3 @ 21.4 MHz IF



MAMF-011057 Tx Module, MADC-011014 Rx Module

