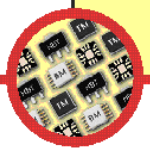
Gallium Nitride MMIC
0.1 – 8.0 GHz
Power Amplifier

AM018033TM-SN
April 2014
Preliminary



DESCRIPTION

AMCOM's AM018033TM-SN-R is a broadband GaN MMIC power amplifier. It has 19dB gain, and 36 dBm output power over the 0.1 to 2.0GHz band. The AM018033TM-SN-R is in a ceramic package with a flange and straight RF and DC leads for drop-in assembly. Because of high DC power dissipation, good heat sinking is required. The package is RoHS compliant. This MMIC is matched to 50 Ohms.

FEATURES

- Ultra-Broadband from 0.1 to 8GHz
- Saturated output power Psat is 36dBm
- Gain, 19dB
- Input & output matched to 50 Ohms

APPLICATIONS

- Instrumentation
- Commercial telecom transmission equipment
- Fixed microwave backhaul

TYPICAL PERFORMANCE *

Parameters	Minimum	Typical **	Maximum
Frequency	0.15 – 6 GHz	0.1 – 8 GHz	
Small Signal Gain (0.1 – 6.0GHz)	15dB	19dB	13dB
Gain Ripple		± 3dB	± 5.0dB
P1dB (0.5 – 2.0GHz)	-	29dBm	
P1dB (2.0 – 4.0GHz)	-	26dBm	
P1dB (4.0 – 8.0GHz)	-	24dBm	
Psat (0.5 – 2.0GHz)	33dBm	36dBm	
Psat (2.0 – 4.0GHz)	30dBm	33dBm	
Psat (4.0 – 8.0GHz)	27dBm	30dBm	
Psat Efficiency (0.5 – 2.0GHz)		30%	
Noise Figure		TBD	
IP3		TBD	
Input Return Loss	10dB	>14dB	
Output Return Loss	-	>4B	
Thermal Resistance		TBD	

* Specifications subject to change without notice.

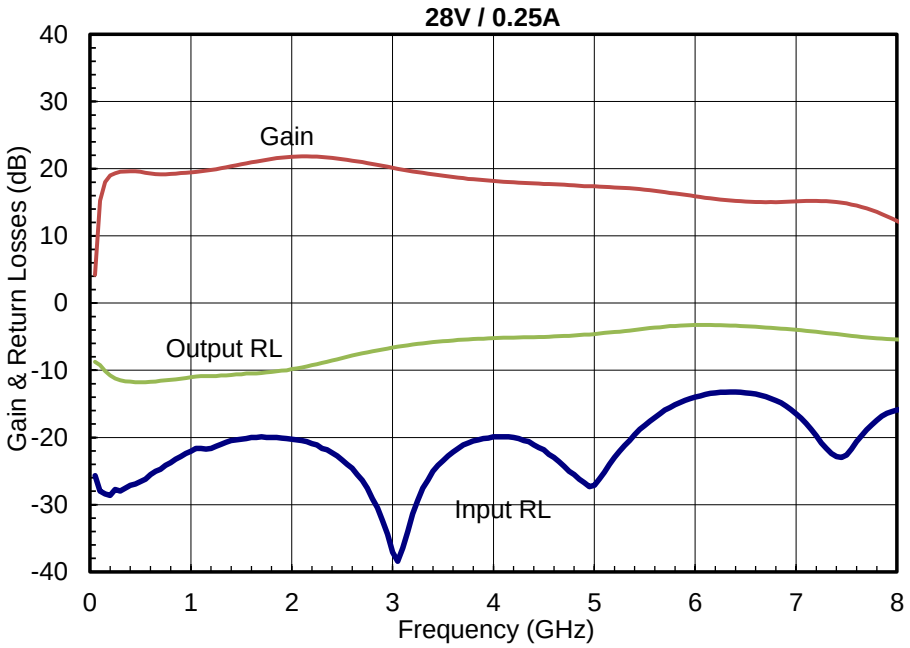
** Bias Conditions**: V_{ds1}= V_{ds2}= = +28V , I_{ds1} =110mA , I_{ds2} =150mA , V_{gs} =-2.6V .

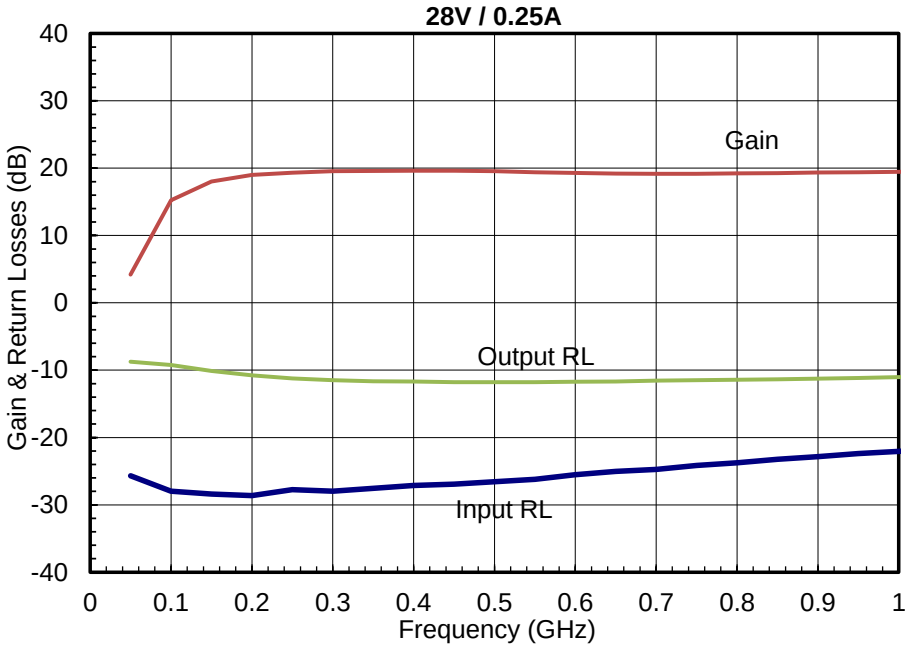
Email: info@amcomusa.com
Website: www.amcomusa.com
Tel. (301) 353-8400 Fax. (301) 353-8401
401 Professional Drive, Gaithersburg, MD 20879

ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Drain voltage	V_{ds1} & V_{ds1}	40V
Gate voltage	V_{gs1} & V_{gs2}	-6V
Drain source current	I_{ds1q} & I_{ds2q}	0.42A
Continuous dissipation at 25ºC	P_t	16W
Channel temperature	T_{ch}	200°C
Operating temperature	T_{op}	-55°C to +85°C
Storage temperature	T_{sto}	-55°C to +135°C

SMALL SIGNAL DATA*



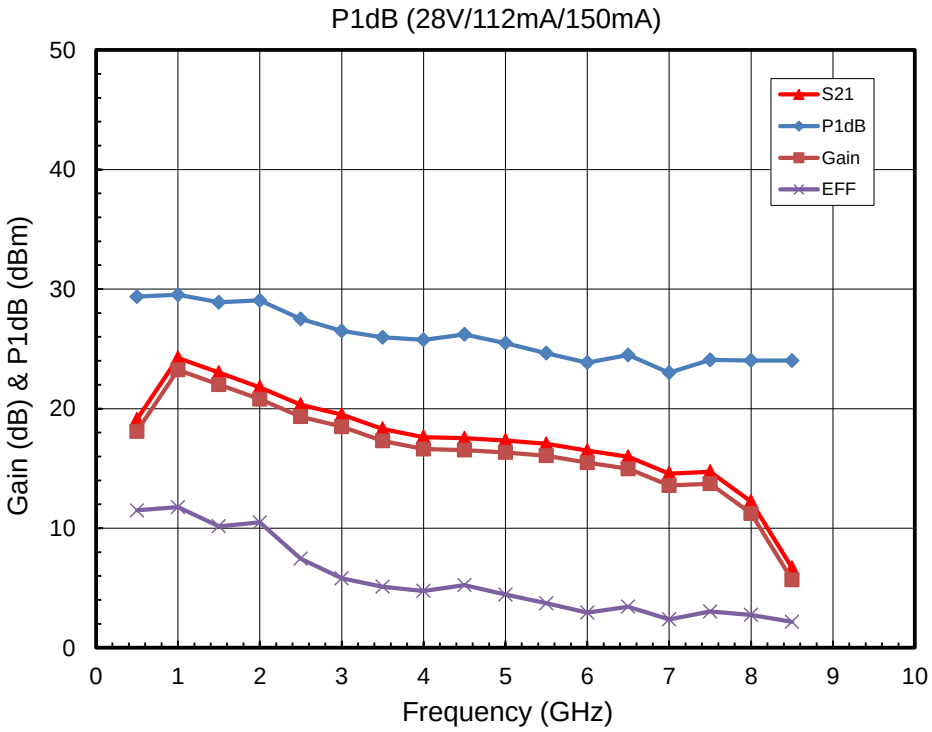


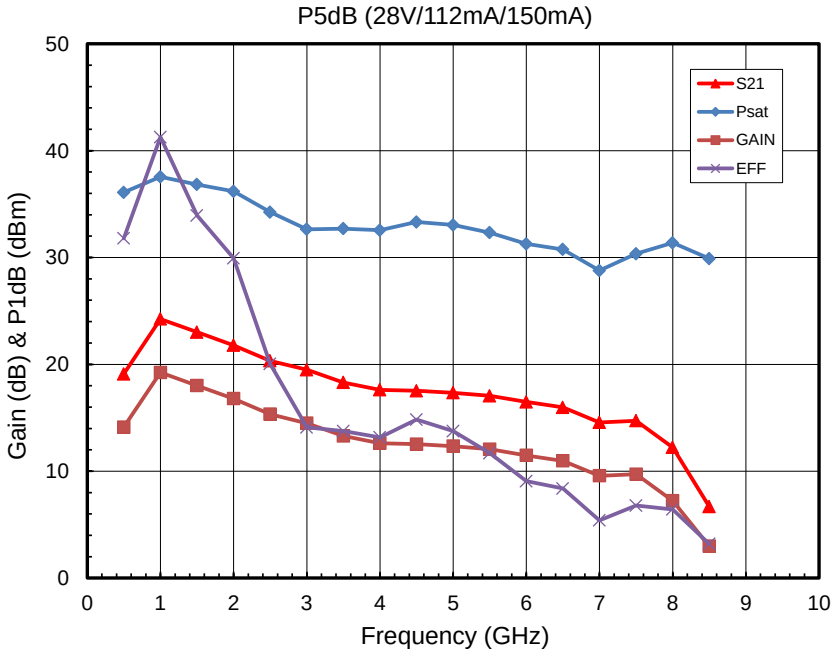
* S-Parameters measured using test fixture. Bias: V_{ds1}= V_{ds2}= = +28V , I_{ds1} =110mA , I_{ds2} =150mA , V_{gs} =-2.6V

NOISE DATA

(TBD)

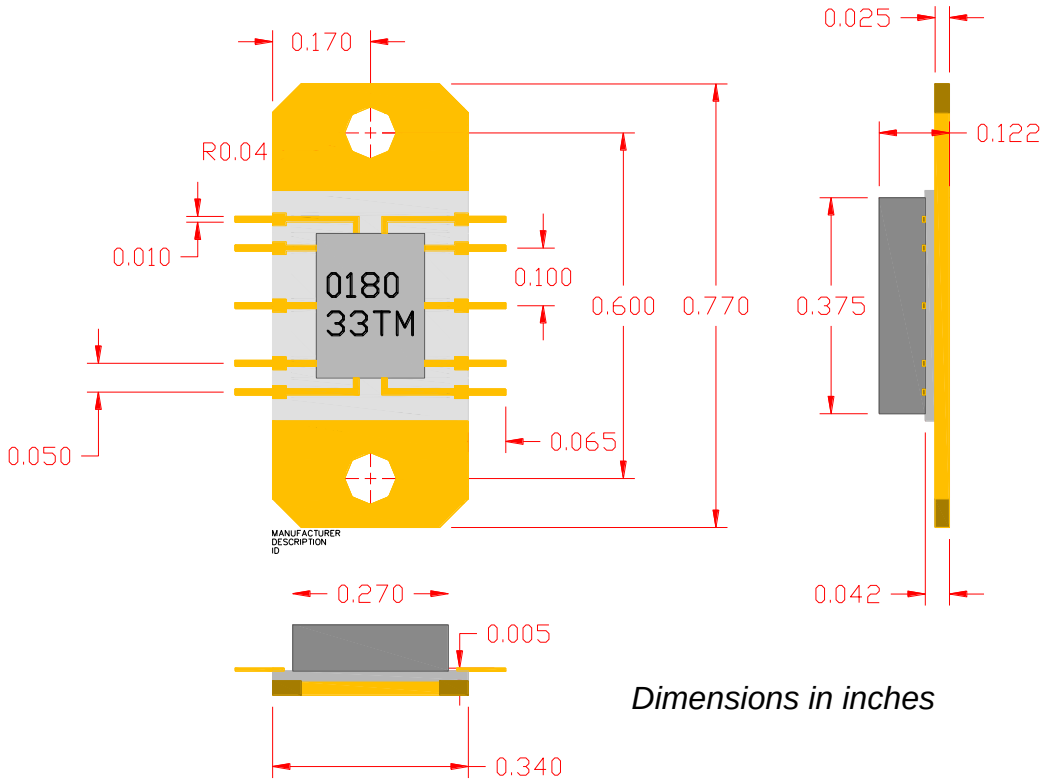
POWER DATA**





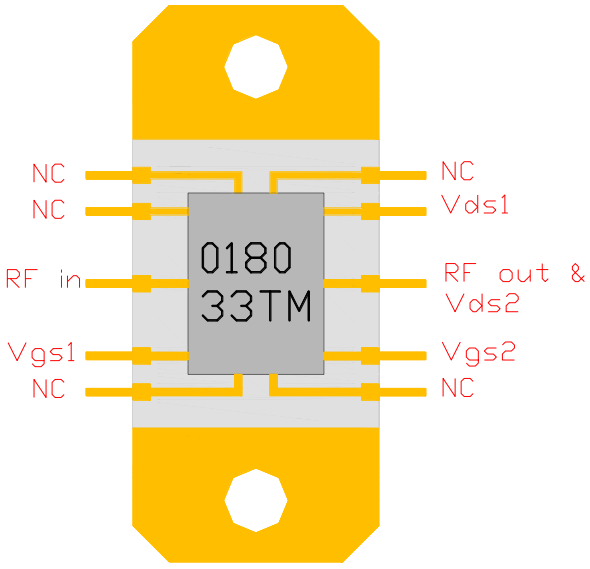
** Power measured using test fixture and external bias tee. Bias: V_{ds1}= V_{ds2}= = +28V , I_{ds1} =110mA , I_{ds2} =150mA , V_{gs} =-2.6V

PACKAGE OUTLINE



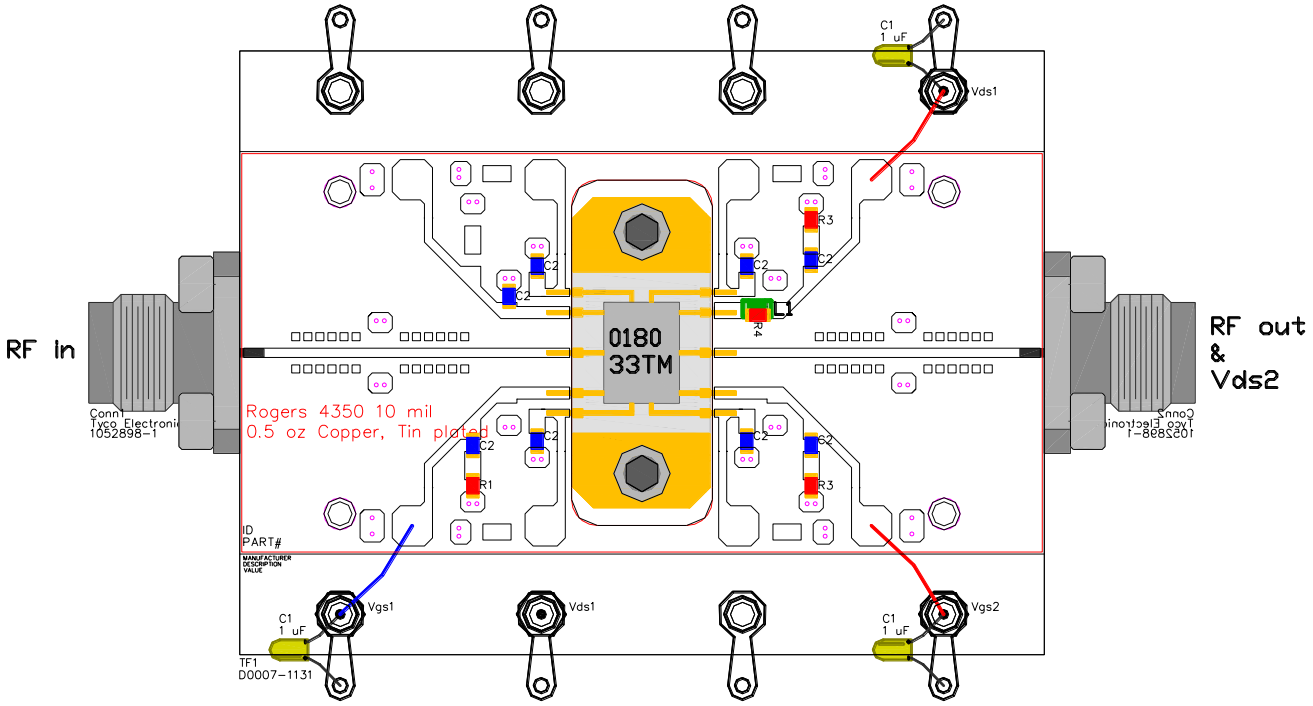
Dimensions in inches

Pin Layout



Pin No.	Function	Bias
1	NC	-
2	NC	-
3	RF in	-
4	Vgs1	-2.5V
5	NC	-
6	NC	-
7	Vgs2	-2.5V
8	RF out & Vds2	+28V
9	Vds1	+28V
10	NC	-

TEST CIRCUIT



Notes:
1- Use epoxy to mount PCB
2- C1=1uF, C2=1000pF, R1=50 Ohms , R3=5 Ohms, R4=100 Ohms, L1=100nH
3- All SMT Caps & Resistors are 0603 size

Important Notes:

1- Recommended current bias is 260mA. Gate biases of -2.5V is for reference only. V_{gs1} & V_{gs2} could be adjusted to vary the current going thru the MMIC.

2- Do not apply V_{ds1} & V_{ds2} without proper negative voltages on V_{gs1} & V_{gs2}. Otherwise MMIC would fail due to excess heat.

3- V_{ds2} is applied through the output RF port using bias tee.