

Product Features

- GaN on SiC Broadband High Power Amplifier
- 500 ~ 2500MHz Operation Bandwidth
- 40W Typical Psat
- 35% typical Power Efficiency at Psat

Applications

- General Purpose

**Description**

The power amplifier module is designed for general purpose.

Operating frequency range is from 500 ~ 2500MHz.

Gallium Nitride on SiC Technology is used and attached on a copper sub carrier.

Improved thermal handling by patented technology.

Electrical Specifications @ VDD=28VDC, T=25°C, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency Range	MHz	500	-	2500	BW
Power Output CW@ Pin=-10dBm	Watt	35	40	-	P _{sat}
Power Gain@ Pin=-10dBm	dB	-	56	-	G _P
Gain Flatness @ Pin=-10dBm	dB	-	±1.5	±2.0	ΔG
Gain Adjustable Range	dB	25	-	-	VVA
Gain Variation	dB	-	±1.5	±2.0	ΔG _{TEMP}
Input Return Loss	dB	-	-8	-5	S11
Power Added Efficiency @ P _{SAT}	%	26	35	-	η
Switching Time (Enable =TTL Low)	usec	-	4	5	T _{sw}
Operating Voltage	Volt	27.5	28	30	VDC
Current Consumption @ P _{SAT} , VDC=28V	Amp	-	6	8	I _{SAT}

Alarm Functions

DESCRIPTION	SPECIFICATIONS	AMPLIFIER STATUS
Over Heat Protection	Shutdown : over 85 °C Recovery : under 60 °C	Amplifier shutdown (current consumption : 200mA @ amplifier shutdown)

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	°C	-30	-	85	Tc
Storage Temperature	°C	-45	-	105	Tstg
Relative humidity w/o condensation	%	-	-	95	RH
Altitude	Feet	10,000	30,000	-	ALT
Shock & Vibration	Per Mil Std 810E				SH / VI

Mechanical Specifications

PARAMETER	UNIT	VALUE	LIMIT
Dimensions	Inch mm	7.4 x 3.5 x 0.9 188 x 90 x 24	-
Weight	lb. g	1.63 740	-
RF Connectors In/Out	-	SMA female	-
DC & Control Signals Connector	-	9-Pin / D-Sub / Male type	-
Cooling	-	External Heat-sink	-

Performance Data

(1) Spectrum Analyzer Test Results

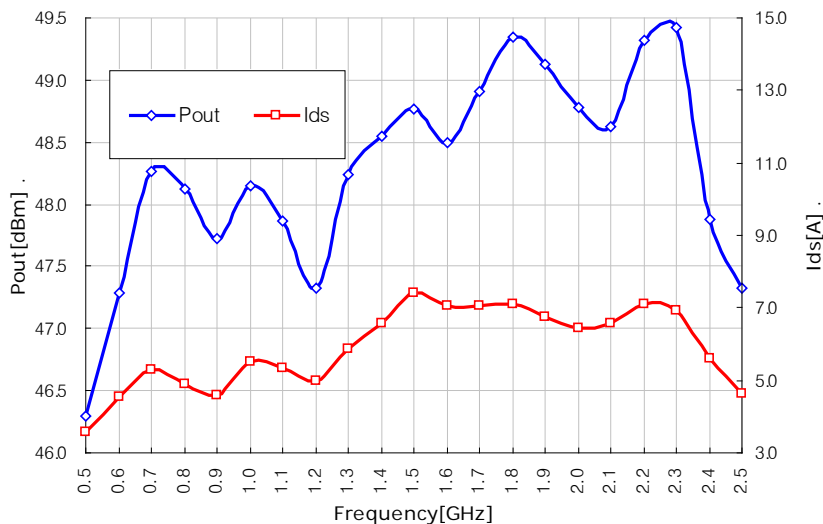
1) Summary Table

Test Condition : Ta=25 °C, Tc=50 °C

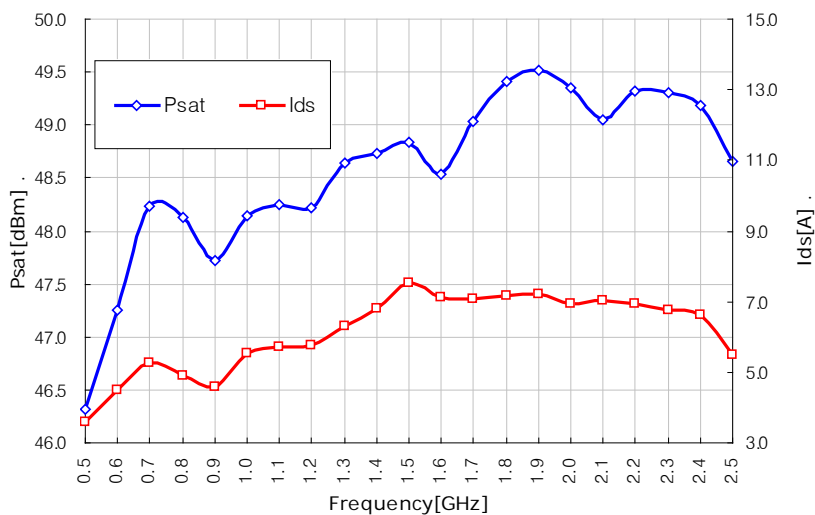
Frequency	Test Condition : Fixed Input Power=-10dBm				Test Condition : Maximum Output Power		
	Pout	Ids @Pout	Power Gain @Pout	Drain Efficiency @Pout	Psat	Ids @Psat	Drain Efficiency @Psat
MHz	dBm	A	dB	%	dBm	A	%
500	46.29	3.56	56.29	42.73	46.32	3.57	42.92
600	47.29	4.53	57.29	42.26	47.26	4.51	42.18
700	48.26	5.29	58.26	45.23	48.24	5.27	45.18
800	48.13	4.91	58.13	47.27	48.14	4.92	47.25
900	47.72	4.57	57.72	46.23	47.72	4.58	46.18
1000	48.15	5.50	58.15	42.37	48.15	5.52	42.28
1100	47.87	5.32	57.87	41.06	48.25	5.72	41.75
1200	47.33	4.99	57.33	38.67	48.22	5.77	41.05
1300	48.24	5.87	58.24	40.56	48.63	6.30	41.38
1400	48.54	6.56	58.54	38.95	48.74	6.82	39.12
1500	48.77	7.41	58.77	36.28	48.85	7.54	36.33
1600	48.50	7.06	58.50	35.82	48.53	7.12	35.78
1700	48.90	7.05	58.90	39.37	49.03	7.09	40.31
1800	49.34	7.10	59.34	43.26	49.42	7.16	43.60
1900	49.13	6.77	59.13	43.15	49.52	7.20	44.47
2000	48.78	6.45	58.78	41.84	49.36	6.96	44.24
2100	48.62	6.56	58.62	39.67	49.04	7.03	40.78
2200	49.32	7.09	59.32	43.10	49.33	6.95	44.00
2300	49.42	6.94	59.42	45.06	49.31	6.76	45.06
2400	47.88	5.62	57.88	38.97	49.19	6.64	44.58
2500	47.33	4.61	57.33	41.85	48.65	5.50	47.55

2) Performance Graph

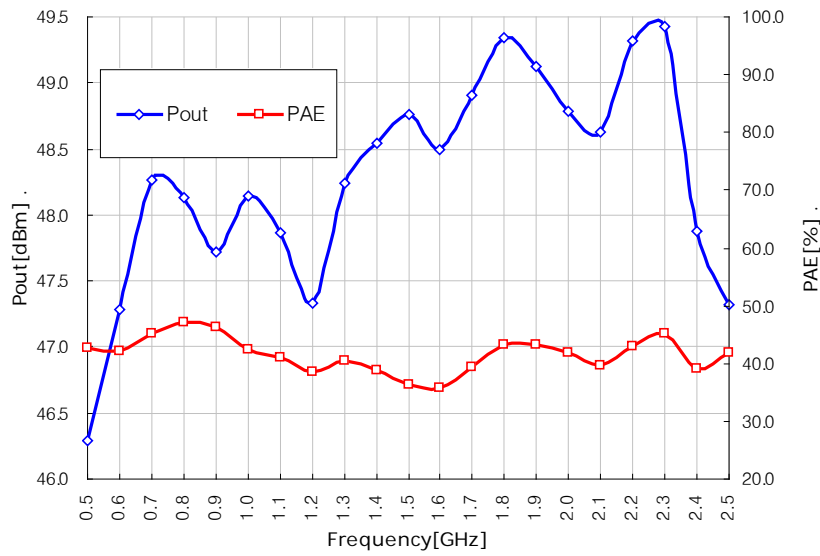
Output Power @ Pin=-10dBm & Ids vs. Frequency



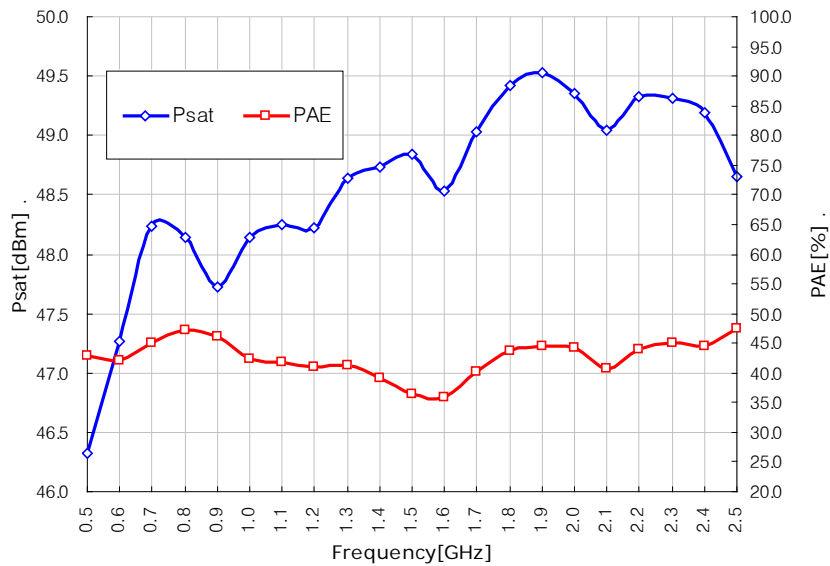
Saturation Power & Ids vs. Frequency



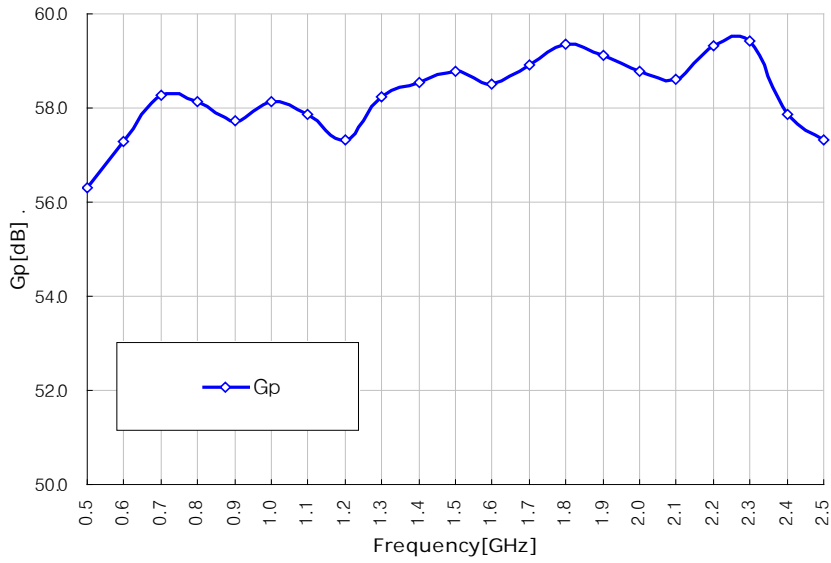
Output Power @ Pin=-10dBm & PAE vs. Frequency



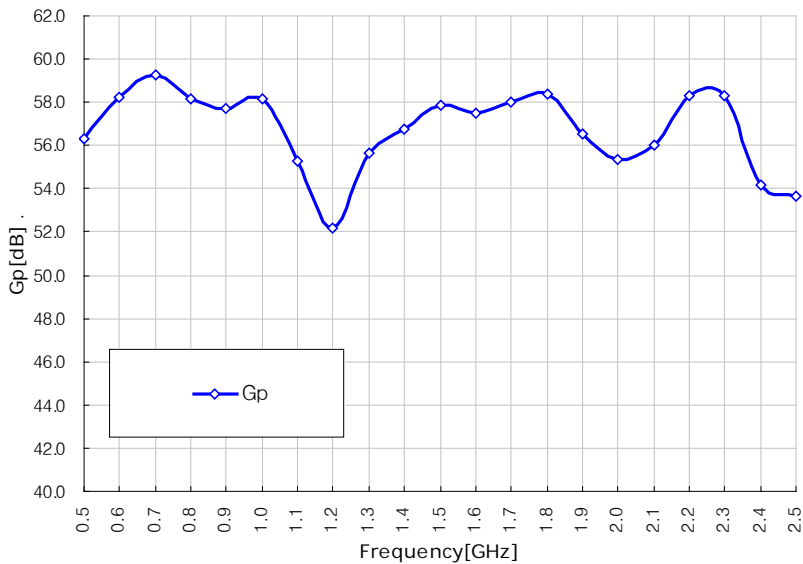
Saturation Power & PAE vs. Frequency



Power Gain @ Pin=-10dBm vs. Frequency

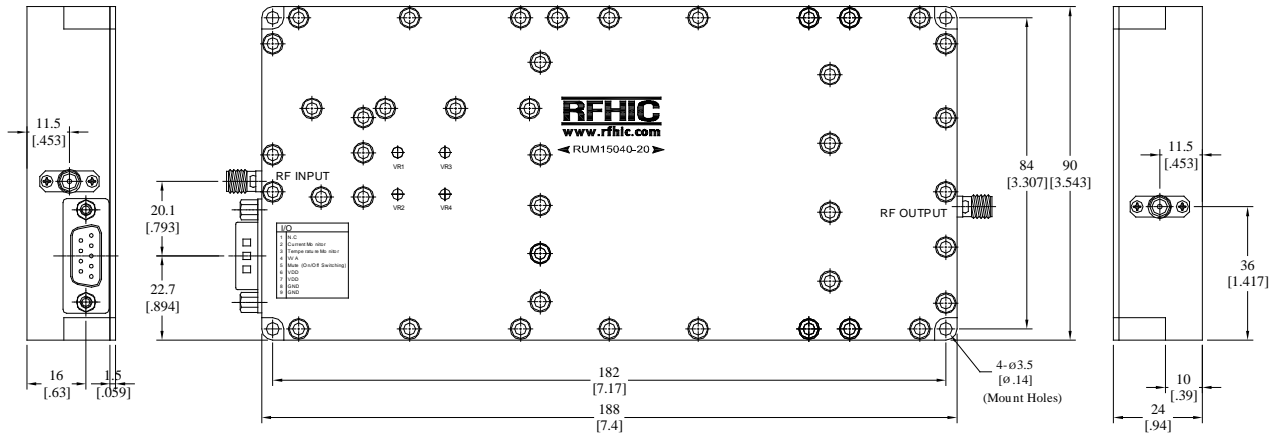


Power Gain @ Psat vs. Frequency



Outline Drawing

* Unit: mm[inch] | Tolerance ±0.2[.008]



Note
Cover screw holes and Module Mount Holes would be changed.

Pin Description

D-Sub, 9-Pin, male

Pin No	Description	I/O	Specifications
1	N.C.	-	-
2	Current Monitor	O	Reference voltage : 13.4V@2.1A, Scale : 500mV/1000mA
3	Temperature Monitor	O	Reference voltage : 750mV@25°C, Scale : 10mV/°C
4	VVA	I	Maximum Gain = +0 VDC or "GND" Minimum Gain = +5 VDC
5	Mute (On/Off Switching)	I	Enable : TTL "Low" or Open, Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 120mA Current consumption
6	VDD	I	+28 VDC
7	VDD	I	+28 VDC
8	GND	I	Ground
9	GND	I	Ground

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RUM15040-20	2013.7.09	1.2	Power Gain value modification	-
RUM15040-20	2013.1.22	1.1	Parameter modification Cover screw holes modification	-
RUM15040-20	2012.9.28	1.0	-	-

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