

**Product Features**

- GaN on SiC Broadband High Power Amplifier
- 500 ~ 2500MHz Operation Bandwidth
- 85W Typical Psat
- 30% typical Power Efficiency at P3dB
- Fast En/Disable Switching

**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 @ P <sub>IN</sub> =-3dBm	dBm	48.3	49.3	-	P <sub>o</sub>
Power Gain	dB	51	53	-	G <sub>p</sub>
Gain Flatness @ P <sub>IN</sub> =-3dBm	dBp-p	-	2.0	4.0	ΔG
Gain Variation	dB	-	-	±1.5	ΔG <sub>TEMP</sub>
Input Return Loss	dB	-	-10	-7	S11
Power Added Efficiency @ P <sub>SAT</sub>	%	25	30	-	η
Switching Time (Enable =TTL Low)	usec	-	4	5	T <sub>sw</sub>
Spurious Signals	dBc	-	-70	-60	Spur
Operating Voltage	Volt	27.5	28	30	VDC
Current Consumption @ P <sub>out</sub> = 85W, VDC=28V	-	-	-	-	-
Current Consumption @ P <sub>IN</sub> =-3dBm, VDC=28V	Amp	-	6	8	I <sub>SAT</sub>

**Absolute Maximum Rating**

PARAMETER	UNIT	MAX	SYMBOL
Input Overdrive	dBm	3 ±1	P <sub>OD</sub>
Load VSWR	-	10 : 1	Ψ

**Alarm Functions**

DESCRIPTION	SPECIFICATIONS	HPA Status
Over Heat Protection	Shutdown : 85±2℃ Recovery : 60±2℃	HPA Shutdown & 500mA Current consumption
Over Input Power Protection	Limited level : 10dBm±1	Input Power Saturation operating

**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

**Note**

When case temperature go over +85C, module will be shutdown.

**Mechanical Specifications**

PARAMETER	UNIT	VALUE	LIMIT
Dimensions	Inch mm	10 x 4.88 x 1.06 254.0 x 124.0 x 27.0	-
Weight	lb. g	3.1 1.4	-
RF Connectors In/Out	-	SMA female	-
DC & Control Signals Connector	-	7W2 Combination D-sub, male	-
Cooling	-	External Heat-sink	-

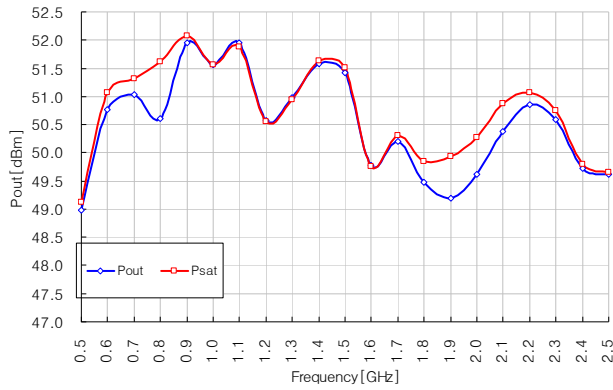
**Performance Data****(1) Spectrum Analyzer Test Results****1) Summary Table**

Test Condition : Ta=25℃, Tc=50℃

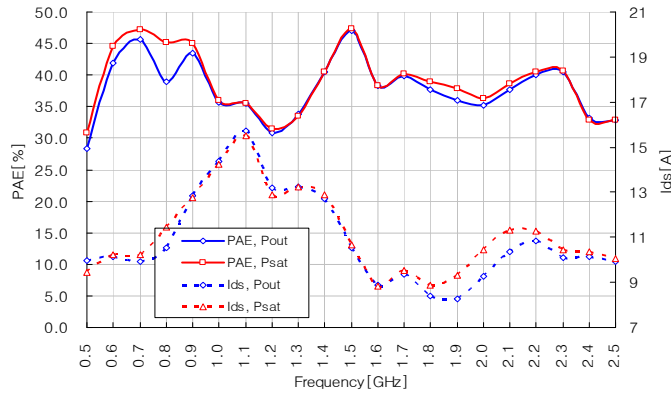
Frequency	Test Condition : Fixed Input Power=-3dBm				Test Condition : Maximum Output Power		
	Pout	Ids @Pout	Power Gain @Pout	Drain Efficiency @Pout	Psat	Ids @Psat	Drain Efficiency @Psat
MHz	dBm	A	dB	%	dBm	A	%
500	48.98	9.97	51.98	28.31	49.12	9.45	30.86
600	50.76	10.15	53.76	41.93	51.06	10.24	44.58
700	51.03	9.91	54.03	45.64	51.31	10.25	47.15
800	50.61	10.55	53.61	38.97	51.61	11.46	45.17
900	51.95	12.86	54.95	43.50	52.07	12.76	45.08
1000	51.56	14.36	54.56	35.62	51.56	14.25	35.92
1100	51.95	15.72	54.95	35.58	51.88	15.52	35.49
1200	50.58	13.21	53.58	30.86	50.56	12.88	31.53
1300	50.98	13.25	53.98	33.78	50.95	13.24	33.55
1400	51.59	12.73	54.59	40.43	51.64	12.88	40.47
1500	51.43	10.54	54.43	47.07	51.51	10.68	47.40
1600	49.78	8.86	52.78	38.29	49.76	8.83	38.30
1700	50.20	9.37	53.20	39.92	50.31	9.53	40.21
1800	49.47	8.38	52.47	37.76	49.85	8.88	38.88
1900	49.20	8.27	52.20	35.92	49.94	9.31	37.79
2000	49.61	9.28	52.61	35.20	50.27	10.45	36.35
2100	50.38	10.34	53.38	37.69	50.87	11.30	38.63
2200	50.85	10.84	53.85	40.09	51.07	11.27	40.57
2300	50.58	10.10	53.58	40.44	50.75	10.44	40.63
2400	49.73	10.14	52.73	33.10	49.79	10.34	32.92
2500	49.61	9.91	52.61	32.94	49.65	10.05	32.82

2) Performance Graph

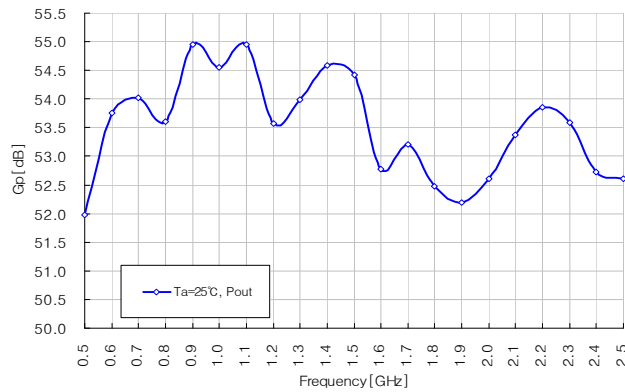
Pout @ Pin=-3dBm & Saturation Power vs. Frequency



Output Power @ Pin=-3dBm, Ids vs. Frequency



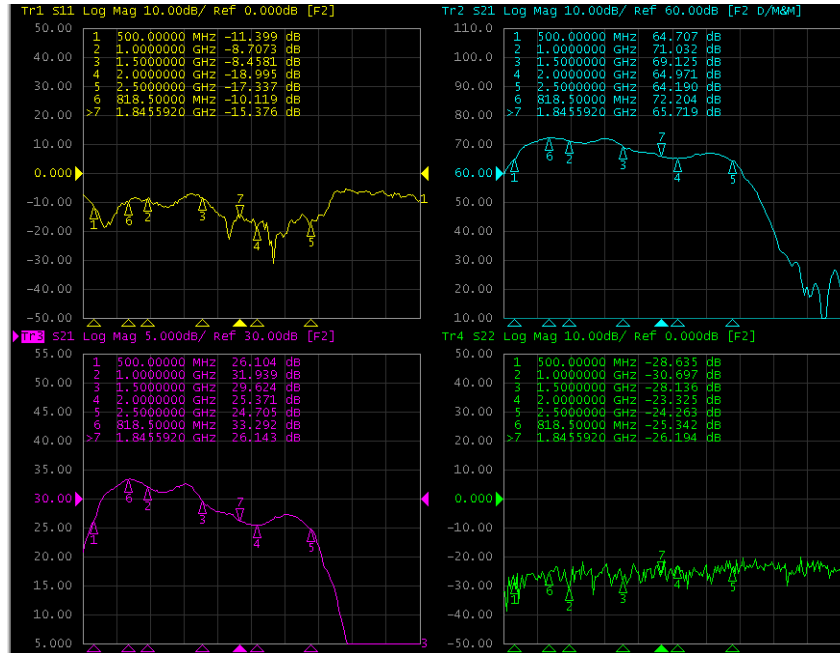
Power Gain @ Pin=-3dBm vs. Frequency



## (2) Network Analyzer Test Results

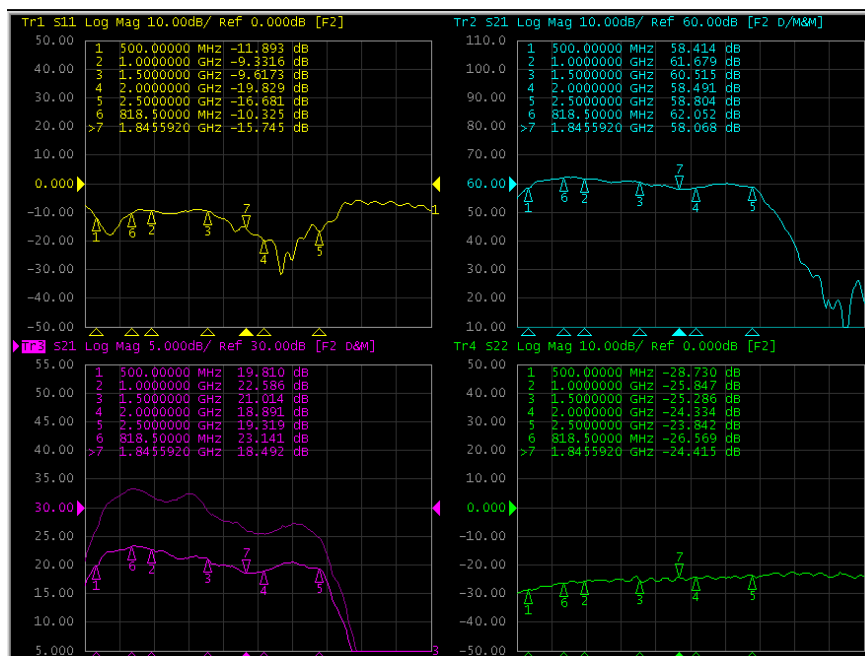
### 1) Test Condition

Ta=25°C, Tc=50°C, Input Power=-40dBm, Output offset applied to Trace2



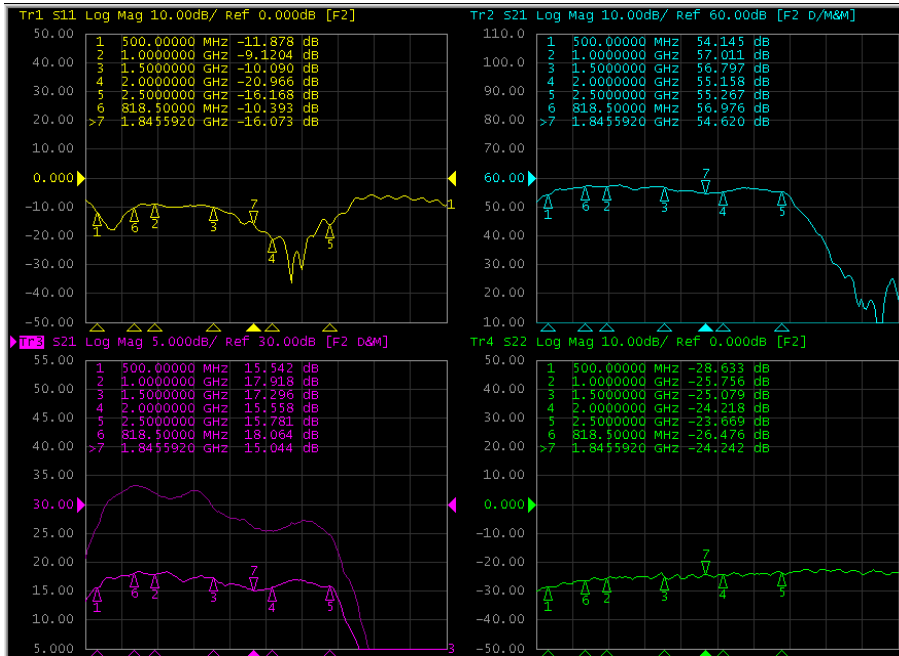
### 2) Test Condition

Ta=25°C, Tc=50°C, Input Power=-10dBm, Output offset applied to Trace2



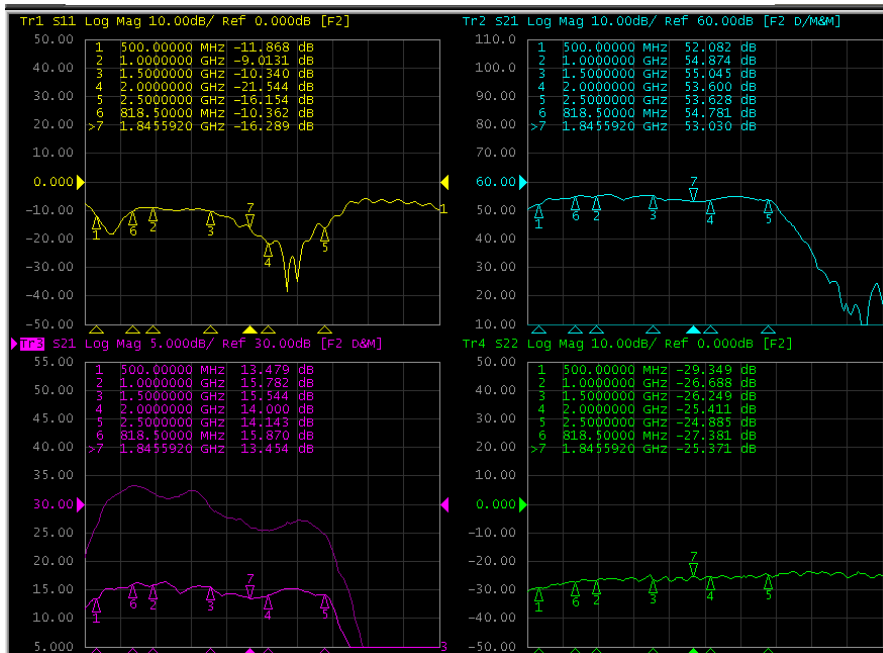
### 3) Test Condition

Ta=25°C, Tc=50°C, Input Power= -5dBm, Output offset applied to Trace2

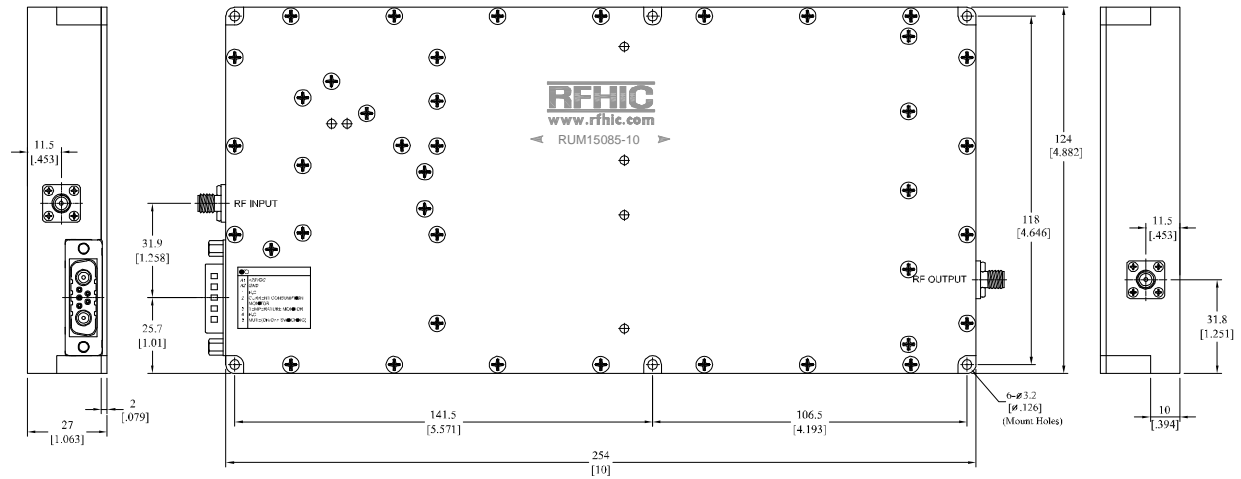


### 4) Test Condition

Ta=25°C, Tc=50°C, Input Power= -3dBm, Output offset applied to Trace2



## Outline Drawing

\* Unit: mm[inch] | Tolerance  $\pm 0.2$ [.008]

## Note

Cover screw holes and Module Mount Holes would be changed.

## Pin Description

7W2 Combination D-Sub, Male

Pin No	Description	I/O	Specifications
1	N.C.	-	Reserved
2	Current Consumption Monitor	O	Analog voltage relative to ID @ 500mV/1000mA, 12.5 $\pm$ 0.25V@0A
3	Temperature Monitor	O	Analog voltage relative to Module's Temperature @ 10mV/ $^{\circ}$ C, 750mV@25 $^{\circ}$ C
4	VVA	I	Reserved
5	Mute (On/Off Switching)	I	Enable : TTL "Low" or Open, Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 500 $\pm$ 100mA Current consumption
A1	VDD	I	28 VDC
A2	GND	I	Ground

**Revision History**

Part Number	Release Date	Version	Modification	Data Sheet Status
RUM15085-10	2012.9.28	1.0	-	-

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