Preliminary

GaN-SiC Broadband Amplifier RUP15050-10

RFHIC

Product Features

- Solid-state linear amplifier design
- GaN on SiC HEMT
- Small and light weight
- Wide Band Operation 500~2500MHz
- 50 Ohm Input/Output impedance matched
- Highly reliable and rugged design
- Harsh environmental condition
- High efficiency
- 50W typical Psat

Application

- Broadband communication
- Broadcasting
- General purpose RF amplifier
- Linear applications in the L/S Frequency Bands

Description

The RUP15050-10 is designed for RF system application frequencies from 500MHz to 2.5GHz.
This Pallet Amplifier uses GaN on SiC HEMT technology which performs high breakdown voltage, high linearity, wide bandwidth and high efficiency.

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

PARAMETER	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	500		2500	MHz
Output Power CW	Psat	30	50		Watt
Output Power @ P3dB G.C.P	P_{3dB}	10	30		Watt
Small Signal Gain	SSG		11		dB
Small Signal Gain Flatness	ΔG		± 1.5	± 2.0	dB
Input VSWR	S11		2.0:1	2.5:1	-
Harmonics @ P1dB G.C.P	H			-10	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDC	27	28	30	Volt
Supply Current @ P_{sat}	IDD		5.5	7	Amp
Supply Current @ P_{3dB}	IDD		4.5	6	Amp

* Please DO NOT ENTER RF INPUT POWER OVER +39dBm. (to prevent the main from damaging)

Environmental Characteristics

PARAMETER	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T_c	0		+70	°C
Storage Temperature	Ts	-40		+85	°C

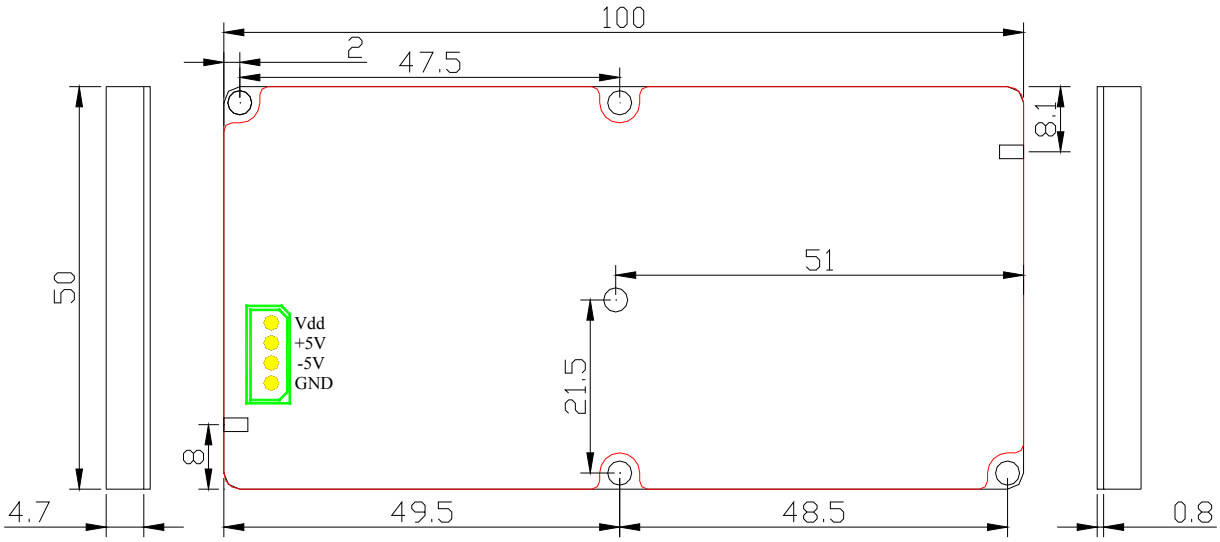
Mechanical Specifications

PARAMETER	Value	Units	Limits
Dimensions (L x W x H)	100.0 x 50.0 x 16.0	mm	Max
RF Connectors In/Out	SMA Female		
Cooling	External Heat sink + airflow		

Interface Connectors

Pin #	Description	Specifications
1	**Vdd.**	+28 Drain Voltage
2	**Ref.**	+5V op-Amp Operate Voltage
3	**Vgs.**	-5V Gate Voltage
4	**GND.**	Ground

Outline Drawing



Typical Performance Chart @ 25°C

RFHIC RUP15050-10 Test Result								
	P3 Output Power, Current, Efficiency				Psat Output Power, Current, Efficiency			
Freq. [MHz]	Output [dBm]	Output [Watt]	Current [A]	Efficiency [%]	Output [dBm]	Output [Watt]	Current [A]	Efficiency [%]
500	45.87	38.64	2.73	48.74	47.54	56.75	3.80	48.29
600	44.93	31.12	2.24	48.04	46.54	45.08	2.99	48.34
700	44.66	29.24	2.45	39.64	46.11	40.83	3.33	35.03
800	42.76	18.88	2.65	23.25	46.29	42.56	4.06	29.40
900	41.81	15.17	2.67	18.92	46.65	46.24	4.37	30.32
1000	42.97	19.82	3.27	19.63	47.77	59.84	5.53	29.09
1100	42.97	19.82	3.29	19.73	48.85	76.74	6.33	34.66
1200	47.6	57.54	4.75	39.57	49.42	87.50	6.20	43.91
1300	47.61	57.68	4.65	41.86	49.45	88.10	5.78	47.76
1400	46.82	48.08	4.14	38.54	49.64	92.04	5.49	52.31
1500	45.93	39.17	3.77	34.34	49.06	80.54	5.16	45.94
1600	45.85	38.46	3.79	33.06	48.88	77.27	5.26	42.16
1700	44.96	31.33	3.50	28.98	48.66	73.45	5.38	37.92
1800	45.03	31.84	3.65	28.20	48.81	76.03	5.65	37.33
1900	46.69	46.67	4.43	34.26	49.22	83.56	5.84	42.08
2000	45.97	39.54	4.20	30.72	49.15	82.22	6.02	40.07
2100	46.73	47.10	4.68	32.78	48.70	74.13	5.72	37.47
2200	46.58	45.50	4.79	30.52	47.70	58.88	5.62	29.16
2300	45.89	38.82	4.98	24.57	48.48	70.47	6.42	31.33
2400	47.38	54.70	5.62	30.64	48.73	74.64	6.13	34.85
2500	47.6	57.54	4.67	39.68	48.94	78.34	5.05	43.26

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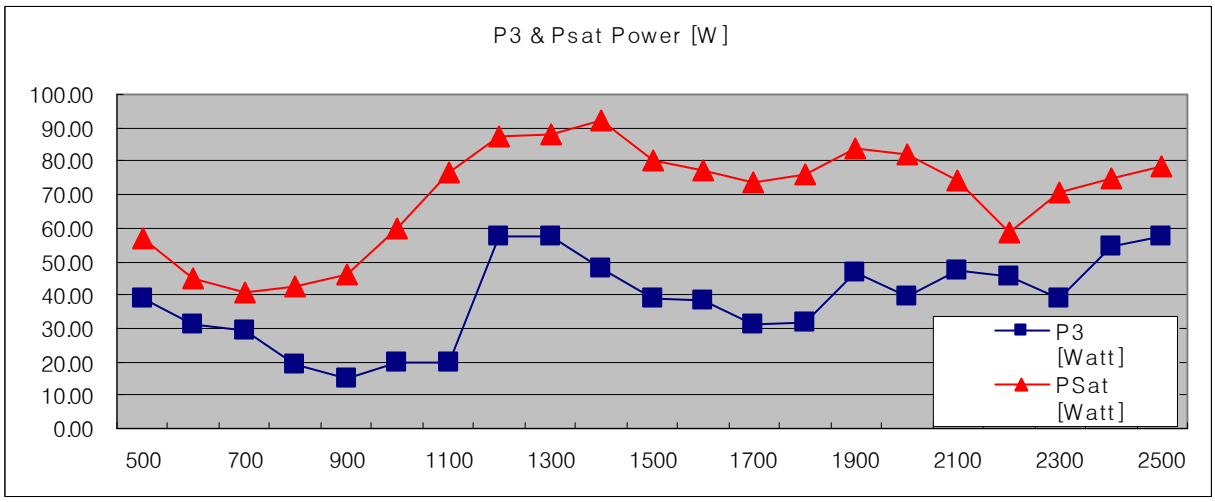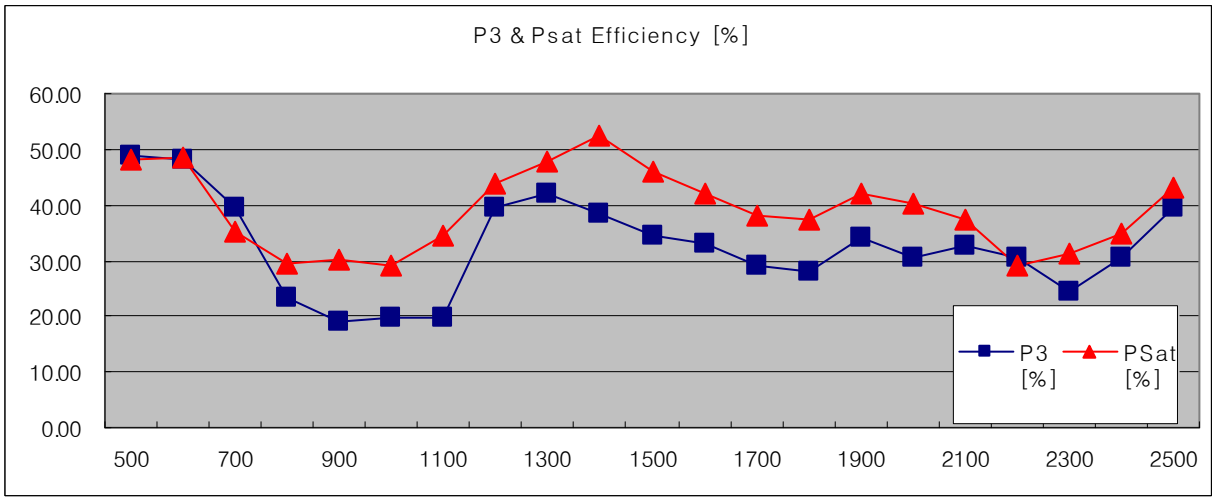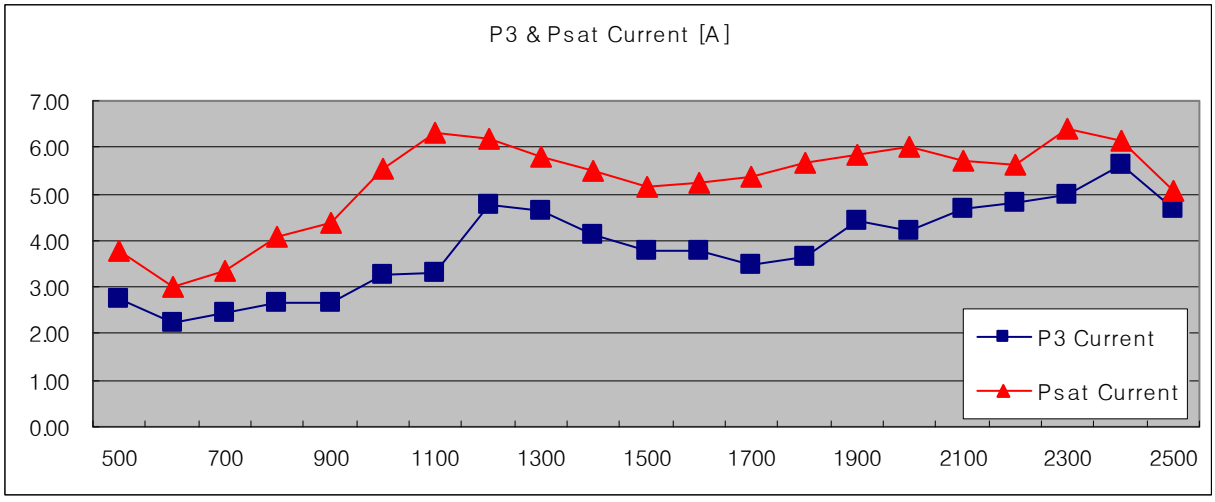
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