Preliminary

GaN-SiC Broadband Amplifier RUP15020-11

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
- 25W typical Psat

Application

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

Description

The RUP15020-11 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=+30VDC, T=25°C, 50Ω System

PARAMETER	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	500		2500	MHz
Output Power CW	Psat	10	25		Watt
Output Power @ P3dB G.C.P	P_{3dB}	5	15		Watt
Small Signal Gain	SSG		50		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	28	30	32	Volt
Supply Current @ P3 CW	IDD		2.5	3.5	Amp
Supply Current @ Psat CW	IDD		3.5	5	Amp

* Please DO NOT ENTER RF INPUT POWER OVER +5dBm. (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

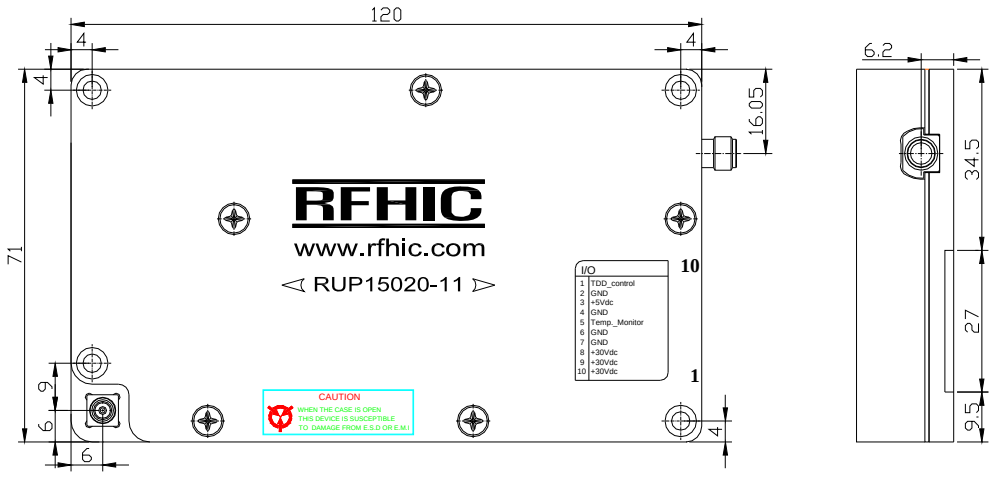
Mechanical Specifications

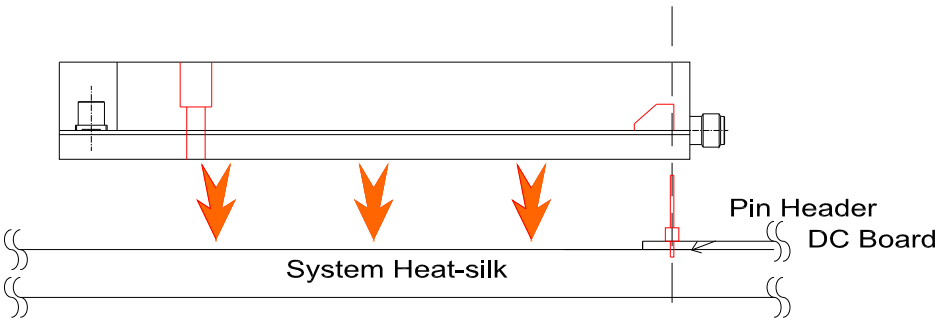
PARAMETER	Value	Units	Limits
Dimensions (L x W x H)	120 x 71 x 18.5	mm	
RF Connectors In/Out	SMA Female		
Cooling	External Heat sink + airflow		

Interface Connectors

Pin #	Description	Specifications
1	**On/Off**	Ground On, Floating & Positive Voltage Off
2	**GND**	Ground
3	**GND**	Ground
4	**GND**	Ground
5	**Temp Moniter**	25℃ 0.75V
6	**GND**	Ground
7	**GND**	Ground
8	**+Vdd**	+30 Drain to Source Voltage
9	**+Vdd**	+30 Drain to Source Voltage
10	**+Vdd**	+30 Drain to Source Voltage

Outline Drawing





Typical Performance Chart @ 25°C

RFHIC RUP15020-11 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	40.65	11.61	1.88	22.06	42.52	17.86	2.34	27.27
600	40.54	11.32	2.07	19.54	43.53	22.54	3.45	23.34
700	39.86	9.68	2.07	16.71	43.34	21.58	3.17	24.31
800	39.86	9.68	2.15	16.08	43.39	21.83	3.00	25.98
900	40.58	11.43	2.28	17.90	43.75	23.71	3.03	27.95
1000	42.58	18.11	2.77	23.35	44.66	29.24	3.29	31.74
1100	42.57	18.07	2.93	22.03	45.15	32.73	3.41	34.28
1200	43.84	24.21	3.19	27.10	45.07	32.14	3.40	33.76
1300	43.95	24.83	3.26	27.20	44.96	31.33	3.43	32.62
1400	42.98	19.86	3.02	23.49	45.22	33.27	3.64	32.64
1500	42.15	16.41	2.88	20.34	45.29	33.81	4.17	28.95
1600	42.13	16.33	3.18	18.34	44.94	31.19	4.44	25.08
1700	40.9	12.30	2.69	16.33	44.69	29.44	3.95	26.62
1800	41.62	14.52	2.70	19.21	45.16	32.81	3.74	31.33
1900	41.88	15.42	2.61	21.10	45.34	34.20	3.63	33.64
2000	42.55	17.99	2.62	24.52	45.54	35.81	3.54	36.13
2100	42.1	16.22	2.40	24.13	45.44	34.99	3.36	37.19
2200	42.48	17.70	2.40	26.34	45.23	33.34	3.34	35.65
2300	41.95	15.67	2.21	25.32	44.82	30.34	3.28	33.03
2400	43.2	20.89	2.34	31.89	44.71	29.58	2.84	37.19
2500	42.47	17.66	2.18	28.93	43.86	24.32	2.63	33.03

Typical Performance Chart @ 25°C