GaN Power Amp Pallet RTP21056-20

Product Features

- Doherty amplifier design
- GaN on SiC HEMT
- Small and light weight
- 50 Ohm Input/Output impedance matched
- Highly reliable and rugged design
- High efficiency
- 56W typical P_{AVG}

Applications

- WCDMA & LTE DPD amplifier
- General purpose RF amplifier

Description

The RTP21056-20 is designed for RF system application frequencies from 2110 ~ 2170MHz, with high gain.
This Pallet Amplifier uses GaN on SiC HEMT technology which performs high breakdown voltage, high linearity, and high efficiency.
The RTP21056-20 is a DPD application amplifier.

Electrical Specifications @ VDD= 48V, 50Ω System

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Frequency Range		MHz	2110	-	2170	f_O
Operating Bandwidth		MHz	-	60	-	OBW
Average Output Power		dBm	47	47.5	-	Pout
Peak Output Power (Pulse duty 10%)		dBm	54.5	55	-	Psat
ACPR (LTE 10MHz 1FA*1) @ Pout=47.5dBm Avg.	Pre-DPD	dBc	-	-23	-	ACPR
	Post-DPD*2		-	-52	-	
RF Gain @ 25℃		dB	58	59	60	G_P
Gain Variation		dB	± 3dB @ operating temperature			ΔG
Gain Flatness		dB	-	± 0.5	±1	G_F
Input Return Loss		dB	-	-	-12	S_{11}
Output Return Loss		dB	-	-	-17	S_{22}
Operating Voltage		V	V_{DC1}: 5.6±3%			VDC
			V_{DC2}: 48 ±1V			
Current Consumption	5.6V	A	-	0.25	0.30	IDD
	48V		-	2.76	2.89	
Efficiency @ 47.5dBm		%	40	42	-	Eff
Feedback Output level @ 47.5dBm		dBm	5	7	9	FB

Note

1. Signal source condition : LTE 10MHz 1FA, PAPR 7.5dB@0.01% probability on CCDF

2. DPD Solution : Broadcom OP6180

Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Input Overdrive	Max.	-7dBm	P_{OD}
Load VSWR	Nom.	∞ : 1(All Phase & Amplitude)	Ψ
Operating Case Temperature	°C	95	Tc

Environmental Characteristics

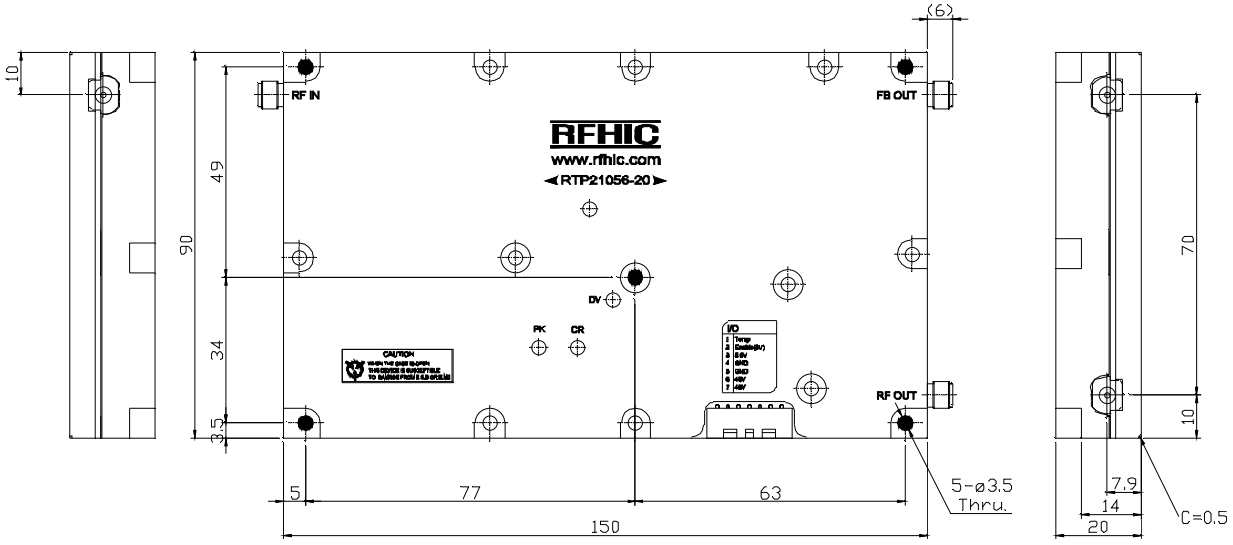
PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Ambient Temperature	°C	-30	-	60	Ta
Storage Temperature	°C	-40	-	100	Tstg
Relative humidity w/o condensation	%	-	-	95	RH

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (L x W x H)	mm	125 x 90 x 20
Weight	Kg	0.45
RF Input Connector	-	SMA (Female)
RF Coupling Connector	-	SMA (Female)
RF Output Connector	-	SMA (Female)
I/O Connector	-	SMAW250-07(Yeonho Electronics)
Cooling	-	External Heat-sink + Airflow

Outline Drawing

* Unit: mm | Tolerance: ±0.2



Note
Connector positions and module mount holes may be subjected change.

Interface Connector

7 Pin-Control (SMAW250-07)

Pin No	Description	Specification
1	**Temp Monitor**	Reporting Temperature data [0.75V/25℃(10mV/℃)]
2	**Enable / Disable**	Amp Enable(+5.0V) / Amp Disable(0V)
3	**V_{PD}**	+5.6 V (Pre-Drive and Drive stage and bias voltage)
4	**GND**	Ground
5	**GND**	Ground
6	**V_{DD}**	+48 V (PA Drain Supply)
7	**V_{DD}**	+48 V (PA Drain Supply)

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RTP21056-20	2014.07.29	1.0	-	Initial