

## 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 <sub>o</sub>
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 <sup>*1</sup> ) @ Pout=47.5dBm Avg.	Pre-DPD	dBc	-	-23	-	ACPR
	Post-DPD <sup>*2</sup>		-	-52	-	
RF Gain @ 25°C		dB	58	59	60	G <sub>p</sub>
Gain Variation		dB	± 3dB @ operating temperature			ΔG
Gain Flatness		dB	-	± 0.5	±1	G <sub>F</sub>
Input Return Loss		dB	-	-	-12	S <sub>11</sub>
Output Return Loss		dB	-	-	-17	S <sub>22</sub>
Operating Voltage		V	V <sub>DC1</sub> : 5.6±3%			VDC
			V <sub>DC2</sub> : 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**

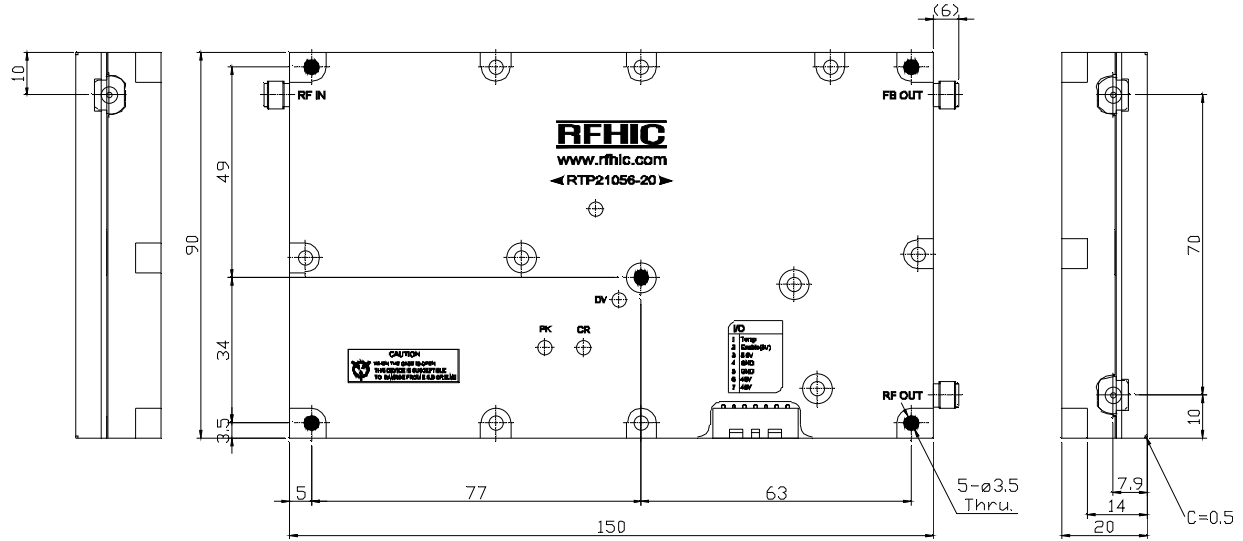
PARAMETER	UNIT	RATING	SYMBOL
Input Overdrive	Max.	-7dBm	P <sub>OD</sub>
Load VSWR	Nom.	∞ : 1 (All Phase & Amplitude)	Ψ
Operating Case Temperature	°C	95	T <sub>c</sub>

**Environmental Characteristics**

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Ambient Temperature	°C	-30	-	60	T <sub>a</sub>
Storage Temperature	°C	-40	-	100	T <sub>stg</sub>
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:  $\pm 0.2$ **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°C (10mV/°C)]
2	Enable / Disable	Amp Enable(+5.0V) / Amp Disable(0V)
3	V <sub>PD</sub>	+5.6 V (Pre-Drive and Drive stage and bias voltage)
4	GND	Ground
5	GND	Ground
6	V <sub>DD</sub>	+48 V (PA Drain Supply)
7	V <sub>DD</sub>	+48 V (PA Drain Supply)

**Revision History**

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

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