



**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<sub>AVG</sub>

**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	-	P <sub>out</sub>
Peak Output Power (Pulse duty 10%)	dBm	54.5	55	-	P <sub>sat</sub>
ACPR (LTE 10MHz 1FA <sup>+1</sup> ) @ P <sub>out</sub> =47.5dBm Avg.	Pre-DPD	-	-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	-	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**

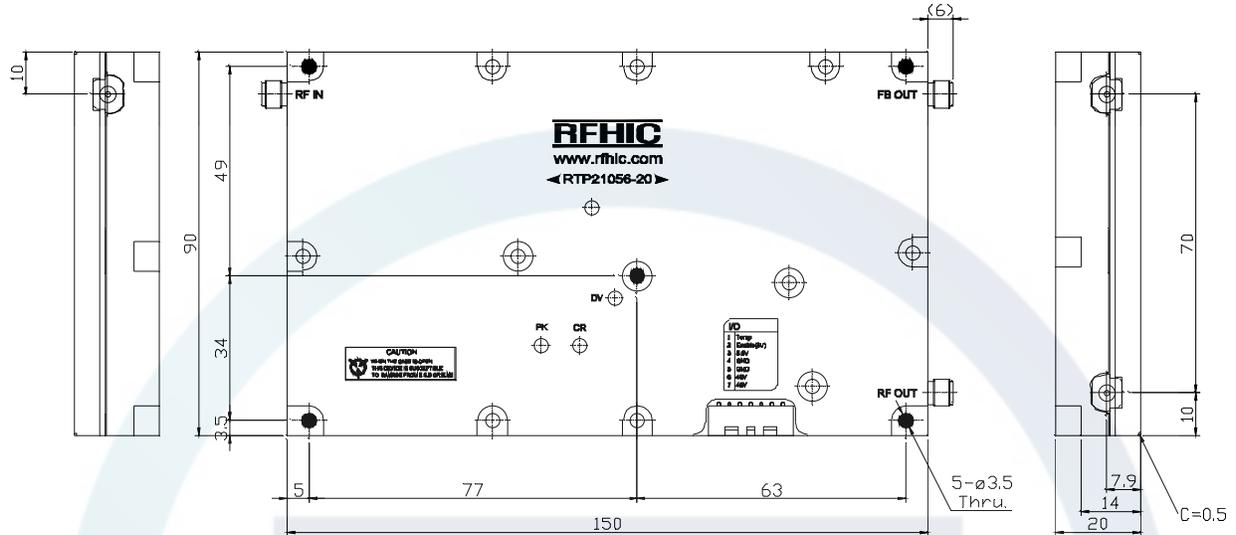
PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Ambient Temperature	°C	-30	-	60	T <sub>a</sub>
Storage Temperature	°C	-40	-	100	T <sub>stg</sub>
Relative humidity w/o condensation	%	-	-	95	RH

**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: ±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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