Preliminary

GaN Power Amp Pallet RTP18080-20

Product Features

- Solid-state linear design
- Small and light weight
- Suitable for US-PCS
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in Output Isolator
- Built in monitoring circuit
- High efficiency

Application

- LTE RRH



Description

This HPA Module is a high gain, wide dynamic range amplifier module.
Custom design available.

Electrical Specification @ VDD= 45V, 50Ω System

Parameter	Symbol	Specification @ 25℃		
Frequency Range	BW	1805MHz ~ 1880MHz		
Operating Bandwidth within BW	OBW	5~75MHz		
Average Output Power	Pout	49dBm(80W) Avg. @ LTE 1FA 10MHz		
Peak Output Power	Psat	56.5dBm (Min.)@ Duty 10% Pulse		
ACLR (LTE 1FA 10MHZ) @ Po=+49dBm (max.)	ACLR	Non-DPD	-26dBc(Min) @±10MHz	@-30 ~ +65°C @ 45V @ CFR 7.5dB
		With-DPD	-53dBc(Min) @±10MHz	
RF Gain @ 25℃	G	57.0dB (Min.)		
Gain Flatness	ΔG	within 3.0dB over Operating Frequency Range		
Gain Variation with Temperature	G	±3dB		
Input Return Loss	S11	-12dB (Max.)		
Output Return Loss	S22	-17dB (Max.)		
Operating Voltage	VDC	V_{DD}(Main/Drive Amp) : +45Vdc , +5.6Vdc		
Current Consumption	IDD	IDD : +45Vdc : 4.4A (Typ.) & +5.6Vdc : 360mA(Tpy.)		
Efficiency	Eff	40%(Typ.)		
Feedback Output level @ 49dBm	FB	10dBm ± 1.5dBm		
Temp Detector	T	0.90V @ 40℃		

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Environmental Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	Ta	-30		+65	°C
Storage Temperature	Tstg	-40		+130	°C
Relative humidity w/o condensation	RH			95	%

Maximum Ratings

Input Overdrive	P_{OD}	-2dBm	Max.
Load VSWR	Ψ	∞ : 1 (All Phase & Amplitude)	Nom.
Operating Case Temperature	Tc	+90	°C

Interface Connector

8-Pin-Control (MOLEX_5267_08)

Pin #	Description	Specifications
1	Vcc	+5.6V
2	Vcc	+45V
3	Vcc	+45V
4	Vcc	+45V
5	GND	GROUND
6	GND	GROUND
7	GND	GROUND
8	GND	GROUND

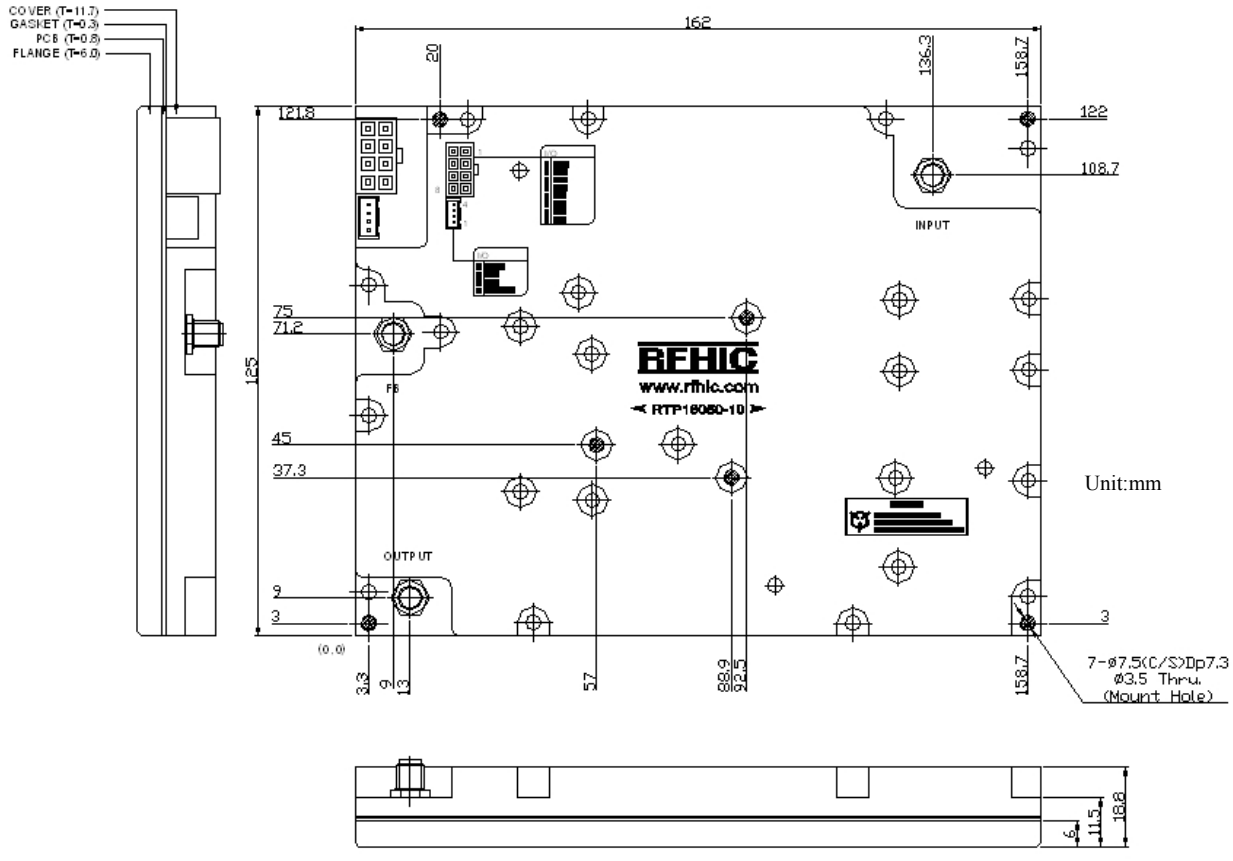
4Pin-Control (SMW200-04P)

Pin #	Description	Specifications
1	Enable/Disable	Amp Enable(+5.6V) / Amp Disable(+0V)
2	GND	GROUND
3	GND	GROUND
4	Temp DET	Temp Sense (900mV @ 40℃)

Mechanical Specifications

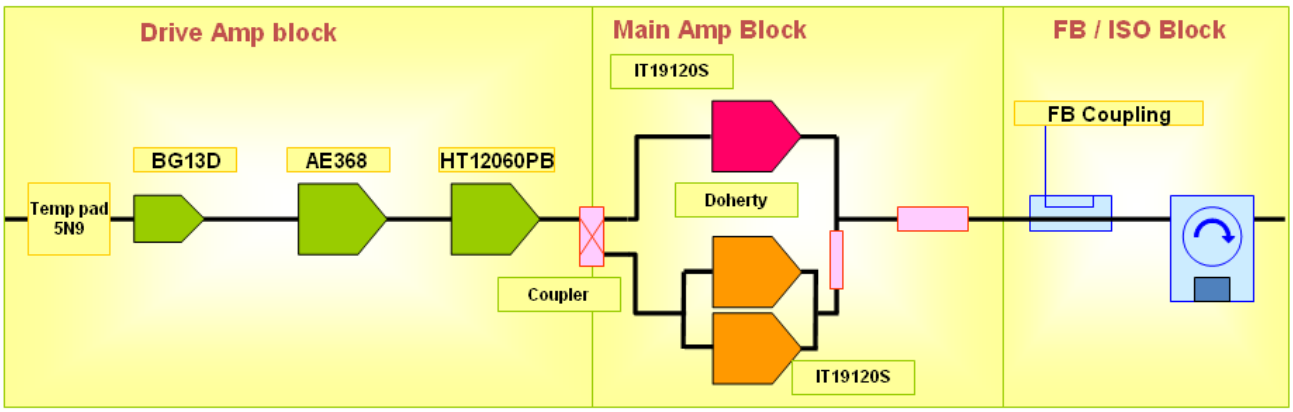
Parameter	Value	Units	Limits
Dimensions	162(W) x 125(L) x 18.8(H)	mm	
Weight	0.75(max)	Kg	
RF Input Connector	SMA(Female)		
RF Output Coupling Connector	SMA(Female)		
RF Output Connector	SMA(Female)		
I/O Connector	SMW200 4pin(Male)		
	Molex 8pin(Male)		
Cooling	External Heat-sink		

Outline Drawing



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

Block Diagram



Test Data (Test Results: DPD Operation)

Test Equipments

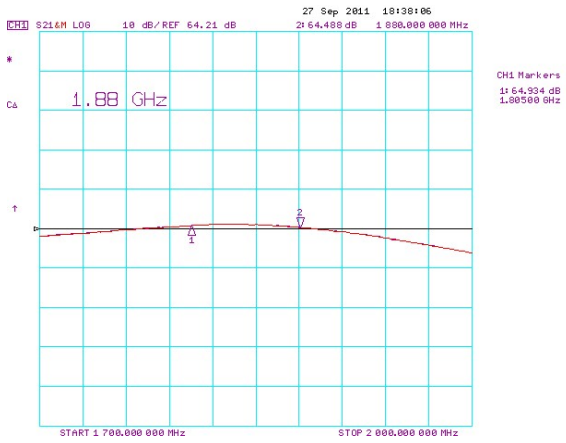
- DPD Engine : Optichron OP6180 Board
- Signal Generator : E4438C (Agilent)
- Spectrum Analyzer : E4440A (Agilent)
- Network Analyzer : 8753ES (Agilent)
- Power Supply : 6674A (Agilent)

Test Condition

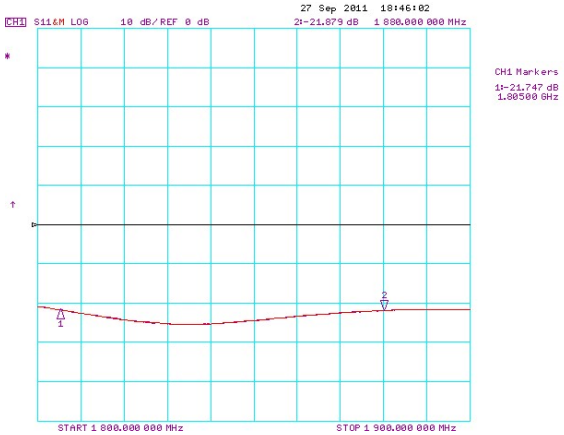
- Signal : LTE 1FA 10MHz(PAPR 7.5dB)
- CFR apply
- AMP Temperature: 40°C

Network Analyzer Data

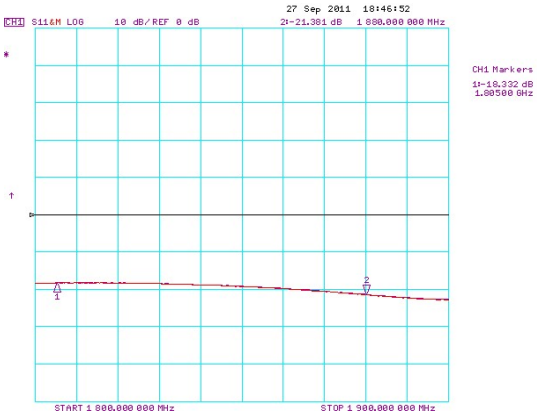
• **Gain (S21)**



• **Input VSWR (S11)**

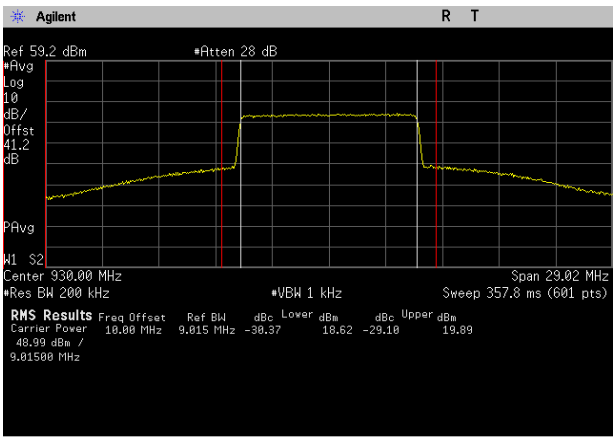


• **Output VSWR (S22)**

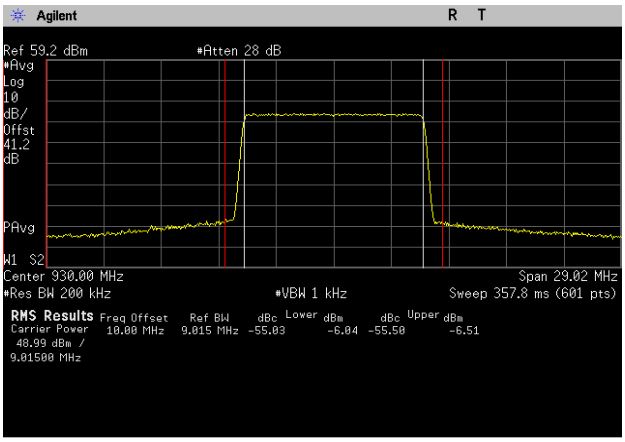


Spectrum Analyzer Data

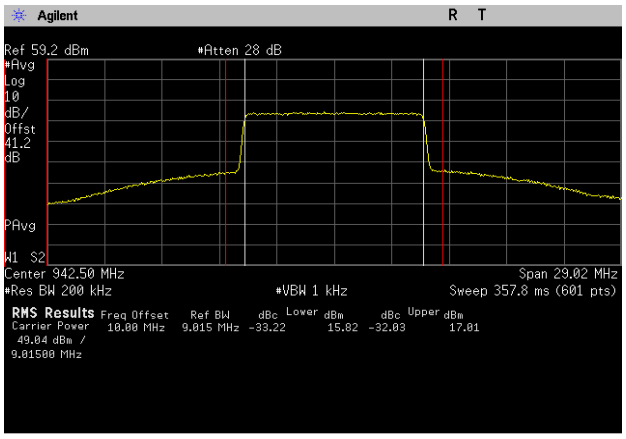
• **Pre – DPD @ 1810MHz**



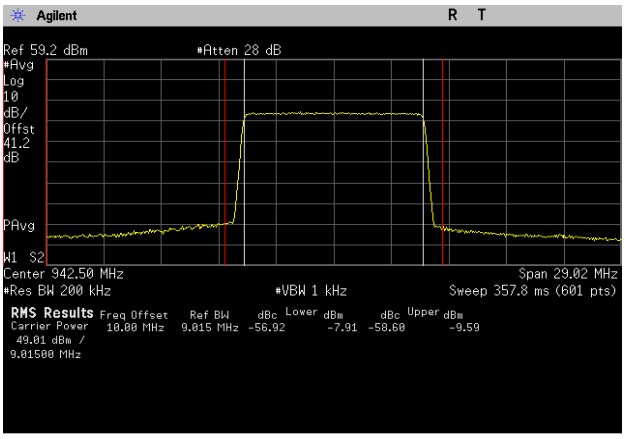
• **Post- DPD @ 1810MHz**



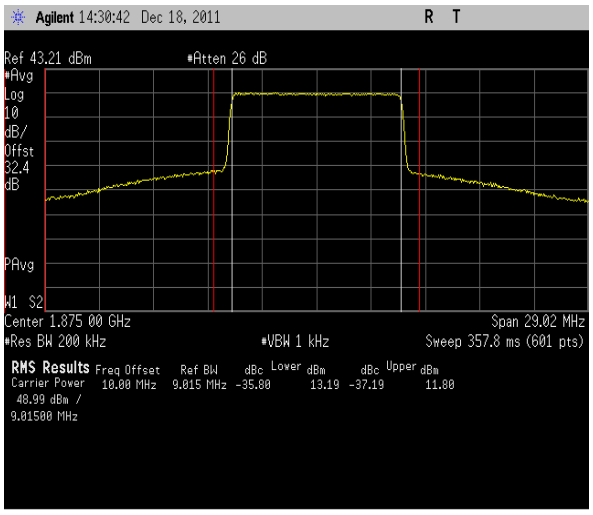
• **Pre – DPD @ 1842.5MHz**



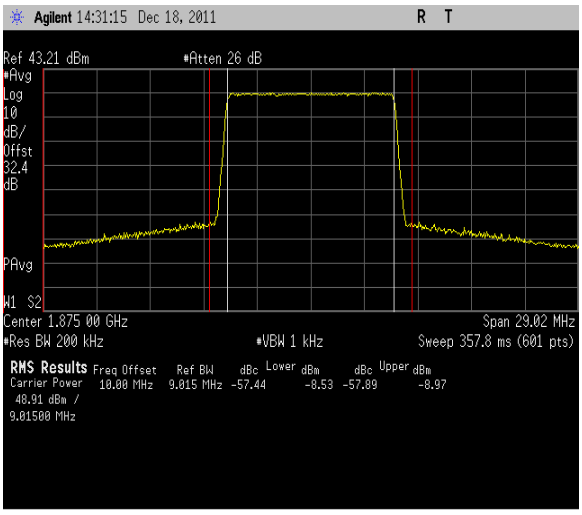
• **Post- DPD @ 1842.5MHz**



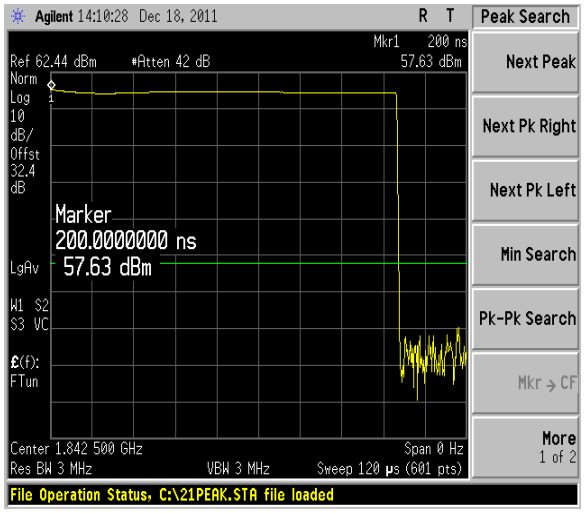
Pre – DPD @ 1875MHz



Post- DPD @ 1875MHz



Pulse Duty 10% @ 1842.5MHz



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