Preliminary

GaN-SiC Pallet Amplifier RTP18050-S1

RFHIC

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, High Gain
- 50W typical P_{AVG}

Application

- CDMA & LTE DPD amplifier
- General purpose RF amplifier

Description

The RTP18050-S1 is designed for RF system application frequencies from 1830MHz to 1860MHz, with high gain. This Pallet Amplifier uses GaN on SiC HEMT technology which performs high breakdown voltage, high linearity, high efficiency. The RTP18050-S1 is a CDMA & LTE DPD application amplifier.

Electrical Specifications @ VDD=+31VDC, T=25°C, 50Ω

PARAMETER	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	1830	-	1860	MHz
Output Power	P_{AVG}	-	47		dBm
Output Power @ Psat G.C.P	P_{sat}	-	55.5	-	dBm
Small Signal Gain	SSG	50	55	-	dB
Small Signal Gain Flatness	ΔG	-	± 1.0	± 2	dB
Gain Variation	ΔGt		± 3.0		dB
ACLR @ LTE 10MHz 1FA	ACLR	-30	-33		dBc
ACLR with DPD	ACLR		-59		dBc
Forward Coupling	FC	-39	-38	-37	dB
Operating Voltage	VDC		31	-	Volt
Efficiency @ Pout 50Watt	E	-	42	-	%

※ Test Signal Condition : LTE 10MHz 1FA (PAR 7.5dB), Test DPD solution : Optichron DPD

Environmental Characteristics

PARAMETER	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_c	-30	-	+60	°C
Storage Temperature	Ts	-40	-	+90	°C

Mechanical Specifications

PARAMETER	Value	Units	Limits
Dimensions (L x W x H)	140 x 170 x 20	mm	Max
Weight	695	g	Typical
RF Connectors In/Out/Coupling	SMA Female/SMA Female/SMA Female		
DC Connectors / Controls	5569-08(8pin), 5267-03A(3pin)		
Cooling	External Heat sink + airflow		

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▪ All specifications may change without notice.
▪ Version 0.1

RF Interface Connectors

Pin #	DESCRIPTION	Specifications
1	**RF IN**	RF Input signal
2	**RF OUT**	RF Output signal
3	**RF FWD Port**	RF Forward Detection signal For Feed-back

DC Connector

- 5569-08 (4.2mm PITCH, 8Pin)

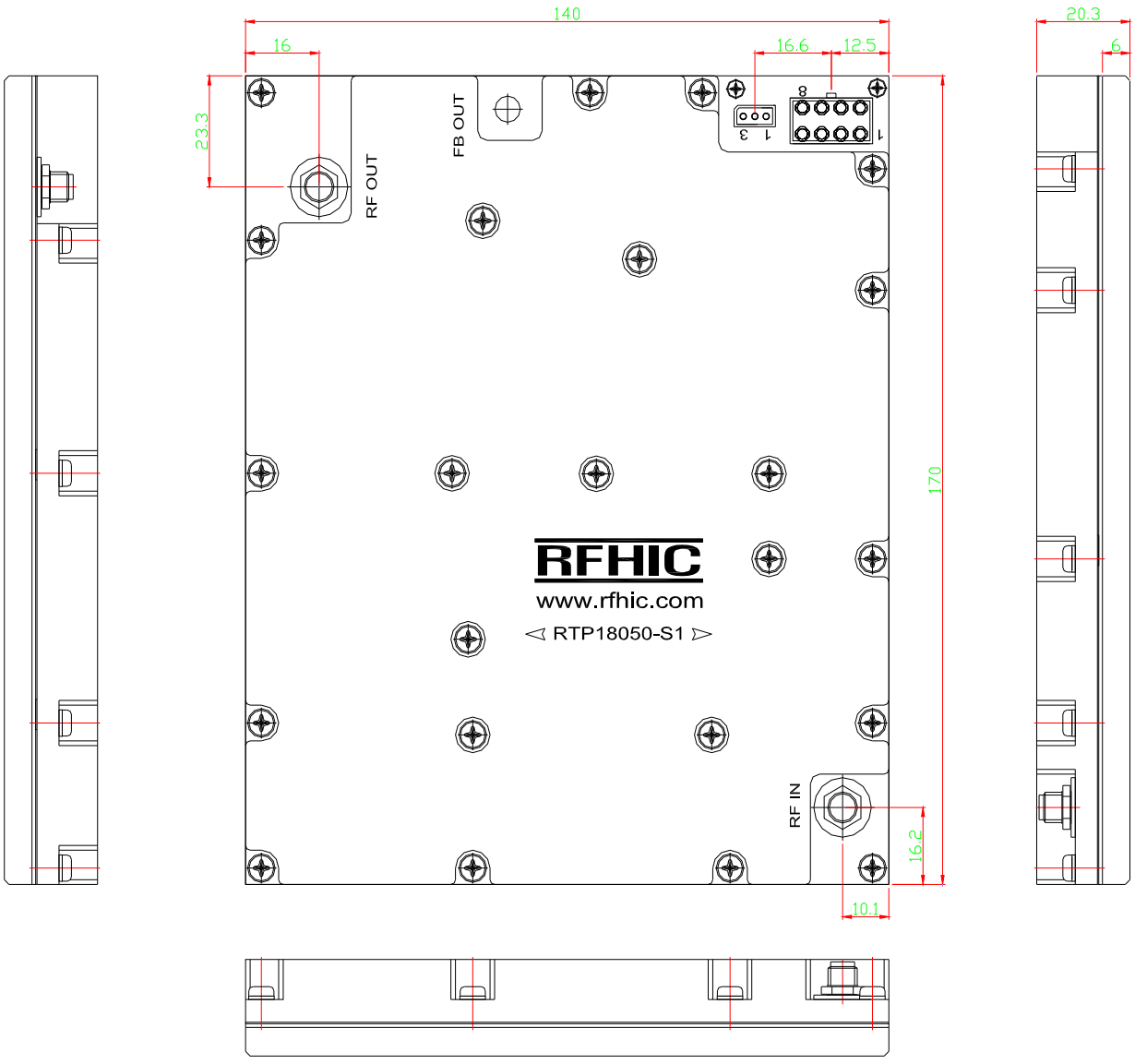
Pin #	DESCRIPTION	Specifications
1,2,3	**Drive, Main Amp +Vdd**	+31Vdc
4	**Gain Block Amp +Vgg**	+5.6V
5,6,7,8	**GND**	Ground

- 5267-03A (2.5mm PITCH, 3Pin)

Pin #	DESCRIPTION	Specifications
1	**GND**	Ground
2	**Enable**	TTL High Enable
3	**Temp. Monitor**	Reporting Temperature data [0.75V/25℃(10mV/℃)]

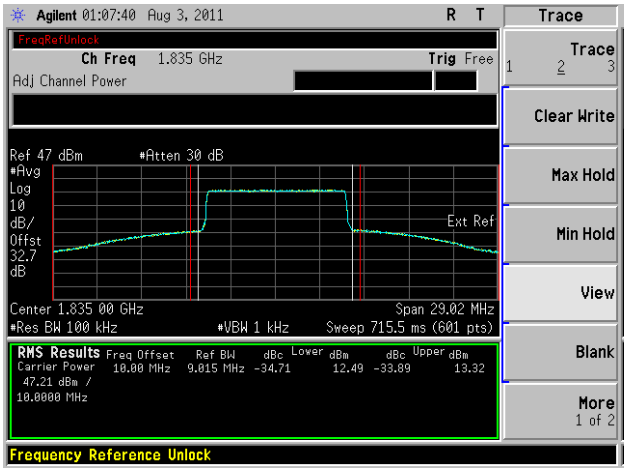
※ **RF connector and DC connector custom design available.**

Outline Drawing

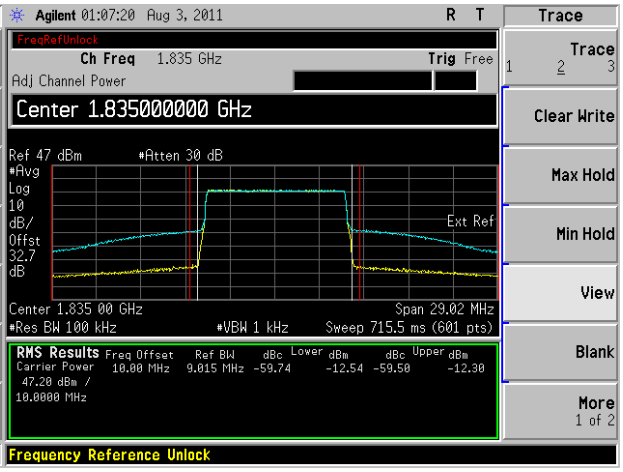


Typical Output Spectrum @ LTE 10MHz 1FA (PAR 7.5dB) : Pout =50W(47dBm)

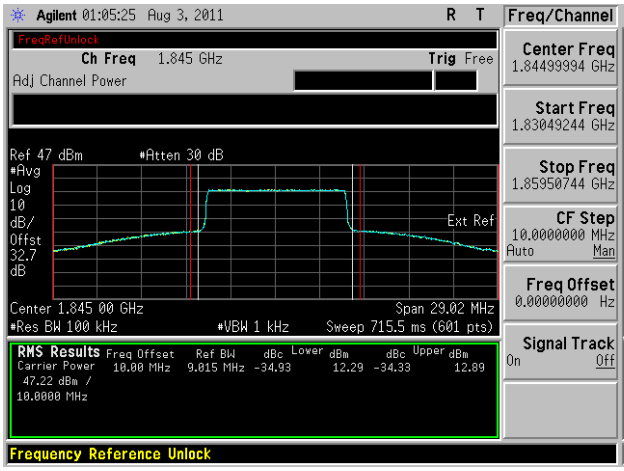
- Without DPD 1835MHz-



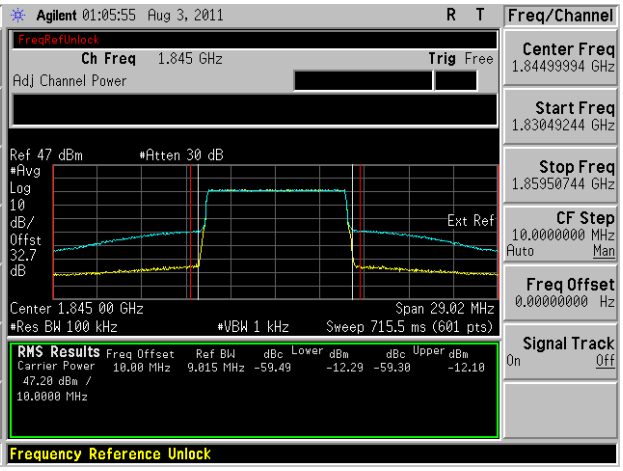
- With DPD 1835MHz-



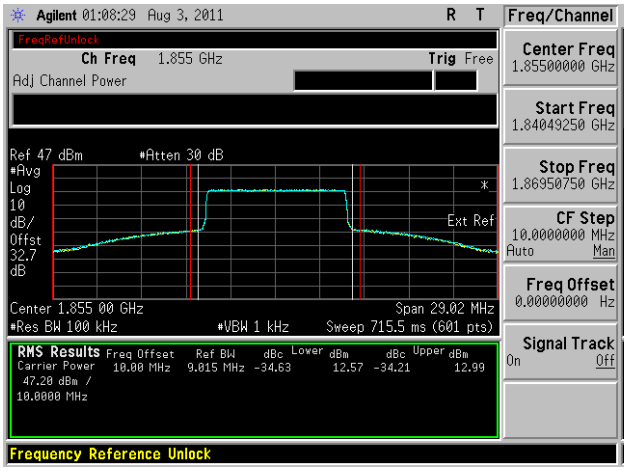
- Without DPD 1845MHz-



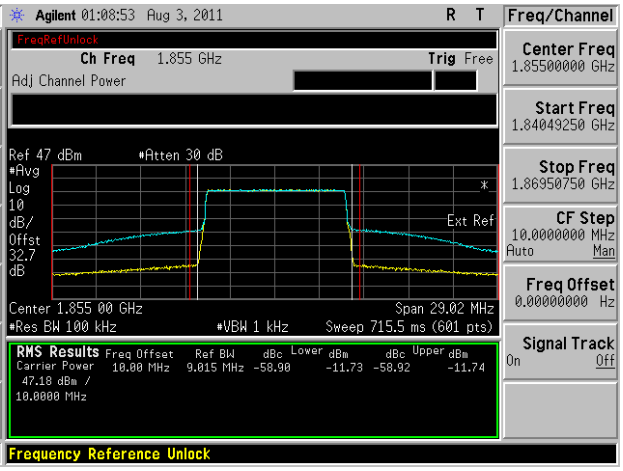
- With DPD 1845MHz-



- Without DPD 1855MHz-



- With DPD 1855MHz-



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