Preliminary GaN-SiC Pallet Amplifier

RTP26050-10

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

- LTE DPD amplifier
- General purpose RF amplifier



Description

The RTP26050-10 is designed for RF system application frequencies from 2620MHz to 2690MHz, with high gain. This Pallet Amplifier uses GaN on SiC HEMT technology which performs high breakdown voltage, high linearity, high efficiency. The RTP26050-10 is DPD application amplifier.

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

PARAMETER	Symbol	Min	Тур	Max	Unit
Frequency Range	BW	2620	-	2690	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	∆Gt		± 3.0		dB
ACLR @ LTE 10MHz 1FA	ACLR	-22	-25		dBc
ACLR with DPD	ACLR		-55		dBc
Forward Coupling	FC	-39	-38	-37	dB
Operating Voltage	VDC		31	-	Volt
Efficiency @ Pout 50Watt	Е	-	38	-	%

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

Environmental Characteristics

PARAMETER	Symbol	Min	Тур	Max	Unit
Operating Temperature	Tc	-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/MCX 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.

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 $[0.75V/25^{\circ}C(10mV/^{\circ}C)]$

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

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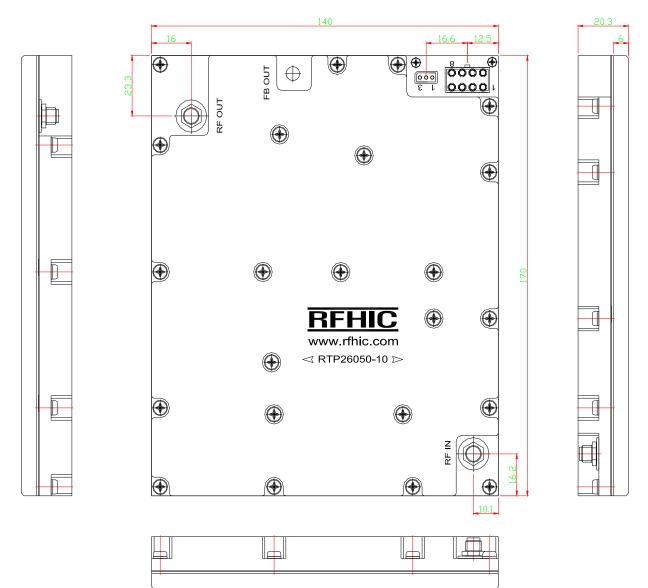
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Outline Drawing



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Typical Output Spectrum @ LTE 10MHz 1FA (PAR 7.5dB) : Pout =50W(47dBm) - Without DPD 2625MHz-- With DPD 2625MHz-



- Without DPD 2655MHz-

- With DPD 2655MHz-

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Ch Freq 2.655 GHz Trig Free Adj Channel Power	Center Freq 2.65500000 GHz		Center Freq 2.65500000 GHz
	Start Freq 2.64049250 GHz	·	Start Freq 2.64049250 GHz
Ref 36.67 dBm •Atten 30 dB •Avg Log	Stop Freq 2.66950750 GHz	Log	Stop Freq 2.66950750 GHz
10 dB/ 0ffst 32.6 dB	CF Step 30.0000000 MHz Auto <u>Man</u>	Offst	CF Step 30.0000000 MHz Auto <u>Man</u>
Center 2.655 00 GHz Span 29.02 MHz	FreqOffset 0.00000000 Hz	dB Center 2.655 00 GHz Span 29.02 MHz	Freq Offset 0.00000000 Hz
#Res BW 100 kHz #VBW 1 kHz Sweep 715.5 ms (601 pts) RMS Results Freq Offset Ref BW dBc Lover dBm dBc Upper dBm Carrier Pover 18.00 MHz 9.015 MHz -26.18 20.85 -25.35 21.17 47.02 dBm / /// // -26.18 20.85 -25.35 21.17	Signal Track On <u>Off</u>		Signal Track On <u>Off</u>
9.01500 MHz		9.01500 MHz	
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- Without DPD 2685MHz-

- With DPD 2685MHz-

🔆 Agilent Freq/Channel Agilent Freq/Channel Т R T Center Freq 2.68500000 GHz Center Freq Ch Freq 2.685 GHz Ch Freq 2.685 GHz Trig Free Trig Free 2.68500000 GHz Adj Channel Power Adi Channel Power Start Freq 2.67049250 GHz Start Freq 2.67049250 GHz lef 36.67 dBm #Atten 30 dB #Atten 30 dB 6.67 dBm Stop Freq 2.69950750 GHz Stop Freq 2.69950750 GHz CF Step **CF** Step 30.00000 Auto 30.0000000 Auto Mar Freq Offset Freq Offset .685 00 GHz n 29.02 MH: 2.685 00 GHz 29.02 MH 715.5 ms (601 pts 715.5 ms ∎VBW 1 kHz ∎VBW 1 kHz RMS Results Freq Offset Carrier Power 10.00 MHz Signal Track RMS Results Freq Offset Carrier Power 10.00 MHz Signal Track Ref BW dBc 9.015 MHz -27.43 dBm dBc 19.59 -27.01 dBm 20.01 Ref BW dBc ¹ 9.015 MHz -55.62 dBm -8.64 dBc -54.71 <u>Off</u> 46.98 dBm / 9.01500 Copyright 2000–2007 Agilent Technologies Copyright 2000-2007 Agilent Technol

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