

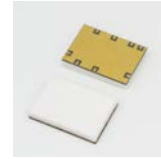


Product Features

- GaN on SiC Chip on Board
- Surface Mount Hybrid Type
- Asymmetric Doherty Amplifier
- High Efficiency
- No Matching circuit needed

Applications

- 5G/ LTE system
- Small cell
- RRH
- RF Sub-Systems
- Base Station



Package Type : SP-5CL

Description

Accommodating the future of 5G/LTE small cells, RFHIC introduces RTH26008R amplifier fabricated using an advanced high power density Gallium Nitride (GaN) semiconductor process.

Electrical Specifications @ $V_{ds} = 31V, T_a = 25^\circ C$

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Frequency Range	MHz	2620	-	2690	ZS = ZL = 50 ohm
Power Gain		27	29	-	Drive+Carrier Idq = 180mA Vgp = -4.5V
Gain Flatness	dB	-2	-	+2	
Input Return Loss		-8	-10	-	
Pout @ Average	dBm	-	39	-	Pulse Width=20us, Duty10%
Pout @ Psat	dBm	46.5	-	-	
ACLR @ LTE 1FA BW 20MHz(PAPR 7.5dB) C.F ± 18.015MHz	dBc	-	-30	-	Non DPD
		-50	-	-	With DPD
Drain Efficiency	%	-	45	-	Pout @ Average
Drive Idq	mA	-	30	-	
Carrier Idq		-	150	-	
Total Ids		-	570	-	
Supply Voltage	V	-	-3.0	-2.0	Vgd/Vgc
		-	-4.5	-4.0	Vgp
		30.8	31	-	Vds

Caution

The drain voltage must be supplied to the device after the gate voltage is supplied
 Turn on → Turn on the Gate voltage supply and last turn on the Drain voltage supplies
 Turn off → Turn off the Drain voltage and last turn off the Gate voltage

Note

1. ACLR Measured Pout=39dBm @ $f_c \pm 20MHz / 18.015MHz$
 LTE 20MHz 1FA PAPR=7.5dB @ 0.01% probability on CCDF

Mechanical Specifications

PARAMETER	UNIT	TYP	REMARK
Mass	g	5.0	±1.0
Dimension	mm	26.5 x 18 x 4.2	±0.15

Absolute Maximum Ratings

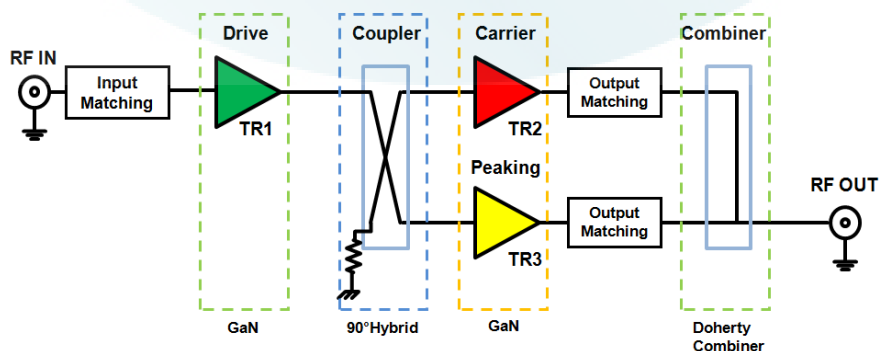
PARAMETER	UNIT	RATING	SYMBOL
Gate-Source Voltage	V	-8 ~ -2	Vgd Vgc Vgp
Drain-Source Voltage	V	50	Vds
Gate Current	mA	1.2	Drive
		3.6	Carrier
		7.2	Peaking
Operating Junction Temperature	°C	225	T _J
Operating Case Temperature	°C	-30 ~ 100	T _C
Storage Temperature	°C	-40 ~ 100	T _{STG}

Operating Voltages

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain Voltage	V	30.8	31	-	Vds
Gate Voltage (on-stage)	V	-	Vgd @Drive Idq	-2	Vgd
Gate Voltage (on-stage)	V	-	Vgc @Carrier Idq	-2	Vgc
Gate Voltage (on-stage)	V	-	Vgp ^{*1}	-2	Vgp
Gate Voltage (off-stage)	V	-	-8	-	Vgd
Gate Voltage (off-stage)	V	-	-8	-	Vgc
Gate Voltage (off-stage)	V	-	-8	-	Vgp

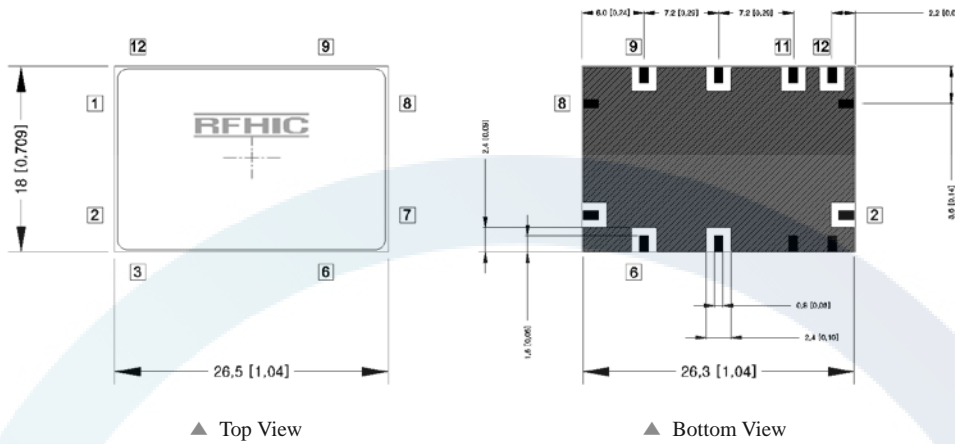
1. Vgp(Pin#5) set: Lower Vgp of Δ-1.6V at Peaking Idq 100mA ±5%

Block Diagram



Package Dimensions (Type: SP-5CL)

* Unit: mm[inch] | Tolerance: $\pm 0.15[.006]$



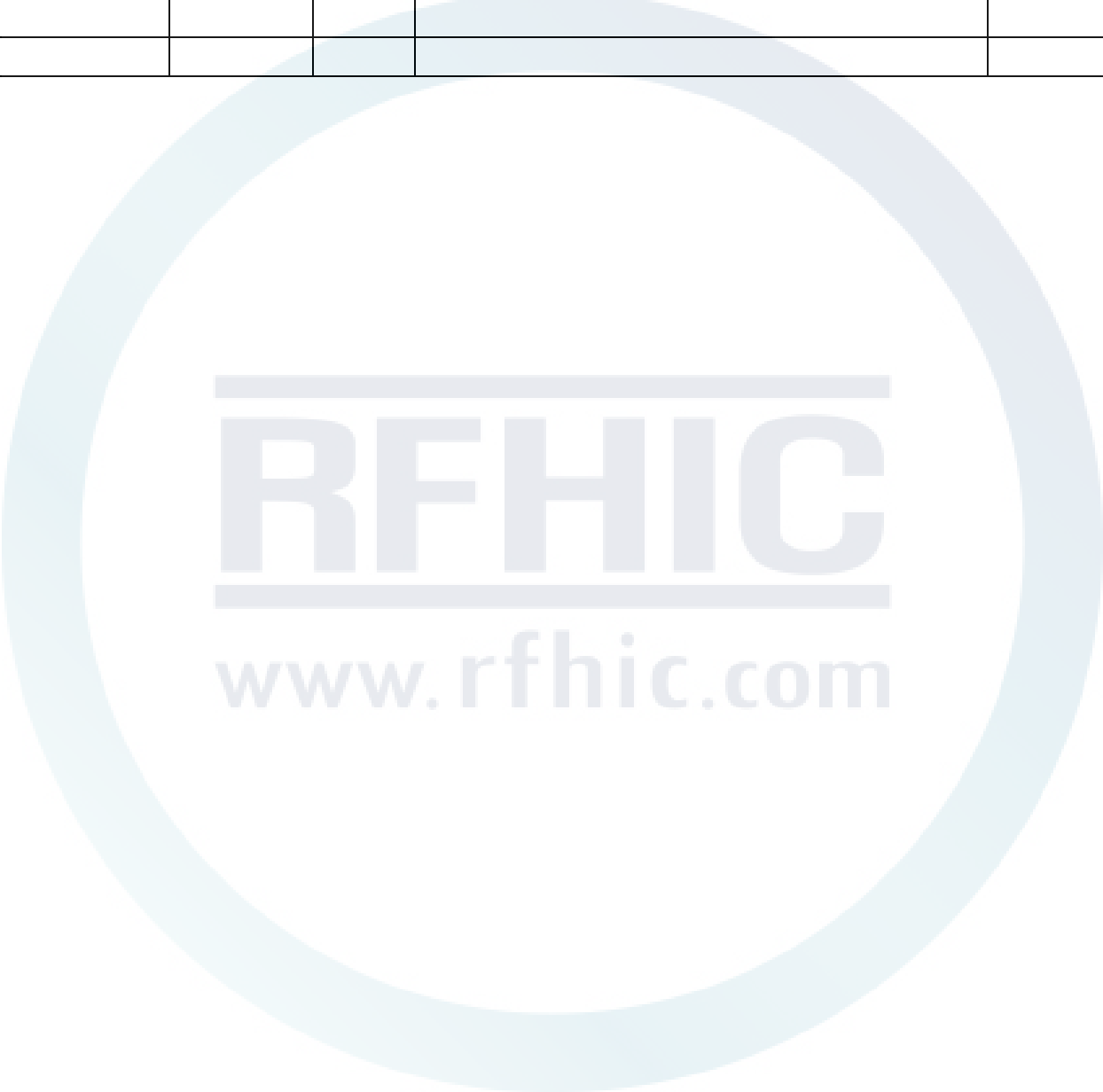
Pin Description							
Pin No	Function	Pin No	Function	Pin No	Function	Pin No	Function
1	GND	3	GND	7	RF Out	9	Vds
2	RF In	4	GND	8	GND	10	Vgc
		5	Vgp			11	Vds
		6	Vds			12	Vgd

*** Mounting Configuration Notes**

1. For the proper performance of the device, Ground / Thermal via holes must be designed to remove heat.
2. To properly use heatsink, ensure the ground/thermal via hole region to contact the heatsink. We recommend the mounting screws be added near the heatsink to mount the board
3. In designing the necessary RF trace, width will depend upon the PCB material and construction.
4. Use 1 oz. Copper minimum thickness for the heatsink.
5. Do not put solder mask on the backside of the PCB in the region where the board contacts the heatsink
6. We recommend adding as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
7. We recommend that the PCB with the RF device in a hybrid package(RTH Series) is not washed to remove the flux.

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RTH26008R	2018.09.12	0.1	Newly Created	Preliminary



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