

Product Features

- GaN on SiC Technology
- High Efficiency
- 50 Ohm Input/Output Impedance
- Lower manufacturing cost
- 6BIT phase and attenuation control

Application

- X-Band Radar



Description

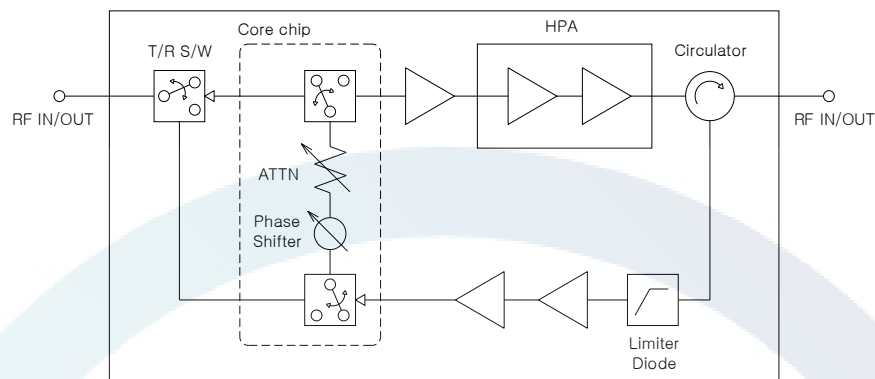
- RFCR91-XTRM-015SP-200A is T/R Module (Transmitter/Receiver Module) operating at 9.0-9.2GHz performing 15W output power.
- Circulator provides duplexer function and has a built in Limiter Diode which protects receiver.
- 6-Bit Phase Shifter and Attenuator are controlled by serial data.
- Bias sequencing is required.

Electrical Specifications

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Frequency	GHz	9.0	-	9.2	F
Peak Output Power	W	15	-	-	POUT
TX Power variation with Freq	dB	-	-	1	Pf
Transmit input Power	dBm	-	0	-	PIN
Pulse width	uS	1	-	100	Pw
Duty Cycle	%	-	-	10	Dc
Pulse droop	dB	-	-	0.5	A Droop
Pulse Rise & Fall time	nS	-	-	100	Tr/ Tf
TX Input Return Loss	dB	-	-	-13	RL _T
RX Input Return Loss	dB	-	-	-10	RL _R
Receiver Gain	dB	-	30	-	Gr
RX Gain variation with Freq	dBp-p	-	-	2	Gf
RX Noise Figure (25°C)	dB	-	-	3.5	N
Receiver output 1dB compression	dBm	5	-	-	Rp1
Efficiency	%	20	-	-	E _{ff}
Harmonics	dBc	30	-	-	H
Digital phase shifter	°	6 BIT, LSB=5.625°, Range=360°			PS
Digital phase shifter RMS Error	°	-	-	5	P _E
Phase Variation with Attenuator Setting	°	-	-	5	P _V
Digital attenuator	dB	6BIT, LSB=0.5dB, Range=31.5dB			AT
Digital attenuator RMS Error	dB	-	-	2	A _E
Gain Variation with Phase Setting	dB	-	-	1	A _V
Tx/Rx switching time	nS	-	-	200	T _s
Supply Voltage	V	DC +50V / DC+5.3V / DC-5V / DC+3V / DC-3V			V

* Test condition = 100us (pulse width), 10%(duty cycle), T=25°C

Block Diagram



Mechanical Specifications

PARAMETER	UNIT	TYP	REMARK
Dimension	mm	112 × 30 × 12 (W × D × H)	-
Weight	g	80g	-
I/O Signal Connector Type		SMP Connector (RF In/out), Pin Header 18pin (Male, Double Row)	-

Interface Connector

PIN #	SPECIFICATIONS	I/O	DESCRIPTION
1	Drive Supply	I	DC +5.3V
2	Drive Supply	I	DC +5.3V
3	RX Gate	I	RX Control / TTL / Low Enable
4	Core chip Supply	I	DC -3V
5	TX Gate	I	TX Control / TTL / Low Enable
6	Core chip Supply	I	DC +3V
7	Drive Supply	I	DC -5V
8	Switch control	I	Switch control / TTL
9	NC		-
10	LE	I	Core chip LE, LVTTTL
11	GND		Ground
12	DATA	I	Core chip DATA, LVTTTL
13	GND		Ground
14	CLK	I	Core chip CLK, LVTTTL
15	PA Drain Supply	I	DC +50V
16	GND		Ground
17	PA Drain Supply	I	DC +50V
18	PA Gate Voltage	I	-3.5V : ON, -8V : OFF

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RFCR91-XTRM-015SP-200A	2013.6.24.	0.4	Specifications modification	-
RFCR91-XTRM-015SP-200A	2013.5.14.	0.3	Specifications modification	-
RFCR91-XTRM-015SP-200A	2013.4.19.	0.2	Specifications modification	-



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