

**Product Features**

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

**Application**

- C-Band Radar

**Description**

- RFMR57-CTRM-020SP-500A-SM is T/R Module (Transmitter/Receiver Module) operating at 5.4-5.9GHz performing 20W 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** @ Ta=25°C, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Frequency	GHz	5.4	-	5.9	F
Peak Output Power	W	20	-	-	P <sub>OUT</sub>
Transmit Gain Flatness	dBp-p	-	-	2.0	ΔG <sub>p</sub>
Transmit input Power	dBm	-	4	-	P <sub>IN</sub>
Pulse width	us	-	-	50	P <sub>w</sub>
Duty Cycle	%	-	-	10	D <sub>c</sub>
Pulse droop	dB	-	-	1	Droop
Pulse Rise & Fall time	ns	-	-	100	T <sub>r</sub> / T <sub>f</sub>
Transmit Harmonics 1 to N	dBc	20	-	-	H <sub>N</sub>
TX Input & RX Input Return Loss	dB	-	-	-12	RL
Receiver Gain	dB	-	25	-	G <sub>r</sub>
RX Gain Flatness	dBp-p	-	-	2	G <sub>f</sub>
RX Noise Figure	dB	-	3.5	-	N
Receiver output 1dB compression	dBm	+1	-	-	R <sub>p1</sub>
Gain Variation with phase control	dB	-	-	2.5	A <sub>v</sub>
Digital attenuator RMS error	dB	-	-	2.0	A <sub>E</sub>
Digital Phase shifter RMS error	deg	-	-	5	P <sub>E</sub>
Tx/Rx switching time	ns	-	-	500	T <sub>s</sub>
Efficiency	%	30	-	-	E <sub>ff</sub>
Digital Attenuator	-	6 BIT, LSB=0.5dB, 0 ~ 31.5dB			AT
Digital Phase shifter	-	6 BIT, LSB=5.625°, 0 ~ 354.625°			PS
Operating Voltage	-	DC +45V, DC+5.0V, DC -2.7V			V

## Environmental Specifications

Operating Flange Temperature	-10 to +50
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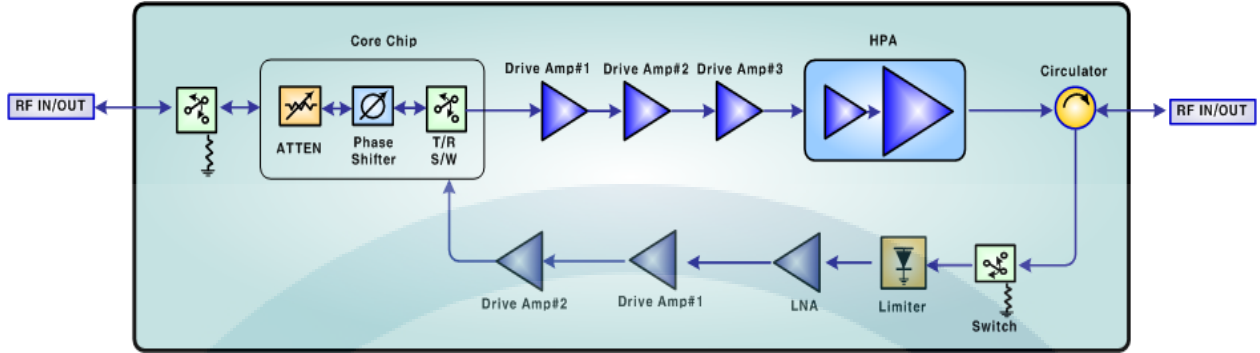
## Mechanical Specifications

Physical Dimension ( W × D × H )	26.5mm X 124.5mm X 14mm
DC & Control signal Connector	Pin Header ( 2 X 9 18pin, 2mm pitch)
RF Connector	SMA / SMP Connector

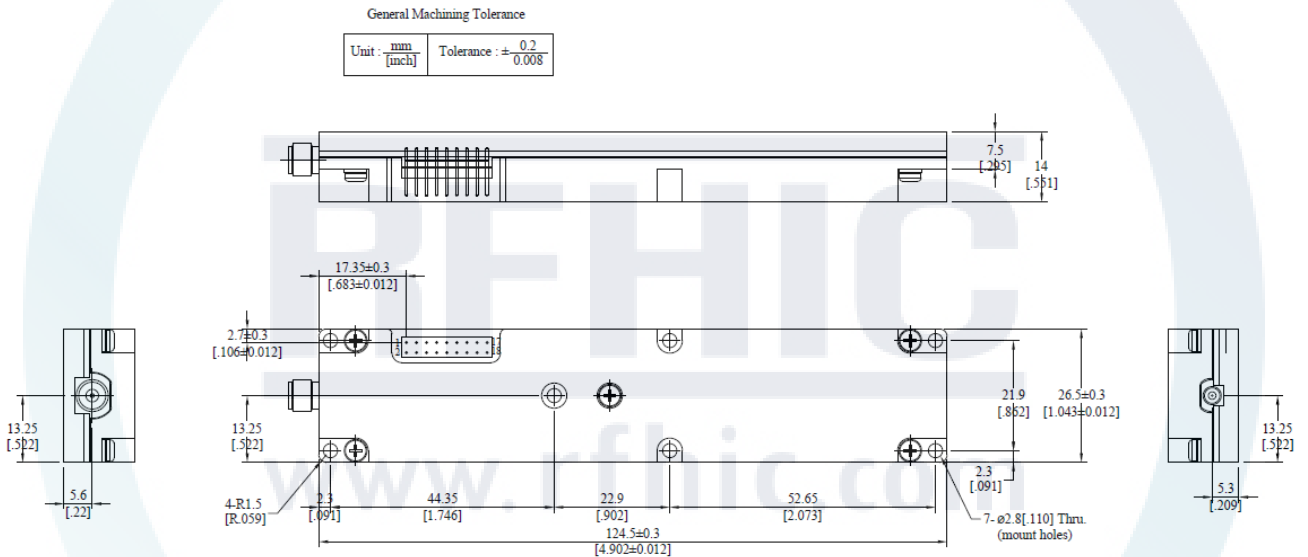
## Interface

No	Function	Description
1	Data	Core Chip Data (TTL)
2	DC -2.7V	Core Chip Vcc
3	Clock	Core Chip Clock(TTL)
4	TX Path Enable	TX Path Control(TTL) Low : On, High : Off
5	Enable	Core Chip Latch Enable(TTL)
6	RX Path Enable	RX Path Control(TTL) Low : On, High : Off
7	TX Input S/W Control	TX Input Switch Control (TTL) Low : Path, High : Termination
8	DC +5.0V	Drive Amp Voltage
9	NC	NOT Connect
10	Temp Sensor	0.4V ~ 1.2V (-15°C ~ +65°C)
11	GND	Ground
12	NC	NOT Connect
13	GND	PA Gate Control
14	HPA Gate Voltage	-3.4V : ON , -8V : OFF
15	GND	Ground
16	GND	Ground
17	DC +45V	HPA Drain Voltage
18	DC +45V	HPA Drain Voltage

Block Diagram



Drawing



**Revision History**

Part Number	Release Date	Version	Modification	Data Sheet Status
RFMR57-CTRM-020SP-500A-SM	2017.06.01	0.1	-	-
RFMR57-CTRM-020SP-500A-SM	2017.06.15	0.2	1. Transmit input Power 2. Drawing	-



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