

Product Features

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

Applications

- L-Band Radar

**Description**

RFUD13-LTRM is T/R Module (Transmitter/Receiver Module) operating at 1.2~1.4GHz performing 250W peak output power. This T/R Module is designed for active phased array radar system. Circulator provides duplexer function and has a built in Pin Diode Shunt Switch which protects receiver. 6-Bit Phase Shifter and Attenuator are placed next to Transmit / Receive S / W, and 6-Bit Phase Shifter and Attenuator are controlled by Parallel TTL logic. Best in industry efficiency and thermal characteristics are achieved with Gallium Nitride (GaN) device technology.

Electrical Specifications @ Vds=50V, Ta=25 °C, 50 Ω System

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	GHz	1.2	-	1.4	-
Output Power @ Psat	W	250	-	-	Pulse
Transmit Input Power	dBm	-	3	-	-
Transmit Gain Flatness	dBp-p	-	-	± 1.5	-
Duty Cycle	%	-	-	10	-
Pulse width	us	-	-	2000	-
Transmit Power Added Efficiency	%	45	-	-	Pulse Psat @ +50V
Amplitude Pulse Droop	dB	-	-	1	-
Transmit Harmonics 1 to N	dBc	-	-	-35	-
Pulse Rise & Fall time	ns	-	-	100	-
TX & RX Input Return Loss	dB	-	-14	-	-
Receiver Gain	dB	-	45	-	-
RX Gain Flatness	dBp-p	-	-	1.0	-
RX Noise Figure	dB	-	-	2.5	-
Receiver Output 1dB compression	dBm	-	10	-	-
Receiver Isolation in RX OFF state	dB	70	-	-	-
RX Protection SW Isolation	dB	40	-	-	-
RX Input power protection	W	-	200	-	-
Tx/Rx switching time	us	-	-	1	-
Digital Attenuator	-	6 BIT, LSB=0.5dB, 0~31.5dB			
Digital Phase shifter	-	6 BIT, LSB=5.625°, 360° Coverage			
Operating Voltage	-	DC +50V, DC +5V, DC -10V			
Dimension	mm	240 x 82.5 x 24			

Environmental Specifications

Operating Flange Temperature	-10℃ to +50℃
------------------------------	--------------

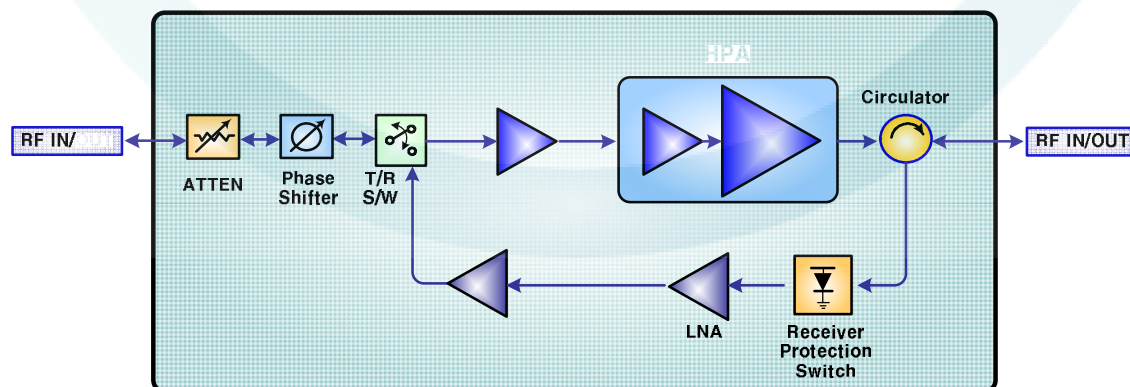
Mechanical Specifications

Physical Dimension (W × D × H)	240mm x 82.5mm x 24mm
DC & Control signal Connector	D-SUB (25 Pin Male Type)
RF Connector	SMA Connector (Female)

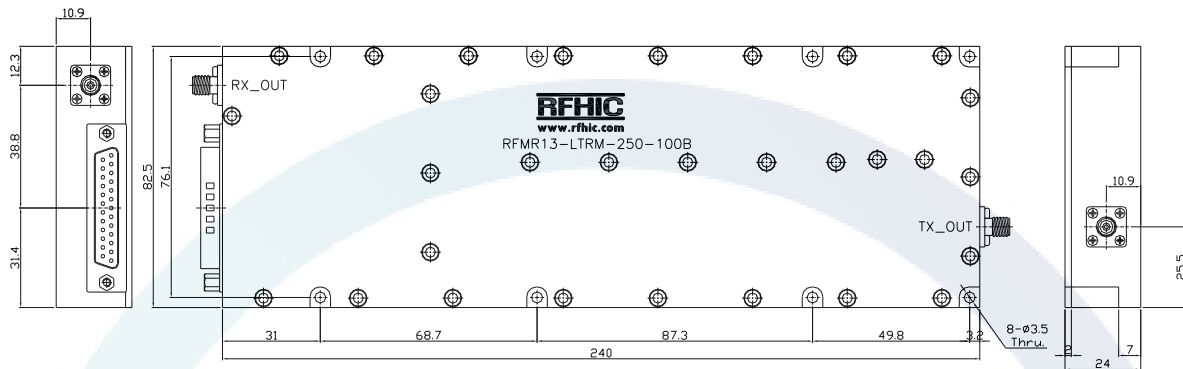
Interface

No	Function	Description	No	Function	Description
1	RX Path On/Off	Low : Enable , High : Disable	2	Digital Atten_5 (MSB)	Low : Enable , High : Disable
3	Digital Atten_4	Low : Enable , High : Disable	4	Digital Atten_3	Low : Enable , High : Disable
5	Digital Atten_2	Low : Enable , High : Disable	6	Digital Atten_1	Low : Enable , High : Disable
7	Digital Atten_0 (LSB)	Low : Enable , High : Disable	8	PhaseShifter_5 (MSB)	Low : Enable , High : Disable
9	PhaseShifter_4	Low : Enable , High : Disable	10	PhaseShifter_3	Low : Enable , High : Disable
11	PhaseShifter_2	Low : Enable , High : Disable	12	PhaseShifter_1	Low : Enable , High : Disable
13	PhaseShifter_0 (LSB)	Low : Enable , High : Disable	14	DC +5V	DC +5V Supply (700mA max)
15	DC -10V	DC -10V Supply	16	Gate Bias 1	ON : -4V , OFF : -8V
17	Gate Bias 2	ON : -4V , OFF : -8V	18	Temp. Monitoring	0.4V ~ 1.2V (-15℃ ~ +65℃)
19	TX Path On/Off	Low : Enable , High : Disable	20	Ground	-
21	Ground	-	22	Ground	-
23	DC +50V	DC +50V Supply (15A max)	24	DC +50V	DC +50V Supply (15A max)
25	DC +50V	DC +50V Supply (15A max)			

Block Diagram



TRM Drawing



RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages. RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use.

Sales, inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US Sales Team at 919-677-8780. For all other inquiries, please contact the International Sales Team at 82-31-8069-3036.