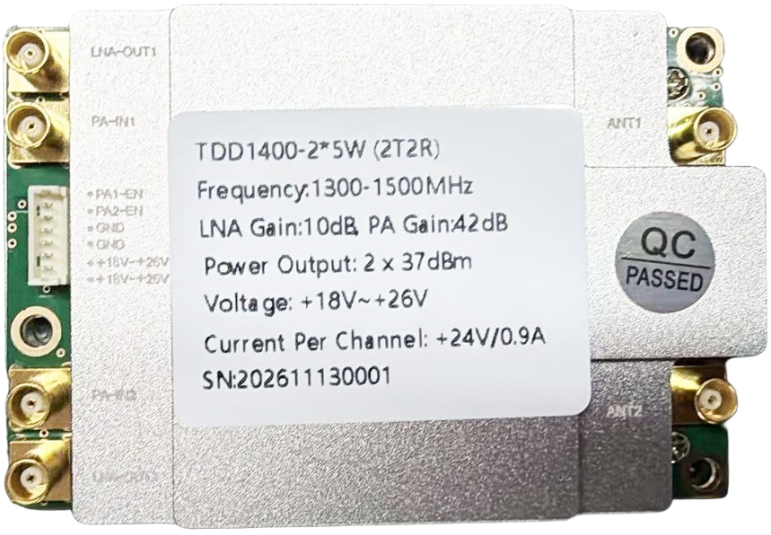
TECHNICAL DATASHEET

2T2R TDD RF Module

1300–1500 MHz | Dual Transmit / Dual Receive | 2 × 5 W



Product Configuration	2T2R TDD, 2 × 5 W PA	**Serial Number**	20261030-SOPHIA01
Frequency Range	1300–1500 MHz	**Document Status**	For Customer Confirmation

1. Product Overview

This module is a 2T2R time-division duplex (TDD) RF module operating in the 1300–1500 MHz frequency range. It integrates two transmit paths with power amplifiers (PA) and two receive paths with low-noise amplifiers (LNA). Each PA path is specified for an RF output power of 37 ± 1 dBm (approximately 5 W). The module is designed for TDD operation with TTL-level PA/LNA switching control.

2. LNA Specifications (Receive Paths)

Parameter	Specification	Remarks
Operating Frequency	1300–1500 MHz	
Maximum Output Power	0 ± 1 dBm	
Maximum Gain	10 ± 1 dB	
Gain Flatness	≤ 1.5 dB	Peak-to-peak over the operating band
Input Port VSWR	≤ 1.4	
Output Port VSWR	≤ 1.4	
ACPR (WCDMA)	Adjacent-channel ACPR ≤ −45 dBc	
Spurious Emissions	In-band: ≤ −36 dBm/30 kHz Out-of-band: ≤ −30 dBm/30 kHz	
Maximum Input Level	≥ −10 dBm	
TX/RX Isolation	≥ 70 dB	Up/downlink isolation
Output Power Stability	±1 dB	@ 25°C to +55°C
Gain Stability	±1 dB	@ 25°C to +55°C

3. PA Specifications (Transmit Paths)

Parameter	Specification	Remarks
Operating Frequency	1300–1500 MHz	
RF Output Power	37 ± 1 dBm	Per PA path; approximately 5 W

Maximum Gain	40 ± 1 dB	
Gain Flatness	≤ 1 dB	Peak-to-peak over the operating band
ACPR (WCDMA)	Adjacent-channel ACPR ≤ −36 dBc	
Input / Output Port VSWR	≤ 1.4	
Spurious Emissions	In-band: ≤ −36 dBm/30 kHz Out-of-band: ≤ −30 dBm/30 kHz	
Output Power Stability	±1 dB	@ 25°C to +55°C
Gain Stability	±1.5 dB	@ 25°C to +55°C

4. General Specifications

Parameter	Specification	Remarks
DC Supply Voltage	+16 to +26 VDC	The interface pin definition specifies +18 to +26 VDC
Power Consumption	≤ 45 W	For both paths combined
PA/LNA Switching Control	TTL level	PA ON / LNA OFF: High level; PA OFF / LNA ON: 0 V
Control High-Level Voltage	+1.8 to +5 V (general specification)	Detailed interface definition states +1.8 to +3.3 V; please confirm
TDD Switching Time	≤ 2 μs	Switching delay
Operating Temperature	−25°C to +65°C	

5. Electrical Interface Definition

RF connectors:

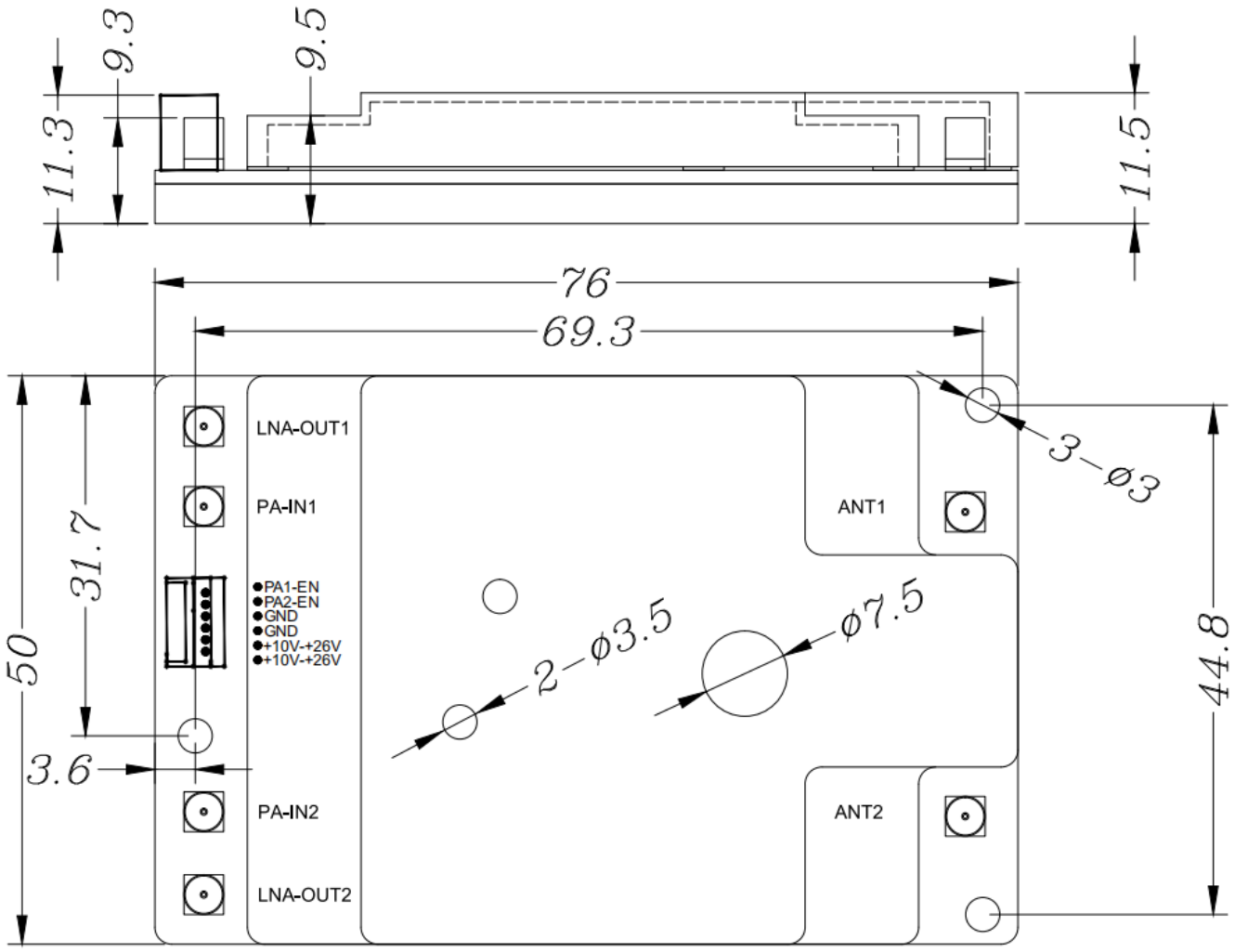
- • RF input connector: MCX-KHD
- • RF output connector: MCX-KHD

Control and power connector: H6, 1.25 mm pitch, 6-pin

Pin	Signal	Definition
1	TDD control for PA1	Low: PA1 OFF / LNA ON High (1.8–3.3 V): PA1 ON / LNA OFF
2	TDD control for PA2	Low: PA2 OFF / LNA ON High (1.8–3.3 V): PA2 ON / LNA OFF
3	GND	Ground
4	GND	Ground
5	+18 to +26 V	DC power input
6	+18 to +26 V	DC power input

6. Mechanical Specifications

Parameter	Specification	Remarks
Module Dimensions	76 × 50 × 11.5 mm	Length × width × height
Module Appearance	Below Picture	Mechanical drawing / product photo was not included in the source information



7. Items to Confirm Before Final Approval

1. Confirm the control high-level voltage: the general specification states +1.8 to +5 V, while the detailed pin definition states +1.8 to +3.3 V. This datasheet retains both statements and flags the difference.
2. Confirm whether the stated +16 to +26 VDC supply range is correct, or whether the actual connector input range should be +18 to +26 VDC as shown in the pin definition.
3. Confirm the RF connector quantity and port mapping for the two transmit paths and two receive paths (2T2R). The supplied information specifies MCX-KHD for RF input and output but does not identify each individual port.
4. Confirm whether 37 ± 1 dBm output power is guaranteed for each PA path independently under the specified operating conditions.
5. Add the mechanical outline drawing or a clear module photograph to complete the appearance section.

8. Customer Confirmation

Please review the specifications and interface definition above. Kindly confirm whether the listed technical parameters, power supply requirements, control logic, RF connector configuration, and mechanical dimensions meet your requirements. Any comments or required changes can be marked directly on this datasheet.

Customer Name: _____ **Date:** _____

Confirmation / Comments: _____