

SKA2R1

60G mmW RF stamp hole module

1. Overview

SKA2R1 is a RF stamp hole modules with one patch antenna. SKA2R1 is based on leading edge ST60A2 60G mmW RF transceiver, which could achieve very low power, very high data rate, short distance file transfer. These stamp hole modules can be easily mounted on other PCB motherboard.

2. Features

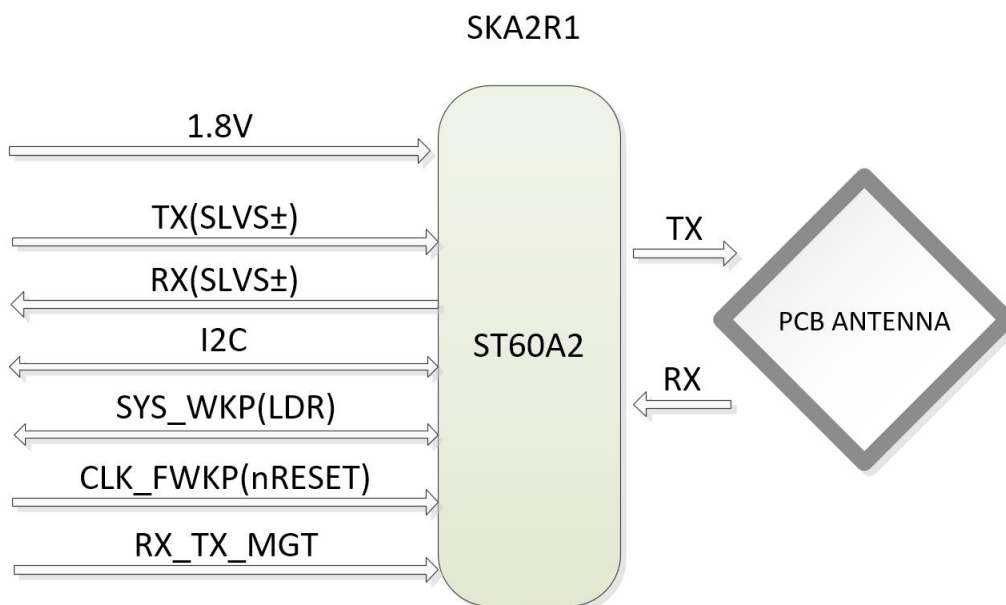
- 60GHz V-Band transceiver with ST Sparlink technology
- 6Gbps data rate, few centimeter transmission distance, preferred 1cm
- half duplex, **Support coaxial high speed rotation**
- Stamp hole, simple installation
- I2C&GPIO control mode optional
- Used in pairs with SKA2P1

3. Application

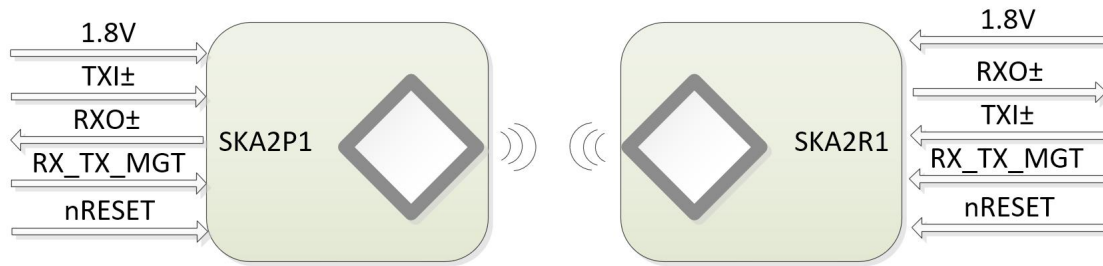
- Contactless high-speed connector
- Rotation Gigabit Ethernet

4. Block

Internal block diagram:



Connection schematic:

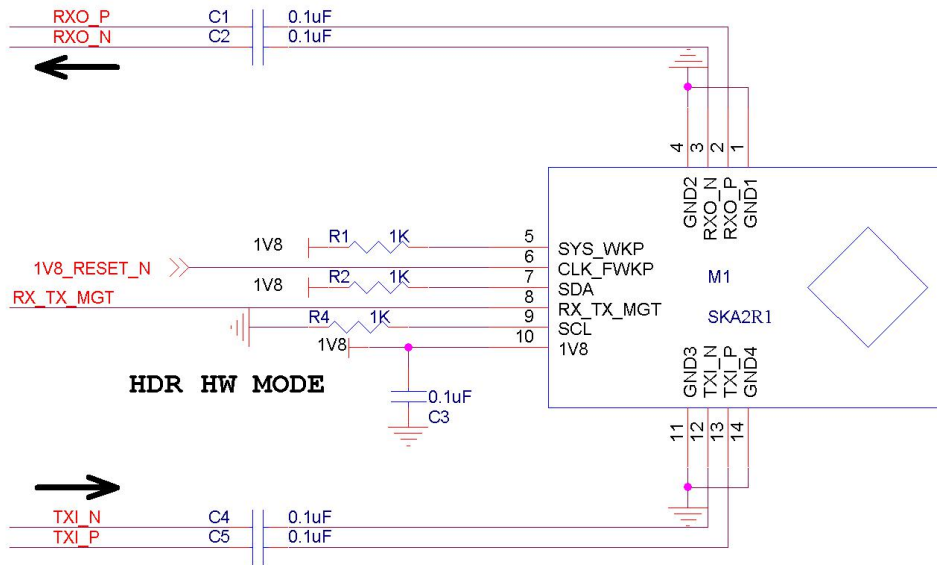


5. Pin definition

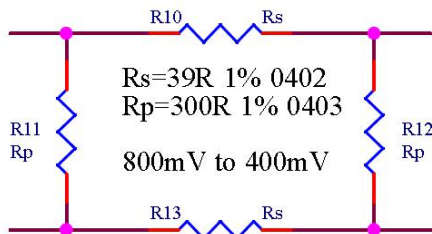
SKA2R1:

Pin Number	Signal Name	Description
1	GND1	Ground
2	RXO_P	SERDES data for reception from the air
3	RXO_N	
4	GND2	Ground
5	SYS_WKP	LDR data in/out, Boot Strap pin, 1.8V level
6	CLK_FWKP	Reset signal, low active, Keep low at least 10ms after 1.8V stabilization
7	SDA	SDA of I2C, Boot Strap pin
8	RX_TX_MGT	High for TX, Low for RX, 1.8V level
9	SCL	SCL of I2C, Boot Strap pin, 1.8V level
10	1V8	Power supply, 1.8V
11	GND3	Ground
12	TXI_N	SERDES data for transmission the air
13	TXI_P	
14	GND4	Ground

6. Reference Design



Attenuator sample: 800mV to 400mV



Note:

1. DC blocking capacitor close to module for RXO
2. DC blocking capacitor close to CPU for TXI
3. Resistor attenuator for level shift. ST60 supports Max 400mv Vpp for differential signal input.

Mode configuration:

SCL	SDA	SYS WKP	Mode	Date Rate
0	0	Don't care	HW forced	LDR-SE
0	1	1	HW forced	FDR-DIFF
0	1	0	HW forced	HDR DIFF
1	Don't care	Don't care	I2C	All rates possible

LDR: low Date Rate - Single Ended, from 1Mbit/s to 100Mbit/s, with input/output on SYS_WKP digital pin;

FDR: Full Date Rate - Differential, from 1Mbit/s up to 5Gbit/s with input/output on differential SLVS pair.

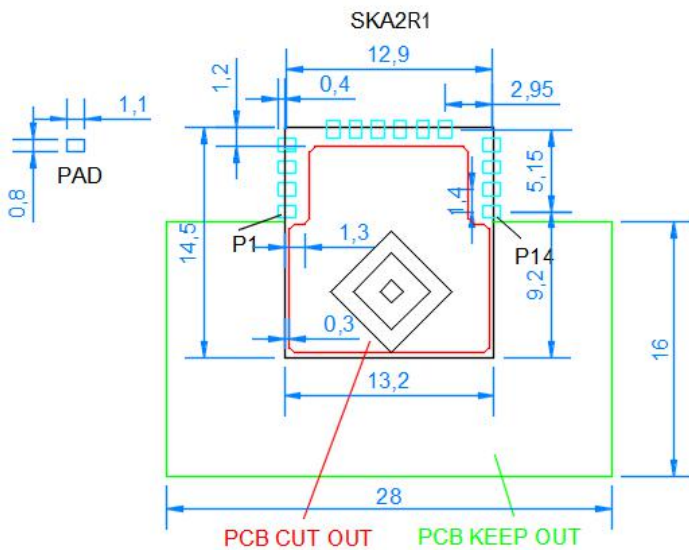
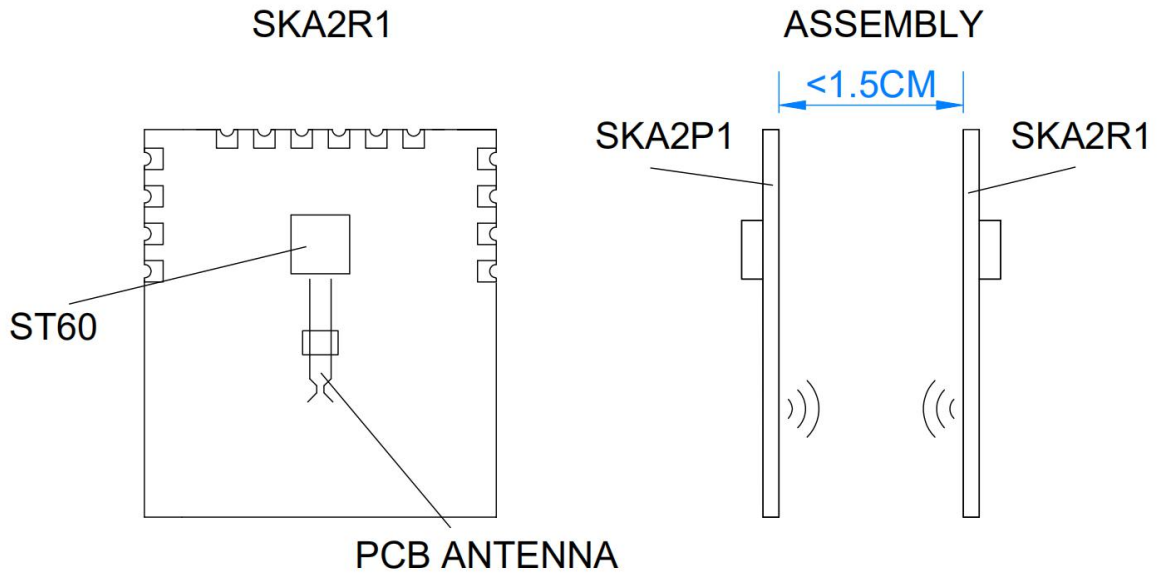
HDR: High Date Rate - Differential, from 500Mbit/s up to 6Gbit/s, with signal input/output on different SLVS pair.

7. Power supply

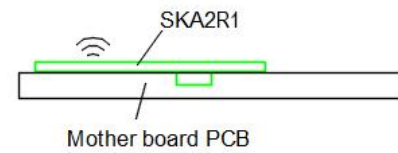
SYMBOL	DESCRIPTION	MAX	TYP	MIN	UNITS
Vin	Power supply	1.98	1.8	1.7	V
Cin(SKA2R1)	Current consumption		30		mA
Tarrb	Operating ambient temperature	+85	-	-20	°C

8. Assembly

PCB installation:



Welding diagram



Unit: mm

9. Part number

Part number	DESCRIPTION
SKA2R1	Half duplex stamp hole module

IMPORTANT:

The SKA2R1 module is a low-power product based on 60G millimeter wave communication. It is very sensitive to its application environment. Customers must confirm with the supplier whether the installation environment is suitable

Revision History

Date	Version	Changes
06/11/2021	1.6	Based on SKA2P1 spec deleted SKA2P1 portion
04/20/2021	1.5	update Pin number 8 Signal Name
04/13/2021	1.4	update Pin number 8 description
08/19/2020	1.3	Del 2 GND pads, update package and installation method
08/21/2019	1.2	Correct pad size
08/19/2019	1.1	Adjust pad size
08/12/2019	1.0	Based on SKA2x spec deleted SKA2Dxx portion
08/05/2019	0.9	First Draft