

SKL3012&SKL3013

60G mmW RF stamp hole module

1. Overview

SKL3012&SKL3013 is a RF stamp hole modules with one patch antenna. SKL3012&SKL3013 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

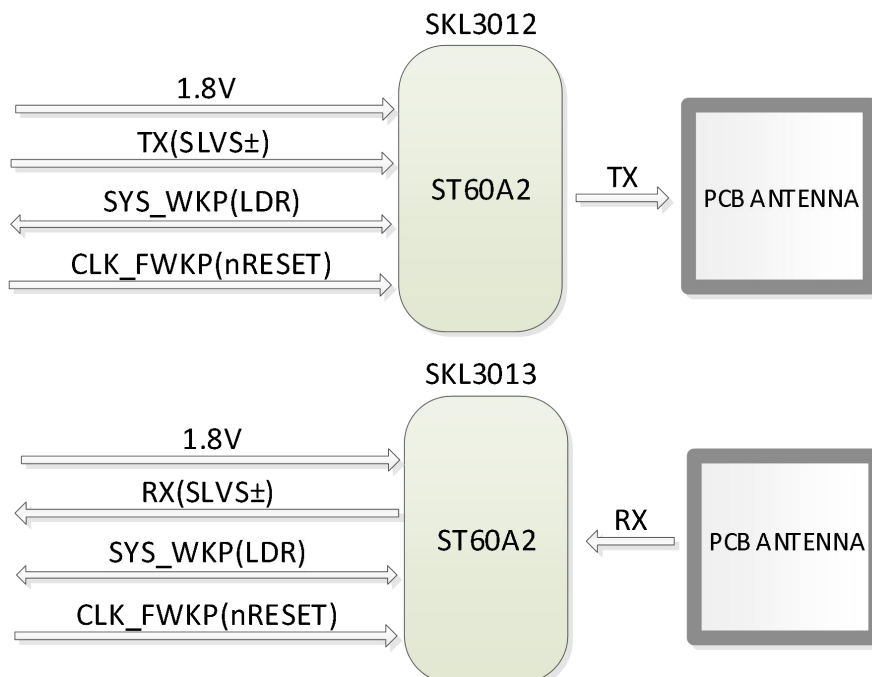
- 60GHz V-Band transceiver with ST Sparclink technology
- 5Gbps data rate, few centimeter transmission distance, preferred 5mm
- Simplex communication, **Support coaxial high speed rotation**
- Stamp hole, simple installation
- Used in pairs

3. Application

- Contactless high-speed rotation connector
- Slip Ring high-speed connector

4. Block

Internal block diagram:



Connection schematic:

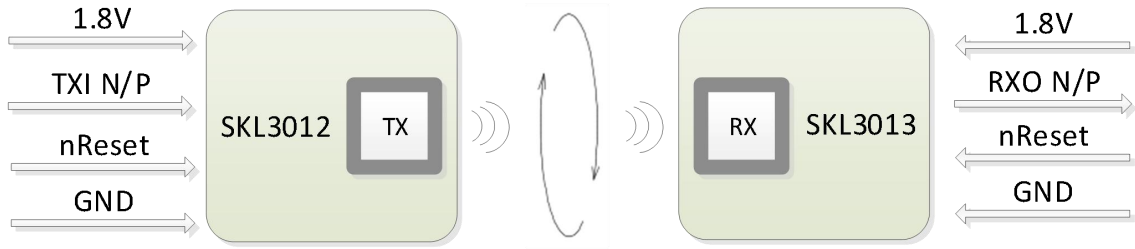
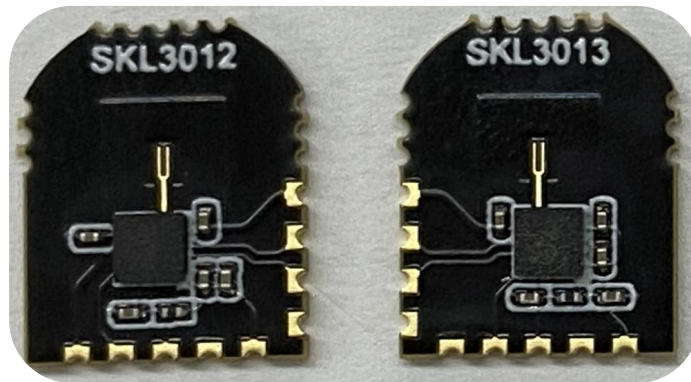
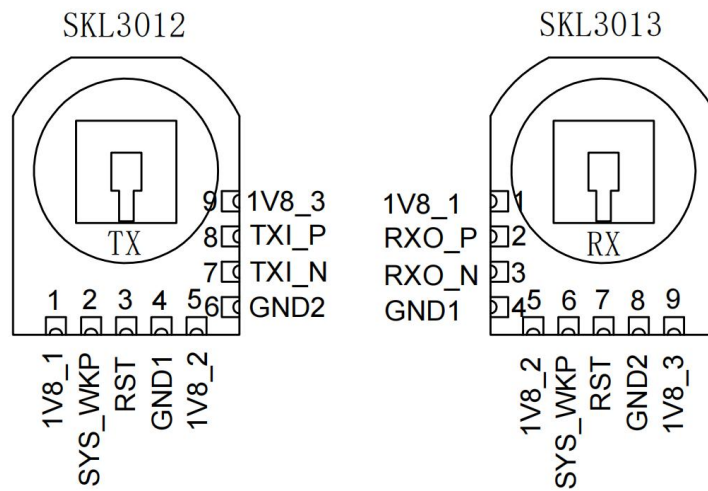


Photo view:



5. Pin definition



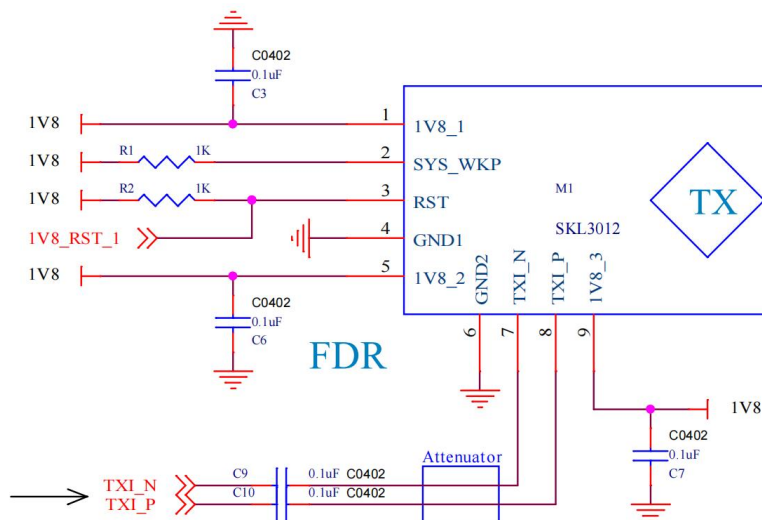
SKL3012:

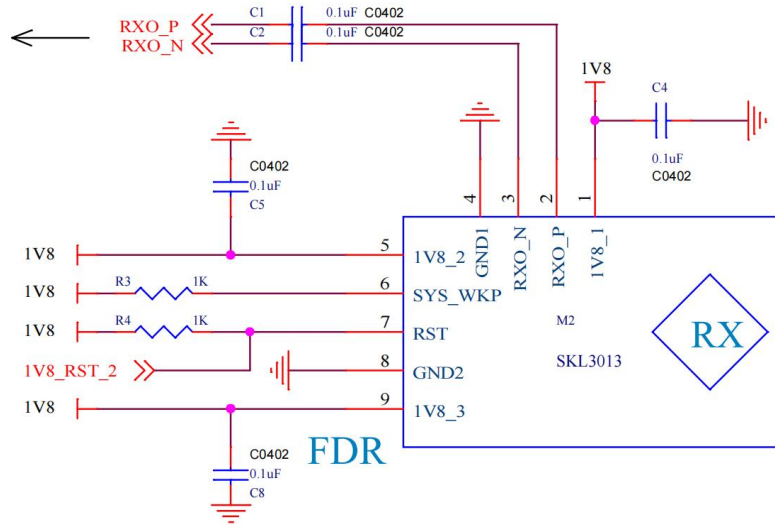
Pin Number	Signal Name	Description
1	1V8_1	Power supply, 1.8V
2	SYS_WKP	Mode Selection, Boot Strap pin, 1.8V level
3	RST	Reset signal, low active
4	GND1	Ground
5	1V8_2	Power supply, 1.8V
6	GND2	Ground
7	TXI_N	SERDES data for transmission the air
8	TXI_P	
9	1V8_3	Power supply, 1.8V

SKL3013:

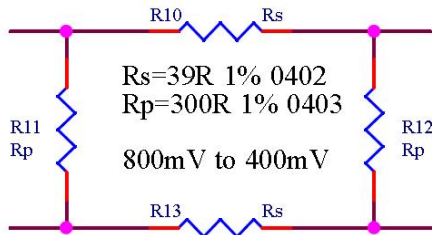
Pin Number	Signal Name	Description
1	1V8_1	Power supply, 1.8V
2	RXO_P	SERDES data for reception from the air
3	RXO_N	
4	GND1	Ground
5	1V8_2	Power supply, 1.8V
6	SYS_WKP	Mode Selection, Boot Strap pin, 1.8V level
7	RST	Reset signal, low active
8	GND2	Ground
9	1V8_3	Power supply, 1.8V

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	1	1	HW forced	FDR-DIFF
0	1	0	HW forced	HDR DIFF
1	Don't care	Don't care	I2C	All rates possible

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

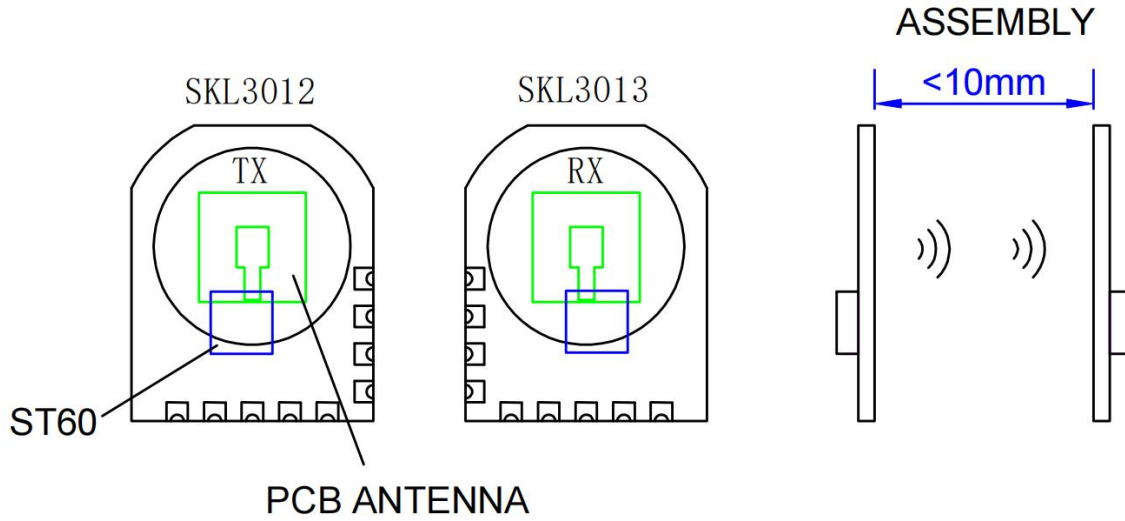
HDR: High Date Rate - Differential, from 500Mbit/s up to 6Gbit/s, with signal input/output on different SLVS pair.

7. Power supply

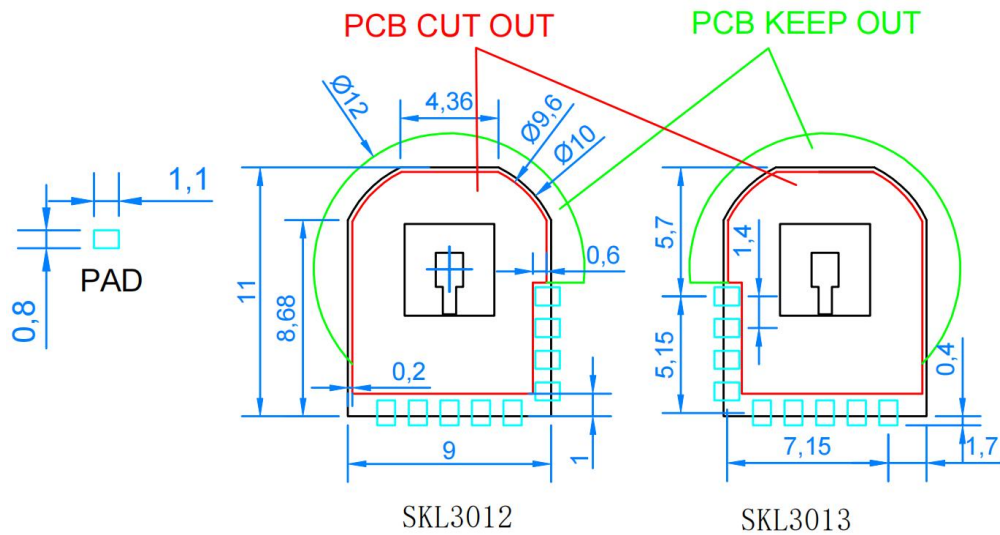
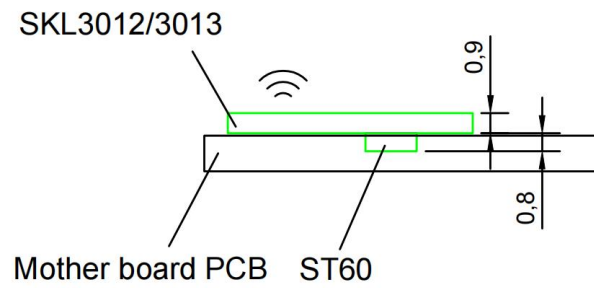
SYMBOL	DESCRIPTION	MAX	TYP	MIN	UNITS
Vin	Power supply	1.98	1.8	1.7	V
Cin(SK3012/3013)	Current consumption		30		mA
Tarrb	Operating ambient temperature	+85	-	-20	°C

8. Assembly

PCB installation:



Welding diagram



Unit: mm

9. Part number

Part number	DESCRIPTION
SKL3012	TX, Simplex stamp hole module
SKL3013	RX, Simplex stamp hole module

IMPORTANT:

The SKL3012&SKL3013 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
10/31/2023	1.1	Update Assembly
09/15/2023	1.0	Based on SKA2P1 spec deleted SKA2P1 portion
08/05/2019	0.9	First Draft