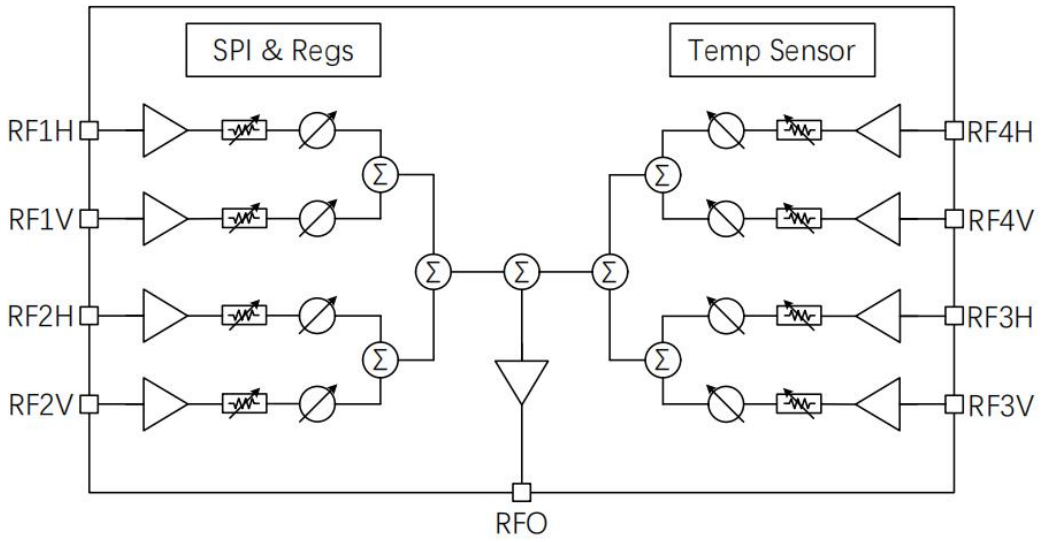
Product Overview

The XSC-6600 is a K-band CMOS highly integrated eight-channel dual-polarization beamforming receive chip. It is suitable for satellite communication phased array applications. The receiving signal will enter into the eight Independent channels , then all signals will be combined after amplitude adjustment and phase adjustment. Each RF channel includes a 6-bit phase shifter, a 5-bit digitally controlled attenuator, and a power amplifier, providing 360° phase adjustment, 15.5 dB gain control, and about 25dB small-signal gain.

Main Features

- Operating frequency：17.7GHz ~21.2GHz；
- Channel Gain: 25dB;
- Phase adjustment: 6-bit control , 5.625° step；
- Amplitude adjustment: 5-bit control , 0.5dB step；
- Noise Figure：2.8dB；
- Power supply: 1.2V single ；
- power consumption: ≤360mW
- On-chip power detection and temperature monitoring；
- Operating temperature：-45℃~85℃；
- Size：≤4.5mm*4mm；
- Package：WLCSP；

System block diagram



paramerter	Test conditions	Min.	Typ.	Max.	Unit
Operating Frequency	–	17.7	–	21.2	GHz
Channel Gain	Minimum Attenuation	–	25	–	dB
Gain Variation vs. Temperature	–	–	±1.5	–	dB
Noise Figure	–	–	2.8	–	dB
Input P1dB	–	–	-35	–	dBm
Gain Adjustment Range	–	–	15.5	–	dB
Gain Adjustment Step	–	–	0.5	–	dB
Gain Adjustment RMS Error	–	–	0.5	–	dB
Gain Adjustment Additional Phase Shift	–	–		3	°
Phase Adjustment Range	–	–	360	–	°
Phase Adjustment Step	–	–	5.625	–	°
Phase Adjustment RMS Error	–	–	3	–	°
Phase-shifted Additional Gain Shift	–	–		1.2	dB
Consistency of	–	–		±1.5	dB

channel gain					
Channel to Channel Isolation	–	–	30	–	dB
Port Impedance	–	–	50	–	Ω
Input Return Loss	–	–	-9	–	dB
Output Return Loss	–	–	-12	–	dB
Operating Voltage	–	1.15	1.2	1.25	V
Operating Current	–		300	–	mA
Operating Temperature	–	-45	–	-85	℃