Product Overview

The XSC-6720 is a Transmit/Receive Beamformer based on silicon CMOS technology, integrating four independent transmit and receive channels and operating in the 32 – 38 GHz frequency band.The RFIC is highly integrated and contains phase shifters, DVGAs, low-noise receiver amplifiers, transmit driver amplifiers, power splitters/combiners, and SPI. It implements transmit mode and receive mode switching in half-duplex mode. Each receive channel or transmit channel provides a full 360° phase adjustment range to provide 6 bits of resolution for 5.625° phase steps .The total DVGA dynamic range in receive mode is 23.5 dB, which provides 6 bits of resolution that results in 0.5 dB amplitude steps.The total DVGA dynamic range in receive mode is 15.5 dB, which provides 5 bits of resolution that results in 0.5 dB amplitude steps.

The XSC-6720 uses a universal 3- or 4-wire compatible serial interface (SPI) for register control. A set of SPI interfaces can control up to 64 chips. A dedicated pin is used to achieve rapid switching between transmit and receive modes. The built-in power and temperature detection can be transmitted back to the host computer via SPI.

The four channels of the XSC-6720 can be independently controlled. Any channel can be powered on or off individually.

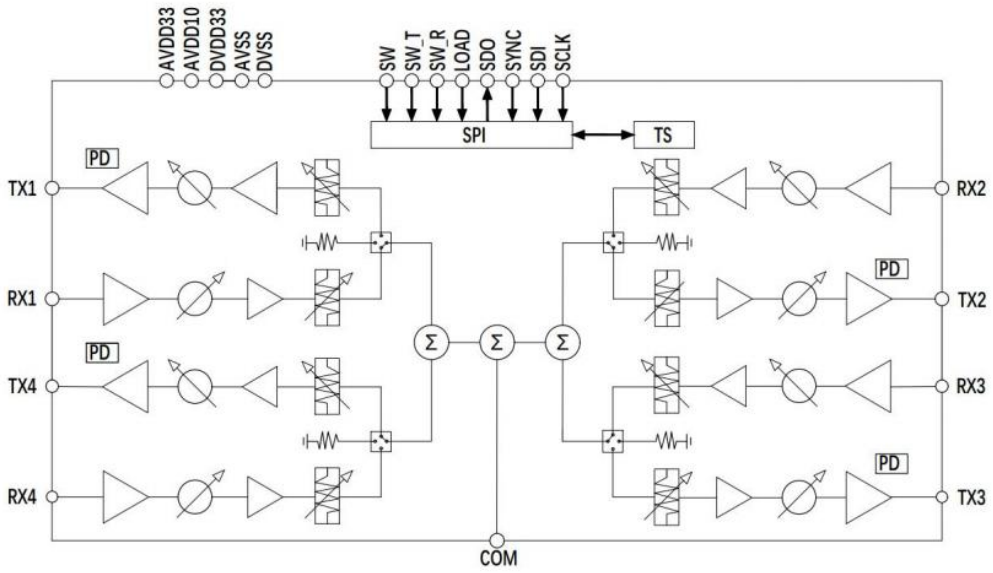
Main Features

Operating frequency	32~38GHz	Channel	4T4R
Transmit gain	16dB	Operating mode	half-duplex(TDD)
Transmit power	13dBm	Power supply	RF 1.0V, Digital 3.3V
Receive gain	14dB	Package	eWLB
Receive NF	7dB	Size	3.4mm×5.5mm× 0.2mm
Phase adjustment	Range 360° Step 5.625°	Operating temperature	-55℃~+125℃
Gain adjustment	RX Range 23.5dB TX Range 15.5dB Step 0.5dB (RX&TX)		
Integrated power detection and temperature detection, with automatic temperature compensation. Supports three-wire/four-wire SPI configuration and waterfall configuration. The on-chip 6-bit ID can distinguish up to 64 chips.			

The XSC-6720 includes 4 transmit channels and 4 receive channels, with independent phase and amplitude adjustment. Each transmit channel has a power detection function, and the chip integrates a temperature sensing function. Output power and chip temperature can be read back via SPI, and the chip will automatically perform gain compensation based on the detected temperature.

In transmit mode, the RF input signal enters the four transmit channels through a power divider; in receive mode, the received RF signal passes through the four receive channels and is combined by a combiner into a single common output.

TX is the transmit output port, RX is the receive input port, COM is the RF common port, Temp Sensor is for temperature detection, and PD is for power detection.


AVDD33
AVDD10
DVDD33
AVSS
DVSS
SW
SW_T
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LOAD
SDO
SYNC
SDI
SCLK
SPI
TS
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TX1
RX1
PD
TX4
RX4
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PD
TX3
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COM