

### Features

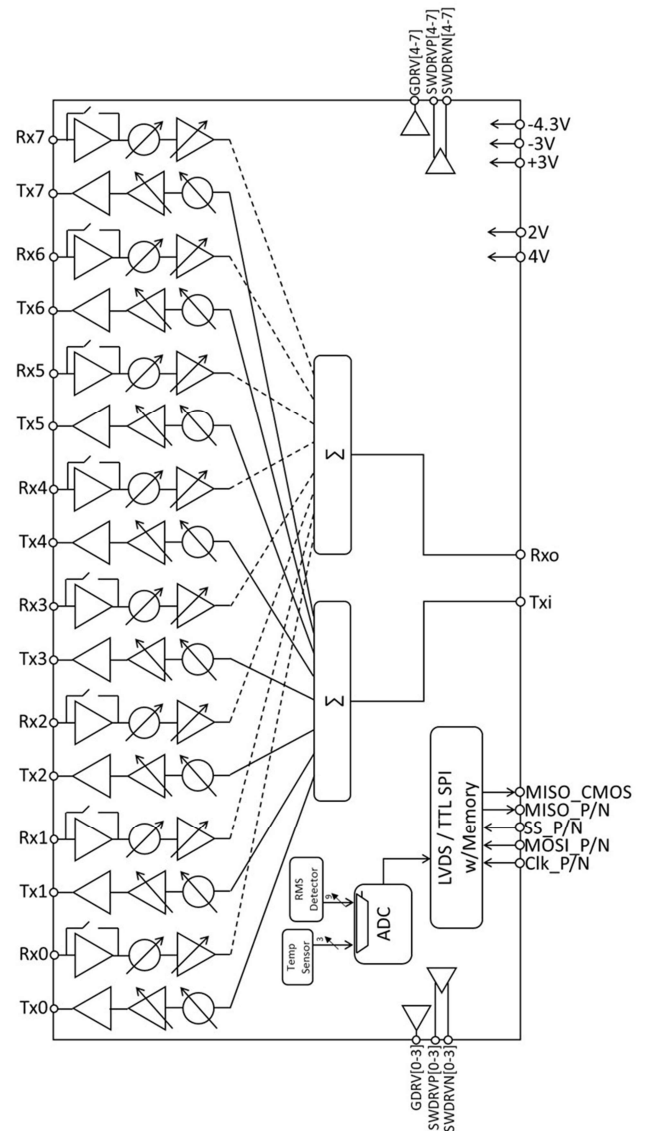
- 24 GHz to 40 GHz Frequency Range
- 1 to 8 Tx Channel Outputs
- 8 to 1 Rx Channel Output
- Independent RF channel gain control, 20dB range in 0.5dB step size
- Independent RF channel phase control, 360 deg phase coverage with 5.6 deg step size
- Nominal / lower power bias modes
- Up to 350 MHz LVDS or 50MHz CMOS SPI Operation
- Memory contains 64 stored beam positions for ultra-fast steering
- 6-bit ADC for temperature and RMS power detection
- 8 programmable gate drivers for external Power Amplifier or LNA control
- 8 drivers for external T/R Switch control
- Form factor: 9.8 x 4.2mm bare die w/200um min pitch, C4 SnAg bump
- 90nm SiGe BiCMOS process

### Description

The OTBF103 is a half duplex eight channel transmit and receive beamforming chip covering the 24 to 40 GHz frequency range that encompasses numerous worldwide 5G bands. Transmit mode takes a single input to eight outputs, where each channel has individual phase and gain adjustment controls. Receive mode consists of eight individually controllable phase and gain inputs to one combined output. A bypass path is implemented in each LNA for system calibration use.

The design enables inclusion of high performance PA or LNA components external to the chip. Eight negative bias voltage interface drivers are included to control the external amplifiers, as well as eight switch drivers for external T/R switch control are provided inside the chip.

### Block Diagram



### Applications

- n257, n258, n260, n261 5G NR small cell
- SATCOM, EW, Radar