

## Technical Description.

The STD-302N-R 458MHz is a UHF Narrow band, double super heterodyne, semi-duplex radio data module. It is EN 300 220 / EN 301 489 compliant. The RF power is 10mW, and it operates on 3VDC. It has 25 kHz channel steps and it can transfer data up to 9600 bps. It has a typical current consumption of 45 mA in TX mode and 26 mA in RX mode.

## MC-CD-PLL-458 AND MC-CD-TRX-458 OPERATION

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The functions of each part are explained based on the block diagram of the STD-302N-R 458 MHz

### 1. Frequency synthesizer reference frequency oscillation part

The TCXO (X8) with the frequency stability of  $\pm 2.5$  ppm generates the reference signal of 21.25 MHz in the temperature range of  $-20$  to  $+65$  °C.

### 2. Frequency synthesizer part

The frequency synthesizer part consists of the reference oscillation part (X8), the PLL IC (U1) and the VCO (Q23, U35 and so on). The PLL IC (U1) is controlled by frequency control data from external CPU, and sets the frequency.

### 3. Transmission part

The transmission part consists of the transmitter amplifier section (Q5, Q6), the LC LPF and the SAW filter. The transmission power is adjusted to 10mW at the amplifier section and the LPF and the SAW filter suppress the spurious emission.

To limit the influence of the supply voltage fluctuation on the output power, the constant voltage circuit (U31: 2.8V) regulates the power supply.

### 4. Modulation part

The modulation part limits the input signal level by buffer (Q20). It is adjusted to have the maximum frequency deviation of 2.5 kHz at 21.7 MHz IF oscillation part when inputting PN9 - 4800 bps signal.

### 5. Power supply

The power supply is from 3.0 V to 5.5 V DC. The internal circuit of the unit operates at 2.8 V.