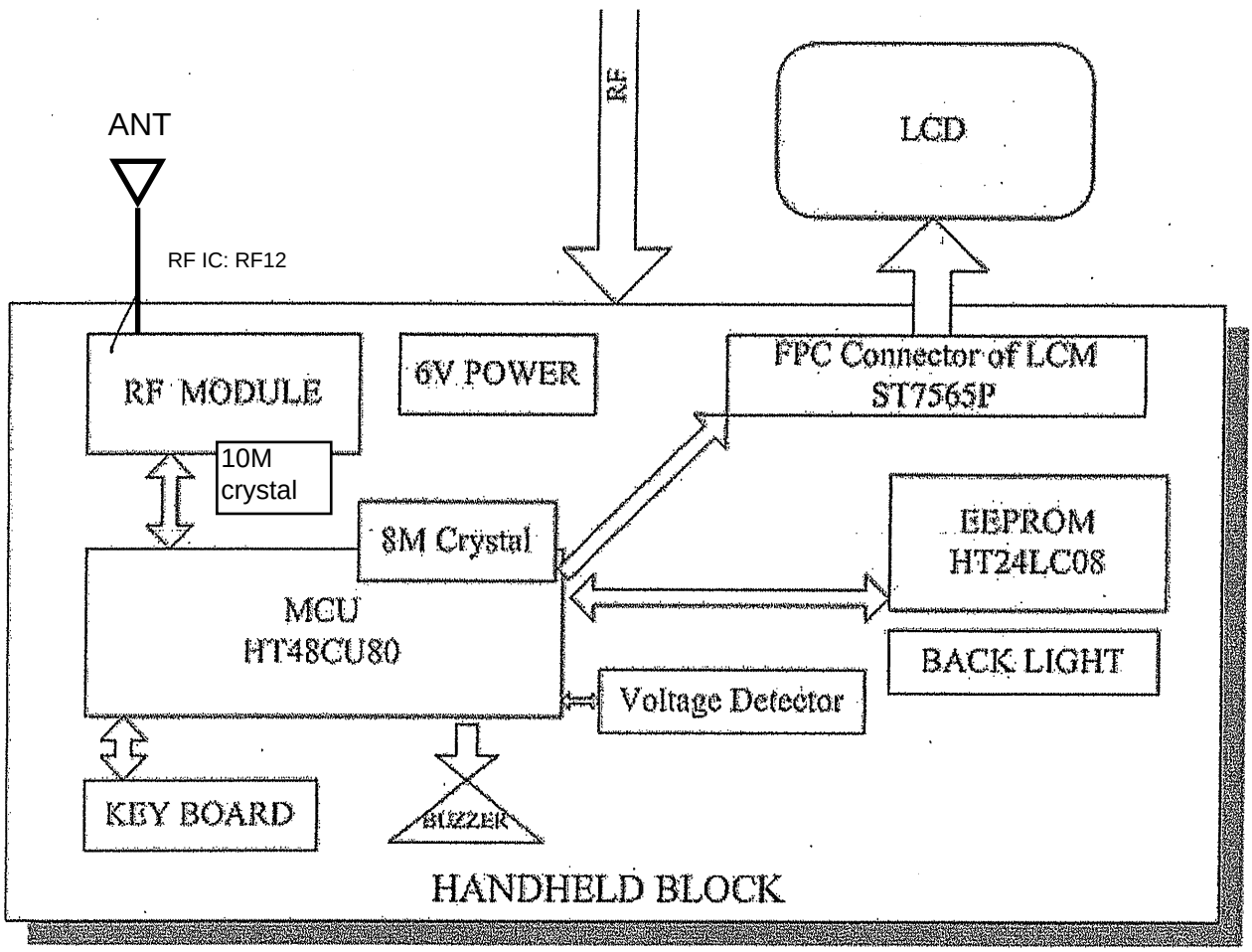
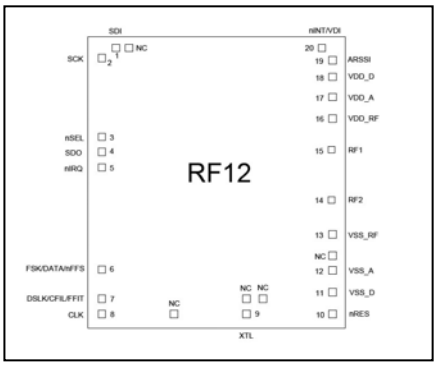

ANT
RF IC: RF12
RF
LCD
RF MODULE
10M
crystal
6V POWER
FPC Connector of LCM
ST7565P
8M Crystal
EEPROM
HT24LC08
MCU
HT48CU80
BACK LIGHT
Voltage Detector
KEY BOARD
BUZZER
HANDHELD BLOCK

RF12 Universal ISM Band FSK Transceiver

RF12

DESCRIPTION



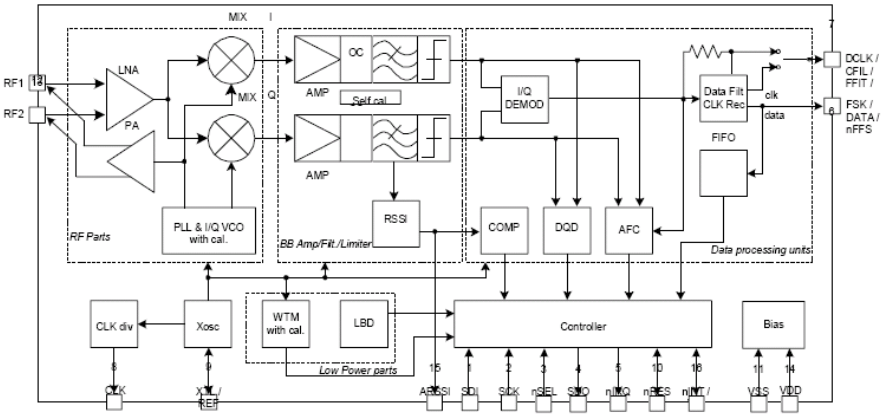
ETEK's RF12 is a single chip, low power, multi-channel FSK transceiver designed for use in applications requiring FCC or ETSI conformance for unlicensed use in the 315, 433, 868 and 915 MHz bands. The RF12 transceiver is a part of ETEK's product line, which produces a flexible, low cost, and highly integrated solution that does not require production alignments. The chip is a complete analog RF and baseband transceiver including a multi-band PLL synthesizer with PA, LNA, I/Q down converter mixers, baseband filters and amplifiers, and an I/Q demodulator. All required RF functions are integrated. Only an external crystal and bypass filtering are needed for operation.

The RF12 features a completely integrated PLL for easy RF design, and its rapid settling time allows for fast frequency-hopping, bypassing multipath fading and interference to achieve robust wireless links. The PLL's high resolution allows the usage of multiple channels in any of the bands. The receiver baseband bandwidth (BW) is programmable to accommodate various deviation, data rate and crystal tolerance requirements. The transceiver employs the Zero-IF approach with I/Q demodulation. Consequently, no external components (except crystal and decoupling) are needed in most applications.

The RF12 dramatically reduces the load on the microcontroller with the integrated digital data processing features: data filtering, clock recovery, data pattern recognition, integrated FIFO and TX data register. The automatic frequency control (AFC) feature allows the use of a low accuracy (low cost) crystal. To minimize the system cost, the RF12 can provide a clock signal for the microcontroller, avoiding the need for two crystals.

For low power applications, the RF12 supports low duty cycle operation based on the internal wake-up timer.

FUNCTIONAL BLOCK DIAGRAM



PRELIMINARY