# R2705

27.195MHz FSK Radio Data Receiver

## Features

- Receives digital data
- Baud rates 300 - 2400bps
- Low cost, small size, low current consumption

## Application

- Telecommand Systems
- Security Systems
- Alarms
- Radio Data Communications
- Commercial / Industrial Telemetry

## Description

The R2705 is a radio data receiver to receive digital data. Baud rates of 300 to 2400 bps can be received (Can be used to 4800bps with reduced sensitivity). The low cost, small size, low current consumption makes it ideal for various applications.

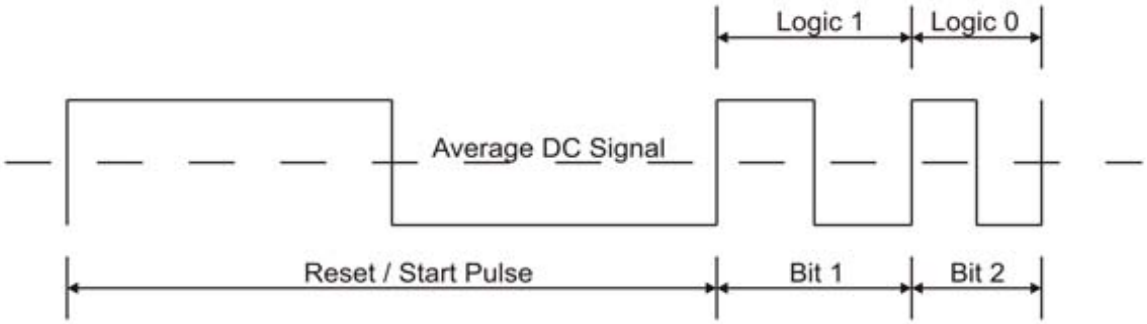
## Technical Data

| | |
|---|---|
| Supply Voltage | 4.5 - 5.5 VDC Absolute maximum 6.5VDC. |
| Current Consumption | 3.5mA |
| Receiver Type | Dual Conversion Superheterodyne |
| Receiving Freq | 27.195MHz (Other freq available on 27.045, 27.145, & 27.455MHz. The 27.455 freq is not available for Australia) |
| Oscillation System | VCO with 10ppm Crystal Controlled reference Oscillator |
| Operating Temperature Range | -5 to 50°C |
| IF Freq | 10.7 MHz and 455KHz |
| Selectivity | -6dB at ±5kHz<br>-20dB at ±6kHz |
| Sensitivity | Better than -107dBm or 1µV |
| Type of Demodulation | Frequency Shift Keying. (FSK) |
| Occupied Band Width | 25KHz at -20dB. |
| Baud Rate | 2400 bps with 50% duty cycle (Can be used to 4800bps with reduced sensitivity) |
| Data Output Level | 0-5V |
| Frequency Response | 150 to 2400 Hz with 50% duty cycle (Other duty cycles will degrade sensitivity) |
| Dimension | 39 x 25 x 12mm |
| Weight | 13 grams |
| Usable Transmitter | FMT-2712 Data Transmitter |
| Antenna | 50 ohms, 27MHz Antenna |

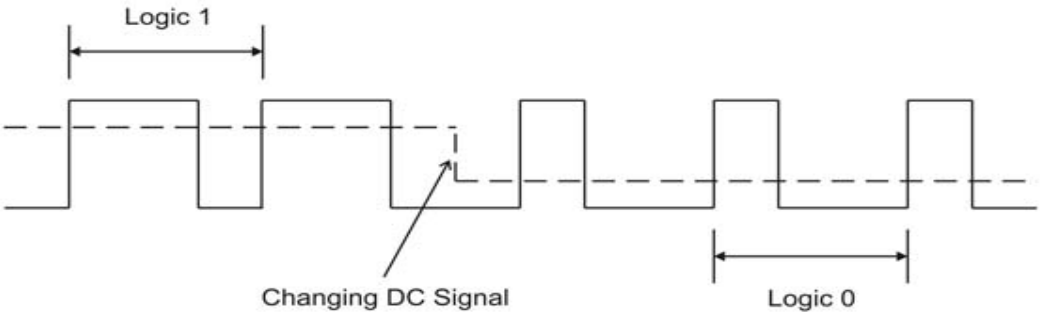
## Connection

## R2705 Data Format

It is important to input the correct data format otherwise the receiver will have a lower sensitivity which will result in a reduced transmission range.
The R2705 receiver data slicer is set for 50/50-duty cycle, therefore the “data in” should have a 50/50-duty cycle. The 50/50-duty cycle data can be pulse-width modulated to transmit resets, 0's or 1's. See diagram below :




A 50/50-duty cycle will have an average DC signal resulting in a constant reference for the data slicer. Users should use pulse-width modulation to transmit data with logic 1's or 0's.
If a different duty cycle is used, for example 66/33 ( Manchester format) the data slicer in the receiver will try to adjust itself to the average DC signal. Since this average DC signal is changing with different data bits this will result in a constantly changing reference for the data slicer, resulting in lower sensitivity. See diagram below : If 66/33 format is to be used the R2705E module is recommended.




*Only 50/50 duty cycle data is suitable for the R2705 receiver.

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