

General Description

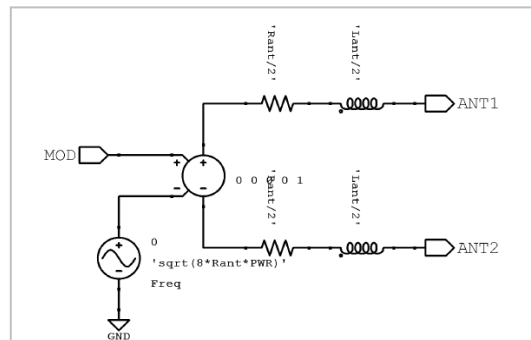
The rectifier is an analog standard cell for RFID applications in the 868 - 915MHz ISM band. The cell rectifies and amplifies an incoming antenna signal broadcasted by any UHF RFID reader. The output voltage can be used as supply voltage for internal circuitry within the RFID Tag chip. The antenna signal can be model for different antenna parameters like link frequency, transmission power, inductance and resistance.

The output voltage depends on the resistive load and the input power from the antenna.

Behavior Rectifier

| P_{ANT} [uW] | Resistive load [Ohm] | V_{RF} [V] | P_{VRF} [uW] | Efficiency factor [%] |
|----------------|----------------------|--------------|----------------|-----------------------|
| 100 | 20k | 0,34 | 5,8 | 5,8 |
| 100 | 120k | 1,30 | 14,1 | 14,1 |
| 100 | 220k | 1,82 | 15,1 | 15,1 |
| 100 | 320k | 2,12 | 14,0 | 14,0 |
| 100 | 420k | 2,33 | 12,9 | 12,9 |
| 350 | 20k | 0,98 | 48,5 | 13,9 |
| 350 | 120k | 3,68 | 113,1 | 32,3 |
| 350 | 220k | 5,03 | 114,8 | 32,8 |
| 350 | 320k | 5,89 | 108,5 | 31,0 |
| 350 | 420k | 6,43 | 98,5 | 28,1 |
| 600 | 20k | 1,44 | 103,4 | 17,2 |
| 600 | 120k | 5,45 | 247,2 | 41,2 |
| 600 | 220k | 7,42 | 250,5 | 41,8 |
| 600 | 320k | 8,56 | 229,1 | 38,2 |
| 600 | 420k | 9,29 | 205,4 | 34,2 |
| 850 | 20k | 1,83 | 166,6 | 19,6 |
| 850 | 120k | 6,82 | 387,4 | 45,6 |
| 850 | 220k | 9,22 | 386,8 | 45,5 |
| 850 | 320k | 10,61 | 351,8 | 41,4 |
| 850 | 420k | 11,53 | 316,4 | 37,2 |

Antenna Model and Parameters

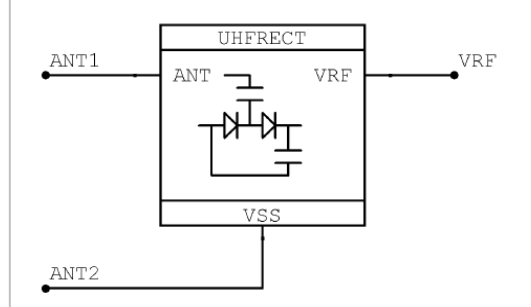


| Parameters | |
|------------|------------------|
| Frequency | 860 MHz |
| Power [uW] | Look table aside |
| Inductance | 30 nH |
| Resistance | 30 Ohm |

IO-Description

| Interface | I/O | Function | Comment |
|-----------|--------|----------|-------------------|
| ANT1 | Input | Antenna | Signal |
| ANT2 | Input | Antenna | Ground |
| VRF | Output | Analog | Rectified voltage |

Symbol / external schematic



Dieses Projekt wird mit Mitteln des Europäischen Sozialfonds (ESF) gefördert. Es erzeugt einen gemeinschaftlichen Mehrwert „Investition in Ihre Zukunft“.