

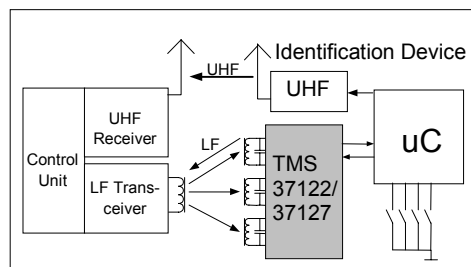
## 3D Analog Frontend (3DAFE) TMS37122 / TMS37127



The 3DAFE is a three channel LF transceiver for LF field detection independent of orientation. It provides a maximum sensitivity of typical 5mV<sub>pp</sub>, which allows extended read ranges up to a few meters. **Figure 1** shows a typical implementation in a Passive/Keyless Entry or Keyless Go system.

Two different read ranges can be achieved with programmable wake patterns and thresholds, typically used for indoor and outdoor detection. Also external devices can be woken up with the WAKE UP output. A simple serial interface enables bi-directional LF data transmission.

The device can be operated in case the battery is down (battery-less backup mode) through extracting the required energy from the LF field. Exact resonance trimming of each antenna circuit can be achieved with the on-chip trimming capacitors.



**Figure 1**

### Specifications:

Part Number	TMS37122	TMS37127
Battery voltage	3.0V (typ.), 2.0V (min.) – 4.0V (max.)	
Quiescent current	100nA (max.)	
Standby current three antennas active	5μA (typ.)	
Standby current two antennas active	3.5μA (typ.)	
Standby current one antenna active	2μA (typ.)	
Active current	20μA (typ.)	
Maximum antenna sensitivity	2-10 mV <sub>pp</sub> , 5 mV <sub>pp</sub> (typ.)	2-10 mV <sub>pp</sub> , 5 mV <sub>pp</sub> (typ.)
RF input impedance @ 134kHz	> 1MΩ	
Operating temperature range	-40 °C – 85 °C	
Trimming capacitors per channel	8	
Nominal Trimming capacitor range, 256 steps	0 - 150 pF	
Data rate	4kbit/s max.	
Resonance frequency range	120kHz - 140kHz	
Wake pattern length	16bit	4bit / 8bit / 16bit
Sensitivity adjustment	ant1	ant1 / ant2 / ant3
Watchdog function	No	Yes
Wake/Re-wake time	5ms	2ms
Package	TSSOP16 SMD	
Packaging	Tape on Reel	

For more information, contact the sales office or distributor nearest you. This contact information can be found on our web site at: <http://www.ti-rfid.com>

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