

LF BASE STATION IC

FEATURES

- Low Current Consumption in Sleep Mode
- Automatic Transponder Frequency Measurement and Adaptation
- Diagnosis Function
- Full Bridge Antenna Driver
- Built in Band-Pass Filter and Limiter
- Digital FSK Demodulator
- High Speed Data Transmission in Synchronous Mode
- Power on Reset
- PLL
- Short Circuit Protection
- Support of All TI-RFid™ LF Transponder Functions



DESCRIPTION

The LF base station IC TMS3705ADR allows efficient development and production of RFID readers for low power hand scanners, stationary readers and vehicle immobilizers. This base station IC drives the antenna of a TI-RFid™ transponder system to send data modulated on the antenna signal, and to detect and demodulate the response from the transponder. It allows also minimizing the external component count.

ORDERING INFORMATION

PACKAGE ⁽¹⁾	
Package/Pin count	SO 16 (10 mm × 6 mm)
Packing/Delivery	Tape on Reel, 2500 units per reel

(1) Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

TI-RFid is a trademark of Texas Instruments.

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

over operating free-air temperature range (unless otherwise noted)

	RI-TMS3705ADR	UNIT
Operating Voltage	4.5 to 5.5 DC	V
Current Consumption	Charge Phase (without antenna load) typical 8 mA; max. 20 mA	
	Sleep Mode (without I/O currents) typical 15 μA; max. 0.2 mA	
ESD Protection (MILSTD 883, HBM)	–2000 to +2000	V
Operating Temperature	–40 to +85	°C
Storage Temperature	–40 to +100 (125 up to 1000hrs over lifetime)	°C

(1) Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

OPERATING CHARACTERISTICS

over operating free-air temperature range (unless otherwise noted)

PARAMETER	PART NUMBER	UNIT
	RI-TMS3705ADR	
Operating Frequency	Typical 134.2, FSK	kHz
Interface to Micro Controller	Two wire multifunctional serial interface, 15625 baud	
Antenna Inductivity	400–700 recommended	μH

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		Applications	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DSP	dsp.ti.com	Broadband	www.ti.com/broadband
Interface	interface.ti.com	Digital Control	www.ti.com/digitalcontrol
Logic	logic.ti.com	Military	www.ti.com/military
Power Mgmt	power.ti.com	Optical Networking	www.ti.com/opticalnetwork
Microcontrollers	microcontroller.ti.com	Security	www.ti.com/security
Low Power Wireless	www.ti.com/lpw	Telephony	www.ti.com/telephony
		Video & Imaging	www.ti.com/video
		Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments
Post Office Box 655303 Dallas, Texas 75265