32-mm Low-Frequency Glass-Encapsulated Transponder, RO

FEATURES

- **Best-in-Class Performance Through Patented Half-Duplex (HDX) Technology**
- **Patented Transponder Tuning Provides Stable and High Read Performance**
- **80-Bit Read-Only (RO) Type**
- **64-Bit Chip ID**
- **Insensitive to Almost All Nonmetallic Materials**

APPLICATIONS

- **Access Control**
- **Vehicle Identification**
- **Container Tracking**
- **Asset Management**
- **Waste Management**

DESCRIPTION

Texas Instruments 32-mm low-frequency (LF) glass transponders provide superior performance and operate at a resonance frequency of 134.2 kHz. The products are compliant to ISO/IEC 11784/11785 global open standards. Texas Instruments LF glass transponders are manufactured with TI's patented tuning process to provide consistent read performance. Prior to delivery, the transponders undergo complete functional and parametric testing, to provide the high quality customers have come to expect from TI.



Absolute Maximum Ratings(1)

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

		TRPGR30ATGB
T_A	Operating temperature	–25°C to 70°C
T_{STG}	Storage temperature	–40°C to 85°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 *Characteristics* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

Characteristics

PARAMETER	TRPGR30ATGB
Functionality	Read only
Memory (bits)	80 (64-bit unique ID + 16-bit BCC)
Memory (pages)	1
Resonance frequency	134.6 kHz
Modulation	FSK (frequency shift keying) 134.2 kHz and 124.2 kHz
Transmission principle	HDX (half duplex)
Power source	Powered from the reader signal (battery-less)
Typical reading range	≤110 cm(1)
Typical reading time	70 ms
Case material	Glass
Protection glass	Hermetically sealed
EMC	Programmed code is not affected by natural electromagnetic interference or x-rays
Signal penetration	Transponder can be read through almost all nonmetallic material
Mechanical shock	IEC 68-2-27, Test Ea; 300 g, 3 ms
Dimensions	Ø 3.85 ± 0.05 mm x 31.2 ± 0.6 mm
Weight	0.8 g

(1) Depends on RF regulation in country of use, the reader antenna configuration, and the environmental conditions.

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.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

Copyright © 2014, Texas Instruments Incorporated

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
TRPGR30ATGB	Active	Production	RFIDT (TGB) | 0	2000 | LARGE T&R	Yes	Call TI	N/A for Pkg Type	-25 to 70	
TRPGR30ATGB.B	Active	Production	RFIDT (TGB) | 0	2000 | LARGE T&R	Yes	Call TI	N/A for Pkg Type	-25 to 70	

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

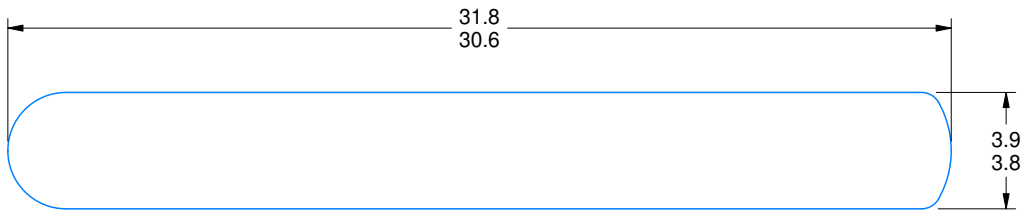
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

PACKAGE OUTLINE

TGB0000A

RFIDT - 3.9 mm max height

RADIO FREQUENCY IDENTIFICATION



4224849/A 03/2019

NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. HDX+ 32mm glass transponder with capacitor on die technology.

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale, TI’s General Quality Guidelines, or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2025, Texas Instruments Incorporated

Last updated 10/2025