23-mm Low-Frequency Glass-Encapsulated Transponder, Read Only

Check for Samples: TRPGR30ATGA

FEATURES

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

APPLICATIONS

- **Vehicle Identification**
- **Container Tracking**
- **Asset Management**

DESCRIPTION

Texas Instruments 23-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)

		TRPGR30ATGA
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 *Specifications* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

Specifications

PARAMETER	TRPGR30ATGA
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 60068-2-32 free-fall drop test, 20 times from 1.5-m height
Dimensions	Ø 3.85 ± 0.05 mm x 23.1 ± 0.5 mm
Weight	0.8 g

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

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
TRPGR30ATGA	ACTIVE	RFIDT	TGA	0	2000	TBD	Call TI	Call TI	-25 to 70		Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

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

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