Texas Instruments

32 mm Glass Encapsulated Multipage Transponders

Reference Guide

February 2008

SCBU016A

32 mm Glass Encapsulated Multipage Transponders

Reference Guide

Literature Number: SCBU016A
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Texas Instruments

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Edition Notice: Third Edition – February 2008

This is the third edition of this manual, it describes the following transponders:

RI-TRP-DR2B	Multipage Transponder with 17 R/W pages (MPT 0/17)
RI-TRP-IR2B	Selective Addressable Multipage Transponder with 17 R/W pages and 24 bits selective address (SAMPT 0/17-24)

1 General

1.1 Introduction

The TI 32 mm glass transponder is a key product in low frequency RFID systems that can be used for a variety of applications, and is especially useful for those applications requiring a robust and waterproof transponder.

The reader and the transponder operate in a sequential mode with timely separated power and data transmission cycles.

1.2 Reference

This document should be used together with the Description of Multipage, Selective Addressable & Selective Addressable (Secured) Transponders General Reference Manual, literature number SCBU020 (11-09-21-031).

1.3 Transponder Packaging

The dimensions of the transponder are given in Figure 1.

The transponder is hermetically sealed.

For applications where read range is not the most critical point the transponder can be mounted or used in such a way that the orientation is not controlled.

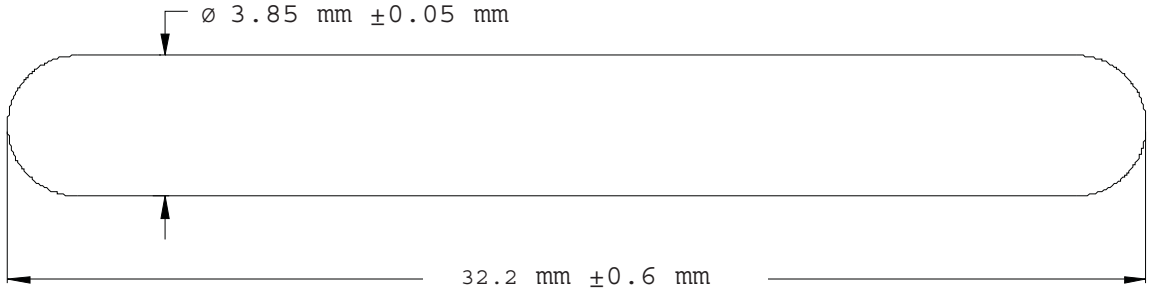

Figure 1. Dimensions of the TI 32 mm Transponder

2 Product Codes

Multipage Glass Transponder with 17 R/W pages (MPT 0/17)	RI-TRP-DR2B
Selective Addressable Multipage Glass Transponder with 17 R/W pages and 24 bits selective address (SAMPT 0/17-24)	RI-TRP-IR2B

3 Product Specification Data

3.1 Absolute Maximum Ratings

PARAMETER	SIGN	NOTE	MIN	NOM	MAX	UNIT
Storage Temperature	Ts		–40		100	°C
Field Strength	Hexc	134.2 kHz			220	dBµV/m

3.2 Recommended Operating Conditions

at a free-air temperature of 25°C (unless otherwise noted) and

at a transmitter field strength of 160 dBµV/m at 3 m/free air (unless otherwise noted)

PARAMETER	SIGN	NOTE	MIN	NOM	MAX	UNIT
Operating free-air temperature, Read Program	TaR Tap		–25		85	°C
Transmitter frequency	ftx		134.16	134.20	134.24	kHz
Charge Time	ttx			50		ms
Write Bit Duration	tbit			2		ms
Write Pulse Pause/Low Bit	toffL			0.3		ms
Write Pulse Pause/High Bit	toffH			1		ms
Programming Time	tprog		15			ms

3.3 Characteristics

at a free-air temperature of 25°C (unless otherwise noted) and

at a transmitter field strength of 160 dBµV/m at 3 m/free air (unless otherwise noted)

3.3.1 General

PARAMETER	SIGN	NOTE	MIN	NOM	MAX	UNIT
Typical Reading Range	Dread	(1)		70	100	cm
Typical Programming Range	Dprg	(1)		35		cm
Mechanical Shock	IEC 68-2-27, Test Ea; 300 g half-sine, 3 ms, 2 axes					
Vibration	IEC 68-2-6, Test Fc; 3 g, 5 – 50 Hz, 2 axes, 24 hours per axis; 20 g, 10 – 2000 Hz, 2 axes, 2.5 hours per axis					

(1) Depending on RF regulation in country of use, and the Reader Antenna configuration used in a low RF noise environment.

3.3.2 Frequency of Packaged Product

at a free-air temperature of 25°C (unless otherwise noted)

PARAMETER	SIGN	NOTE	MIN	NOM	MAX	UNIT
Operating Quality Factor	Qop	(1)	62			
Resonant Circuit Frequency	FRES	(2)		135.2		kHz
		(3)		134.2		
Low Bit Transmit Frequency	RCLKL		132.2	134.3	136.2	kHz
High Bit Transmit Frequency	RCLKH		121	122.9	125	kHz
Low Bit Transmit Frequency	RCLKL	–40°C to 85°C	131.5		139	kHz
High Bit Transmit Frequency	RCLKH	–40°C to 85°C	120		128	kHz

(1) Specified Qop must be met in the application over the required temperature range.
(2) Low activation field strength test set-up (spectrum analyzer) that keeps the internal power supply voltage (VCL) less than 1.5 Volts.
(3) Activation field strength test set-up that keeps the internal power supply voltage greater than 1.5 Volts.

3.4 Mechanical Specification

Dimensions:	Length	32.2 ± 0.6 mm
	Diameter	3.85 ± 0.05 mm
Package Material	Glass	
Weight:	0.85 Gram	

3.5 Packing

3.5.1 Packaging Material

The transponders are delivered in Tape on Reel.

3.5.2 Labeling of Reel

The label on the reel contains:

- Originator
- Country of Origin
- TI-Part Number
- Date of Origin
- Quantity

3.5.3 Packing Size

Minimum packing size is 2,000 units.

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