

13.56-MHz ENCAPSULATED STANDARD TRANSPONDER

Check for Samples: [RF-HDT-DVBE](#)

FEATURES

- ISO/IEC 15693-2,-3; ISO/IEC 18000-3 Compliant
- 13.56-MHz Operating Frequency
- 256-Bit User Memory in 8 × 32-Bit Blocks
- User and Factory Lock Per Block
- Application Family Identifier (AFI)
- Fast Simultaneous Identification (Anti-Collision)

APPLICATIONS

- Laundry
- Process Automation
- Product Authentication
- Asset Management

DESCRIPTION

Texas Instruments' 13.56-MHz encapsulated standard transponder is compliant with the ISO/IEC 15693 and ISO/IEC 18000-3 global open standards. This product offers a user accessible memory of 256 bits, organized in 8 blocks, and an optimized command set.

Designed for harsh environments, such as garment tracking in laundries, each transponder has a 64-bit factory programmed Read Only Number, which is also laser engraved on the transponder housing. Prior to delivery, transponders undergo complete functional and parametric testing to provide the high quality that customers have come to expect from TI.

The 13.56-MHz encapsulated standard transponders are well suited for a variety of applications including, but not limited to, laundry garment tracking, process automation, product authentication, and asset management.



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 © 2007–2011, Texas Instruments Incorporated

Absolute Maximum Ratings

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

		UNIT
Operating temperature	–25 to 90	°C
Storage temperature	–40 to 120 (130°C for total 50 hours, 220°C for total 30 s)	°C

Operating Characteristics

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

PARAMETER	RF-HDT-DVBE ⁽¹⁾	UNIT
Supported standard	ISO/IEC 15693-2,-3; ISO/IEC 18000-3	
Resonance frequency (at 25°C)	13.56 MHz ± 300 kHz	
Typ. required activation field strength to read (at 25°C)	112	dBμA/m
Typ. required activation field strength to write (at 25°C)	115	dBμA/m
Factory programmed read only number	64	bits
Memory (user programmable)	256 bits organized in 8 × 32-bit blocks	
Typical programming cycles (at 25°C)	100,000	
Data retention time (at 25°C)	> 10 years	
Simultaneous identification of tags	Up to 50 tags per second (reader/antenna dependent)	
Dimensions	ø 22 ± 0.2 mm × 3 ± 0.2 mm	
Weight	2.1 ± 0.2	grams
Case material	PPS, black	
Protection class	IP 68	
Vibration	ISO/IEC 68.2.6 (10 g, 10 to 2000 Hz, 3 axis, 2.5 h)	
Mechanical shock	ISO/IEC 68.2.27 (100 g, 6 ms, 6 axis, 20 times per axis)	
Mechanical stability	Axial compression strength: 1000N (10 s, static) Radial compression strength: 500N (10 s, static) Isostatic water pressure: 45 bar (10 h)	
Chemical resistance	Typical chemicals used in laundry and dry-cleaning processes	
Delivery	1000 units in bulk	

(1) For highest possible read-out coverage, TI recommends operating readers at a modulation depth of 20% or higher.

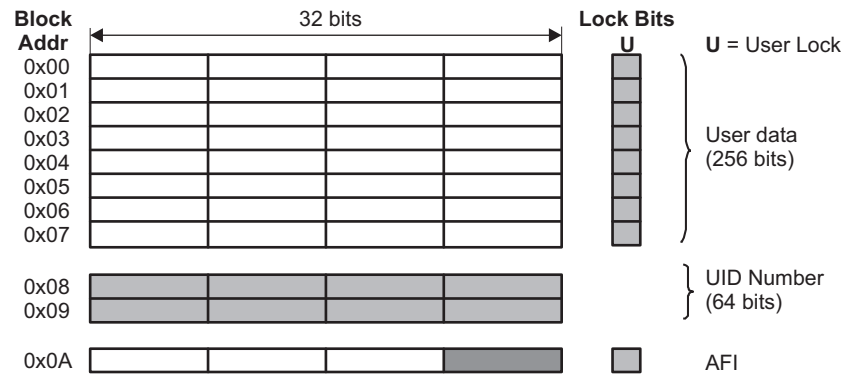
Supported Command Set

REQUEST	REQUEST MODE ⁽¹⁾ ⁽²⁾					
	REQUEST CODE	INVENTORY	ADDRESSED	NON-ADDRESSED	AFI	OPTIONAL FLAG
ISO 15693 Mandatory and Optional Commands						
Inventory	0x01	✓	-	-	✓	0/-
Stay Quiet	0x02	-	✓	-	-	0/-
Read_Single_Block	0x20	-	✓	✓	-	-/1
Write_Single_Block	0x21	-	✓	✓	-	-/1
Lock_Block	0x22	-	✓	✓	-	-/1

(1) ✓: Implemented

(2) -: Not applicable

Memory Organization



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)
RF-HDT-DVBE-N2	Active	Production	RFIDP (TEC) 0	1000 BULK	No	Call TI	Call TI	-25 to 90	

⁽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.

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), 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 will 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](#) or other applicable terms available either on [ti.com](https://www.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.

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

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2025, Texas Instruments Incorporated