

## Tag-it™ HF-I STANDARD TRANSPONDER INLAYS 24.2-mm CIRCULAR

### FEATURES

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

### APPLICATIONS

- Product Authentication
- Library
- Supply-Chain Management
- Asset Management
- Ticketing/Stored Value

### DESCRIPTION

Texas Instruments' Tag-it™ HF-I standard transponder inlays consist of 13.56-MHz high-frequency (HF) transponders that are compliant with the ISO/IEC 15693 and ISO/IEC 18000-3 global open standards. These products offer a user-accessible memory of 256 bits, organized in eight blocks, and an optimized command set available in five different antenna shapes, with frequency offset for integration into paper, PVC, or other substrates.

### SPECIFICATIONS<sup>(1)</sup>

	PART NUMBER
	<b>RI-I16-114A-01</b>
Supported standard	ISO/IEC 15693-2, -3; ISO/IEC 18000-3
Recommended operating frequency	13.56 MHz
Passive resonance frequency (at 25°C)	13.70 MHz ± 400 kHz (includes frequency offset to compensate further integration into paper or PVC lamination)
Typical required activation field strength to read (at 25°C)	113 dBμA/m <sup>(2)</sup>
Typical required activation field strength to write (at 25°C)	116 dBμA/m <sup>(2)</sup>
Factory-programmed read-only number	64 bits
Memory (user programmable)	256 bits organized in 8-bit × 32-bit blocks
Typical programming cycles (at 25°C)	100,000
Data retention time (at 55°C)	>10 years
Simultaneous identification of tags	Up to 50 tags per second (reader/antenna dependent)
Antenna size	Ø 24.2 mm +0.1 mm/–0.2 mm (~0.95 in)
Foil width	48 mm ± 0.5 mm (1.89 in ± 0.02 in)
Foil pitch	50.8 mm +0.1 mm/–0.4 mm (2 in)
Base material	Substrate: PET (polyethyleneterephthalate); Antenna: aluminum
Operating temperature	–25°C to 70°C
Storage temperature (single inlay)	–40°C to 85°C (warpage may occur at upper temperature range)
Storage temperature (on reel)	–40°C to 40°C

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

(2) After integration into paper



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Tag-it is a trademark of Texas Instruments.

**SPECIFICATIONS (continued)**

	PART NUMBER
	RI-I16-114A-01
Delivery	Single-row tape wound on cardboard reel with 500-mm diameter Reel outer width: approximately 60 mm (~2.36 in) Reel inner width: approximately 50 mm (~1.97 in) Hub diameter: 76.2 mm (3 in)
Typical quantity of good units per reel	5,000

**DESCRIPTION (CONTINUED)**

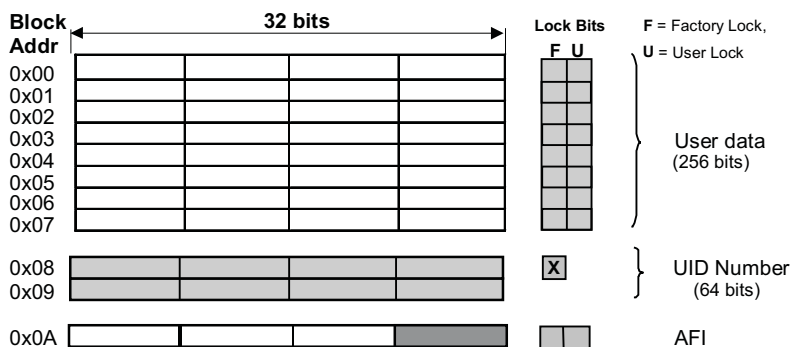
The Tag-it HF-I standard transponder inlays are manufactured with TI's patented laser tuning process to provide consistent read performance. Prior to delivery, the transponders undergo complete functional and parametric testing, in order to provide the high quality that customers have come to expect from TI.

The Tag-it HF-I standard transponder inlays are well suited for a variety of applications including, but not limited to, product authentication, library, supply-chain management, asset management, and ticketing/stored value applications.

**SUPPORTED COMMAND SET**

REQUEST	REQUEST MODE <sup>(1)</sup>					
	REQUEST CODE	INVENTORY	ADDRESSED	NON-ADDRESSED	AFI	OPT. FLAG
<b>ISO 15693 Mandatory and Optional Commands</b>						
Inventory	0x01	ü	–	–	ü	0/–
Stay Quiet	0x02	–	ü	–	–	0/–
Read_Single_Block	0x20	–	ü	ü	–	–/1
Write_Single_Block	0x21	–	ü	ü	–	–/1
Lock_Block	0x22	–	ü	ü	–	–/1

(1) ü = Implemented, – = Not applicable

**MEMORY ORGANIZATION**

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