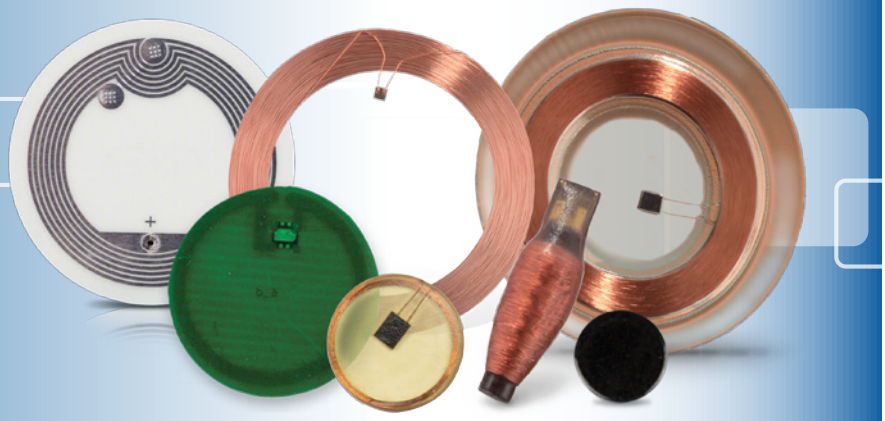
INDUSTRY AND LOGISTICS

Embeddable RFID



TECHNOLOGY HIGHLIGHTS:

- A selection of housing materials to meet a variety of production process demands
- A multitude of available integrated chip options
- Embeddable in a broad spectrum of materials
- LF, HF and UHF Options

LOW, HIGH AND ULTRAHIGH-FREQUENCY TRANSPONDERS FOR ENCLOSURE INTO VIRTUALLY ANY FORM FACTOR

- **Customizable** – choose a size, chip and a disc or rod to fit any custom enclosure
- **Unsurpassed quality** – fully automated manufacturing and direct bonding DBond™ technology ensure tag reliability
- **Reliable operation** – built to withstand the rigors of tag processing, including plastic injection molding

Embeddable RFID transponders allow manufacturers to integrate HID Global electronic components seamlessly into tag designs optimized for any application.

Leveraging HID experience, manufacturers and integrators can combine their specialized market expertise to deliver optimized tagging solutions for custom automation applications. Manufacturers can save the time and expense of electronics design and production, and better focus resources on providing customer solutions.

With a variety of integrated chips, HID offers a range of Embeddable RFID components various operating frequencies, and form factors for incorporation into finished tagging solutions.

Choose from:

- **E-Unit Disc transponders** – low frequency HID coils and chips, ideal for key fobs and similar simple applications.
- **Inlays & Labels** - NFC or UHF inlays or printable labels are easy to apply via glue to smart posters etc.
- **PCB Coins** - UHF near-field transponders, small and robust.
- **Clear Disc transponders** – low and high frequency electronics sealed in a transparent plastic coating that provides resistance to chemical exposure, shock, vibration and thermal fluctuations, both during and after production.
- **e-Module transponders** - high frequency coils in a robust housing, to withstand the high heat manufacturing processes of special finished tags.
- **Piccolino Tag transponders** – for space-constrained applications, our smallest disc-shaped units deliver high frequency performance and up to a 16 kbit read-write memory.

When a rod form factor suits the target housing better than a coil – E-Unit Rod transponders provide the same high-performance coil design at the heart of the HID Glass Tag family, for embedding into your preferred housing. Rod-shaped units may also be preferred when a more precisely directed radio frequency field is needed. If a standard configuration does not fulfill your needs, HID engineers can customize a transponder unit to meet your requirements.

Embeddable RFID

SPECIFICATIONS

	Embeddable RFID								
	Clear Disc								
	Hitag S			Q5		Unique		Mifare 1K	Mifare DESFire EV1 4K
	20 mm		30 mm	22 mm	30 mm	20 mm	30 mm	25 mm	25 mm
Base Model Number	623116	624116	624117	612116	612117	601116	601117	607119	7A1119
ELECTRONIC									
Operating Frequency	125 kHz							13.56 MHz	
Chip Type	Hitag S			Q5		Unique		Mifare 1K	Mifare DESFire EV1
Memory	256 bit EEPROM	2048 bit EEPROM	2048 bit EEPROM	256 bit EEPROM		64 bit read-only		1 KB EEPROM	4 KB EEPROM
Anti-collision	Yes							Yes	
Reading Distance	Dependent upon reader, environment and application								
PHYSICAL									
Outer Coil Diameter	Ø 0.79 in (20 mm)		Ø 1.18 in (30 mm)	Ø 0.87 in (22 mm)	Ø 1.18 in (30 mm)	Ø 0.79 in (20 mm)	Ø 1.18 in (30 mm)	Ø 0.98 in (25 mm)	
Inner Coil Diameter									
Thickness	0.02 in (0.6 mm)							0.03 in (0.75mm)	
Diameter × Length									
Mounting Method	Embed, glue								
Housing Material	Polyethylen + Polyester (outside)								
CHEMICAL AND MECHANICAL									
Water	Depends on finished product								
Withstands Exposure To	Depends on finished product								
Vibration	Depends on finished product								
Shock	Depends on finished product								
THERMAL									
Storage	-4° to +140° F (-20° to +60° C)								
Operating	-4° to +140° F (-20° to +60° C)								
OTHER									
Standards									
Options	Alternative sizes and chips (e.g. HDX). See separate datasheet for inlays & labels.								
Warranty	2 Years								

APPLICATION AREAS:

- **Asset tracking and logistics**
  - Gas bottles
  - Utility lines
- **Automation and manufacturing**
  - Tool maintenance
  - Process accountability
- **Medical and health**
  - Consumables
  - Instruments

SPECIFICATIONS

	Embeddable RFID											
	E-Unit Disc				E-Unit Rod	e-Module	Piccolino Tag				PCB Coin	
	EM4305		Hitag S		Hitag S	I-Code SLIx	I-Code SLIx		Vigo™	F-Mem	Monza 4E	
	24 mm	28 mm	24 mm	28 mm	15 mm	15 mm	7.5 mm	9.5 mm	6/9.5 mm	6/9.5 mm	16 mm	19/12 mm
Base Model Number	684620	684680	623620	623610	201045	629601	629191	629190	6B0192 (6 mm) 6A9190 (9mm)	6C9192 (6 mm) 634190 (9mm)	6C6164 (EU) 6C6163 (US)	6C6166 (EU) 6C6165 (US)
ELECTRONIC												
Operating Frequency	134.2 kHz					13.56 MHz					869 MHz (EU), 915 MHz (US)	
Chip Type	EM4305		Hitag S		Hitag S	I-Code SLIx	I-Code SLIx		Vigo	F-Mem	Monza 4E	
Memory	512 bit EEPROM		256 bit EEPROM		256 bit EEPROM	1024 bit EEPROM	1024 bit EEPROM		1664 bit (6 mm) 1024 bit (9 mm) EEPROM	2 kbit (6 mm) 16 kbit (9 mm) FRAM	496 bit EPC + 96 bit TID + 128 bit user	
Anti-collision			Yes								Yes	
Reading Distance	Dependent upon reader, environment and application										7.8 in (20 cm)	10 in (25 cm)
PHYSICAL												
Outer Coil Diameter	Ø 0.97 in (Ø 24.3 mm)	Ø 1.09 in (Ø 27.8 mm)	Ø 0.97 in (Ø 24.3 mm)	Ø 1.09 in (Ø 27.8 mm)		Ø 0.57 in (14.5 mm)	Ø 0.30 in (Ø 7.5 mm)	Ø 0.37 in (Ø 9.5 mm)	Ø 0.23/0.37 in (Ø 6/9.5 mm)		Ø 0.63 in (Ø 16 mm)	
Inner Coil Diameter	Ø 0.79 in (Ø 20 mm)	Ø 0.93 in (Ø 23.5 mm)	Ø 0.79 in (Ø 20 mm)	Ø 0.93 in (Ø 23.5 mm)		Ø 0.27 in (Ø 6.8 mm)						
Thickness	0.03 in (0.85 mm)	0.09 in (2.2 mm)	0.03 in (0.85 mm)	0.09 in (2.2 mm)		0.04 in (0.9 mm)	0.04 in (1 mm) / 0.03 in (0.8 mm) for 6 mm Piccolino				0.04 in (0.9 mm)	
Diameter × Length					Ø 0.07 x 0.59 in (Ø 1.8 x 15 mm)							0.75 x 0.47 in (19 x 12 mm)
Mounting Method	Embed, glue										embed	
Housing Material	Depends on finished product					Epoxy glob top	Epoxy				PCB	
CHEMICAL AND MECHANICAL												
Water	Depends on finished product						IP67, 68° F (20° C), 3.3 ft (1 m) x 1 h				IP68, 68° F (20° C), 3.3 ft (1 m) x 24 h	
Withstands Exposure To	Depends on finished product										Mineral oil, petroleum, salt mist, vegetable oil, Impact IEC 62262-IK08, 100 drops 5.9 ft (1.8 m), Axial/radial force 1000N	
Vibration	Depends on finished product						IEC 68.2.6 [10 g, 10 to 2000 Hz, 3 axis, 2.5 h]					
Shock	Depends on finished product						IEC 68.2.29 [40 g, 18 ms, 6 axis, 2000 times]					
THERMAL												
Storage	-40° to +140° F (-40° to +60° C)					-40° to +248° F (-40° to 120° C)	-40° to +185° F (-40° to 85° C)				-40 °to +185° F (-40° to 85° C)	
Operating	-13° to +140° F (-25° to +60° C)					-13 °to +185° F (-25° to +85° C)	-40° to +185° F (-40° to 85° C)			-4° to +185° F (-20° to 85° C)	-40 °to +185° F (-40° to 85° C) Peak: Up to 428°F (220°C) 1x30s	
OTHER												
Standards	ISO 11784, ISO 11785					ISO 15693, ISO 18000-3				ISO 15693	UHF EPC Class 1 Gen 2, ISO 18000-6C	
Options	Alternative sizes and chips (e.g. HDX). See separate datasheet for inlays & labels.										Encoding	
Warranty	2 Years											

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2015-11-17-hid-rfid-embeddable-family-ds-en PLT-00272

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