

RFID High-Frequency Solutions >

Molex high-frequency radio frequency identification (RFID) solutions offer versatile, durable and compact asset tracking and identification capabilities for use in harsh conditions with a variety of materials and applications.

FEATURES AND ADVANTAGES

Frequency and Band	13.56 MHz high frequency (HF)
Read Range	up to 29.97mm/1.18in.
User Memory	896 to 2,048 bits
Attachment Method	Various
Operating Temperature	-40 to +85°C

HARD TAGS



RFID hard tag designs

Offer the ability to attach to metal or non-metallic surfaces with either adhesive or a screw

Customizable appearance

Ensures easy identification, with laser or inkjet engraving available

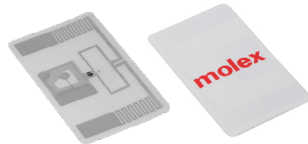
Tags in multiple available sizes from 10.00 to 34.00mm in diameter

Accommodate a wide range of applications and feature 896 to 2,000 bits of memory

Industrial-grade plastic overmolding

Is designed to withstand harsh conditions

RFID LABELS



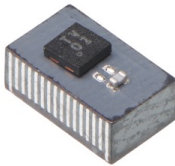
Adhesive label design

Permits low-profile asset and inventory tracking for metal or non-metallic surfaces

Dual-frequency RFID labels

Feature both HF and UHF capability to accommodate near-field communication (NFC) and RAIN technologies

FERRITE TAGS



Robust ferrite tags

Come in a compact size of just 2.50 by 4.90mm to enable NFC functionality in an assembly

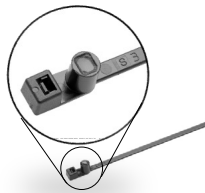
Superior heat tolerance

Permits storage temperatures between -60 and +200°C

IP65 rating

Helps prevent water and dust ingress

CABLE TIE TAGS



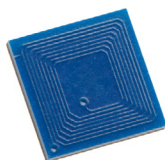
Cable tie tags

Can be used to fasten tubes or loose items while providing NFC capability to aid in material workflow control or item tracking

One-time use design

Facilitates enhanced security through tamper-proof functionality

MOLDED PCB RFID TAGS



RFID tag with built-in antenna and chip

Adds and enables NFC functionality to a small and thin tag structure

Molded PCB design

Enhances protection for the chip and antenna while conferring superior heat tolerance to allow epoxy potting or plastic injection

IP68 rating

Helps make the tag water- and dust-proof for use in harsh environments

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MARKETS AND APPLICATIONS

Healthcare

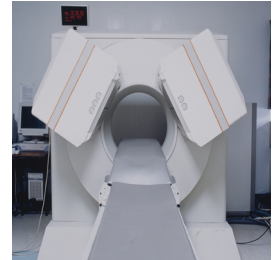
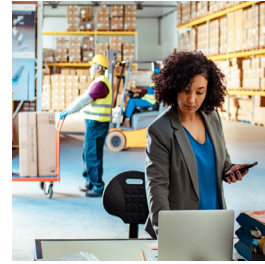
Inventory control equipment
Medical devices
Medication notification systems

Industrial

Asset and inventory tracking systems
Logistics equipment
Real-time location (RTL) systems

Automotive

Rental unit tracking devices
Vehicle tracking equipment



SPECIFICATIONS

RFID Hard Tags

Reference Information

Packaging: Hard tag

Part Series:

13509, 13511, 13512, 13513, 13514, 13515, 13525

Electrical

RF Interface Protocol: ISO 15693/ISO 18000-3

Operating Frequency: 13.56 MHz

Read Range:

Series 13509, 13511: 24.89mm

Series 13512: 20.07mm

Series 13513, 13514, 13515, 13525: 29.97mm

UID Memory: 64 bit

User Memory:

Series 13509, 13512, 13513, 13514, 13515,

13525: 896 bits

Series 13511: 2,000 bits

Physical

Material: Black nylon

Application Surface:

Series 13509, 13512, 13513, 13514, 13515, 13525: Metal

Series 13511: Non-metallic

Attachment Method:

Series 13509, 13511, 13512: Adhesive

Series 13513, 13514, 13515, 13525: Adhesive or screw

Size (Diameter):

Series 13509: 14.50mm

Series 13511, 13513: 22.00mm

Series 13512: 10.00mm

Series 13514: 30.00mm

Series 13515, 13525: 34.00mm

Operating Temperature: -40 to +85°C

Storage Temperature: -40 to +120°C

**Distance was read with production FEIG NFC HF Reader in a controlled environment. Read performance may vary in final application.*

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SPECIFICATIONS

D29 RFID Label for Metal Surfaces

Reference Information

Part Series: 13521

Packaging: Roll-to-roll label

Physical

Material: White OPP

Applicable Surface: Metal

Attachment Method: Adhesive (included)

Operating Temperature: -25 to +70°C

Storage Temperature: -25 to +70°C

Electrical

RF Interface Protocol: ISO/IEC 14443A/

NFC Forum Type 2

Operating Frequency: 13.56 MHz

Read Range*: 20.07mm

Memory: UID 64 bits/user memory 1152 bits

Cable Tie RFID Tag for Non-Metallic Surfaces

Reference Information

Part Series: 13526

Physical

Material: Black nylon

Attachment Method: Zip tie

Operating Temperature: -20 to +85°C

Storage Temperature: -20 to +85°C

Electrical

RF Interface Protocol: ISO 15693

Operating Frequency: 13.56 MHz

Read Range*: 22.10mm

Memory: UID 56 bit/user memory 2048 bit

*Distance was read with production FEIG NFC HF Reader in a controlled environment. Read performance may vary in final application.

**Distance was read with production 4W EIRP LOS Reader in a controlled environment. Read performance may vary in final application.

Dual-Frequency RFID Label for Non-Metallic Surfaces

Reference Information

Part Series: 13522

Category: RAIN RFID (UHF) and NFC Tag

Physical

Material: Acrylic

Applicable Surface: Non-metallic

Attachment Method: Adhesive (included)

Operating Temperature: -25 to +70°C

Storage Temperature: -25 to +70°C

Electrical

RF Interface Protocol

HF: ISO 15693/ISO 180003- M1/NFC Forum Type 5

UHF: ISO 18000-63/EPCTM Gen2v2

Operating Frequency

HF: 13.56 MHz

UHF: 860 to 890 MHz

Read Range

HF: 16.76mm*

UHF: 2.4m**

Memory

HF: UID 64 bit/user memory 2048 bit

UHF: TID 96 bit/EPC 480 bit/user memory 2048 bit

Ferrite RFID Tag for Metal Surfaces

Reference Information

Part Series: 13523

Physical

Material: Ferrite

Applicable Surface: Metal

Attachment Method: SMT

Operating Temperature: -40 to +85°C

Storage Temperature: -60 to +200°C

Electrical

RF Interface Protocol: ISO/ICE 15693

Operating Frequency: 13.56 MHz

Read Range*: 29.97mm

Memory: UID 56 bit/user memory 2048 bit

Molded PCB RFID Tag for Non-Metallic Surfaces

Reference Information

Part Series: 13527

Physical

Material: Ferrite

Applicable Surface: Non-metallic

Attachment Method:

Adhesive

Tag: potted with epoxy or overmolded

Operating Temperature: -40 to +85°C

Storage Temperature: -80 to +200°C

Size: 6.70 by 6.70 by 0.75mm

Electrical

RF Interface Protocol: ISO/ICE 15693

Operating Frequency: 13.56 MHz

Read Range*: 29.97mm

Memory: UID 64 bit/user memory 2048 bit

www.molex.com/link/rfid.html