

## DOGBONE

Excellent global performance even on difficult-to-tag materials.



**Operating Frequency**

860 - 960 MHz

**Integrated Circuit (IC)**

Impinj Monza 4

**Antenna Size**

86 x 24 mm (3.36 x 0.94 in)

**Die-cut Size**

97 x 27 mm (3.82 x 1.06 in)

**International Standards**

EPC Class 1 Gen 2

ISO 18000-6C

**Quality Assurance**

100% performance tested

Industrial Automation  
Supply Chain Management  
Sports Timing

DogBone tags and inlays are designed for global supply chain, industrial and RTI applications offering excellent performance in demanding logistical and industrial applications.

DogBone tags and inlays have good tolerance against the detuning effect of high-electric materials providing effective global performance even on difficult-to-tag materials.

**Benefits:**

High end product for global supply chain management, industrial and logistic applications and RTIs.

Excellent performance even on difficult-to-tag materials.

Optimum size product for 4 inch wide converted labels.

ISO 9001:2008 Quality Management System and ISO 14001:2004 Environment Management System support.

Monza 4 QT™ technology capability.

Possibility for different memory options: EPC from 128 bit to 496 bit and user memory from 32 bit to 512 bit.

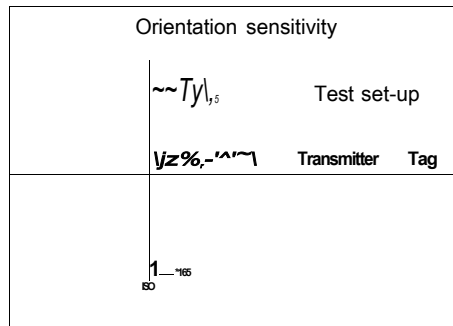
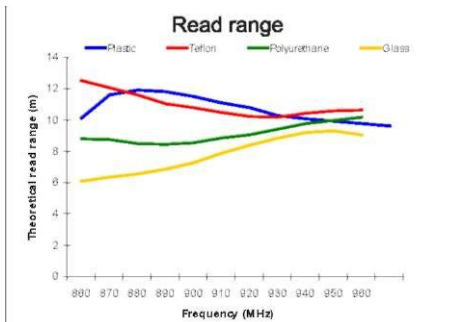
Serialized TID.

## DOGBONE

### Technical Features

IC	Impinj Monza 4
Memory	EPC memory up to 496 bit / user memory up to 512 bit
Frequency	
Antenna Size	86 x 24 mm / 3.39 x 0.94"
Die-cut Size	97 x 27 mm / 3.82 x 1.06"
Web Width	100 mm / 3.94"
Operating Temperature	-40°C to 85°C / -40°F to 185°F
Bending Diameter (D)	> 50 mm, tension max. 10 N
Delivery Formats	Dry inlay, wet inlay, tag
Adhesive	Acrylic, water borne adhesive
Adhesive Usage Temperature	min. -10°C to 120°C / min. 14°F to 248°F
Qty/Reel	10,000 dry inlays per reel, 5,000 wet inlays per reel, 3,000 tags per reel
Core Size	76 mm / 3"
Shelf Life: minimum of 2 years from the date of manufacture in	20°C / 68°F, 50% RH

SMARTRAC TECHNOLOGY GROUP uses three different qualification methods to evaluate the quality and reliability of RFID inlay and tag products. Products are tested according to IEC 60068-2-67 (temperature and humidity), JESD22-A104-B (temperature cycling) and an in-house developed bending test.



All the graphs are indicative: performance in real life applications may vary. The data has been determined based on calculations for transmitters with a 2W ERP output power level.

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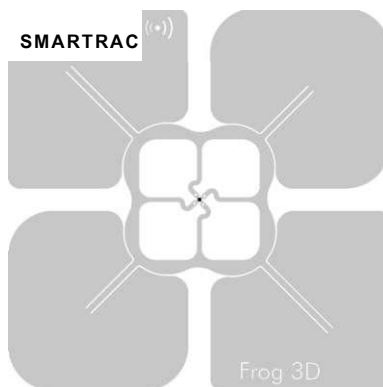
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## FROG 3D

Complete orientation insensitivity for consistent supply chain functionality.



**Operating Frequency**

860 - 960 MHz

**Integrated Circuit (IC)**

Impinj Monza 4

**Antenna Size**

68 x 68 mm (2.68 x 2.68 in)

**Die-cut Size**

76 x 76 mm (3.00 x 3.00 in)

**International Standards**

EPC Class 1 Gen 2

ISO 18000-6C

**Quality Assurance**

100% performance tested

Industrial Automation  
Supply Chain Management

Frog 3D tags and inlays are designed for high performance in supply chain management applications at the pallet and case levels.

Frog 3D products have a small, cost-efficient True3D form factor. Complete orientation insensitivity provides consistent functionality even on challenging materials. High performance Frog 3D inlays deliver excellent read range, and are compatible with the Impinj Monza 4 QT™ technology.

Frog 3D tags and inlays are produced with leading-edge inlay assembly technologies. Every step in the production process is monitored, from the antenna to final inlay assembly - for optimal product quality guaranteed.

**Benefits:**

True3D design with complete orientation insensitivity.

Consistent and robust performance on various materials globally.

Monza 4 QT™ technology capability.

Different memory options: EPC from 128 bit to 496 bit, and user memory from 32 bit to 512 bit.

ISO 9001:2008 Quality Management System and ISO 14001:2004 Environment Management System support.

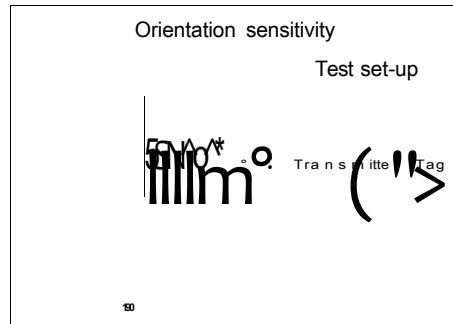
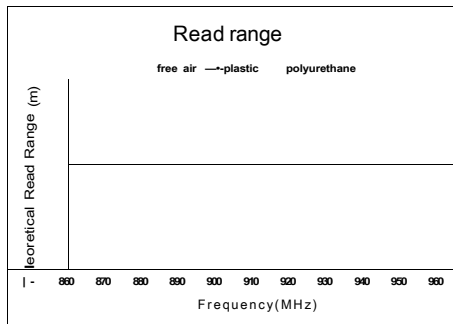
Serialized TID.

## FROG 3D

### Technical Features

IC	Impinj Monza 4
Memory	EPC memory up to 496 bit / user memory up to 512 bit
Frequency	
Antenna Size	68 x 68 mm / 2.68 x 2.68"
Die-cut Size	76 x 76 mm / 3.00 x 3.00"
Web Width	80 mm / 3.15"
Operating Temperature	-40°C to 85°C / -40°F to 185°F
Bending Diameter (D)	> 50 mm, tension max. 10 N
Delivery Formats	Dry inlay, wet inlay, tag
Adhesive	Permanent pressure sensitive adhesive
Adhesive Usage Temperature	min. -40°C to 150°C / min. -40°F to 302°F
Qty/Reel	5,000 dry or wet inlays per reel, 4,000 tags per reel
Core Size	76 mm / 3"
Shelf Life: minimum of 2 years from the date of manufacture in	20°C / 68°F, 50% RH

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All the graphs are indicative: performance in real life applications may vary. The data has been determined based on calculations for transmitters with a 2W ERP output power level.

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## DOGBONE

### Excellent Global Performance even on Difficult-To-Tag Materials

SMARTRAC's DogBone inlays and tags are designed for global supply chain, industrial, RTI and sports timing applications, and offer excellent performance in demanding environments and on different materials.

DogBone inlays and tags have good tolerance against the detuning effect of high-electric materials, providing effective global performance even on difficult-to-tag materials. They are now available with the Impinj Monza R6 chip that comes with an Autotune feature, which helps the DogBone product to work at peak efficiency, even in rapidly changing environments. DogBone with the Monza R6 chip offers unique TID and enables pre-serialized EPC.

The inlay is size-optimized for 10 cm / 4 inch wide converted labels, and is available in dry, wet and paper tag delivery formats.

SMARTRAC's inlays and tags are compliant with ISO 9001:2008 Quality Management and ISO 14001:2004 Environmental Management, which ensure a reliable and state-of-the-art product that meets a variety of application needs, enhancing RFID usage for difficult-to-tag materials.

#### Overview

**Operating Frequency**  
860 - 960 MHz

**Integrated Circuit (IC)**  
Impinj Monza R6

**Antenna Size**  
94 x 24 mm (3.7 x 0.9 in)

**Die-cut Size**  
97 x 27 mm (3.8 x 1.1 in)

#### International Standards

- EPC Class 1 Gen 2
- ISO 18000-6C

#### Application Areas

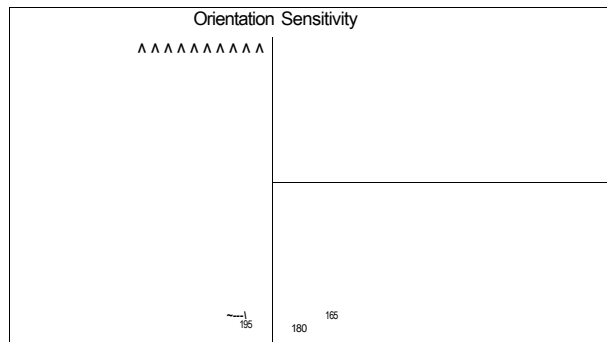
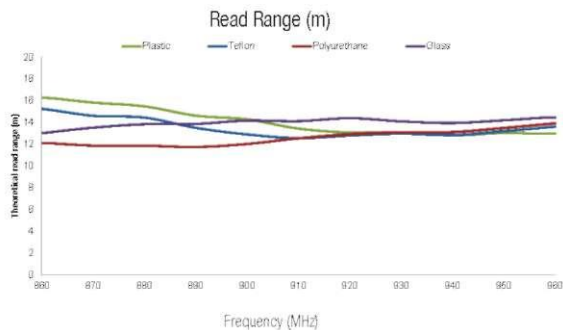
- Industry
- Supply Chain Management
- Sports Timing

## DOGBONE

Excellent Global Performance even on Difficult-To-Tag Materials

### Technical Features

IC	Impinj Monza R6
Memory	96 bit
Frequency	860-960 MHz
Antenna Size	94 x 24 mm / 3.7 x 0.9 in
Die-Cut Size	97 x 27 mm / 3.8 x 1.1 in
Web Width	100 mm / 3.94 in
Operating Temperature	-40 °C to +85 °C / -40 °F to +185 °F
Delivery Format	dry, wet and tag
Adhesive	Acrylic, water borne adhesive (wet), Solvent-free permanent adhesive (tag)
Qty/Reel	5,000 pcs
Core Size	76 mm / 3 in
Shelf Life	+20 °C, 50 % RH / 68 °F, 50 % RH - minimum 2 years from the date of manufacturing



All the graphs are indicative: performance in real life applications may vary. The data has been determined based on calculations for transmitters with a 2W ERP output power level

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## UHF Inlays and Tags

### Product Range

With a wide variety of high performance IC platforms, SMARTRAC's UHF tags and inlays offer leading performance and memory options. Each product has a unique TID and a broadband RFID antenna design that enables end-users to reach and sustain consistently high levels of performance in all UHF frequency regions globally with the same tag. This represents critical competitive and logistical advantages for any fast-moving consumer goods company with manufacturing, distribution and customers located in different parts of the world. The same RFID tag can be used by the manufacturer, the logistics service provider and the retailer, to track and identify products accurately and cost-efficiently throughout the supply chain at item level.

SMARTRAC's operations are certified to the ISO 9001:2008 Quality Management System standards and the ISO 14001:2004 Environmental Management System standards.

#### Overview

##### Operating Frequency

860 - 960 MHz

##### International Standards

- ISO 18000-6C  
EPC Class 1 Gen 2

##### Typical End-user Areas

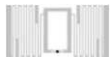
- Asset Tracking
- Automotive Parts
- Baggage Handling
- Brand Protection
- Consumable Authentication
- Industrial Applications
- Inventory Management
- Industrial Steel Pallets
- Logistics
- Retail Item-level Application
- Healthcare
- Supply Chain Management
- Water & Paint Pails
- ... and many more.

## UHF Inlays and Tags

### Product Range (selection)

#### Product

**E I 3**



#### Product Name

#### Trap

Impinj Monza 4 & 5 family

#### Accessory

Impinj Monza R6 family

#### Bling

Impinj Monza R6 family

#### MiniWeb

NXP U-Code family

Impinj Monza R6 family

#### Web Lite

Impinj Monza 5 family

#### Web

Impinj Monza 4 & 5 family

NXP U-Code family

#### Belt

Impinj Monza R6 family

NXP U-Code family

#### On Metal Tag

Impinj Monza 4QT

ETSI & FCC band

#### Frog 3D

Impinj Monza 4 family

#### ShortDipole

Impinj Monza 4, 5, R6 family

NXP U-Code family

#### DogBone

Impinj Monza 4 & R6 family

NXP U-Code family

#### Antenna & Die-cut Size

8 x 22 mm / 0.3 x 0.9"

11 x 25 mm / 0.4 x 1.0"

30 x 15 mm / 1.2 x 0.6"

33 x 18 mm / 1.3 x 0.7"

22 x 12 mm / 0.9 x 0.5"

25 x 15 mm / 1.0 x 0.6"

40 x 18 mm / 1.6 x 0.7"

43 x 21 mm / 1.7 x 0.8"

42 x 16 mm / 1.7 x 0.6"

43 x 21 mm / 1.7 x 0.8"

46 x 15 mm / 1.81 x 0.59"

49 x 18 mm / 1.93 x 0.71"

30 x 50 mm / 1.2 x 2.0"

34 x 54 mm / 1.3 x 2.1"

70 x 10 mm / 2.76 x 0.39"

73 x 13 mm / 2.87 x 0.51"

70 x 14 mm / 2.8 x 0.6"

73 x 17 mm / 2.9 x 0.7"

95 x 40 mm / 3.74 x 1.58

98 x 43 mm / 3.86 x 1.69

50 x 50 or 68 x 68 mm /

1.97 x 1.97 or 2.68 x 2.68"

53 x 53 or 76 x 76 mm /

2.09 x 2.09 or 3.00 x 3.00"

93 x 11 mm / 3.7 x 0.4"

97 x 15 mm / 3.8 x 0.6"

94 x 24 mm / 3.7 x 0.9"

97 x 27 mm / 3.8 x 1.1"

Additional memory, protocol and product configurations are available upon request.  
Note: Pictures are for illustration only and are not to scale.

#### IC Total Memories

- Impinj Monza 4D 128 bit EPC + 32 bit
- Impinj Monza 4E 496 bit EPC + 128 bit
- Impinj Monza 4QT 128 bit EPC + 512 bit
- Impinj Monza 5 128 bit EPC + 32 bit
- Impinj Monza R6 96 bit EPC
- Impinj Monza R6-P 128 bit EPC + 32 bit
- NXP U-Code G2iL 128 bit EPC
- NXP U-Code G2iM 256 bit EPC + 512 bit
- NXP U-Code7 128-bit EPC

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# SMARTRAC «•»

DATASHEET

## SHORTDIPOLE

Excellent global performance on various materials.

# M/VA/C5VVAM

ShortDipole tags and inlays are specially designed for supply chain management, apparel and brand protection applications offering excellent global performance also on lower detuning materials like cardboard and plastic.

### Benefits:

Excellent global performance in various materials.

Backscatter strength reduction and read range reduction (G2iL+).

Optimum size product for 4 inch wide converted labels.

ISO 9001:2008 Quality Management System and ISO 14001:2004 Environment Management System support.

Unique TID.

### Operating Frequency

860 - 960 MHz

### Integrated Circuit (IC)

NXP U-Code G2iL

### Antenna Size

92 x 11 mm (3.62 x 0.43 in)

### Die-cut Size

97 x 15 mm (3.82 x 0.59 in)

### International Standards

EPC Class 1 Gen 2

ISO 18000-6C

### Quality Assurance

100% performance tested

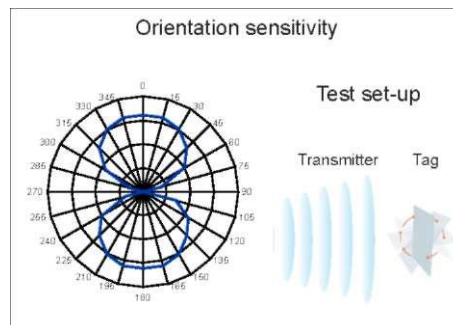
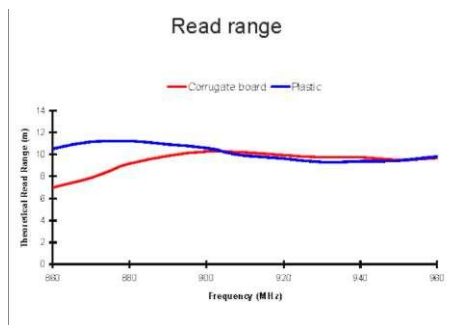
Apparel  
Brand Protection  
Industrial Automation  
Supply Chain Management  
Sports Timing

## SHORTDIPOLE

### Technical Features

IC	NXP U-Code G2iL
Memory	EPC memory 128 bit
Frequency	
Antenna Size	92 x 11 mm / 3.62 x 0.43"
Die-cut Size	97 x 15 mm / 3.82 x 0.59"
Web Width	100 mm / 3.94"
Operating Temperature	-40°C to 85°C / -40°F to 185°F
Bending Diameter (D)	> 50 mm, tension max. 10 N
Delivery Formats	Dry inlay, wet inlay, tag
Adhesive	Acrylic, water borne adhesive
Adhesive Usage Temperature	min. -20°C to 80°C / min. -4°F to 176°F
Qty/Reel	20,000 dry or wet inlays per reel, 5,000 tags per reel
Core Size	76 mm / 3"
Shelf Life: minimum of 2 years from the date of manufacture in	20°C / 68°F, 50% RH

SMARTRAC TECHNOLOGY GROUP uses three different qualification methods to evaluate the quality and reliability of RFID inlay and tag products. Products are tested according to IEC 60068-2-67 (temperature and humidity), JESD22-A104-B (temperature cycling) and an in-house developed bending test.



All the graphs are indicative: performance in real life applications may vary. The data has been determined based on calculations for transmitters with a 2W ERP output power level.

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## SHORTDIPOLE

Excellent global performance on various materials.

**Operating Frequency**

860 - 960 MHz

**Integrated Circuit (IC)**

Impinj Monza 5

**Antenna Size**

93 x 11 mm (3.66 x 0.43 in)

**Die-cut Size**

97 x 15 mm (3.82 x 0.59 in)

**International Standards**

EPC Class 1 Gen 2

ISO 18000-6C

**Quality Assurance**

100% performance tested

^P^P^P^P^P ^P^P^P^P ^P^P^P^P SMARTRAC 294\_2 ^P^P^P^P ^P^P^P^P ^PPPP^P^P

ShortDipole tags and inlays are specially designed for supply chain management, apparel and brand protection applications offering excellent global performance also on lower detuning materials like cardboard and plastic.

ShortDipole tags with the Impinj Monza™ 5 chip are approved for retail and apparel solutions by RFID Research Center of University of Arkansas.

**Benefits:**

Excellent global performance in a wide range of supply chain management, apparel and brand protection applications.

Optimum performance on lower detuning material like cardboard and plastic, also for corrugate boxes and RTIs.

Perfect size for 4 inch wide converted labels.

University of Arkansas approved.

ISO 9001:2008 Quality Management System and ISO 14001:2004 Environment Management System support.

Serialized TID.

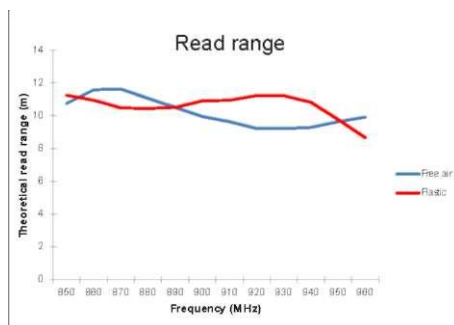
- Apparel
- Brand Protection
- Industrial Automation
- Supply Chain Management
- Sports Timing

## SHORTDIPOLE

### Technical Features

IC	Impinj Monza 5
Memory	EPC memory 128 bit
Frequency	
Antenna Size	93 x 11 mm / 3.66 x 0.43"
Die-cut Size	97 x 15 mm / 3.82 x 0.59"
Web Width	100 mm / 3.94"
Operating Temperature	-40°C to 85°C / -40°F to 185°F
Bending Diameter (D)	> 50 mm, tension max. 10 N
Delivery Formats	Dry inlay, wet inlay, tag
Adhesive	Acrylic, water borne adhesive
Adhesive Usage Temperature	min. -20°C to 80°C / min. -4°F to 176°F
Qty/Reel	20,000 dry or wet inlays per reel, 5,000 tags per reel
Core Size	76 mm / 3"
Shelf Life: minimum of 2 years from the date of manufacture in	20°C / 68°F, 50% RH

SMARTRAC TECHNOLOGY GROUP uses three different qualification methods to evaluate the quality and reliability of RFID inlay and tag products. Products are tested according to IEC 60068-2-67 (temperature and humidity), JESD22-A104-B (temperature cycling) and an in-house developed bending test.



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