

TITANTAG™ Tag

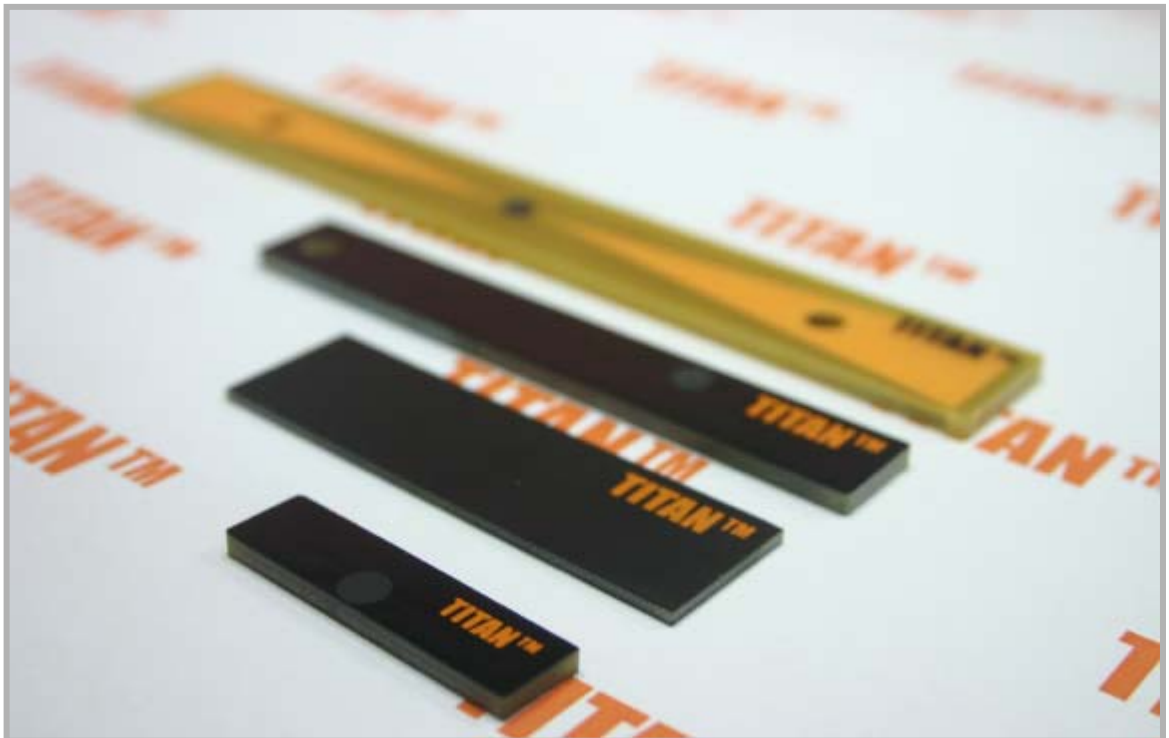
Heat resistant on-metal Tag for UHF

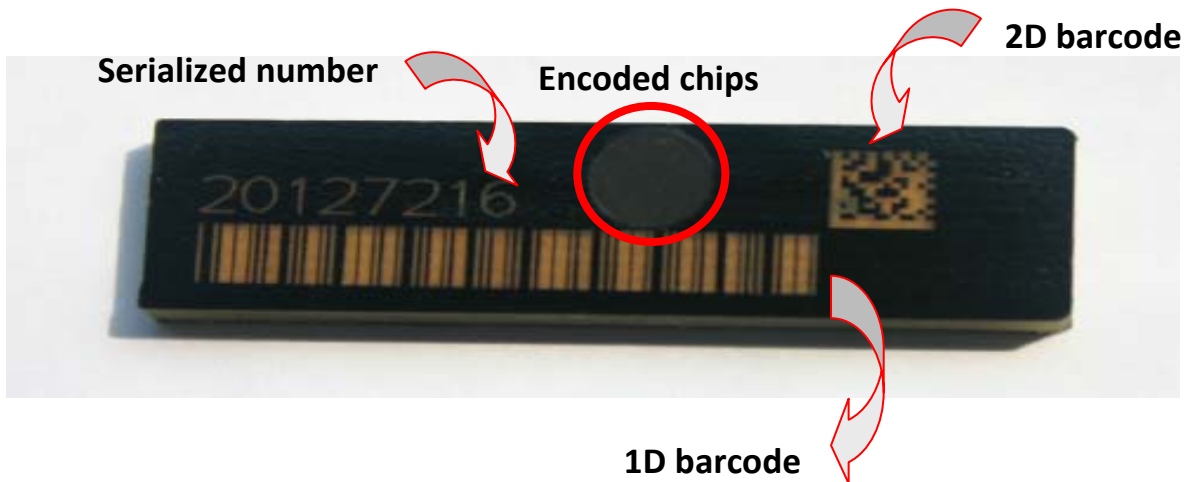
「These products only include RFCAMP internally and independently developed ones without any patent infringement issues worldwide.」

Read performance for each tag in following pages shall be different from that in real environment, based upon tag angles, referred RFID readers, materials where tags are applied or real RF environment.

- Reference fixed reader: ALR9800 with 9610 LP antenna made by Alien Technology, US
- Reference handheld reader: V. 2008, Samsung TECHWIN

- ▶ 100% Complies to RoHS
- ▶ Passed high temperature test at 200 °C (392 °F) for 6 hours
- ▶ Passed 200 °C hot oil chamber test for 6 hours
- ▶ Passed 85 °C /95% RH humidity test for 168 hours
- ▶ Passed 200* Cycles b/w -45 °C and 85 °C
- ▶ Passed free falling 1kg iron ball impact test from 1.5M height
- ▶ Passed ingress test (IP68)
- ▶ EPC Class1 Gen2 with ALIEN Higgs3
- ▶ ISO 15693 NXP ICODE SL2 (Titan Biscuit)
- ▶ Best read perform with similar size on-metal tags
- ▶ Encoding and barcode printing service provided





SMALLEST

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

38

10

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

0.4m

2.0m

0.1m

0.8m

Max. range

0.6m

2.5m

0.2m

1.2m

Reliability

Ingression

IP68

Temperature

200℃, 6 hrs

Boiling oil

@200℃, 6 hrs

85℃/85%

168 hrs

Pressure

15 bar

Guarantee

3 years

References

Clients

Year

Applications

1	ASE Korea	2008 ~	PCB Assembly line – magazines and trays application
2	Samsung Data Center	2008 ~	IT asset management
3	Spirit Aero Systems (US, Boeing Company)	2008 ~	WIP – Metal plating process
4	Korea Alcohol Industrial	2009 ~	Tracking metallic bottles and containers
5	European toy maker (Not to be disclosed)	2009 ~	Tracking injection molding tools

Smallest for Non-metal

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive**
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

45

10

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- Off-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

3m

-

1.2m

-

Max. range

3.6m

-

1.5m

-

Reliability

Ingression

Temperature

Boiling oil

85 °C/85%

Pressure

Guarantee

Criteria

IP68

200 °C, 6 hrs

@200 °C, 6 hrs

168 hrs

15 bar

3 years

References

Clients

Year

Applications

1

2

3

4

5

BASIC

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

92

15.8

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
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- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

1.0m

3.5m

0.5m

1.5m

Max. range

1.4m

4.0m

1.0m

2.0m

Reliability

Ingression

IP68

Temperature

200℃, 6 hrs

Boiling oil

@200℃, 6 hrs

85℃/85%

168 hrs

Pressure

15 bar

Guarantee

3 years

References

Clients

Year

Applications

1	Samsung Engineering	2007 ~	Tracking chemical plant construction materials
2	LG Display	2008 ~	Tracking TFT-LCD panels
3	Hong Kong – RFID vendor (Not to be disclosed)	2008 ~	Tracking plant and construction materials
4	GM Motors Korea	2007 ~	WIP – Painting process
5	Japan – Not to be closed	2009 ~	Tracking metallic containers

MAGNET

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

92

15.8

5.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
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- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

0.8m

4.0m

0.4m

1.2m

Max. range

1.2m

4.5m

0.8m

1.5m

Reliability

Ingression

IP68

Temperature

200℃, 6 hrs

Boiling oil

@200℃, 6 hrs

85℃/85%

168 hrs

Pressure

15 bar

Guarantee

3 years

References

Clients

Year

Applications

1

GM DAEWOO Korea

2009 ~

Work in process

2

3

4

5

FASTENER

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

148

18.2

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

6.0m

4.5m

2.0m

1.8m

Max. range

7.0m

5.2m

2.5m

2.2m

Reliability

Ingression

IP68

Temperature

200℃, 6 hrs

Boiling oil

@200℃, 6 hrs

85℃/85%

168 hrs

Pressure

15 bar

Guarantee

3 years

References

Clients

Year

Applications

References	Clients	Year	Applications
1	Korean Airlines	2006 ~	Tracking ULD (Unit load device)
2	Asiana Airlines	2006 ~	Tracking ULD (Unit load device)
3	Philippines – Global fruit distributor	2008 ~	Tracking metallic container and pallet
4	Turkey – Not to be closed	2009 ~	Tracking pallet
5	Korean top tier retailer (Not to be disclosed)	2008 ~	Tracking metallic trolley and container

Biscuit



L(mm)*H(mm)*T(mm)		
50	21	3.2

Frequency	Protocol
<input type="checkbox"/> UHF (US) <input type="checkbox"/> UHF (EU) <input type="checkbox"/> UHF (JPN) <input type="checkbox"/> UHF (China) <input checked="" type="checkbox"/> HF (13.56MHz) <input type="checkbox"/> 2.45GHz	<input type="checkbox"/> EPC C1G2 – Passive <input type="checkbox"/> EPC C1G2 – BAP[*] <input type="checkbox"/> ISO18000-6-B <input type="checkbox"/> ISO14443 <input checked="" type="checkbox"/> ISO15693& ISO18000-3 <input type="checkbox"/> Active

Form factor	<input type="checkbox"/> Dry Inlay <input type="checkbox"/> Wet Inlay <input type="checkbox"/> Label <input type="checkbox"/> Card PVC <input type="checkbox"/> Card PET G <input type="checkbox"/> Card RW <input type="checkbox"/> On-metal tag (Gen.) <input type="checkbox"/> On-metal tag (Encased) <input checked="" type="checkbox"/> On-metal tag (FR4) <input type="checkbox"/> Case ABS <input type="checkbox"/> Case Polycarbonate <input type="checkbox"/> Case Acryl <input type="checkbox"/> Token
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Chip Spec	<input type="checkbox"/> IMPINJ MONZA 1 <input type="checkbox"/> NXP EPC1.19 <input type="checkbox"/> MIFARE 1K STD <input type="checkbox"/> IMPINJ MONZA3 <input type="checkbox"/> NXP UCODE GEN2 <input type="checkbox"/> MIRARE Ultra-light <input type="checkbox"/> ALIEN HIGGS 2 <input type="checkbox"/> NXP GEN2 XL <input type="checkbox"/> ICODE UID <input type="checkbox"/> ALIEN HIGGS 3 <input type="checkbox"/> NXP GEN2 XM <input checked="" type="checkbox"/> ICODE SL2 <input type="checkbox"/> ST MICRO GEN2 <input type="checkbox"/> TI GEN2 Strauss <input type="checkbox"/> TI Tag it
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Memory	UID	SFR	User	WAC	EAS
bits	64	32	928	16	On/Off

Read (Higgs3)	Fixed reader (1W)		Handheld reader (0.5W)	
	Off-metal	On-metal	Off-metal	On-metal
Min. range	20cm	3cm	5cm	2cm
Max. range	25cm	5cm	7cm	3cm

Reliability	Ingression	Temperature	Boiling oil	85 °C/85%	Pressure	Guarantee
Criteria	IP68	200 °C, 6 hrs	@200 °C, 6 hrs	168 hrs	15 bar	3 years

References	Clients	Year	Applications
1			
2			
3			
4			
5			

Ultra thin



L(mm)*H(mm)*T(mm)

75

15.6

1.9

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

1.5m

1.8m

0.6m

1m

Max. range

1.8m

2m

0.8m

1.2m

Reliability

Ingression

IP68

Temperature

200°C, 6 hrs

Boiling oil

@200 °C, 6 hrs

85°C/85%

168 hrs

Pressure

2 bar

Guarantee

3 years

References

Clients

Year

Applications

1

2

3

4

5

Inch

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

26

10

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

0.1m

0.8m

0.1m

0.3m

Max. range

0.2m

1.2m

0.2m

0.5m

Reliability

Ingression

IP68

Temperature

200°C, 6 hrs

Boiling oil

@200°C, 6 hrs

85°C/85%

168 hrs

Pressure

15 bar

Guarantee

3 years

References

Clients

Year

Applications

1

2

3

4

5

General

Frequency

- UHF (US)
- UHF (EU)
- UHF (JPN)
- UHF (China)
- HF (13.56MHz)
- 2.45GHz

Protocol

- EPC C1G2 – Passive
- EPC C1G2 – BAP[*]
- ISO18000-6-B
- ISO14443
- ISO15693
- Active



L(mm)*H(mm)*T(mm)

75

15.6

3.2

Form factor

- Dry Inlay
- Wet Inlay
- Label
- Card PVC
- Card PET G
- Card RW
- On-metal tag (Gen.)
- On-metal tag (Encased)
- On-metal tag (FR4)
- Case ABS
- Case Polycarbonate
- Case Acryl
- Token

Chip Spec

- IMPINJ MONZA 1
- IMPINJ MONZA3
- ALIEN HIGGS 2
- ALIEN HIGGS 3**
- ST MICRO GEN2
- NXP EPC1.19
- NXP UCODE GEN2
- NXP GEN2 XL
- NXP GEN2 XM
- TI GEN2 Strauss
- MIFARE 1K STD
- MIRARE Ultra-light
- ICODE UID
- ICODE SL2
- TI Tag it

Memory

bits

TID

96

EPC

96~496

User

512~64

Access

32

Kill

32

Read (Higgs3)

Fixed reader (ERP 4W)

Handheld reader (ERP 2W)

Type

Off-metal

On-metal

Off-metal

On-metal

Min. range

2.5m

3.5m

1.0m

1.6m

Max. range

2.8m

4m

1.4m

2.0m

Reliability

Ingression

IP68

Temperature

200°C, 6 hrs

Boiling oil

@200°C, 6 hrs

85°C/85%

168 hrs

Pressure

2 bar

Guarantee

3 years

References

Clients

Year

Applications

1

2

3

4

5