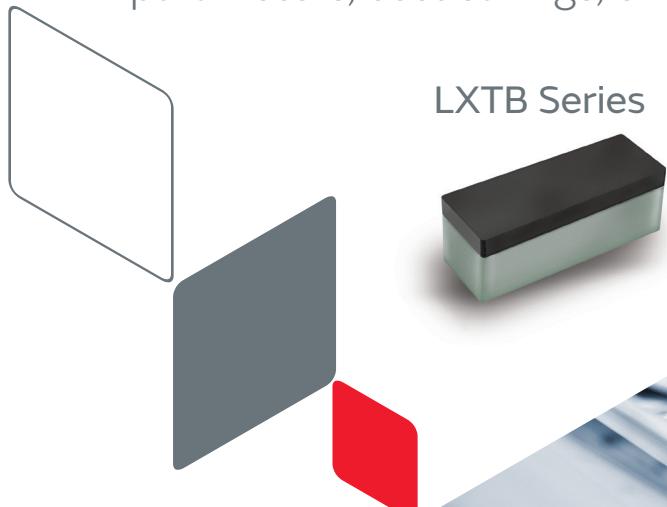


Application Guide

# On-Metal RFID RAIN Tags

Improved automation and efficiencies, accurate inventory count, define data & analytics parameters, cost savings, error reduction

LXTB Series



## General Description

The LXTB series of on-metal tags are designed to work with the metal object it's attached too. The metal object functions as a booster antenna greatly increasing the overall read range.

## Part Number: LXTBKZMCMG-010

### Features

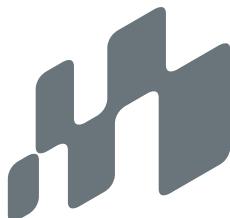
- Small package size: 6.0 x 2.0 x 2.3mm
- Robust design
- EPC Global Gen 2v2 compliant
- EPC memory: 128bit
- Read range (ref): up to 1.5m (4W EIRP)
- Covers global UHF frequency band (865~928MHz)
- 100% RoHS compliant



### Market / Applications

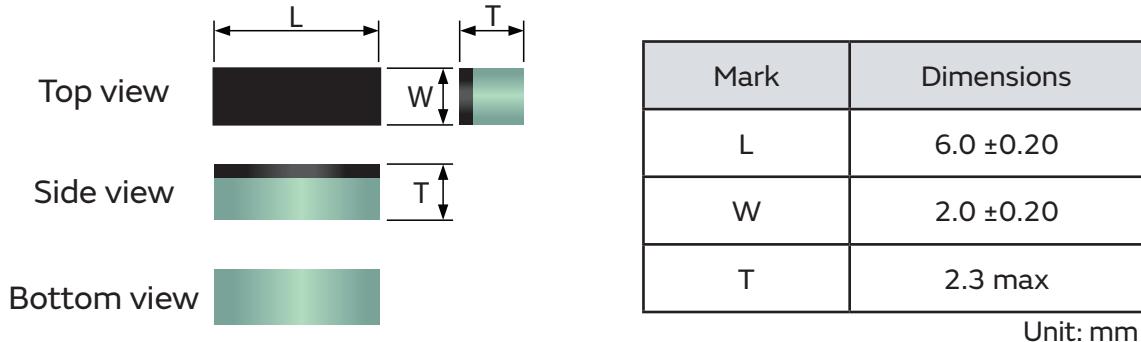
- Industrial – Tools / item level tracking
- Healthcare – Surgical tool tracking
- IT / Consumer – Data / EDP equipment
- Manufacturing – Reusable metal objects

### Use Cases



- Simplify product identification
- Item level tracking
- Accurate inventory count
- Reduce manual processes
- Capture and improve data analytics
- Real-time data

## Dimensions



## Electrical Parameters

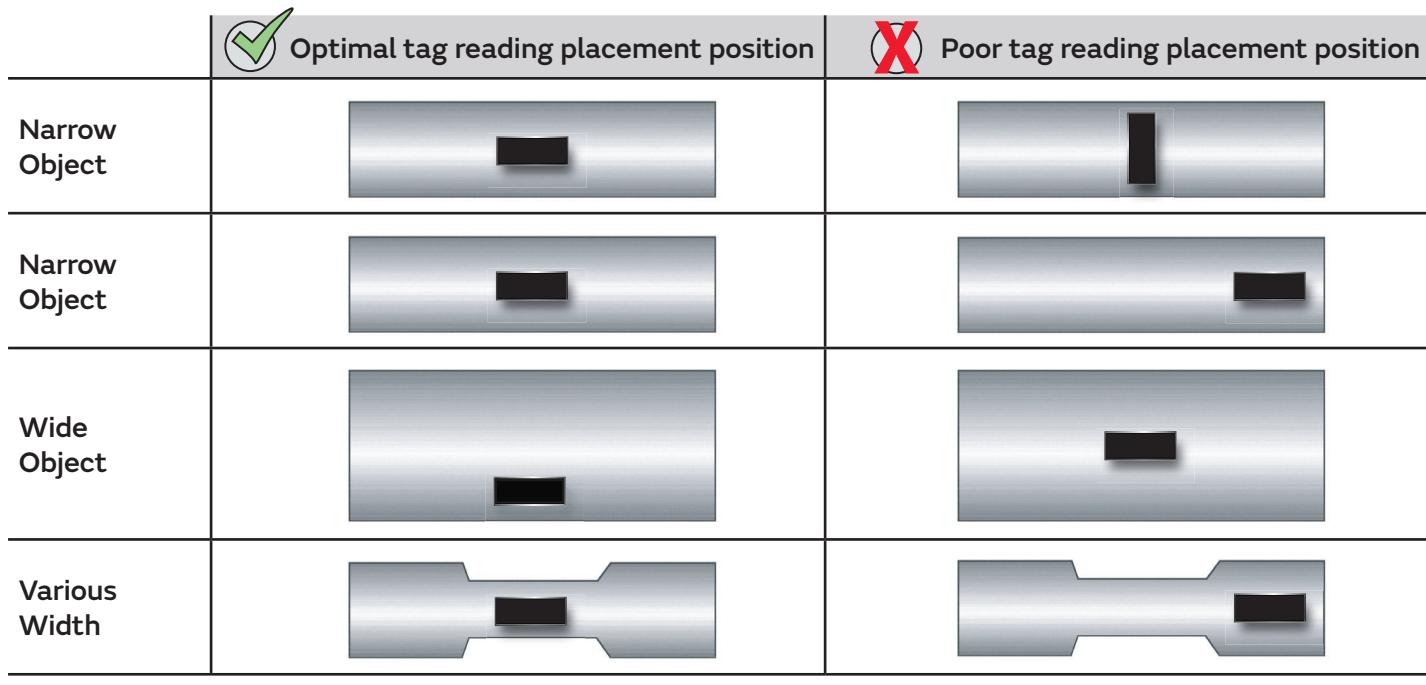
- Operating frequency: 865 ~ 928MHz
- Operating & storage temperature: -40C ~ +85C

Parameter	Description		Remarks
IC	Impinj Monza R6P		
Protocol	ISO/IEC 18000-63		
	EPC Global Gen2 V2		
Memory *1	EPC	Default Memory Profile: 128 bit Max User Memory Profile: 96 bit	Read & Write
	TID	96 bit	
	Reserved Memory	64 bit	
	User	Default Memory Profile: 32 bit Max User Memory Profile: 64 bit	
Data Retention Time		50 Years*	
Tamb=22C			

\* Reference value

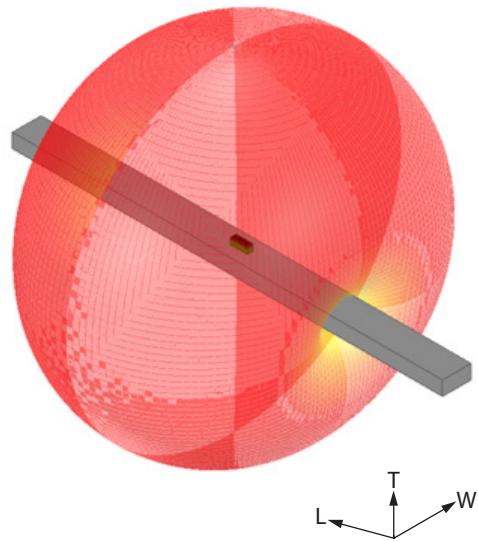


## Tag Placement Recommendations



 = on-metal tag - LXTBKZMCMG-010

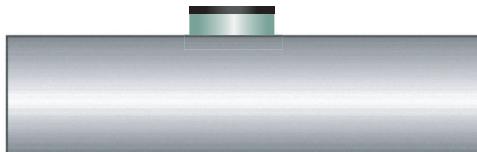
## Metal Dimension Comparison



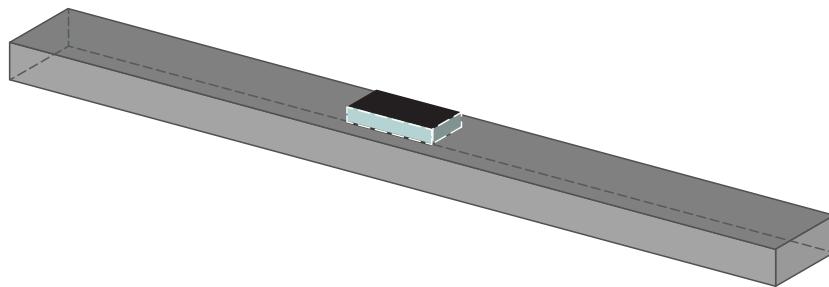
No.	Metal Dimensions (mm)			Reading Distance (cm)	
	L	W	T	865MHz	920MHz
1	100	20	5	62	102
2	150	20	5	183	197
3	200	20	5	98	107

## Mounted in Cavity Performance

No. 1: No cavity



No. 2: Cavity depth 1.1mm



No. 3: Cavity depth 2.2mm



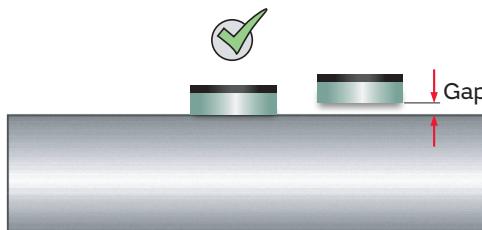
No.	Cavity Depth (mm)	Metal Dimensions (mm)			Reading Distance (cm)	
		L	W	T	865MHz	920MHz
1	0	150	20	5	183	197
2	1.1	150	20	5	145	81
3	2.2	50	20	5	60	50

Cavity size: 8.0 x 4.0 x Z mm (Z variable)

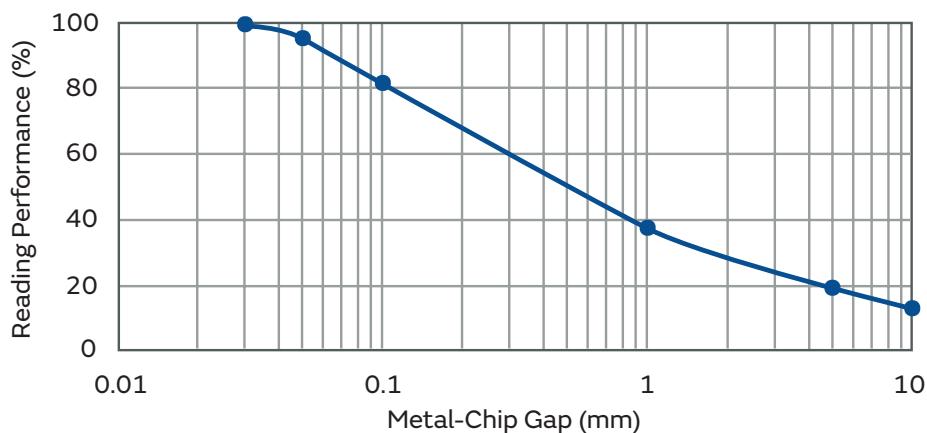


## Gap Performance

Read distance decreases the larger the gap between the tag and metal surface



Relationship Between  
Reading Performance and Metal-Chip Gap



100% represents direct contact with metal surface  
(measured with Japan frequency)

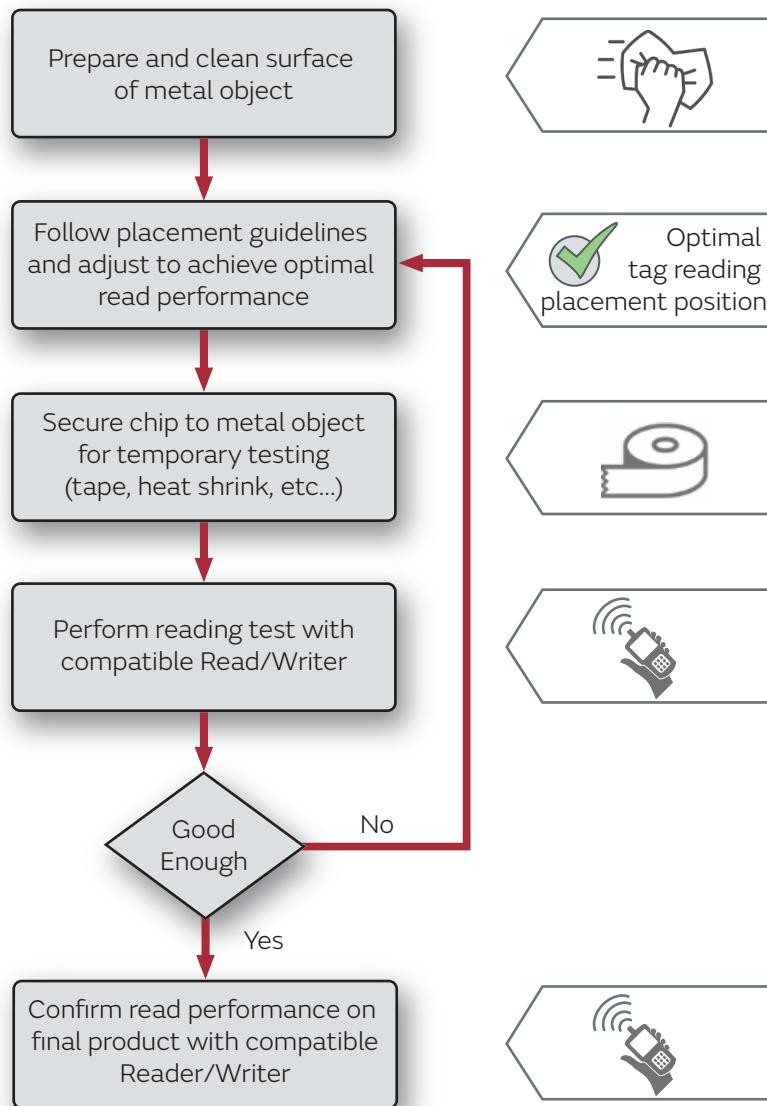
## Tag Attachment Methods

- Epoxy glue (non-conductive)
- Heat shrink tape
- Polymer wrap
- (contact Murata for additional information)

## Mounting Notes

- Prior to tag attachment, surface area should be cleaned for optimum results.
- Read distance will vary based on structure of object and tag location.
- Confirm reading performance under use case conditions.
- Avoid placing tag in locations that are exposed to external stress

## Steps to Evaluate Tag on Metal Object





## Note

### Export Control

#### For customers outside Japan:

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

#### For customers in Japan:

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

Please contact our sales representatives or product engineers before using the products in this document for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- ① Aircraft equipment
- ② Undersea equipment
- ③ Medical equipment
- ④ Traffic signal equipment
- ⑤ Data-processing equipment
- ⑥ Aerospace equipment
- ⑦ Power plant equipment
- ⑧ Transportation equipment (vehicles, trains, ships, etc.)
- ⑨ Disaster prevention crime prevention equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed above

Product specifications in this document are as November 2019. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

Please read rating and & CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.