

# **NFC | RING**

## PRODUCT DATASHEET

Product Model: Horizon

Product Code: NTAG216-V1-NORMAL-B-B-T

Updated: 10/01/2016

Approved by: John McLear

# PHYSICAL CHARACTERISTICS

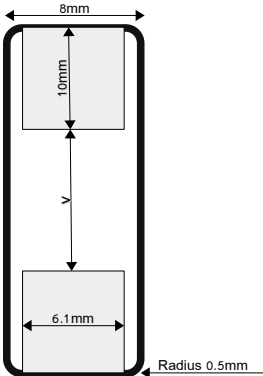
## Ring Dimensions

*V = Varies on Ring Size*

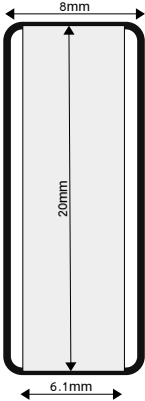
*Black = Ring Blank*

*Gray = Inlay / Antenna*

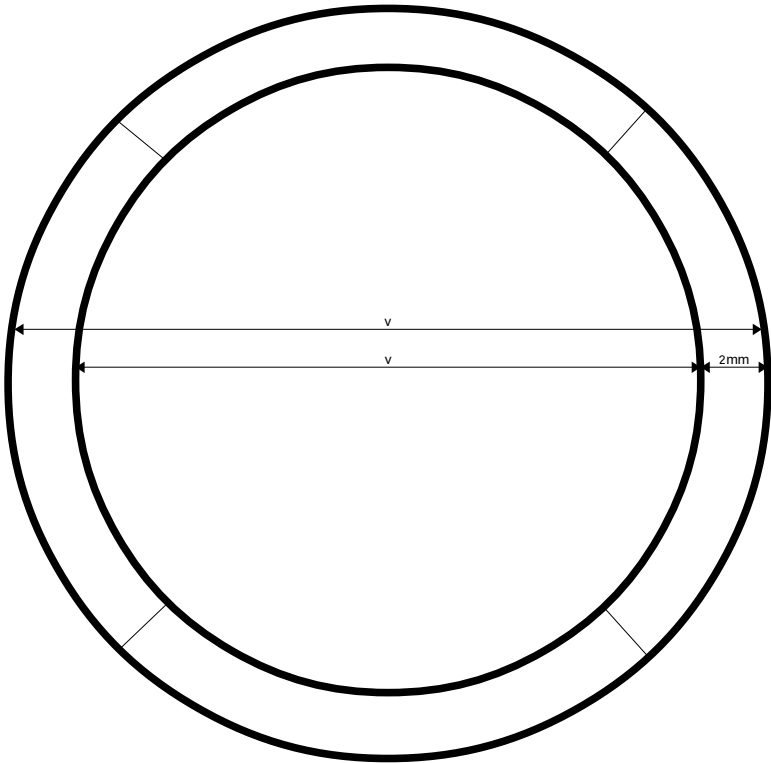
### Sides



### Top



### Front



## Available Sizes (United States Sizes)

4.5, 5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 10.5, 11, 11.5, 12, 12.5, 13, 13.5, 14, 15, 16

## Fit style

Comfort Fit: Soft Radius

## Materials

Ring Blank: Hypoallergenic Hardened Advanced Ceramic

Inlay cover: Hypoallergenic Epoxy

## Colors

Blank: Black

Top Inlay: Transparent

Bottom Inlay: Black

Inlay FPCB: Black

## Engraving

"NFC Ring" on Bottom

## Antenna

2 of 20mm x 6mm Curved on FPCB (Flexible Printed Circuit Board)

Tin plated copper

NFC Ring Logo etched on FPCB

# IC CHARACTERISTICS

Number of Ics(Integrated Components): 2

IC Manufacturer: NXP Semiconductors

IC Model: NTAG216

Full specifications: [http://www.nxp.com/documents/data\\_sheet/NTAG213\\_215\\_216.pdf](http://www.nxp.com/documents/data_sheet/NTAG213_215_216.pdf)

Operating Frequency: 13.56Mhz

ISO/IEC: 14443A

User writable space: 888 bytes

Data retention: 10 years

Write endurance: 100,000

IC Type: Sawn Wafer

IC Mount Type: Wire bonded w/ glue

## Security

Manufacturer programmed 7-byte UID for each device

Pre-programmed Capability container with one time programmable bits

Field programmable read-only locking function

ECC based originality signature

32-bit password protection to prevent unauthorized memory operations

# OPERATING LIMITATIONS

## Forces

Can withstand drops onto most surfaces from 5M. Drops onto Ceramic and harder surfaces should be avoided.

## Temperatures

Overall recommended temperature maximum exposures:

Min: -20c

Max: 110c

IC Limitation:

Min: -55c

Max: 125c

Epoxy Limitation:

Min: -20c

Max: 110c

Blank Limitation:

Min: -85c

Max: 1668c

## Water resistance

IP66

Protected from Total dust ingress

Protected from high pressure washer jets from any direction

# PATENTS AND LEGAL

Patents:

US 2015/0042450-A1: Covers:

Inserting NFC inlays in a Ring Embodiment (Both metallic and ceramic)  
Using Hand Gestures to perform different tasks with a Ring including unlocking a phone and sharing contact information  
Interacting between a Ring and an access control system

Current Licensees:

Visa Collab Inc  
Mastercard Inc  
DangerousThings Inc

Trademarks:

“NFC Ring” is a registered Trademark of McLear Ltd

# BEHAVIORAL CHARACTERISTICS

## Operating Range

Keyduino Nano: 30mm

Elechouse PN532: 25mm

Samsung SHS-1321: 15mm

Nexus 5: 15mm

ACR122: 20mm

HTC One M8: 5mm