

ECN/PCN No.: #R0012

For Manufacturer			
<b>Product Description:</b> NXP IOT REFERENCE DESIGN: FLEXIBLE NFC ANTENNA WITH FERRITE	<b>Abracon Part Number / Part Series:</b> ANFCA-101-2515-A02	<input type="checkbox"/> Series <input checked="" type="checkbox"/> Part Number	
<b>Affected Revision:</b> <a href="#">INITIAL RELEASE</a>	<b>New Revision:</b> N/A	<b>Application:</b>	<input type="checkbox"/> Safety <input type="checkbox"/> Non-Safety
<b>Prior to Change:</b> ACTIVE			
<b>After Change:</b> PRODUCT EOL - NO LONGER AVAILABLE			
<b>Cause/Reason for Change:</b> FACTORY EOL			
Change Plan			
<b>Effective Date:</b> 7/7/2020	<b>Additional Remarks:</b>		
<b>Change Declaration:</b>			
<b>Issued Date:</b> 7/7/2020	<b>Issued By:</b> <i>JUSTIN FAHEY</i>	<b>Issued Department:</b> MARKETING - PLM	
<b>Approval:</b> <i>Syed Raza</i> Engineering VP	<b>Approval:</b> <i>Reuben Quintanilla</i> Quality Director	<b>Approval:</b> <i>Ying Huang</i> Purchasing Director	
For Abracon EOL only			
<b>Last Time Buy (if applicable):</b> NONE		<b>Alternate Part Number / Part Series:</b> NONE	
<b>Additional Approval:</b> <i>JUSTIN FAHEY - PLM</i>	<b>Additional Approval:</b>	<b>Additional Approval:</b>	
Customer Approval (If Applicable)			
<b>Qualification Status:</b>			
<input type="checkbox"/> Approved <input type="checkbox"/> Not accepted			
<i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i>			
<b>Customer Part Number:</b>		<b>Customer Project:</b>	
<b>Company Name:</b>	<b>Company Representative:</b>	<b>Representative Signature:</b>	
<b>Customer Remarks:</b>			

# FLEXIBLE NFC ANTENNA WITH FERRITE



ANFCA-101-2515-A02



25 x 15 mm  
RoHS/RoHS II Compliant  
MSL=MSL-1

## FEATURES

- Ultra thin flexible antenna structure (220+/-46µm)
- Peel and Stick antenna designs
- Ferrite sheet backing optimizes magnetic fields
- Wide operating temperature range -40°C to +85°C
- Matched to leading NFC controller IC's
- Customized solutions available

## APPLICATIONS

- IoT devices
- NFC payment readers
- Healthcare ID scanners
- NFC data loggers transport
- Ticketing systems
- Electronic parking payments
- Industrial data collection

## ELECTRICAL CHARACTERISTICS

Item	Spec
Operating Frequency (MHz)	13.56
Inductance (µH)	1.8±10%
RAC (Ω)	4.75±20%
Test Condition	1 MHz/500mV
Operating Temperature Range	-40°C to + 85°C

Test equipment: TH2828S.



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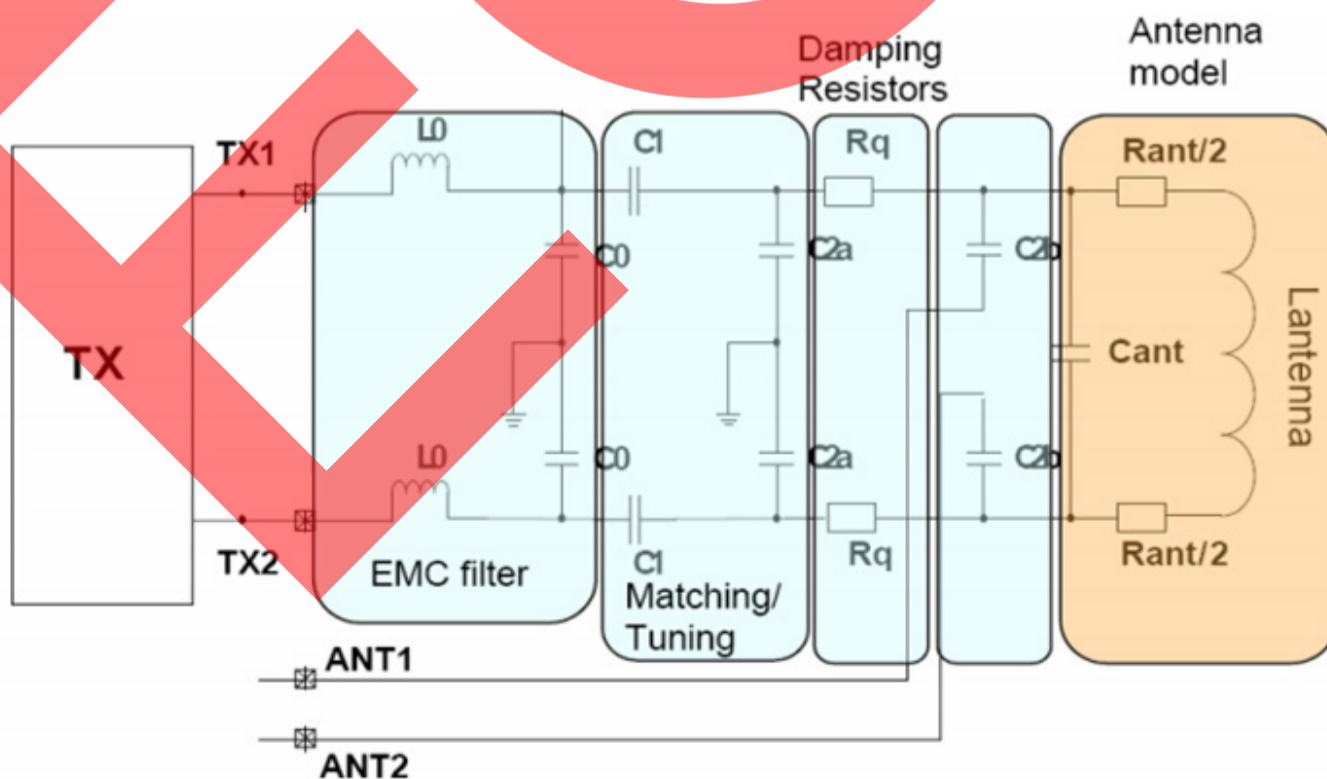
25 x 15 mm  
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## MATCHING CIRCUIT AND REFERENCE VALUES

Component	Value for reference only (1)	Notes
L0	560 / 330nH NXP / Broadcom)	EMC filter resonance at 15.4MHz (NXP) and 20.6MHz (Broadcom).
C0	180pF	EMC filter resonance at 15.4MHz (NXP) and 20.6MHz (Broadcom).
C1	33pF	Antenna matching component, to achieve series resonance at 13.56MHz. (Note: Antenna matching component value may need optimization depending upon antenna environment)
C2 (Includes C2a and C2b values)	82pF	Antenna matching component, to achieve parallel resonance at 15MHz. (Note: Antenna matching component value may need optimization depending upon antenna environment).
Rq	0 Ohm	Damping resistor, the Rq resistor used to lower Q-value if above 35 Ohm, if needed.

Note (1) Values can change depending upon drive circuits, design of the antenna and environment.

Matching Circuit





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## MATCHING NETWORKS

Several conditions apply when matching:

- Environment of the design.
- Placement of Antenna
  - The antenna should be placed as close to the matching network as possible
  - How close the NFC antenna is placed to other metalwork and other coils within the design.
- Antenna design
  - Optimization of the matching network is likely to be needed and this should be done with the antenna in the desired position.
- NFC normally operates from 1 to 4cm between devices. Final optimization of the matching circuit should be completed to ensure compliance.
- Designers need to consider interoperability with other devices. The antenna and matching network contribute to best interoperability.

## CONNECTION TO THE PCB

While soldering thin wires to the pads on the antenna is possible, great care must be taken, (see manual soldering Section 10.1). However it is recommended to make contact to the antenna pads via Pogo Pins. These are soldered onto the product PCB, and interface mechanically via a pressure contact to the pads on the NFC antenna. Volume applications using the NFC antenna should always use Pogo Pins to make the connections.

## ANTENNA RESPONSE – RETURN LOSS



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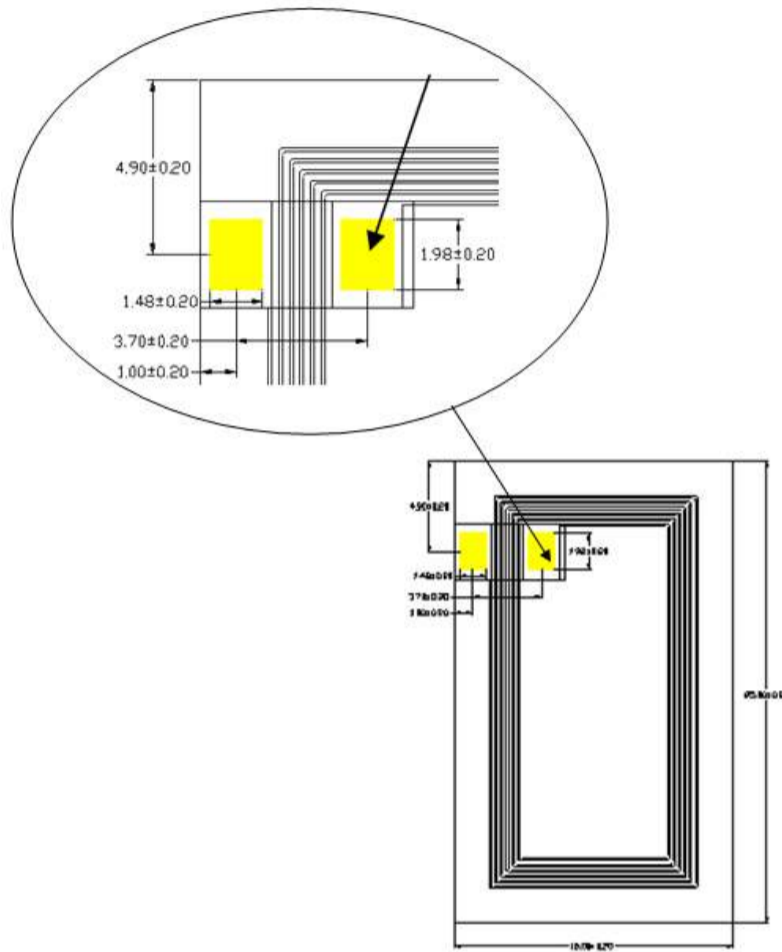


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## OUTSIDE DIMENSIONS



(Dimensions in mm)

## CONSTRUCTION

Construction materials and thickness

No	Material Name	Thickness ( $\mu\text{m}$ )	Thickness (in)
1	PET Tape	10+/-3	0.000393±0.000118
2	Ferrite Sheet	100+/-5	0.00393±0.000196
3	Adhesive Tape	10+/-3	0.000393±0.000118
4	FCP	70+/-30	0.00275±0.000118
5	Adhesive Tape	30+/-5	0.00118±0.000196
6	Release Paper	/	/
Total Thickness		220+/-46	0.00866±0.00181

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## REFLOW PROFILE:

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Not recommended for reflow soldering.

## MANUAL SOLDERING

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Recommended Soldering iron temperature setting: 330°C, 3 seconds max, 3 times max.

## PACKAGING:

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100pcs per polyphene bag / box