

ECN/PCN No.: #R0012

For Manufacturer			
Product Description: NXP IOT REFERENCE DESIGN: FLEXIBLE NFC ANTENNA WITH FERRITE	Abracon Part Number / Part Series: ANFCA-101-2515-A02	<input type="checkbox"/> Series <input checked="" type="checkbox"/> Part Number	
Affected Revision: INITIAL RELEASE	New Revision: N/A	Application:	<input type="checkbox"/> Safety <input type="checkbox"/> Non-Safety
Prior to Change: ACTIVE			
After Change: PRODUCT EOL - NO LONGER AVAILABLE			
Cause/Reason for Change: FACTORY EOL			
Change Plan			
Effective Date: 7/7/2020	Additional Remarks:		
Change Declaration:			
Issued Date: 7/7/2020	Issued By: <i>JUSTIN FAHEY</i>	Issued Department: MARKETING - PLM	
Approval: <i>Syed Raza</i> Engineering VP	Approval: <i>Reuben Quintanilla</i> Quality Director	Approval: <i>Ying Huang</i> Purchasing Director	
For Abracon EOL only			
Last Time Buy (if applicable): NONE		Alternate Part Number / Part Series: NONE	
Additional Approval: <i>JUSTIN FAHEY - PLM</i>	Additional Approval:	Additional Approval:	
Customer Approval (If Applicable)			
Qualification Status:			
<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>			
Customer Part Number:		Customer Project:	
Company Name:	Company Representative:	Representative Signature:	
Customer Remarks:			

- 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

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

ELECTRICAL CHARACTERISTICS

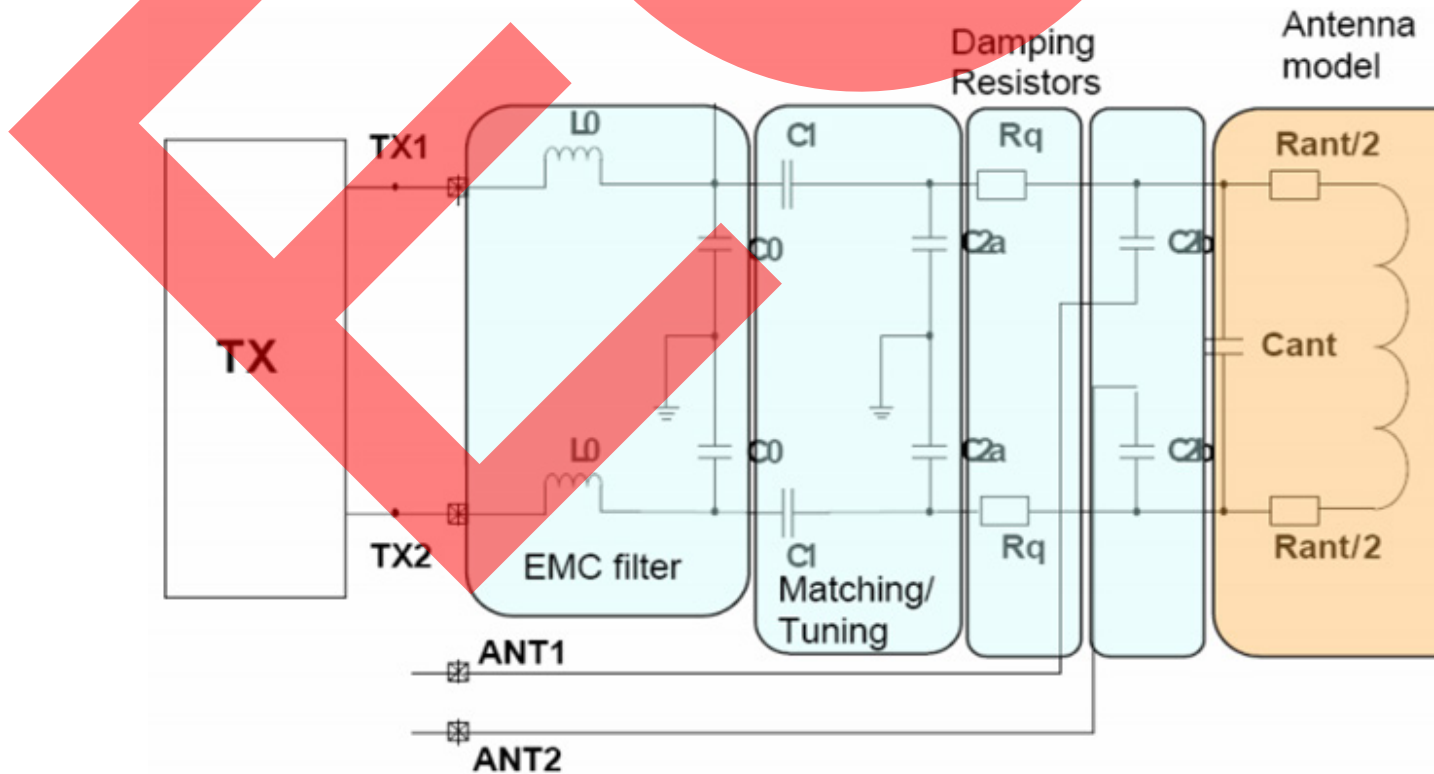
Item	Spec
Operating Frequency (MHz)	13.56
Inductance (μH)	1.8±10%
RAC (Ω)	4.75±20%
Test Condition	1 MHz/500mV
Operating Temperature Range	-40°C to + 85°C

Test equipment: TH2828S.

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

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

Matching Circuit



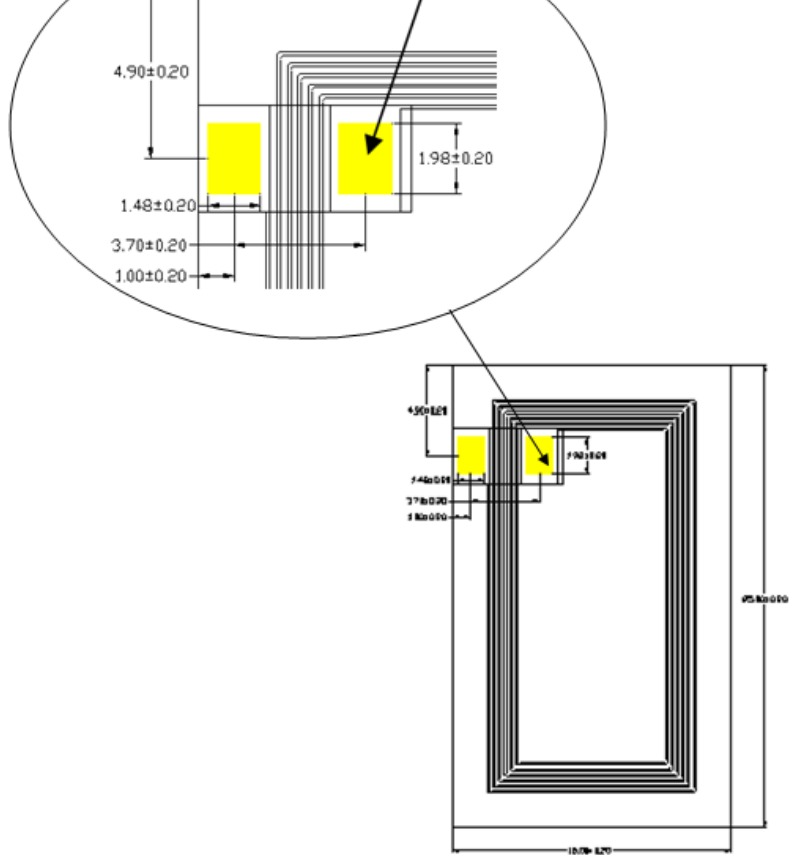
- Placement of Antenna
 - o The antenna should be placed as close to the matching network as possible
 - o How close the NFC antenna is placed to other metalwork and other coils within the design.
- Antenna design
 - o Optimization of the matching network is likely to be needed and this should be done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

CONNECTION TO THE PCB

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

ANTENNA RESPONSE – RETURN LOSS





(Dimensions in mm)

CONSTRUCTION

Construction materials and thickness

No	Material Name	Thickness (μm)	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

MANUAL SOLDERING

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

PACKAGING:

100pcs per polyphene bag / box



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