

# NFC Chip Antenna

AANI-CH-0030

## Features

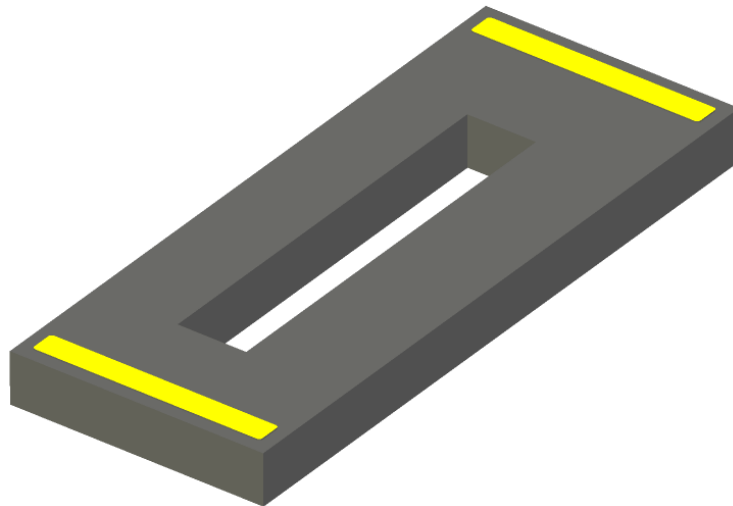
- NFC 13.56MHz
- Small Form Factor 10 x 4 x 0.8 mm
- RoHS Compliant

## Applications

- Near Field Communication
- Pairing, Sharing
- Connection to RFID tags
- Payment, EMVCo
- Phones, Infotainment, Pos ,terminals, Toys, Asset Tracking

## Product Image

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## Electrical Specification

Parameter	Specification			Unit
	Min	Typ	Max	
Operating Frequency		13.56		MHz
Bandwidth		1		MHz
VSWR (Typ.)		1.1		
Inductance		0.298		$\mu\text{H}@13.56\text{MHz}$
Q-Factor		15.7		
DC Resistance		1.62		$\Omega@13.56\text{MHz}$
Self-Resonance Frequency		375.78		MHz
Reading Distance		10~30		mm
Polarization		Linear		-
Impedance		50		$\Omega$

## Mechanical Specification

Parameter	Specification
Dimension	10 x 4 x 0.8 mm
Mounting Type	SMD
Weight	0.05 g

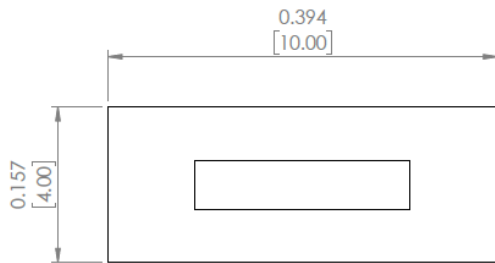
## Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +85°C
Humidity	85% R.H.
RoHS Compliance	Yes

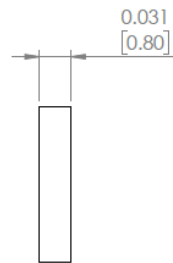
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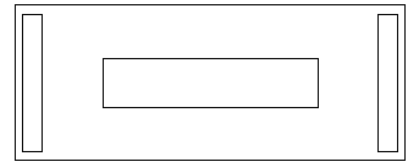
## Product Dimensions & Recommended Footprint (PCB Layout)



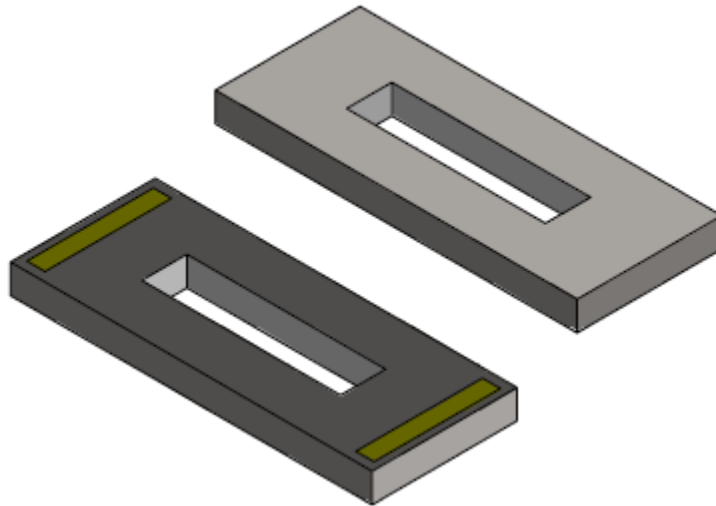
**TOP VIEW**



**SIDE VIEW**



**BOTTOM VIEW**

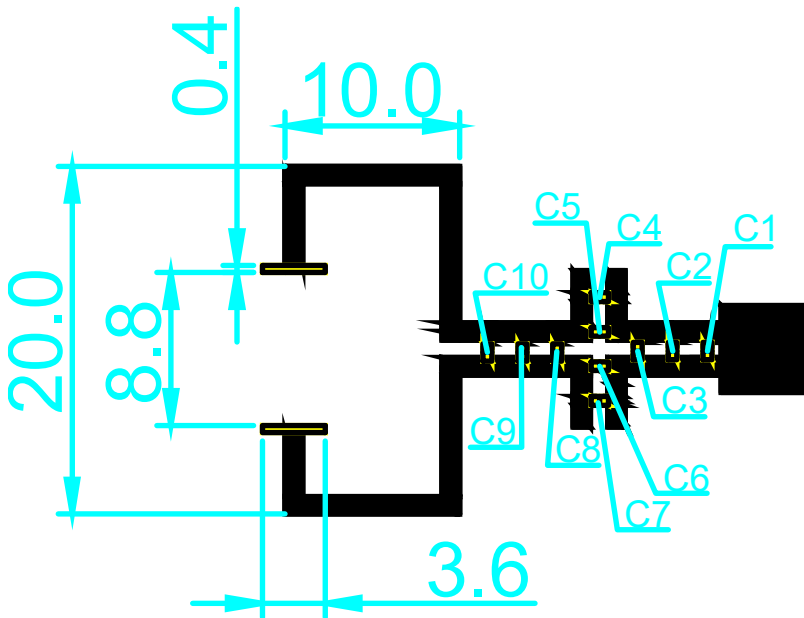


Unit: Inches [mm]

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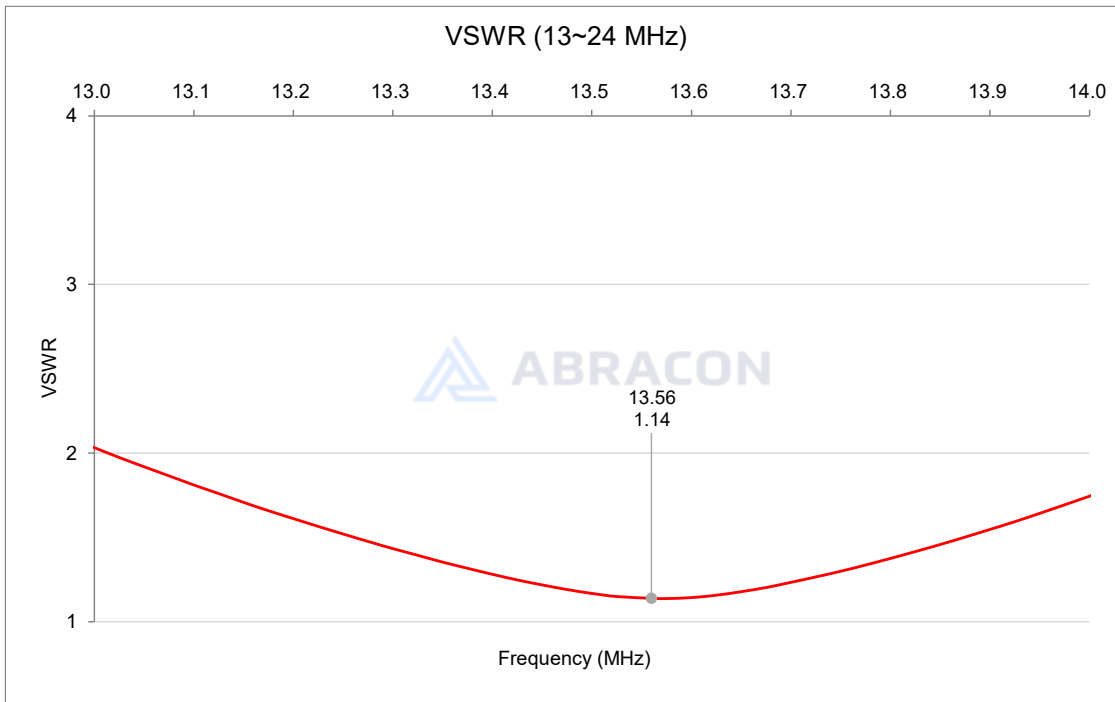
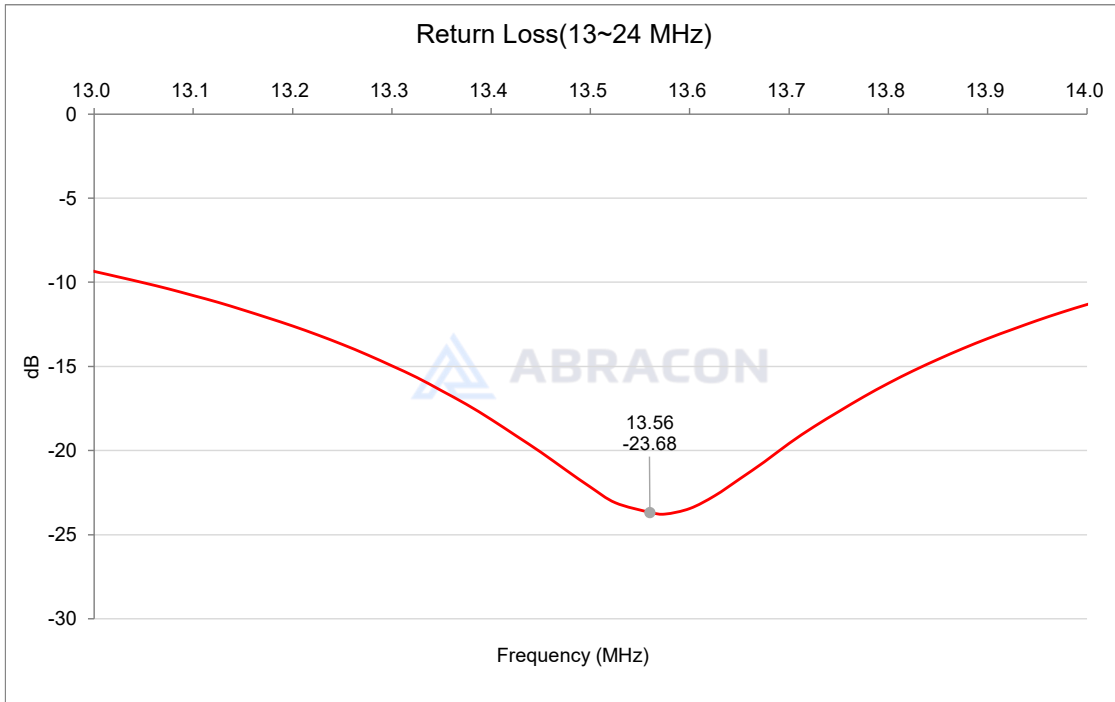
## Matching Network



- C1 = 470pF
- C2 = 180pF
- C3 = NC
- C4 = NC
- C5 = 220nH
- C6 = 330pF
- C7 = 47pF
- C8 = NC
- C9 = NC
- C10 = NC

Unit: mm

## Reflection Characteristics – Return Loss & VSWR



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## Reflow Profile [JEDEC J-STD-020]

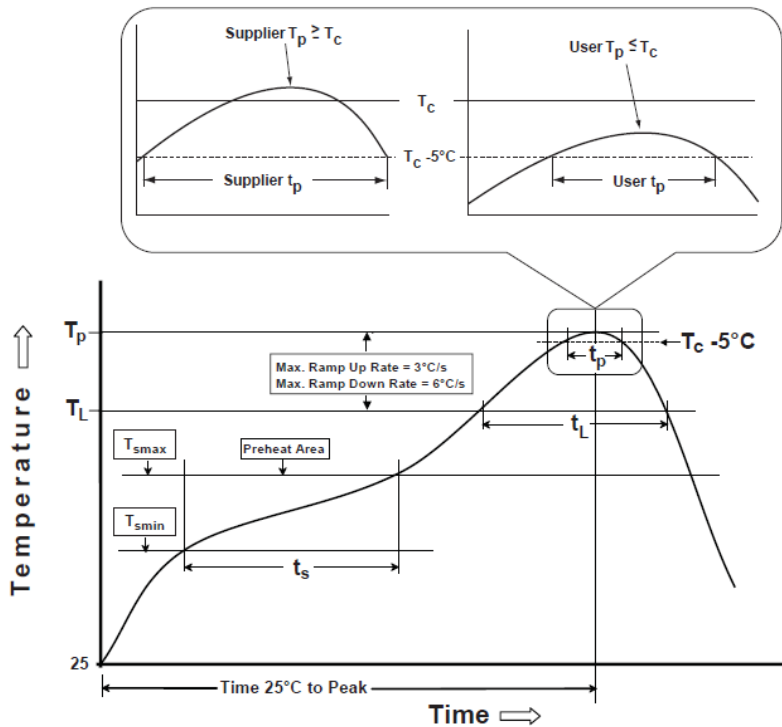


Table 1

SnPb Eutectic Process Classification Temperatures ( $T_c$ )		
Package Thickness	Volume $mm^3$ <350	Volume $mm^3$ $\geq$ 350
<2.5 mm	235 °C	220 °C
$\geq$ 2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process Classification Temperatures ( $T_c$ )			
Package Thickness	Volume $mm^3$ <350	Volume $mm^3$ 350-2000	Volume $mm^3$ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum ( $T_{smin}$ )	100°C	150°C
Temperature maximum ( $T_{smax}$ )	150°C	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/sec. max	3°C/sec. max
Liquidous temperature ( $T_L$ )	183°C	217°C
Time at liquidous ( $t_L$ )	60 - 150 sec.	60 - 150 sec.
Peak package body temperature ( $T_p$ )*	see Table 1	see Table 2
Time ( $t_p$ )** within 5°C of the specified classification temperature ( $T_c$ )	20 sec.	30 sec.
Ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.

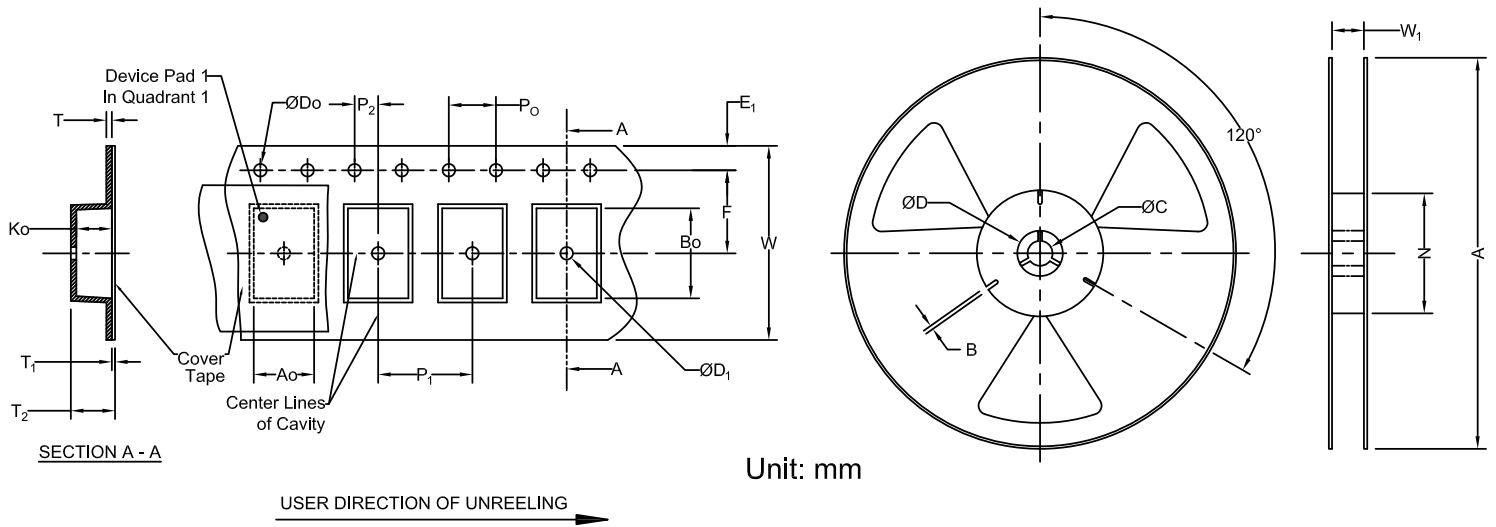
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## Packaging

### Tape & Reel

#### 1. Tape & Reel Dimension



#### Carrier Tape Specifications (mm)

E1	D0	P0	P2	K0	P1	W	A0	B0	Reel Qty
1.75	1.5	4.0	2.0	1.3	8.0	16	4.3	10.3	2,000

#### Reel Specifications (mm)

A	W <sub>1</sub>	N
330	17	100

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5101 Hidden Creek Ln Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
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