

# "High Frequency Ceramic Solutions"

## 2.4GHz Mini Antenna, SMT

P/N 2450AT18A100

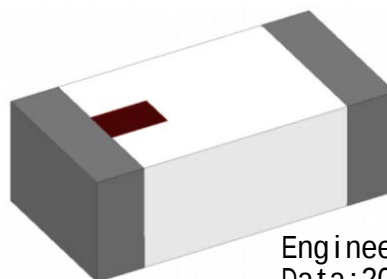
Detail Specification: 7/9/2018

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Let us help you with the antenna design, optimization, and tuning!

### General Specifications

|                         |                   |
|-------------------------|-------------------|
| Part Number             | 2450AT18A100      |
| Frequency (MHz)         | 2400 - 2500       |
| Avg. Rad Efficiency*    | 76%               |
| Peak Gain (dBi typ.)    | -4.16             |
| Average Gain (dBi typ.) | -0.5              |
| Return Loss (dB)        | 9.5 min.          |
| Impedance               | 50 $\Omega$       |
| Input Power             | 2 Watts max. (CW) |



Engineer : Bill Lai 赖勇平  
Data: 2025.4.24

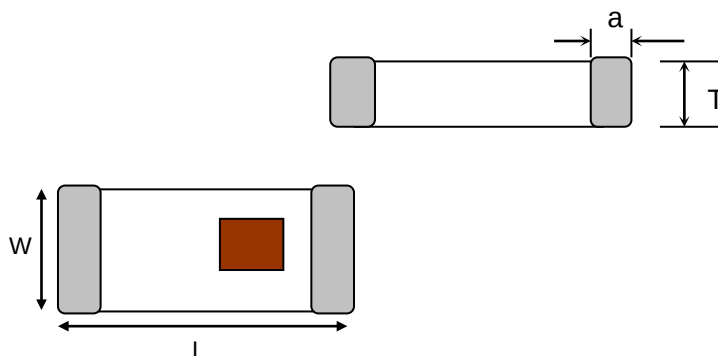
\*Efficiency based on Johanson's standard evaluation board

### Part Number Explanation

| P/N Suffix | Packing Style    | Bulk (loose)                                  | Suffix = S      | e.g. 2450AT18A100S        |
|------------|------------------|-----------------------------------------------|-----------------|---------------------------|
|            |                  | T & R                                         | Suffix = E      | e.g. 2450AT18A100E        |
|            |                  | 100% Tin                                      | Suffix = E or S | e.g. 2450AT18A100(E or S) |
|            | Evaluation Board | 2450AT18A100-EBSMA (see page 2&3 for details) |                 |                           |

### Mechanical Dimensions

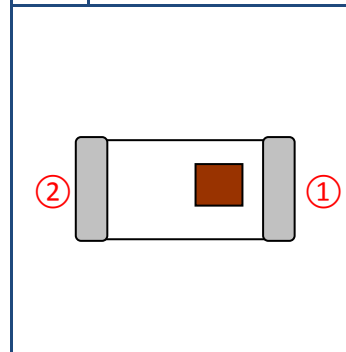
|   | In                       | mm                  |
|---|--------------------------|---------------------|
| L | 0.126 $\pm$ 0.008        | 3.20 $\pm$ 0.2      |
| W | 0.063 $\pm$ 0.008        | 1.60 $\pm$ 0.2      |
| T | 0.051 $\pm$ 0.004/-0.008 | 1.30 $\pm$ 0.1/-0.2 |
| a | 0.020 $\pm$ 0.012        | 0.50 $\pm$ 0.3      |



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### Terminal Configuration

| No. | Function |
|-----|----------|
| 1   | FEED     |
| 2   | NC       |



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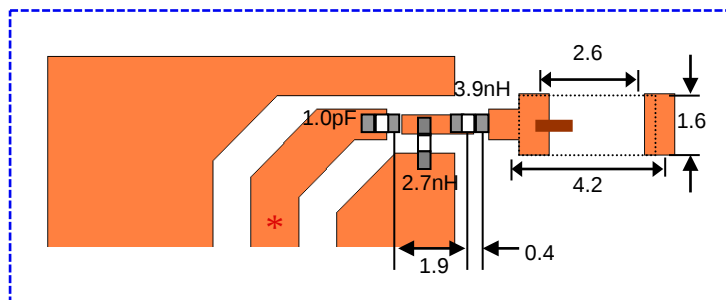
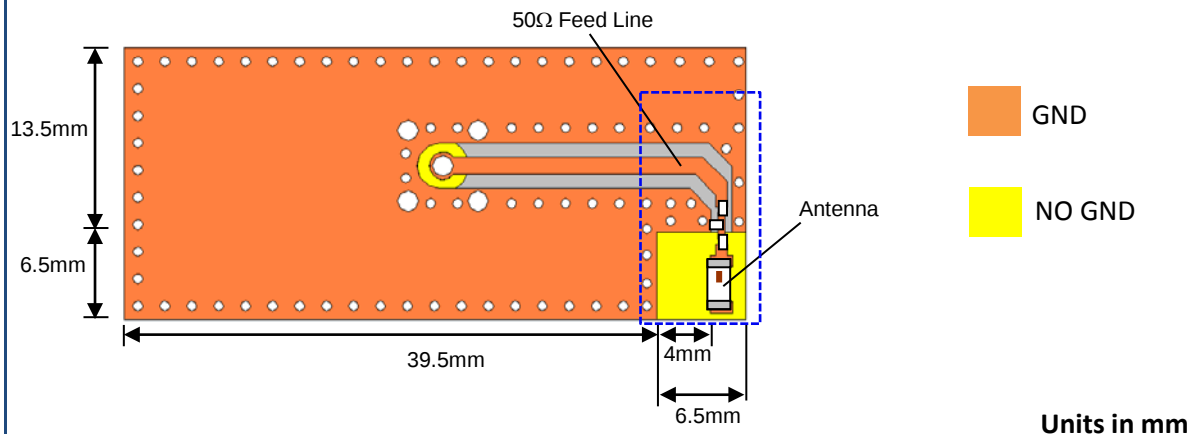
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### Mounting Considerations 1: Evaluation Board



JTI P/N for Matching Circuit: Cap  
(1.0pF): 500R07S1R0BV4T  
Inductor (2.7nH): L-07C2N7SV6T  
Inductor (3.9nH): L-07C3N9SV6T

To order a pre-tuned 50Ω EVB with a female SMA connector click  
here: [www.johansontechnology.com/request-a-sample](http://www.johansontechnology.com/request-a-sample)

Reference p/n: 2450AT18A100-EBSMA

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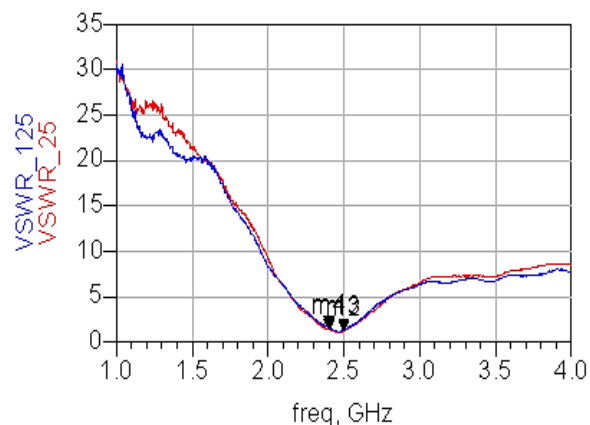
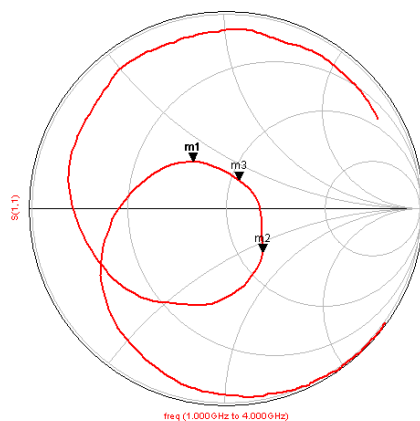
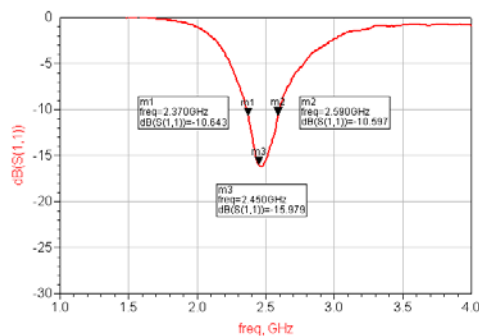
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## Mounting Considerations 1: Typical Electrical Performance (T=25°C)

Return Loss with matching circuit @ +25C VSWR with matching circuit @ +25C and +125C



|               |
|---------------|
| m 1           |
| freq=2.400GHz |
| VSWR_25=1.386 |
| m 2           |
| freq=2.500GHz |
| VSWR_25=1.219 |

|                |
|----------------|
| m 4            |
| freq=2.400GHz  |
| VSWR_125=1.606 |
| m 3            |
| freq=2.500GHz  |
| VSWR_125=1.332 |

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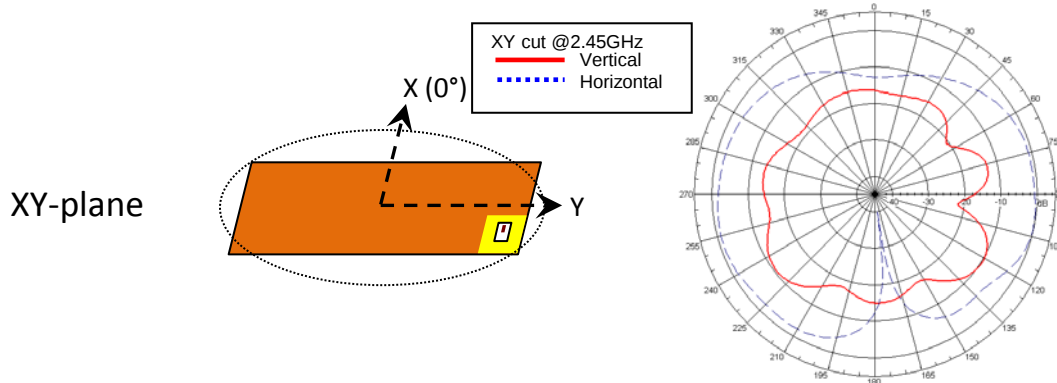
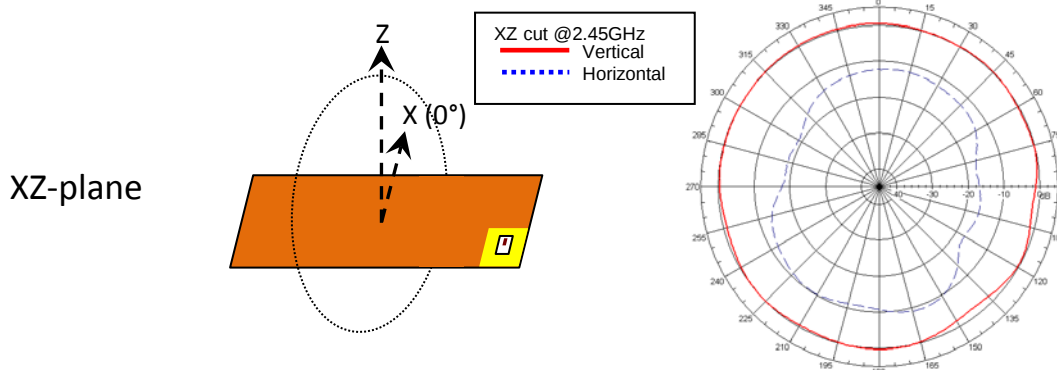
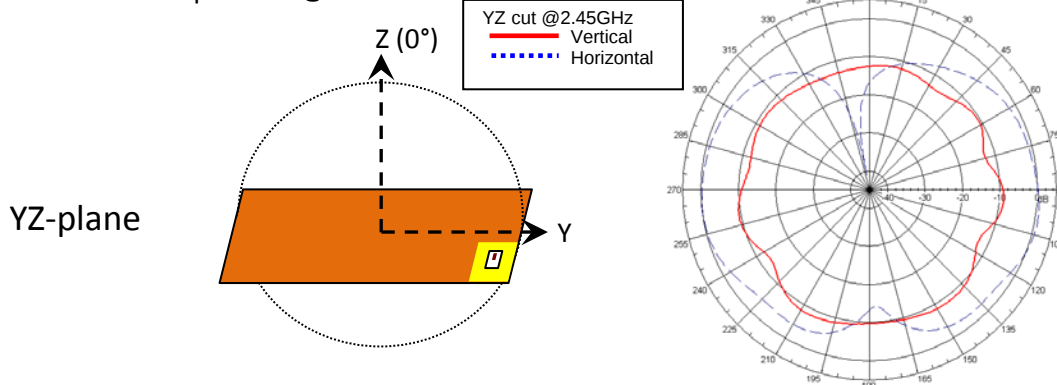
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## Mounting Considerations 1: Antenna Performance

Typical 2D radiation patterns @ 2.44GHz



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## Passive S11 data



## Passive efficiency and gain

| Frequency ID       | 1      | 2      | 3      | 4      | 5      | 6     | 7      | 8      | 9      | 10     | 11     |
|--------------------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|
| Frequency (MHz)    | 2400   | 2410   | 2420   | 2430   | 2440   | 2450  | 2460   | 2470   | 2480   | 2490   | 2500   |
| Gain (dBi)         | -4.16  | -4.71  | -5.07  | -4.60  | -5.11  | -4.34 | -4.91  | -4.54  | -4.27  | -4.25  | -4.55  |
| Mingain Gain (dBi) | -28.34 | -30.06 | -35.11 | -41.34 | -47.14 | -38.9 | -37.35 | -37.45 | -36.21 | -35.57 | -35.87 |
| Efficiency (%)     | 6.92   | 6.82   | 5.78   | 6.40   | 5.97   | 6.67  | 5.84   | 6.73   | 6.86   | 6.87   | 6.74   |

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### Antenna tuning, optimization, and validation services:

[www.johansontechnology.com/ipc-antenna-services](http://www.johansontechnology.com/ipc-antenna-services)

### For more antennas and to download measured S-parameters, go to:

[www.johansontechnology.com/antennas](http://www.johansontechnology.com/antennas)

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We provide 2 free layout reviews and if you need us to tune and characterize the antenna on your product (inside anechoic chamber) we can do that too. Small lab fee may apply for the latter.

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