

2.4 GHz Wi-Fi/BL Patch Antenna



APAKN2504-S2448

Request Samples



Check Inventory



25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

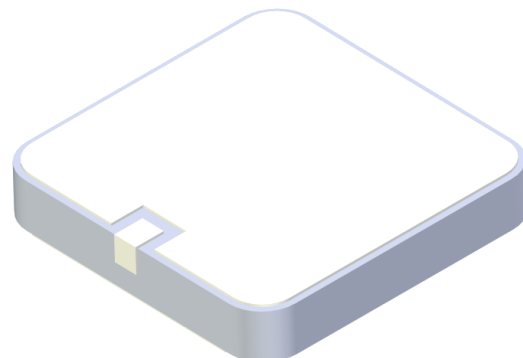
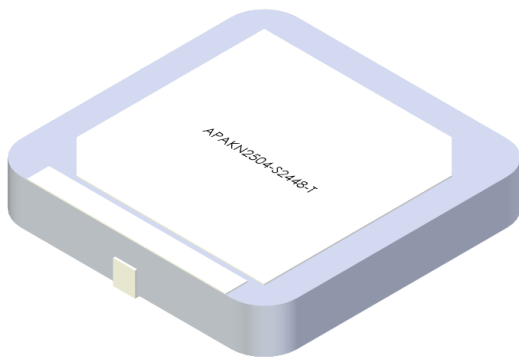
Features

- Directional Radiation Pattern
- RHCP Polarization
- Peak Gain: ≥ 5.2 dBic
- VSWR < 2.0
- Efficiency: $\geq 80\%$
- Compact & Low-Profile
- RoHS Compliant

Applications

- Bluetooth® / ZigBee® / Thread/ Matter
- Wi-Fi 4/5 (802.11b/g/n/ac)
- Unmanned Aerial Vehicle (UAV)
- BLE/Wi-Fi Enabled Access Control

Product Image



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Electrical Specification

Parameters	Typ.	Units	Note
Antenna			
Frequency	2400-2500	-	
VSWR	< 2.0	-	
Polarization	RHCP	-	(Right Hand Circular Polarization)
Nominal Impedance	50	Ω	
Peak Gain	> 5.2	dBic	On 70mm×70mm ground plane
Efficiency	> 80	%	

Mechanical Specification

Parameter	Specification
Antenna Dimension	25.0 x 25.0 x 4.0mm
Mounting Type	Surface Mount

Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +105°C
RoHS Compliance	Yes

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Ordering Information

Part Number	Description
APAKN2504-S2448	2.4 GHz Wi-Fi/BL Patch Antenna on Cut Tape
APAKN2504-S2448-T	2.4 GHz Wi-Fi/BL Patch Antenna on Tray (50 pcs per tray)
APAKN2504-S2448-T1	2.4 GHz Wi-Fi/BL Patch Antenna on Tape & Reel (400 pcs per plastic reel)
APAKN2504-S2448-EVB	2.4 GHz Wi-Fi/BL Patch Antenna Evaluation Board

Note: Other options not listed may be available upon request via [Abracon online support](#)



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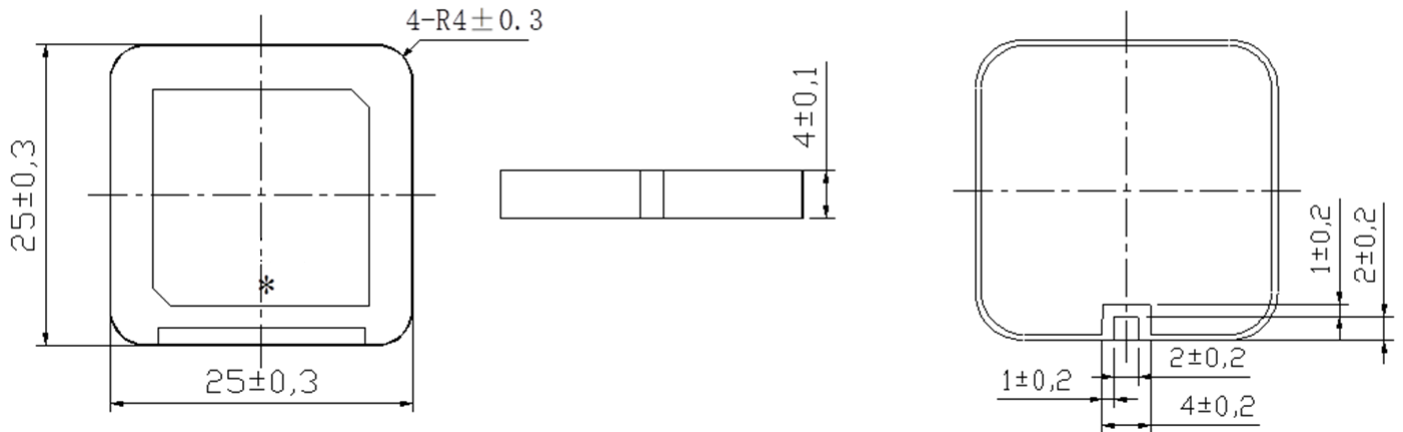


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Product Dimensions



Unit: mm

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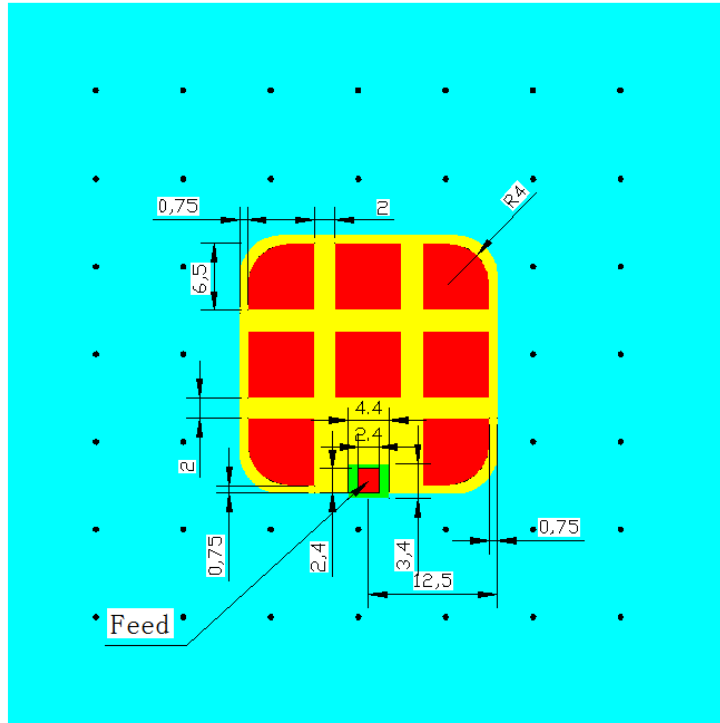


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25.0 x 25.0 x 4.0mm
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Land Pattern



-  Via Thru Hole
-  Solder Pattern
-  No Ground
-  Solder Mask
-  Ground

Unit: mm

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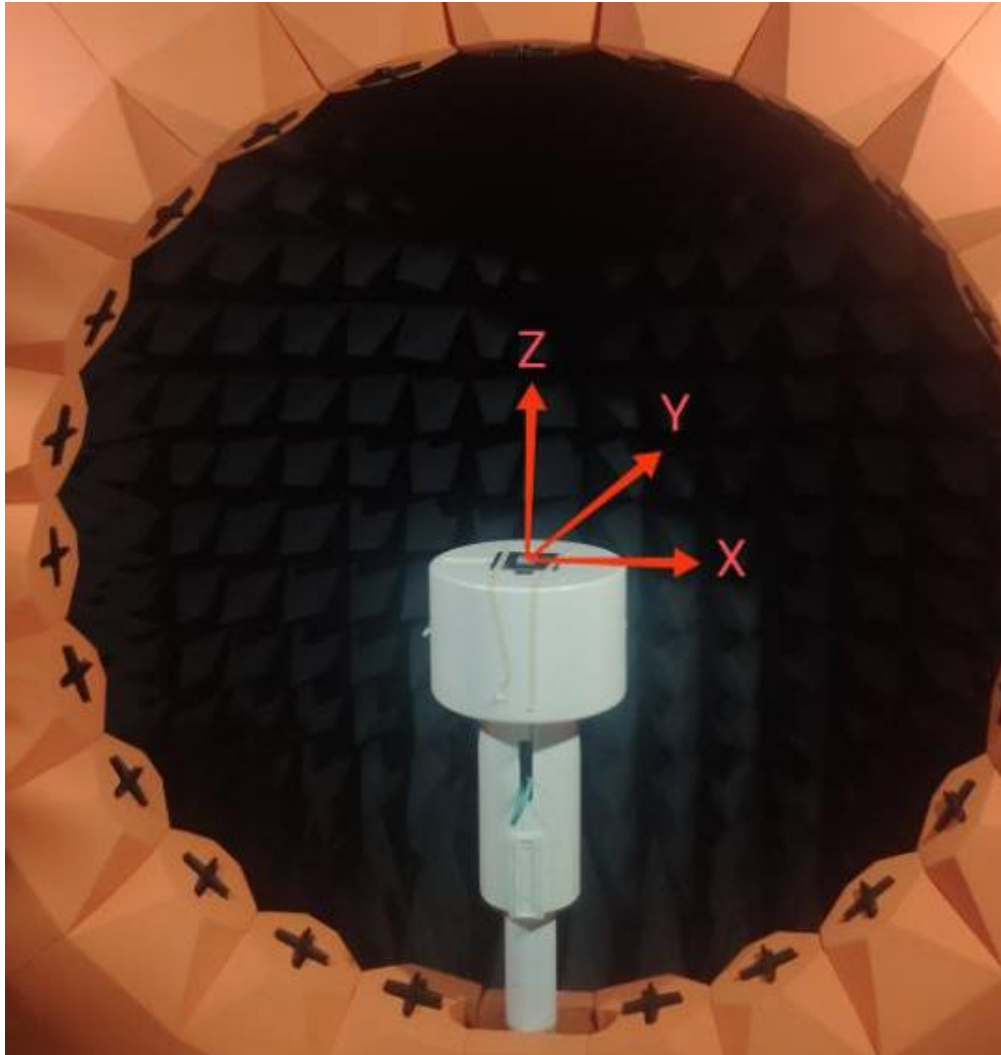


25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Measurement Setup



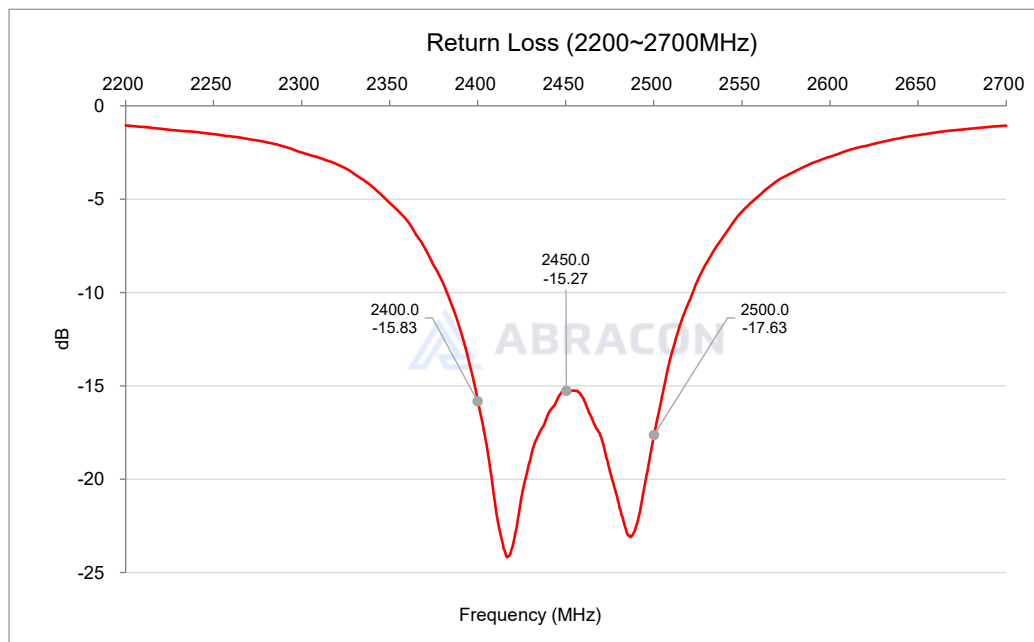
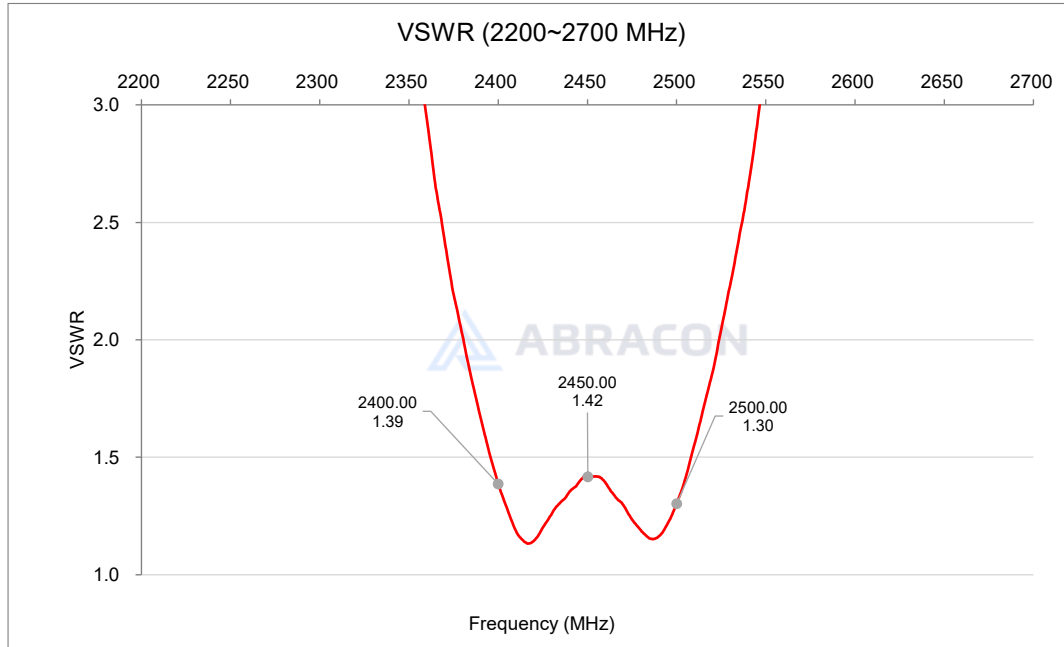


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25.0 x 25.0 x 4.0mm
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Reflection Characteristics – Return Loss & VSWR



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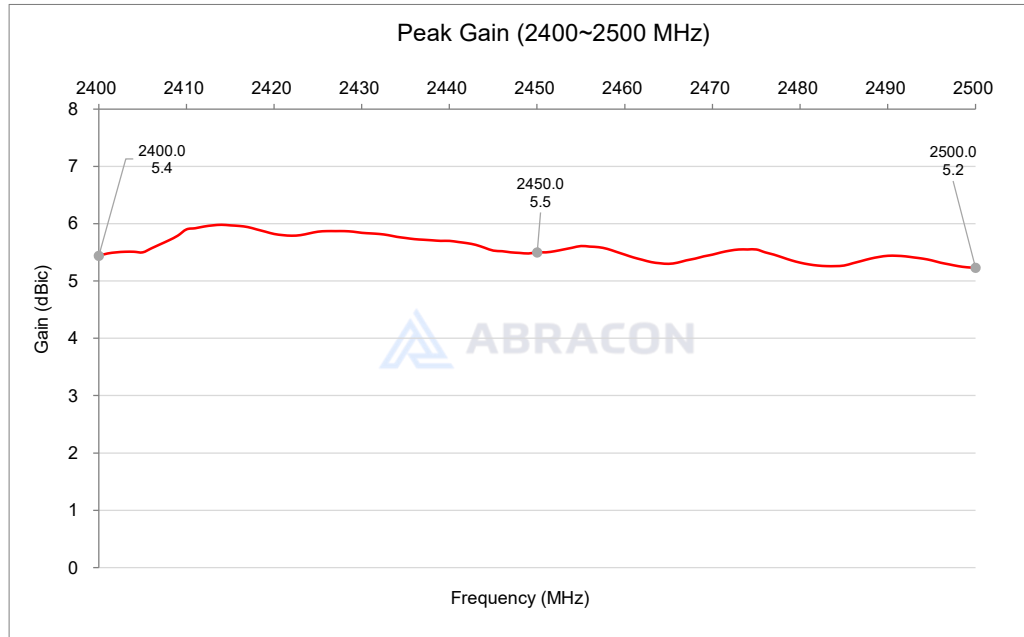


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Radiation Characteristics – Peak Gain



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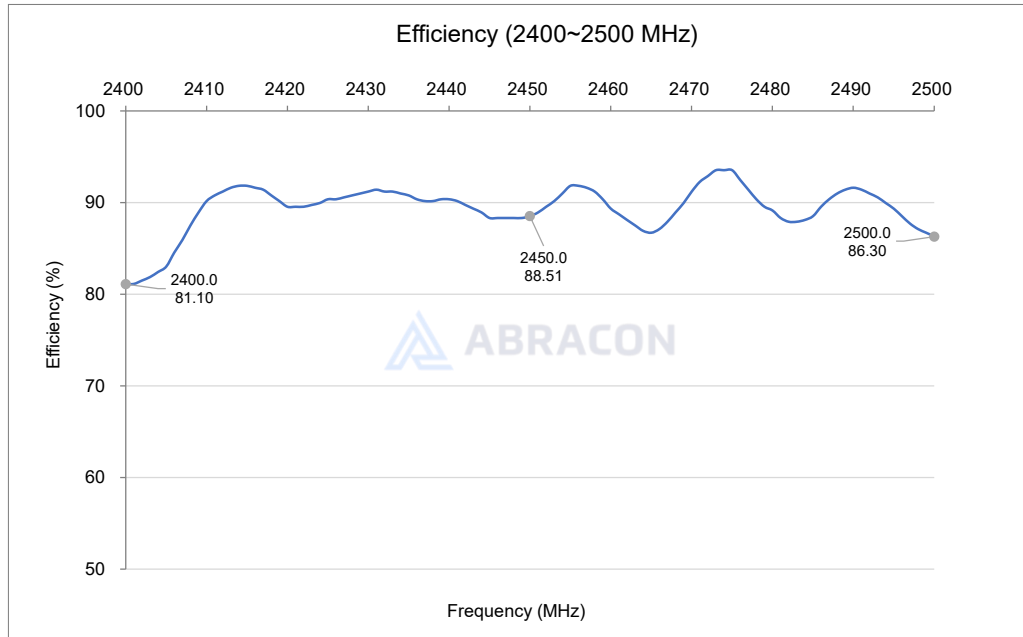


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Radiation Characteristics – Total Efficiency (%)



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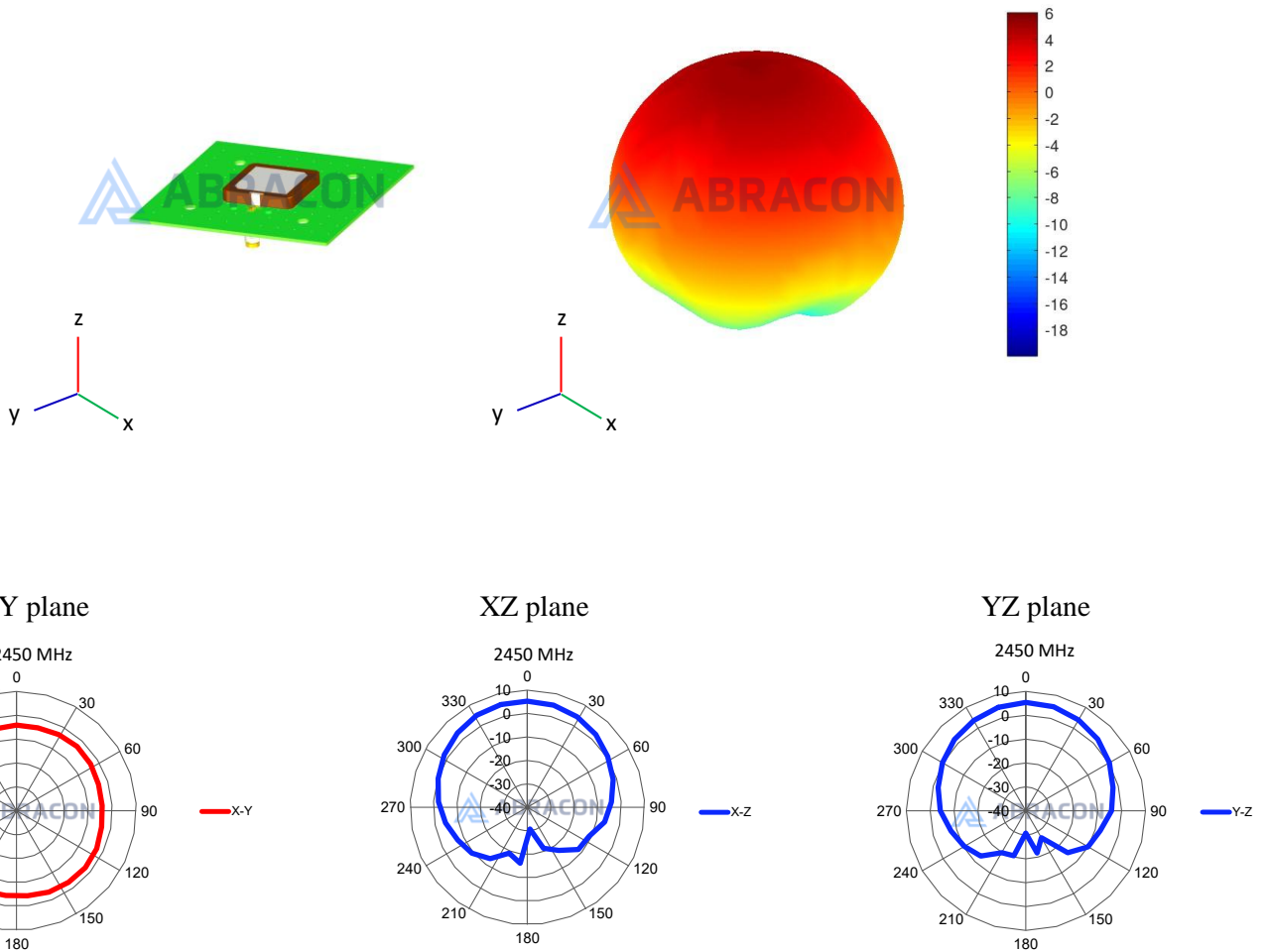
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Radiation Characteristics – 3D & 2D Pattern

2450MHz



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Reflow Profile [JEDEC J-STD-020]

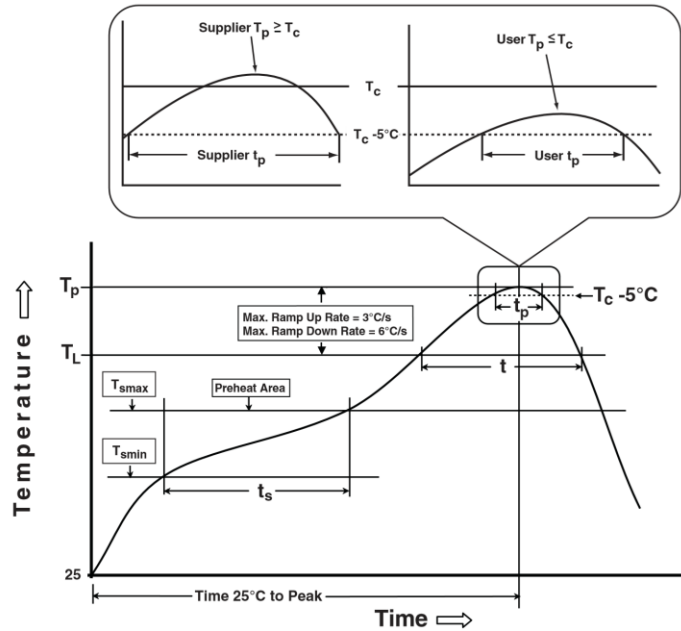


Table 1

SnPb Eutectic Process Classification Temperatures (T_c)		
Package Thickness	Volume mm ³ <350	Volume mm ³ ≥ 350
<2.5mm	235°C	220°C
≥ 2.5mm	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
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	130°C
Temperature maximum (T_{smax})	150°C	175°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

I. APAKN2504-S2448-T

1. 50 pcs per package base
2. 5 package bases /inner box
3. 4 inner boxes/carton
4. 1000 pcs per carton

Dimension of the carton: 370 x 370 x 170 mm

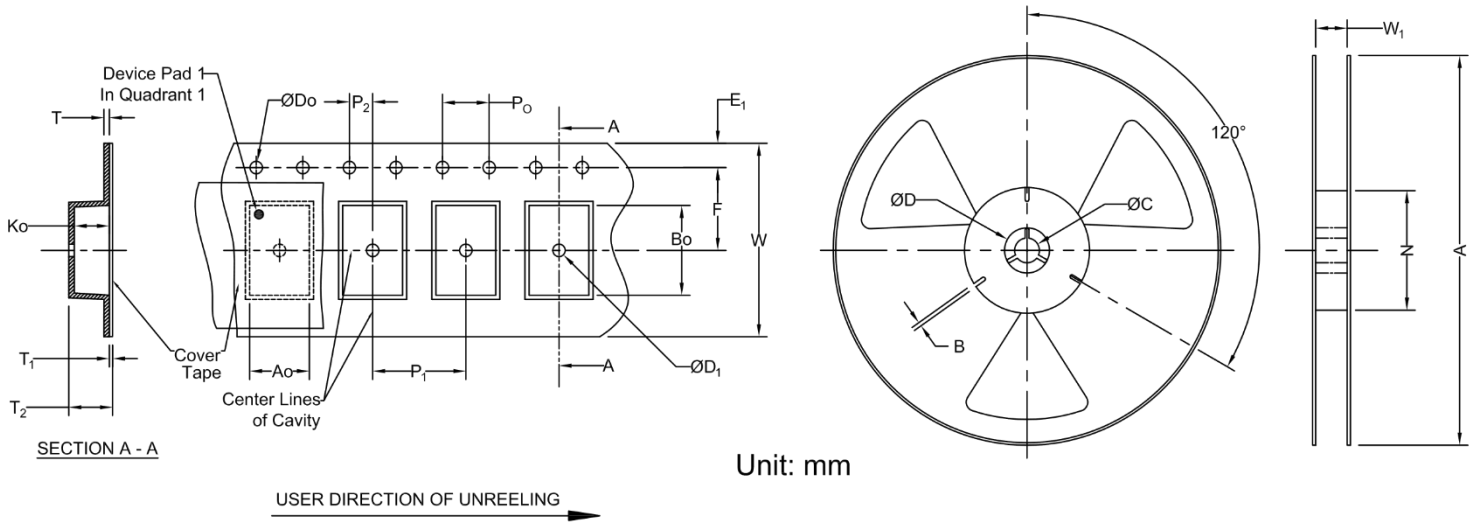
II. APAKN2504-S2448-T1

400 pcs per reel

1 reel per inner box

2 inner box per package

Dimension of the inner box: 340 x 340 x 56 mm



Unit: mm

Carrier Tape Specifications (mm)

D_0	D_1	E_1	P_0	P_2	T	F	P_1	W	A_0	B_0	K_0	Reel Qty
1.50 ± 0.1	2.00 ± 0.1	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.10	0.4 ± 0.05	20.2 ± 0.15	32.0 ± 0.1	44.0 ± 0.3	25.4 ± 0.1	25.4 ± 0.1	4.2 ± 0.2	400

Reel Specifications (mm)

A	W_1	N	C	D
330 ± 5.0	44.5 ± 2.0	80 ± 5.0	13.5 ± 5.0	21.0 ± 1.0

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ("COTS"), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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