



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# SPECIFICATION

## EOL NOTICE

<b>Part No.</b>	:	<b>PA.15</b>
<b>Product Name</b>	:	<b>FR4 SMT Antenna for Bluetooth &amp; 802.11a/b/g</b>
<b>Description</b>	:	2400 Mhz ~ 2500 MHz -3 dBi peak gain SMT Size: 8.6*6.1*3.3mm RoHS Compliant



## 1.0 Scope

This product is ideal for 2.4GHz Bluetooth and 802.11a/b/g applications. The antenna has the omni-directional pattern required by mobile devices. The antenna is RoHS compliant. This SMD component is easy to integrate onto the main board of the device. It is low profile, compact and is delivered via a tape & reel format.

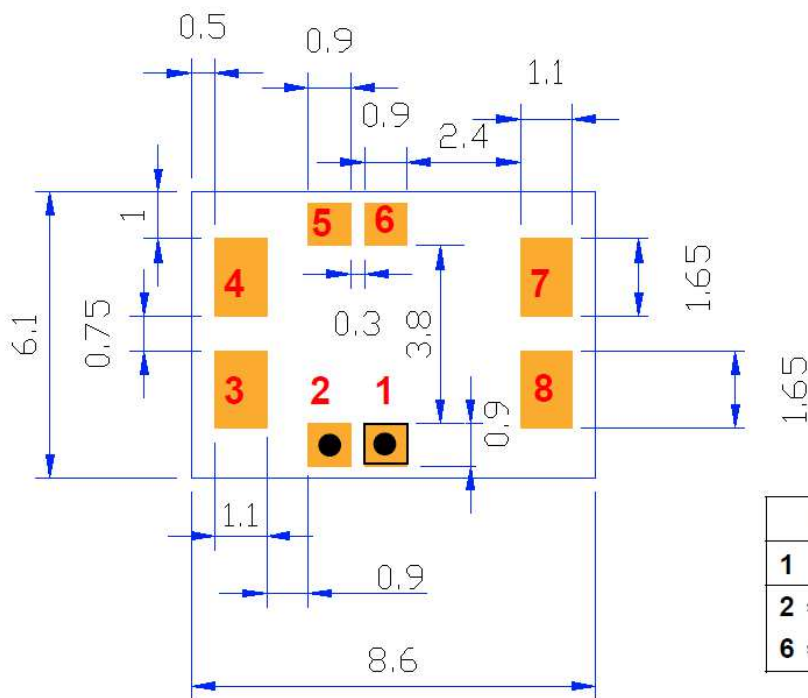
## 2.0 Electrical Specifications

The antenna has the electrical characteristics given in Table 1 under the Taoglas standard installation conditions as shown in the Evaluation Board. figure.

No.	Parameter	Specification
1	Working Frequency	2400MHz ~ 2500MHz
2	Dimensions	8.6*6.1*3.3mm
3	Return Loss	-21 dB
4	Peak Gain	-3.1 dBi
5	Polarization	Linear
7	Impedance	50 $\Omega$
8	Operating Temperature	-30~+85°C

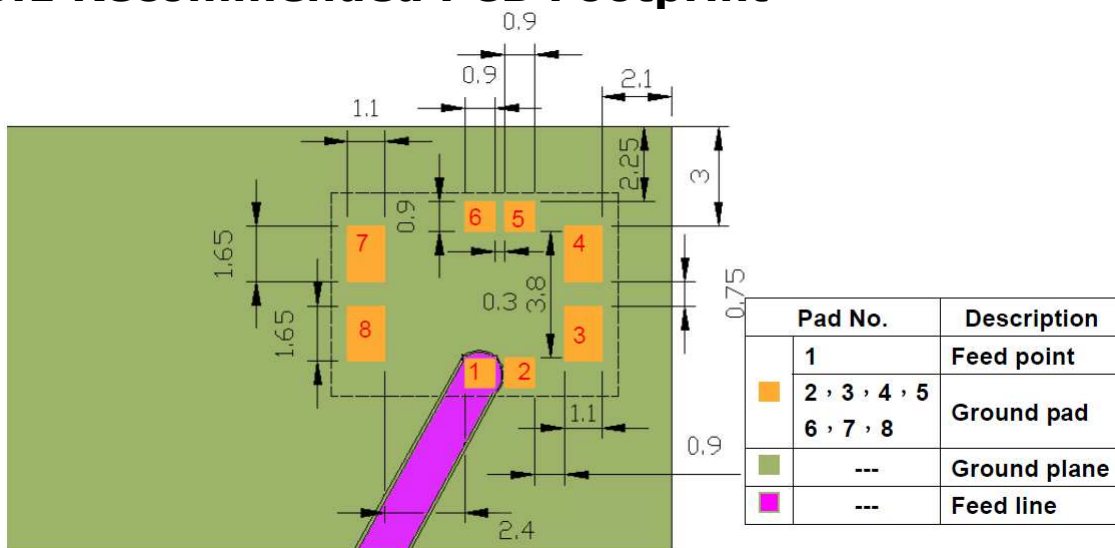
\* Actual value will depend on environment & ground plane size

### 3.0 Pad Dimensions (footprint)(underside View)



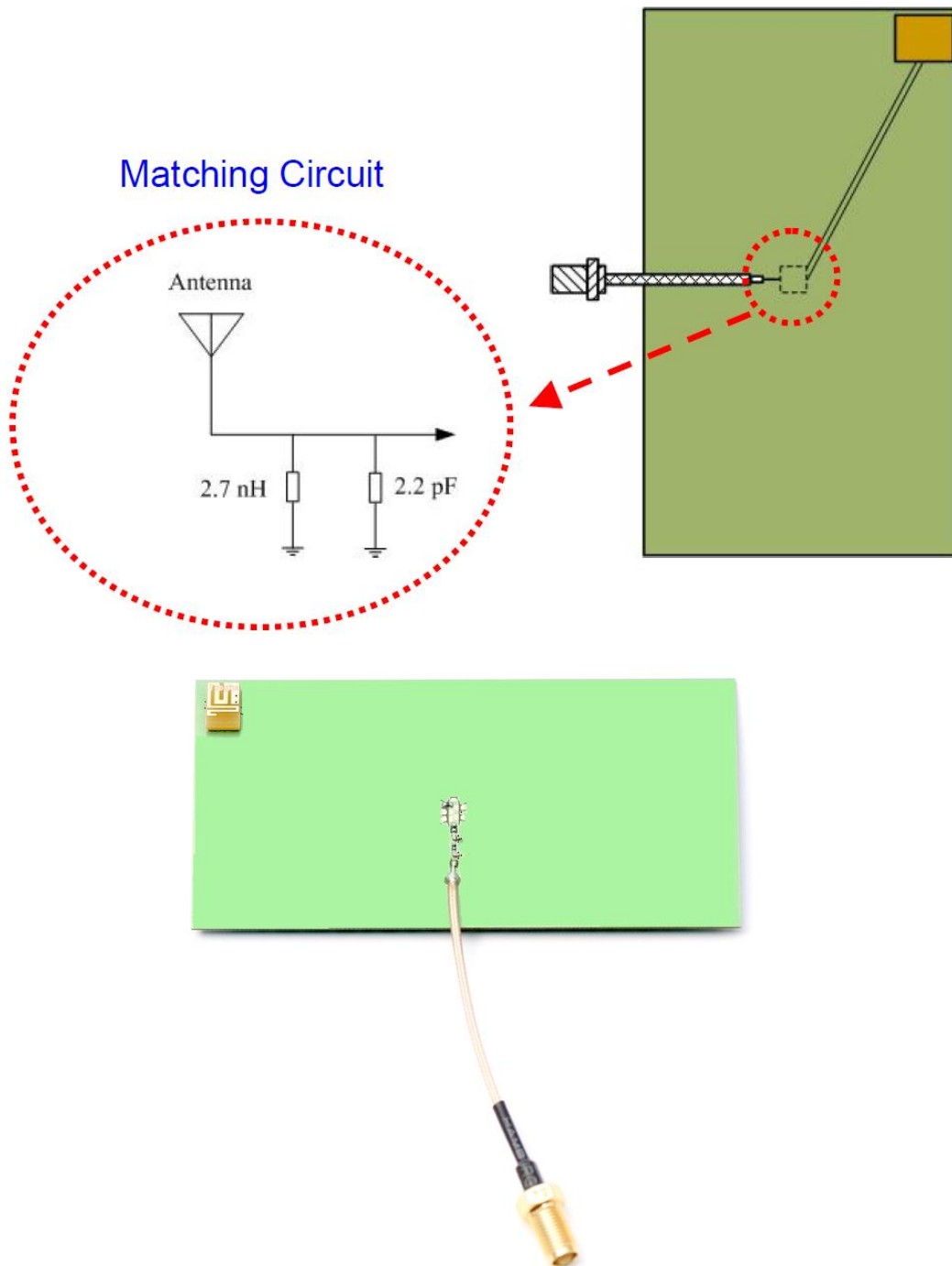
Pin No.	Pin Function
1	Feed point
2 , 3 , 4 , 5 6 , 7 , 8	Ground pad

### 3.1 Recommended PCB Footprint



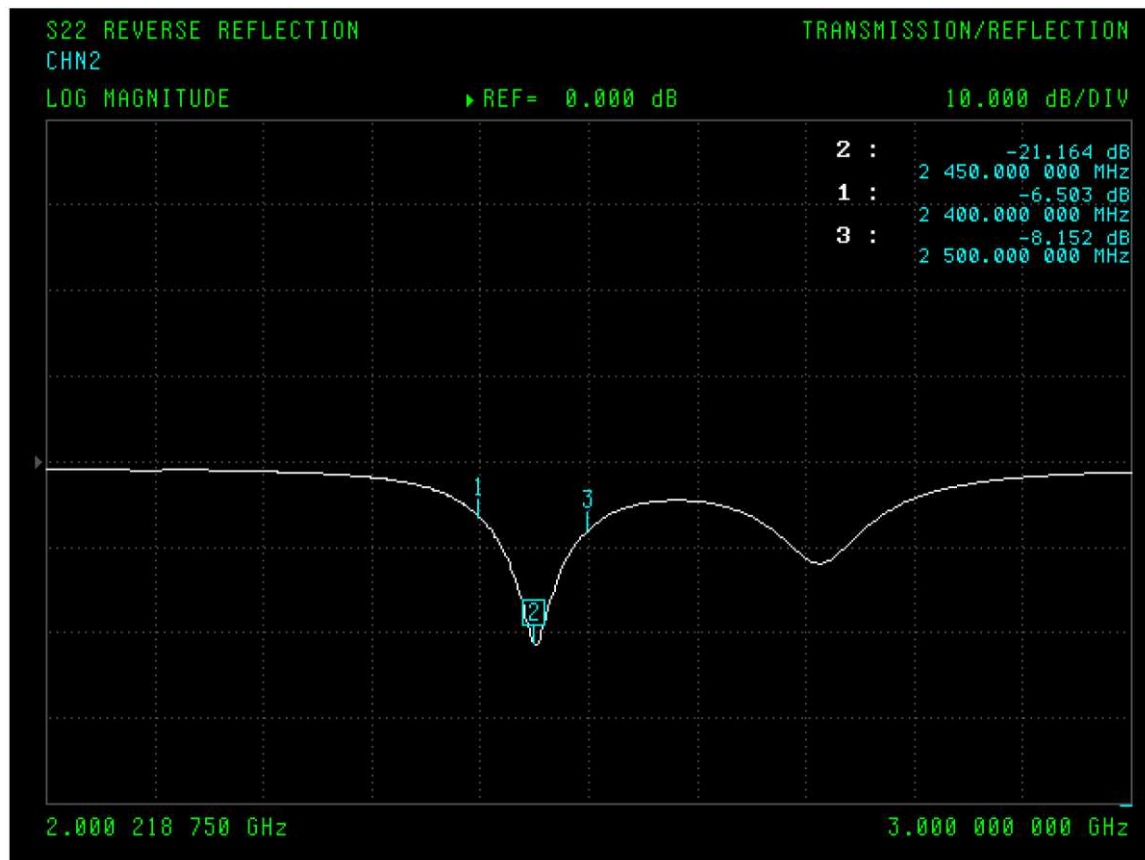
Pad No.	Description
1	Feed point
2 , 3 , 4 , 5 6 , 7 , 8	Ground pad
---	Ground plane
---	Feed line

## 4.0 Recommended Layout and Matching Circuit



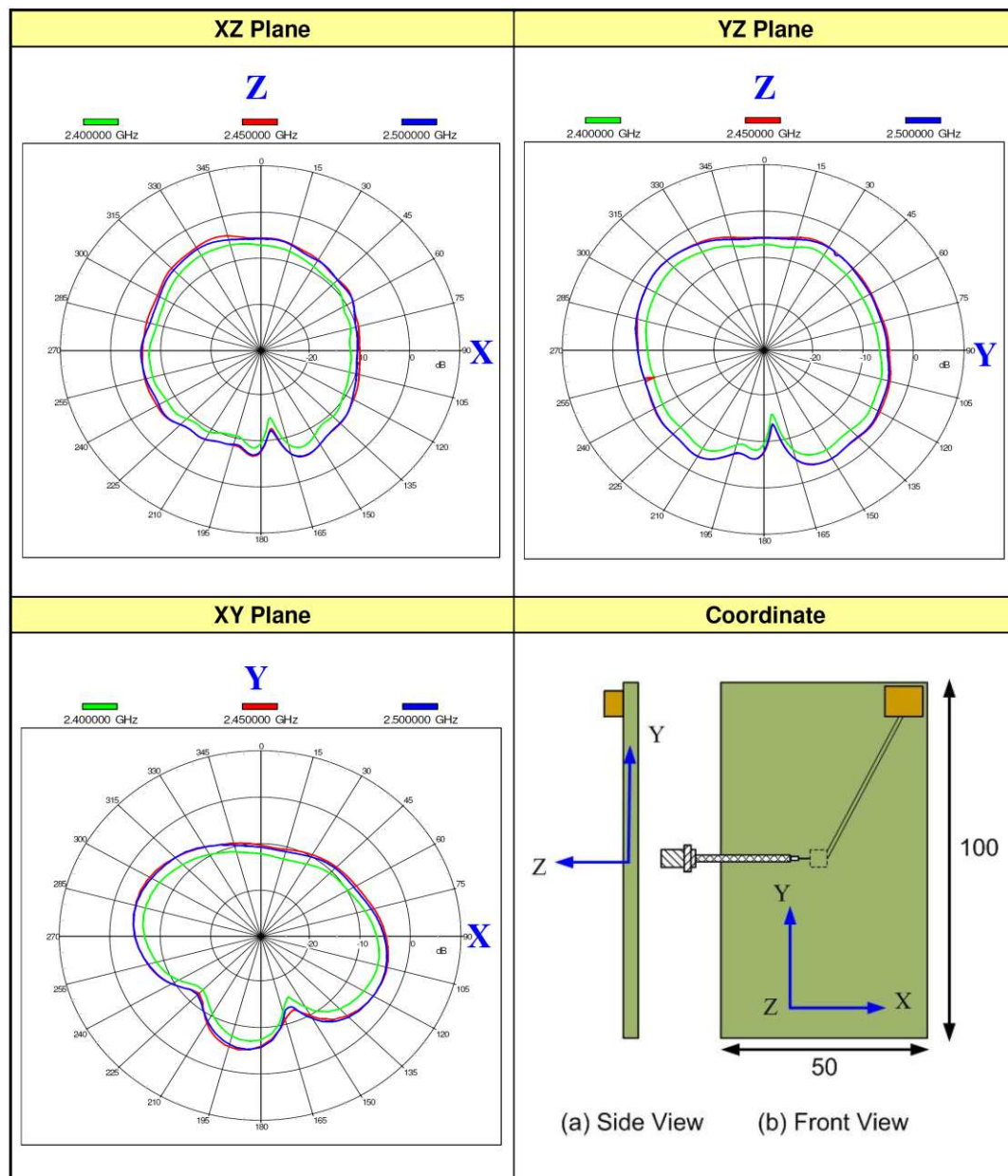
## 5.0 S11 Parameter

### Return Loss



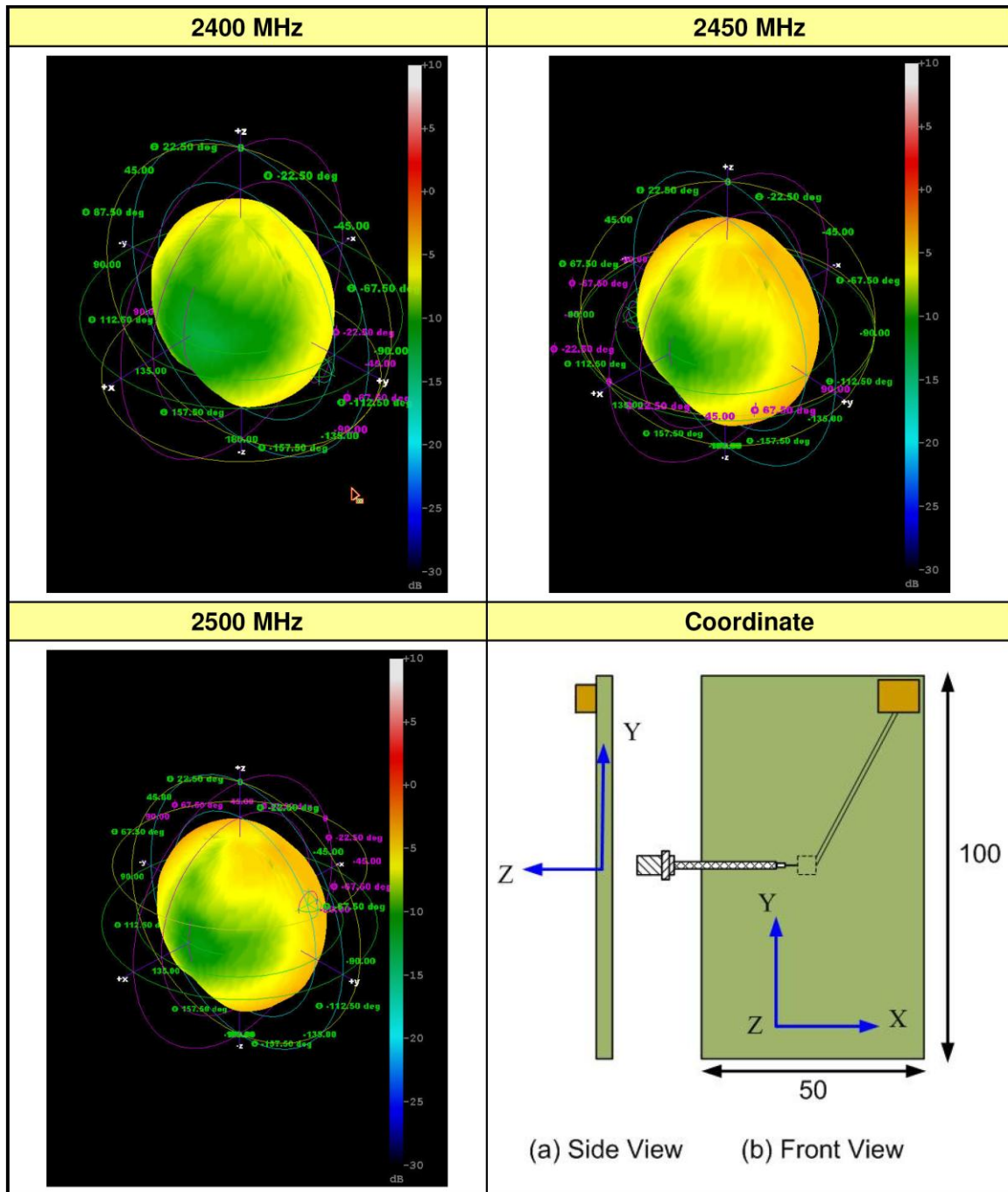
## 6.0 Free Space Radiation Pattern

### 2D Radiation Pattern



## Free Space Radiation Pattern

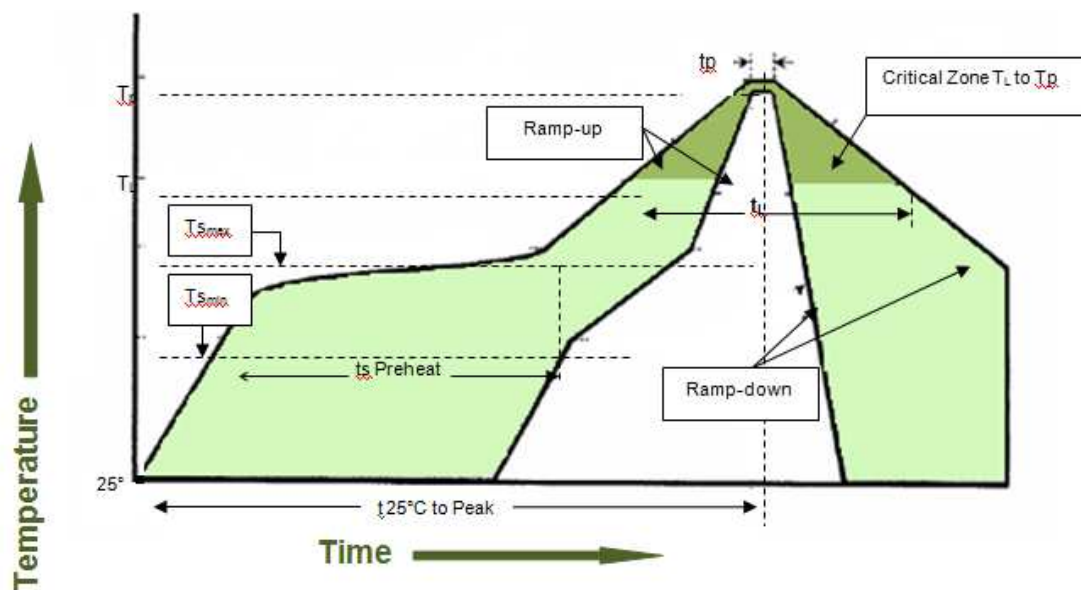
### 3D Radiation Pattern



## 7.0 Recommended Reflow Temperature Profile

The PA.15 can be assembled following either Sn-Pb or Pb-Free assembly processes. The recommended soldering temperatures are as follows:

Phase	Profile Features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
Ramp-Up	Avg Ramp-Up Rate ( $T_{smax}$ to $T_p$ )	3°C/second (max)	3°C/second (max)
Preheat	Temperature Min ( $T_{smin}$ ) Temperature Max ( $T_{smax}$ ) Time ( $t_{smin}$ to $t_{smax}$ )	100° 150° 60-120 seconds	150° 200° 60-180 seconds
Reflow	Temperature ( $T_L$ ) Total Time Above $T_L$ b( $t_L$ )	183°C 60-150 seconds	217°C 60-150 seconds
Peak	Temperature ( $T_p$ ) Time ( $t_p$ )	235°C 10-30 seconds	260°C 20-40 seconds
Ramp-Down	Rate	6°C/second (max)	6°C/second (max)
Time from 25°C to peak Temperature		6 minutes max	8 minutes max



Temperature profile – (green area) for the assembly process in reflow ovens