



Specification

SPECIFICATION

Part No. : PA.15

Specification No : PA-2400-87-62-A-07

Product Name : **FR4 SMT Antenna for Bluetooth & 802.11a/b/g**

Description : 2400 Mhz ~ 2500 MHz
 -3 dBi peak gain
 SMT
 Size: 8.6*6.1*3.3mm
 RoHS Compliant



REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Designed	Approved
01	April 30 th 2008	All	New product release	TW Product Centre	Zita Lin	Ronan Quinlan
02	July 2 nd 2009	3	Clarify drawing	Ireland	Dermot O'Shea	Dermot O'Shea

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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

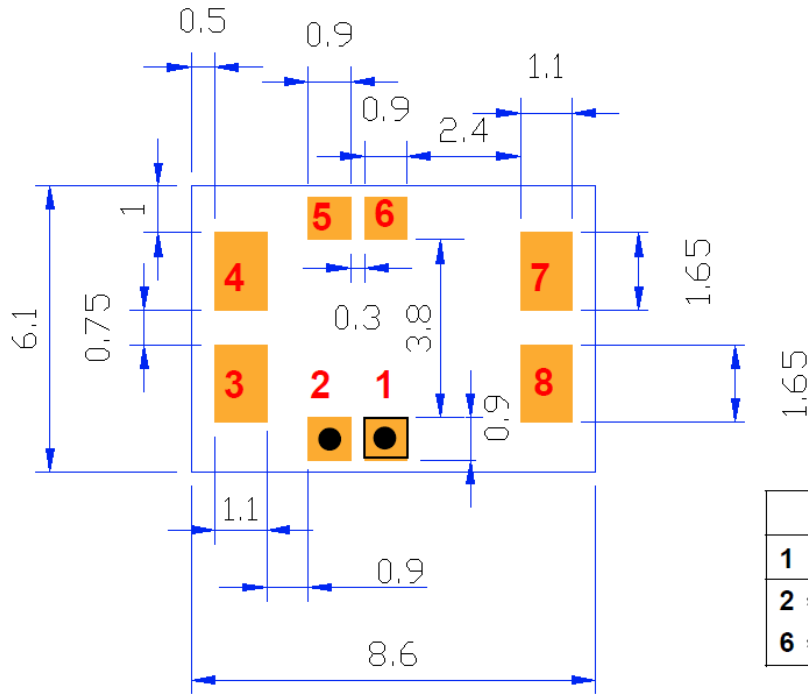
The antenna has the electrical characteristics given in Table 1 under the Taoglas standard installation conditions as shown in the Evaluation Board figure.

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 Ω
8	Operating Temperature	-30~+85°C

* Actual value will depend on environment & ground plane size

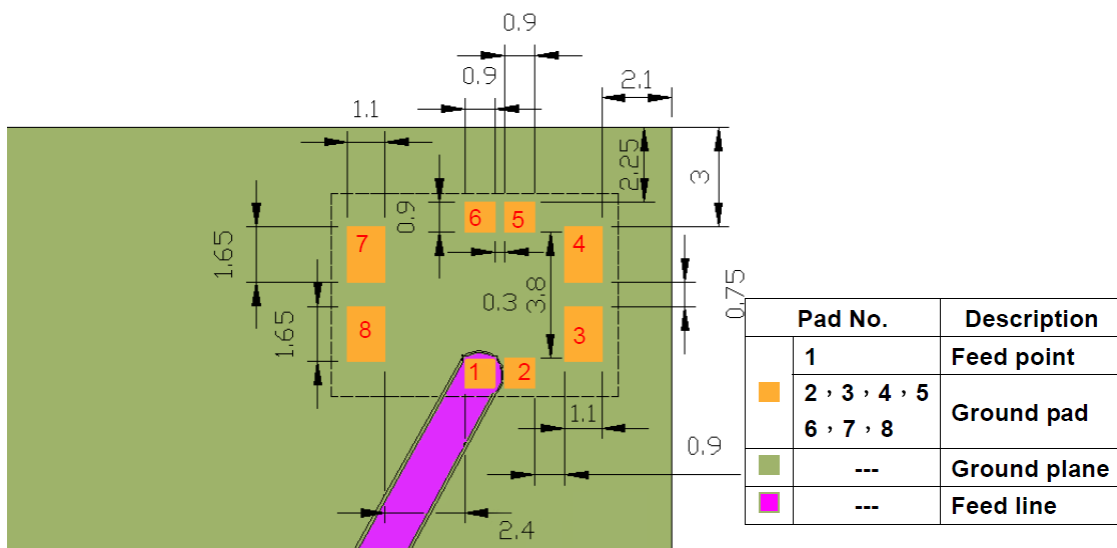


3.0 Pad Dimensions (footprint)(underside View)



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

3.1 Recommended PCB Footprint



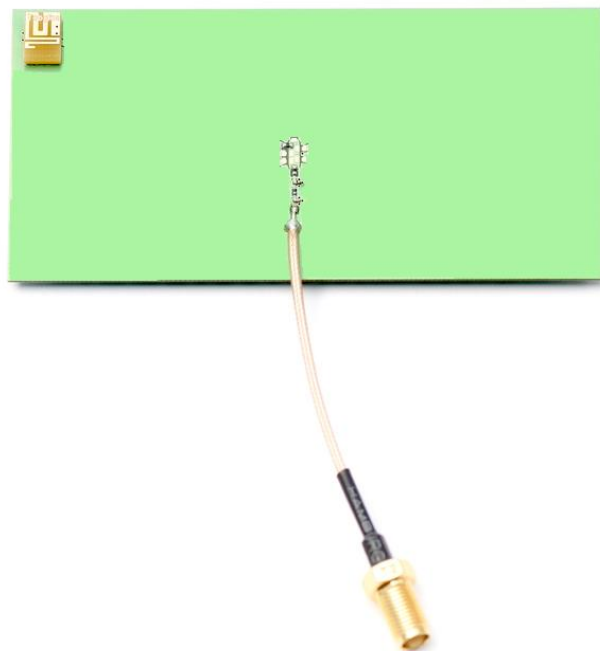
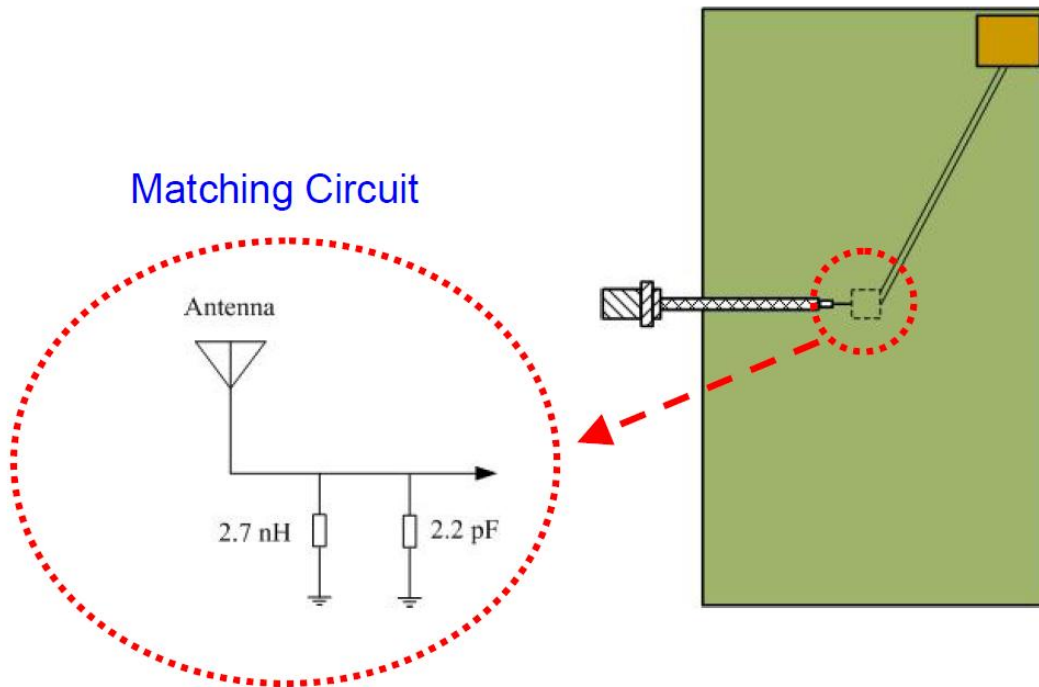
Pad No.	Description
1	Feed point
2, 3, 4, 5	Ground pad
6, 7, 8	
---	Ground plane
---	Feed line

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4.0 Recommended Layout and Matching Circuit



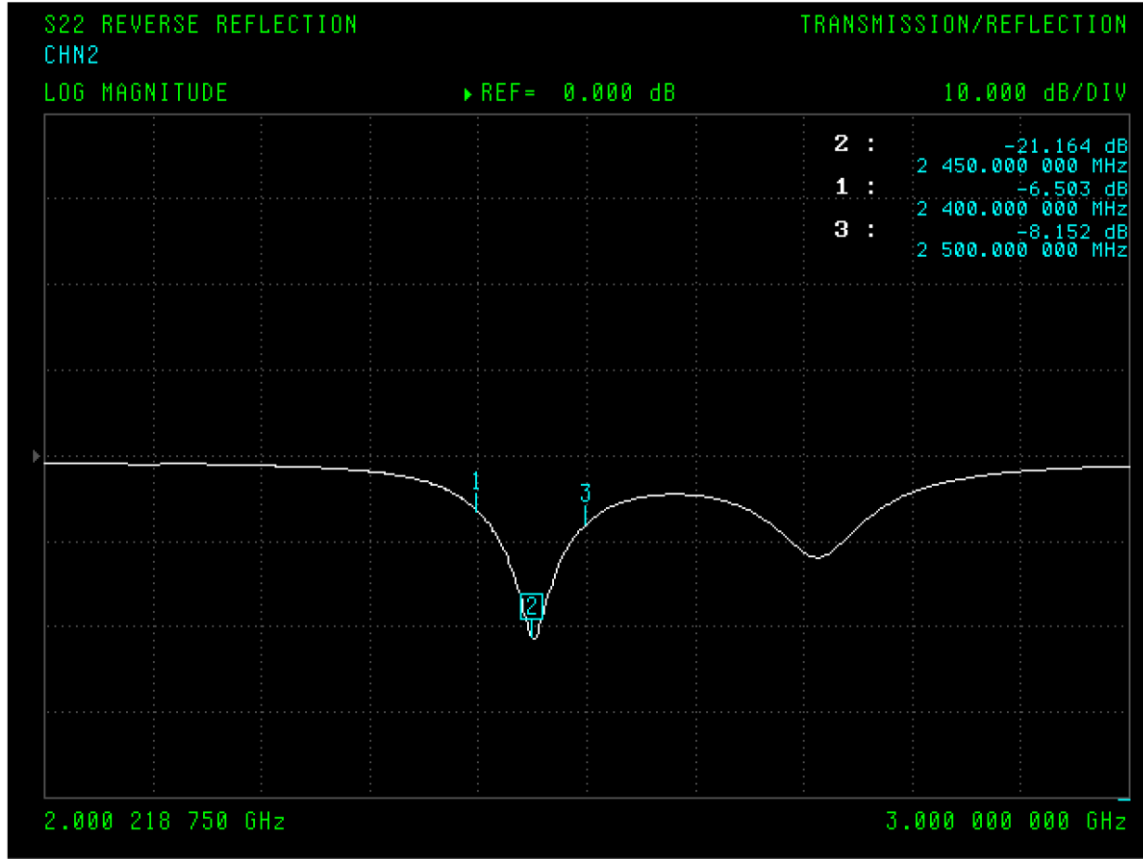
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5.0 S11 Parameter

Return Loss



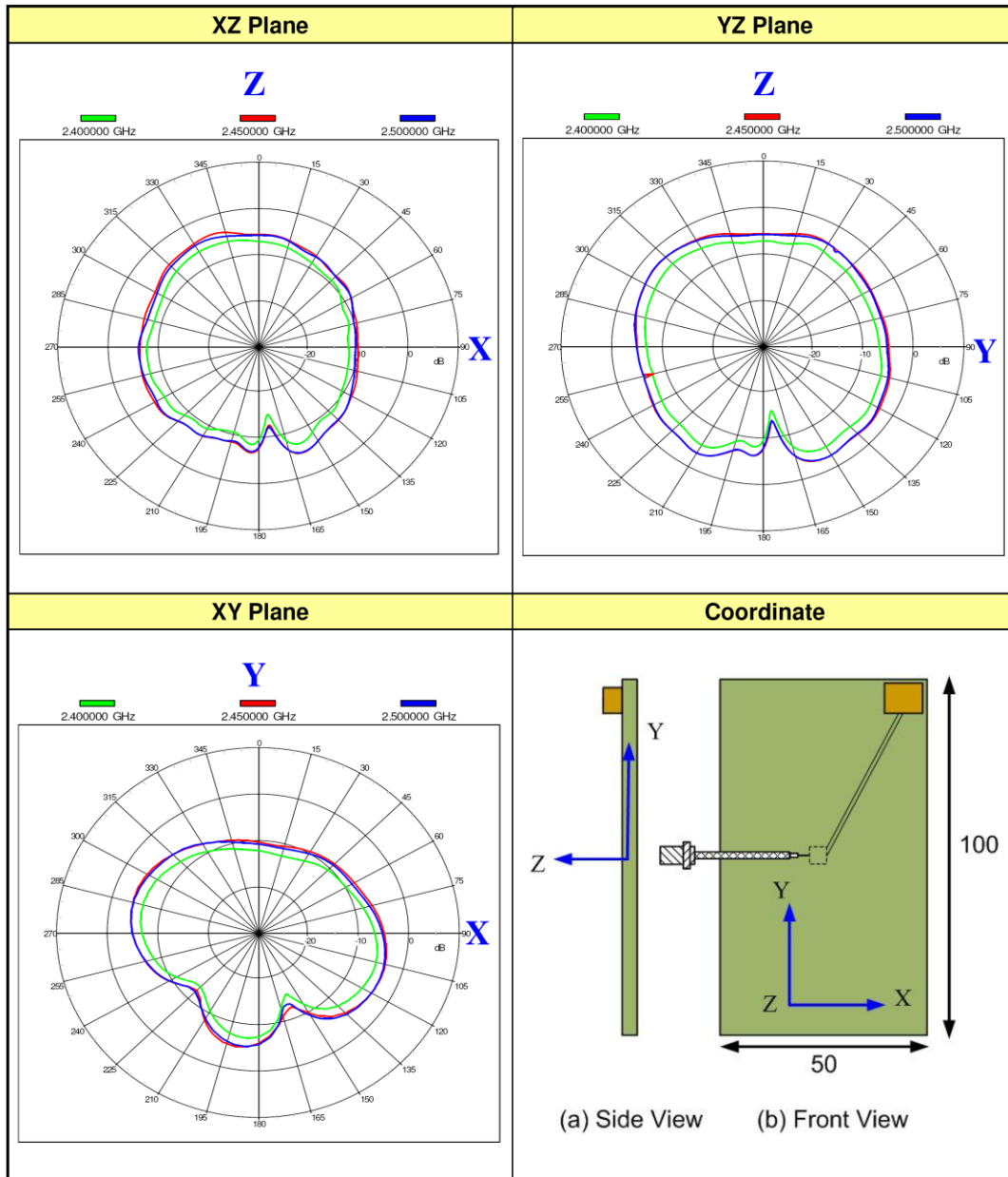
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6.0 Free Space Radiation Pattern

2D Radiation Pattern



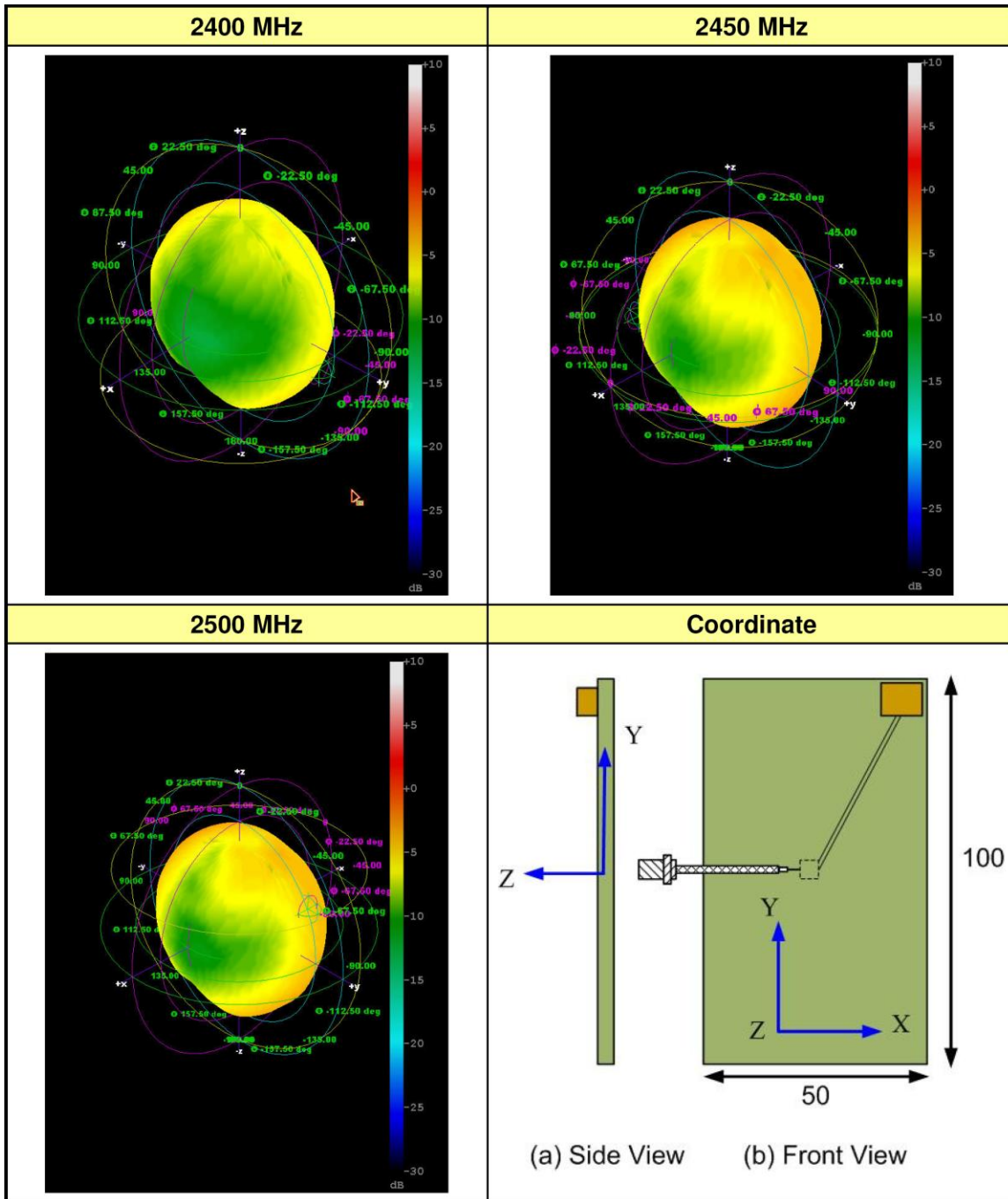
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Free Space Radiation Pattern

3D Radiation Pattern



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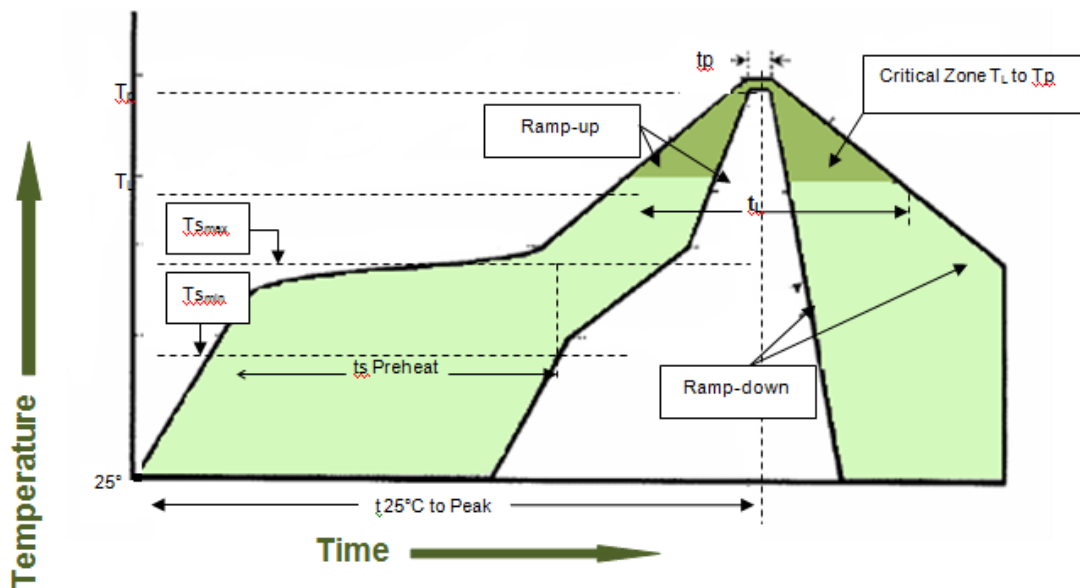


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7.0 Recommended Reflow Temperature Profile

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

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