



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!



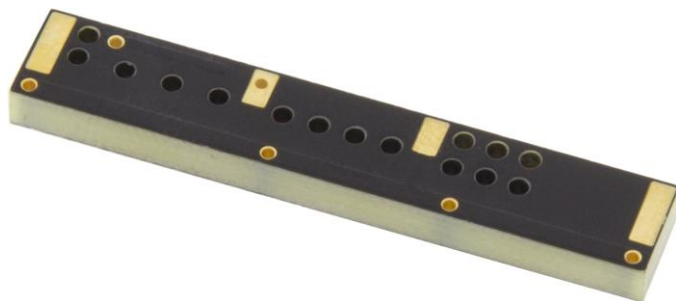
## Contact us

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

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

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





## Features:

- 3G/4G LTE antenna
- Fully SMT compatible
- RoHS compliant
- 40 x 7 x 3 mm
- Tape&Reel packing
- Part numbers:
  - W3796
  - W3796NL

## Applications:

- Devices requiring high performance compact internal 3G/4G antenna
- Suitable for 2xMiMo use when mounting two pcs W3769 onto radio board

Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

For more information:

Pulse Worldwide Headquarters  
15255 Innovation Drive #100  
San Diego, CA 92128  
USA  
Tel:1-858-674-8100

Pulse/Larsen Antennas  
18110 SE 34<sup>th</sup> St Bldg 2 Suite 250  
Vancouver, WA 98683  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg,4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



This document covers all product variants of the following product family:

1. W3796



2. W3796NL

P.S.: Same antenna & RF performance as W3796 but remove the Pulse logo ( shown as below).



**ELECTRICAL SPECIFICATIONS**

Antenna Type	PCB, SMD
Frequency	698-960 / 1427.9-1660.5/ 1695-2200 / 2300-2700MHz
Nominal Impedance	50 Ω
VSWR	3 : 1
Return loss	6dB
Total Efficiency (698-960MHz)	65%
Total Efficiency (1427.9-1660.5MHz)	55%
Total Efficiency (1695-2200MHz)	75%
Total Efficiency (2300-2700MHz)	70%
Average Peak Gain (698-960MHz)	1.5dBi
Average Peak Gain (1427.9-1660.5MHz)	2dBi
Average Peak Gain (1695-2200MHz)	5.5dBi
Average Peak Gain (2300-2700MHz)	5dBi
Average Gain (698-960MHz)	-2.5dBi
Average Gain (1427.9-1660.5MHz)	-3dBi
Average Gain (1695-2200MHz)	-2dBi
Average Gain (2300-2700MHz)	-1.5dBi
Maximum power input	5W

(\* ) All RF parameters measured on Pulse reference test PCB

### MECHANICAL SPECIFICATIONS



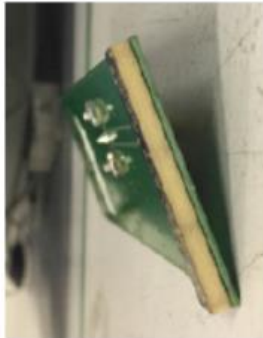
Color	Black
Size	40mm(L) * 7mm(W) * 3mm(T)
Weight	1.65 g
Fixing system	SMT
MSL (MOISTURE SENSITIVITY LEVEL)	3

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 ~ +85° C
Storage Temperature	24 hrs at 85 ° C and 24 hrs at -40 ° C per MIL STD 801G Method 501.5 (high) Method 502.5 (low)
Humidity	24hrs at 30 ° C and 93%RH per MIL STD 810G Method 507.5
RoHS Compliant	Yes

OTHER SPECIFICATIONS

1. W3796 Push Force Test

Project Name:		W3796-K			
Test Item:		Push Force > 10N			
Sample #	Picture_Test Before	Test Setup	Picture_Test After	Test Value Antenna	Conclusion
1				86.16	Pass
2				64	Pass
3				65.00	Pass
4				75	Pass
5				80.00	Pass
Conclusion:	Antenna Push test passed.				

## OTHER SPECIFICATIONS

### 2.. W3796 Drop Test

The following sample/application is just for reference to show how to conduct the drop test when the PCB antennas W3796 is SMT on a PCB of a device.

Fig.1: Appearance photos of the samples before test.

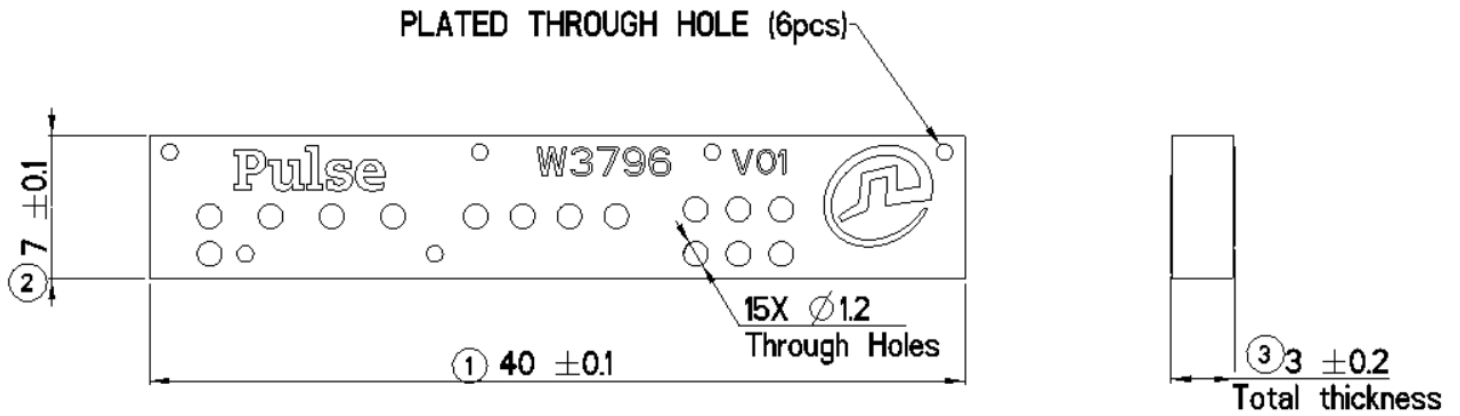


Test Method: The whole assembly at 1 meter drop. A minimum of one drop per orientation - flat top, bottom, side and corner (a total of 4 drops). It's recommended to get one drop on flat top, bottom, all four flat sides and four top corners, a total of 10 drops. (Note: MIL STD and JASO D001-1994 cites to drop products on a 2 inch plywood backed by concrete floor)

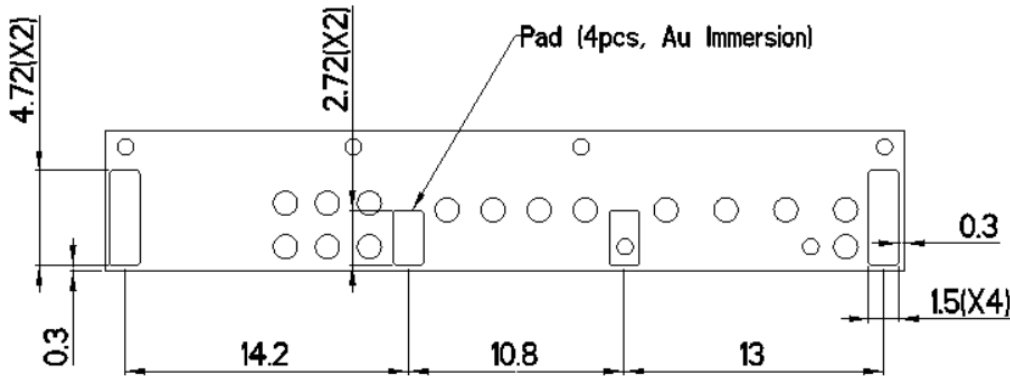
P.S.:

When doing the structure design, please keep enough safe space between the W3796 and the housing, and also fix the PCB firmly in the housing to avoid any impact during the drop test.

MECHANICAL DRAWING



Front View



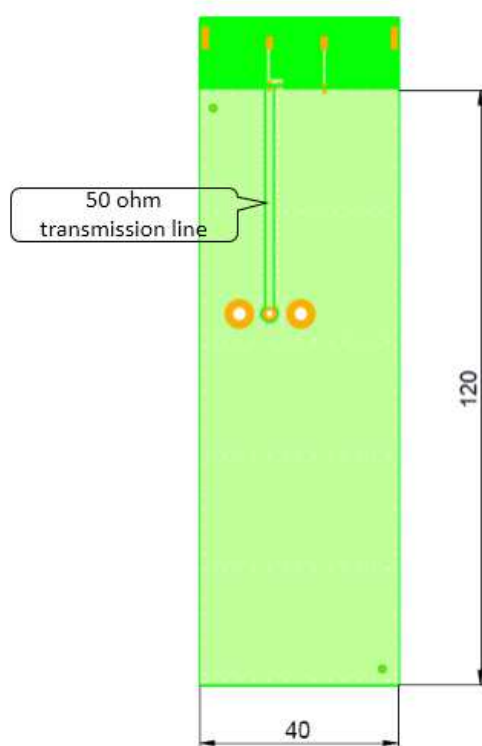
Back View

All dimensions are measured in mm.



TEST SETUP

Pulse reference test PCB for W3796 antenna



Ground clearance dimensions (mm) and matching component values

Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

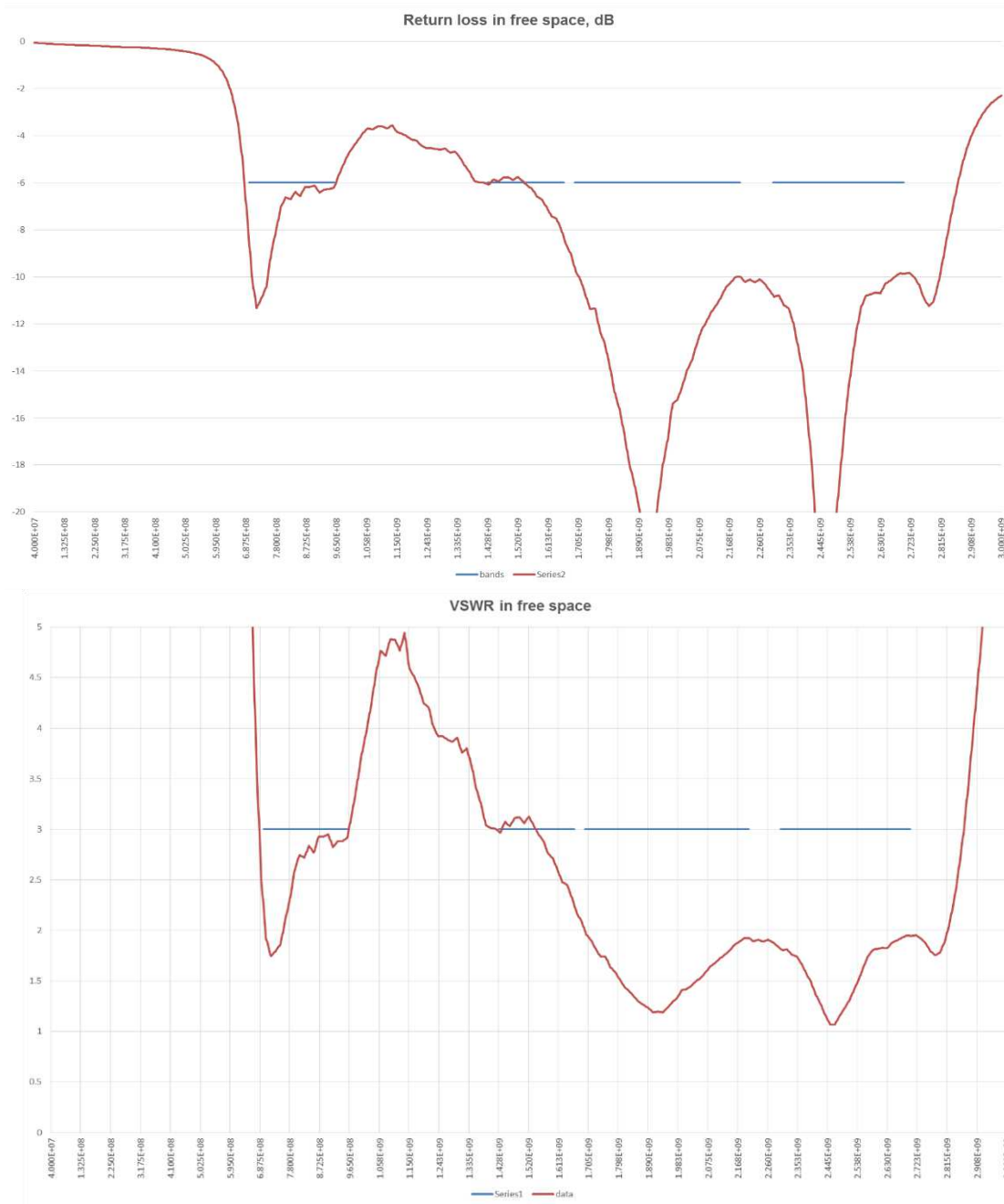
CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



CHARTS

Charts (free space measurements on Pulse reference test PCB)



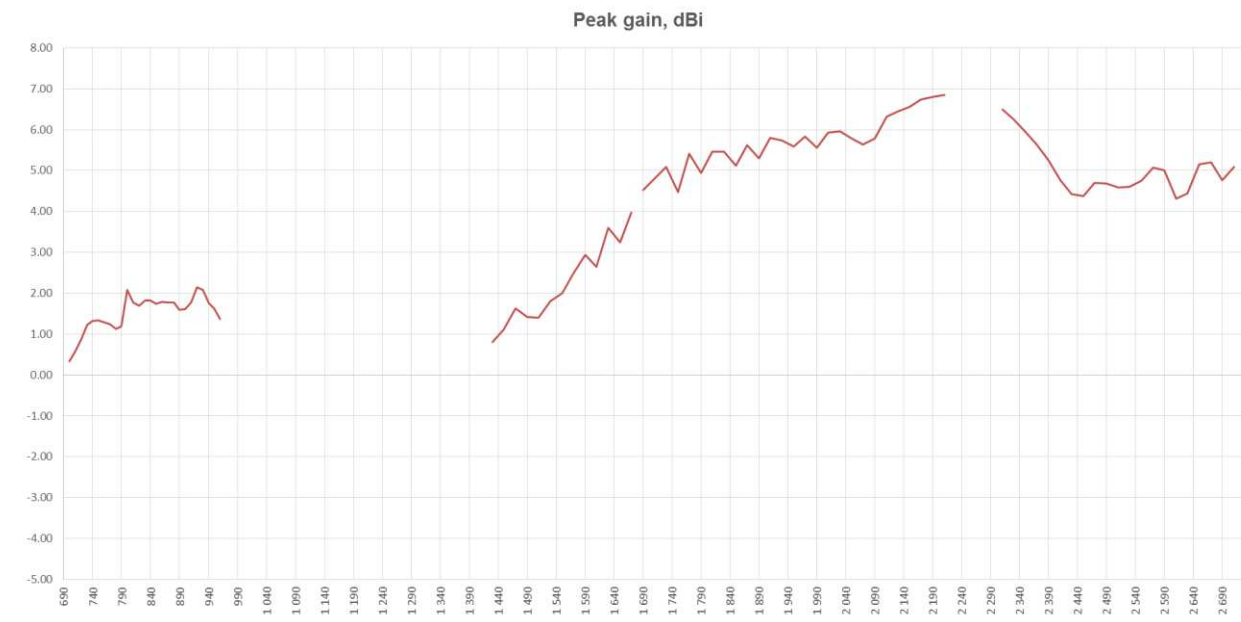
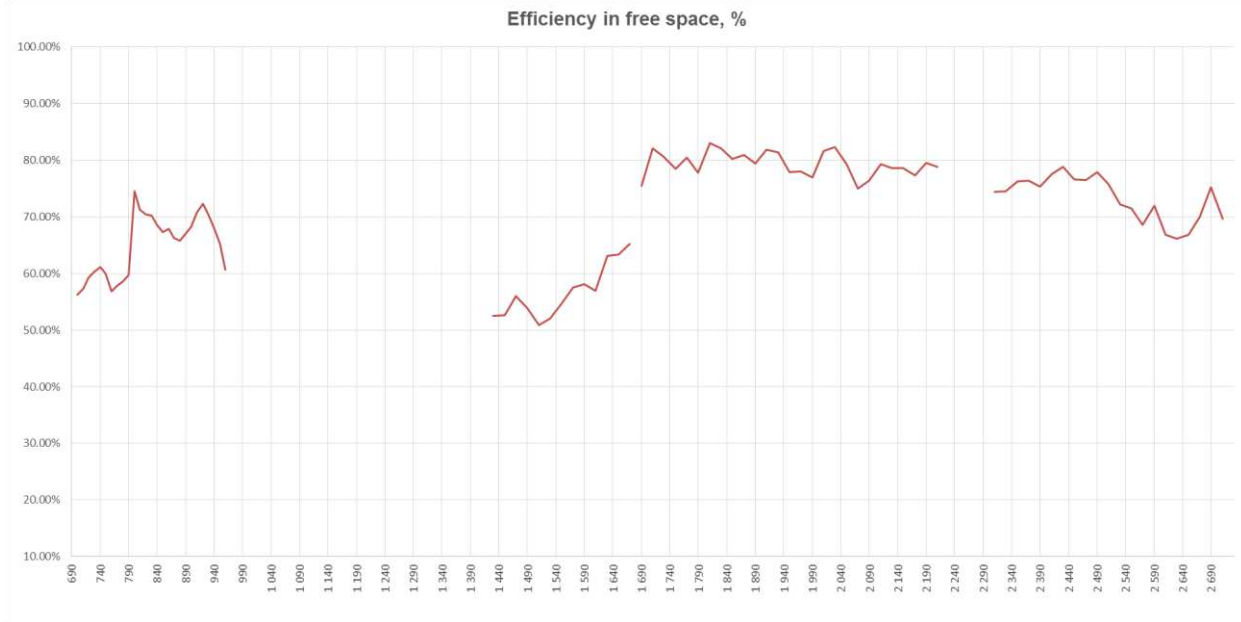
Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

CHARTS



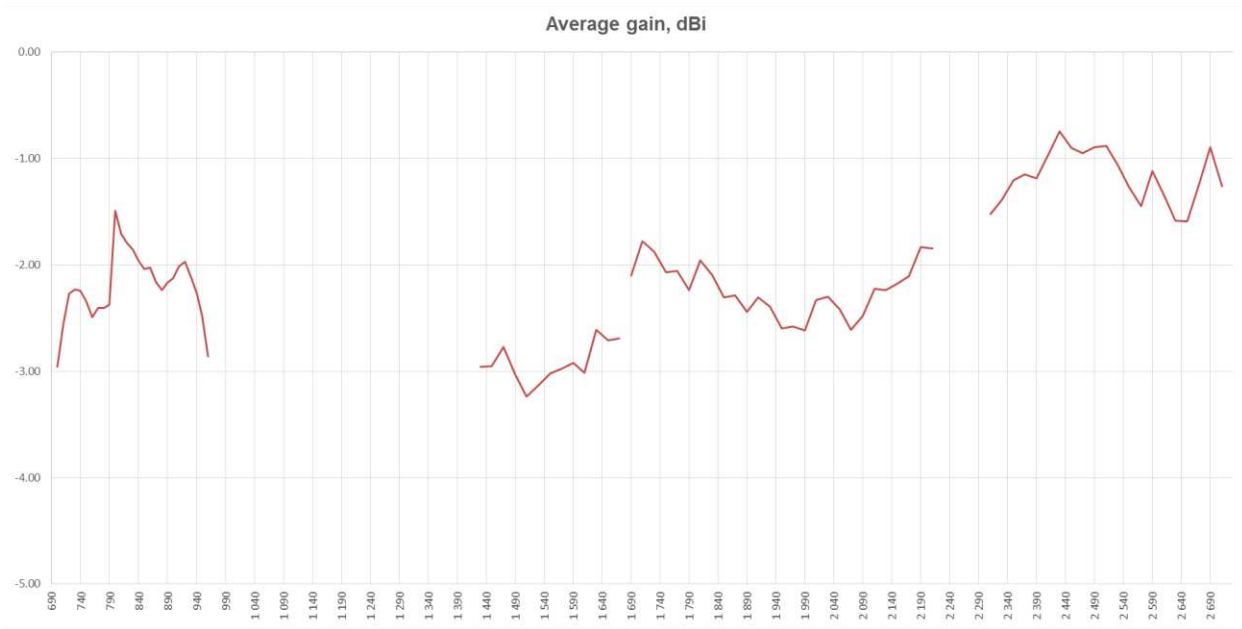
Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

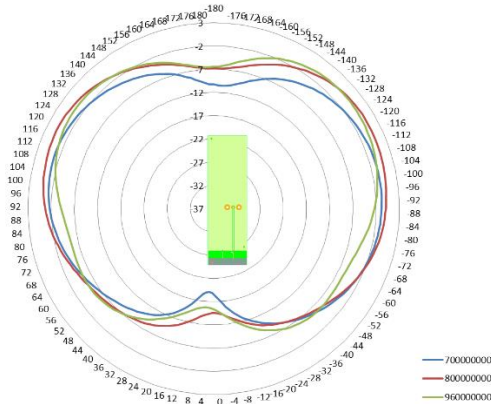
CHARTS



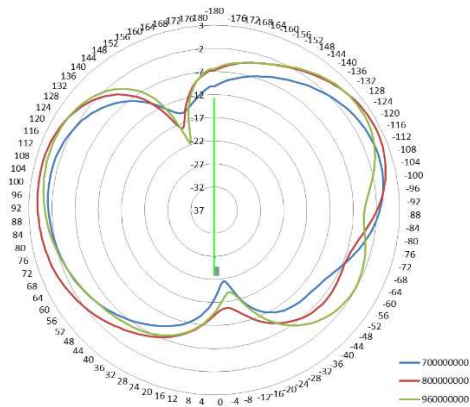
CHARTS

698-960MHz

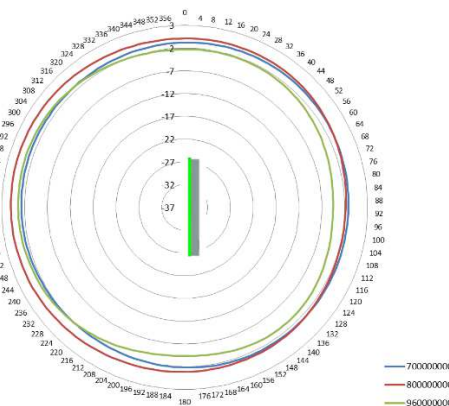
Vertical plot, front view



Vertical plot, side view



Horizontal plot



Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

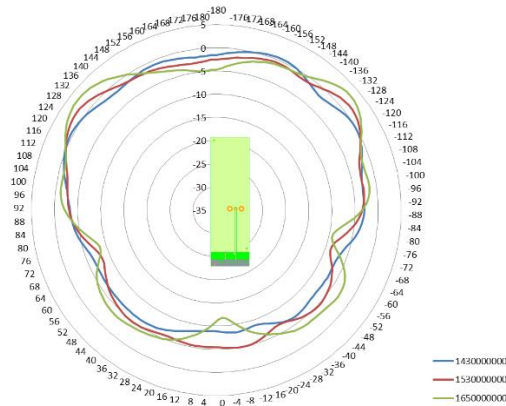
CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

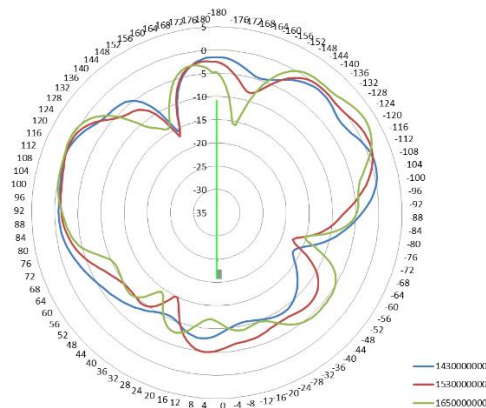
CHARTS

1427.9-1660.5MHz

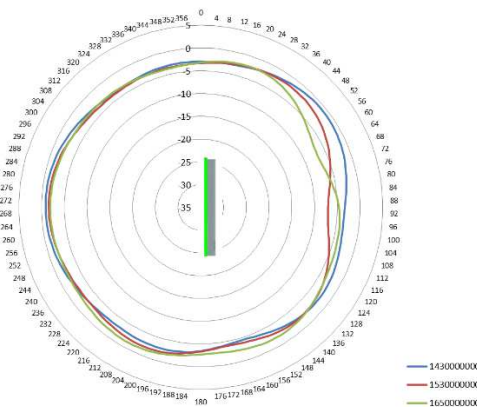
Vertical plot, front view



Vertical plot, side view



Horizontal plot



Issue: 1710

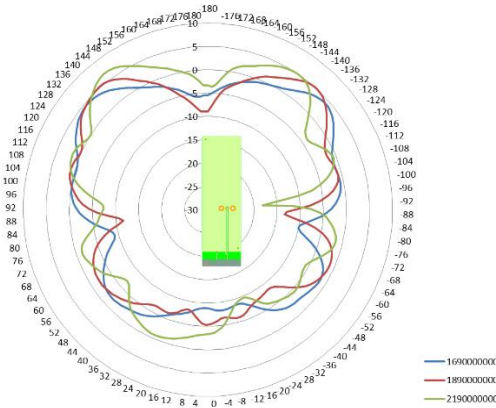
In the effort to improve our products, we reserve the right to change specifications without notice. This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

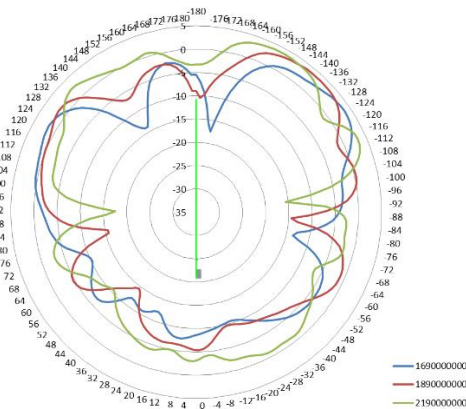
CHARTS

1695-2200MHz

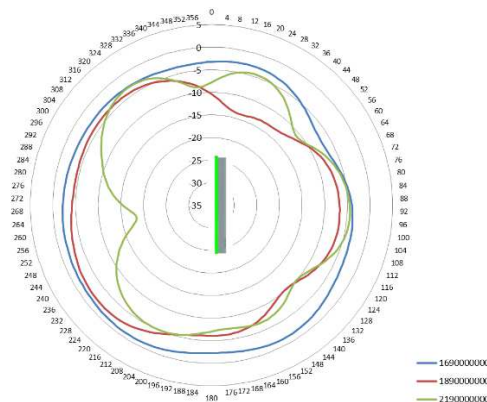
Vertical plot, front view



Vertical plot, side view



Horizontal plot



Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

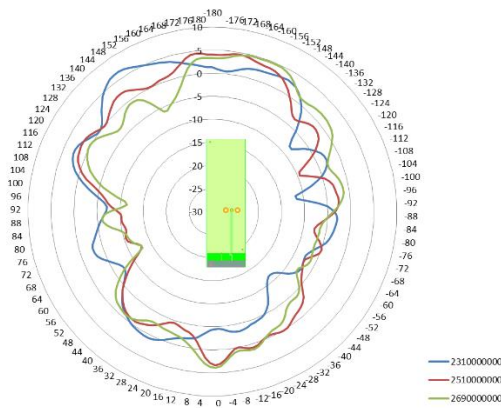
This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



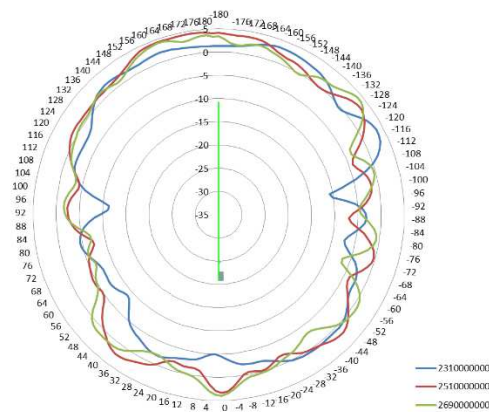
CHARTS

2300-2700MHz:

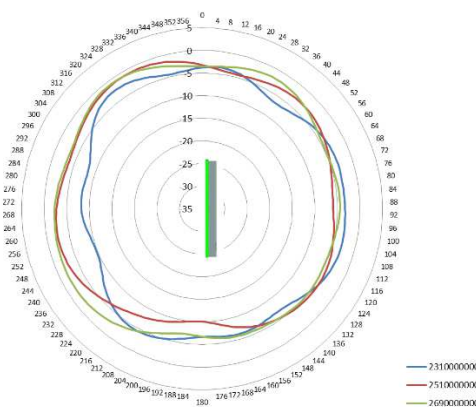
Vertical plot, front view



Vertical plot, side view



Horizontal plot



Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

**Recommendation for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 30 sec
5	Peak temperature in reflow	230 °C for 10 seconds
6	Temperature gradient in cooling	Max -5 °C/s

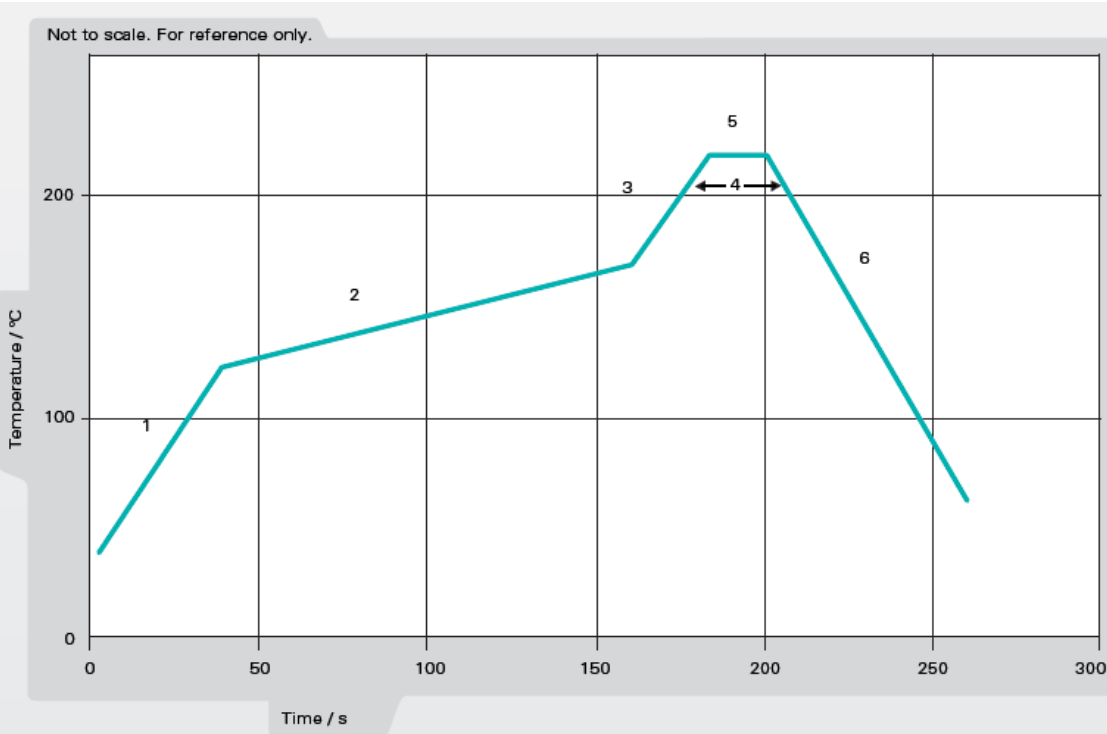
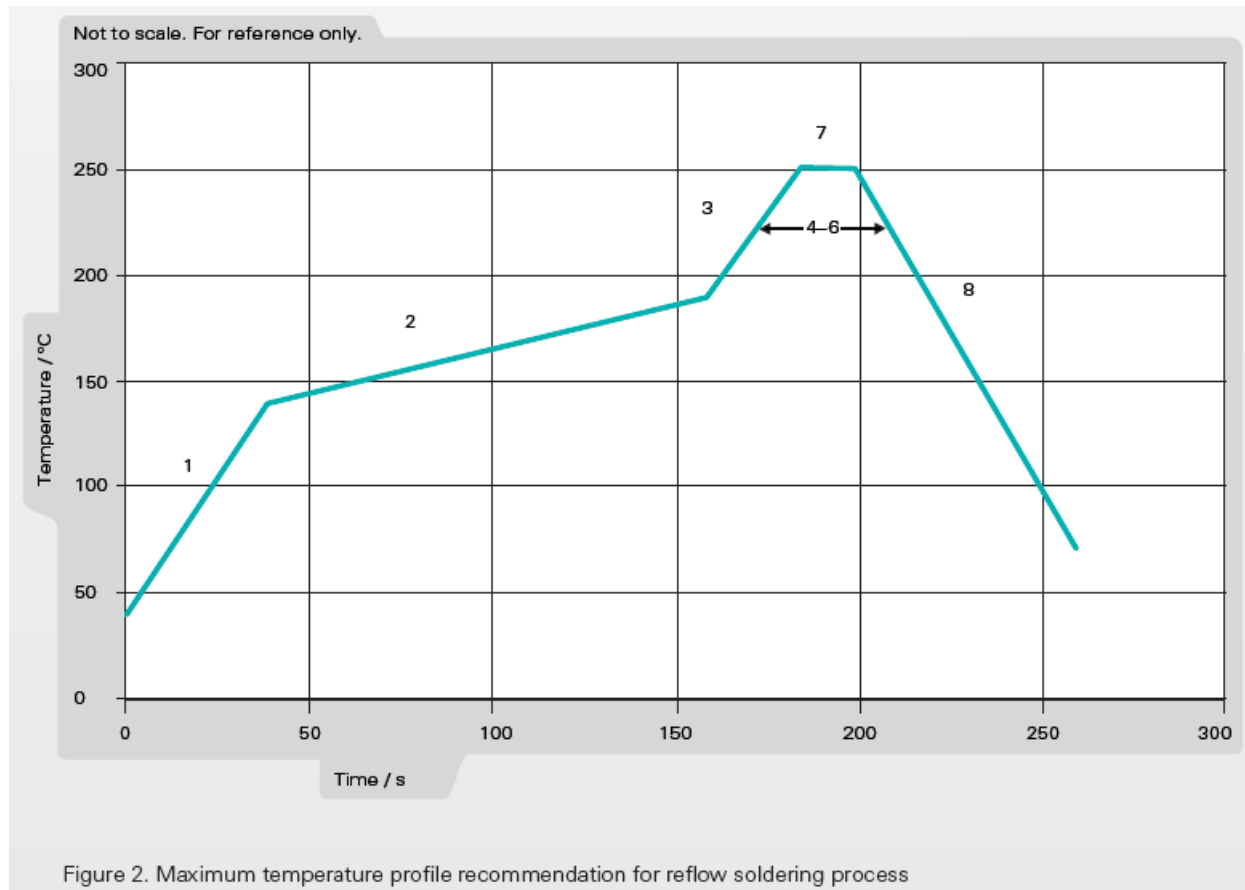


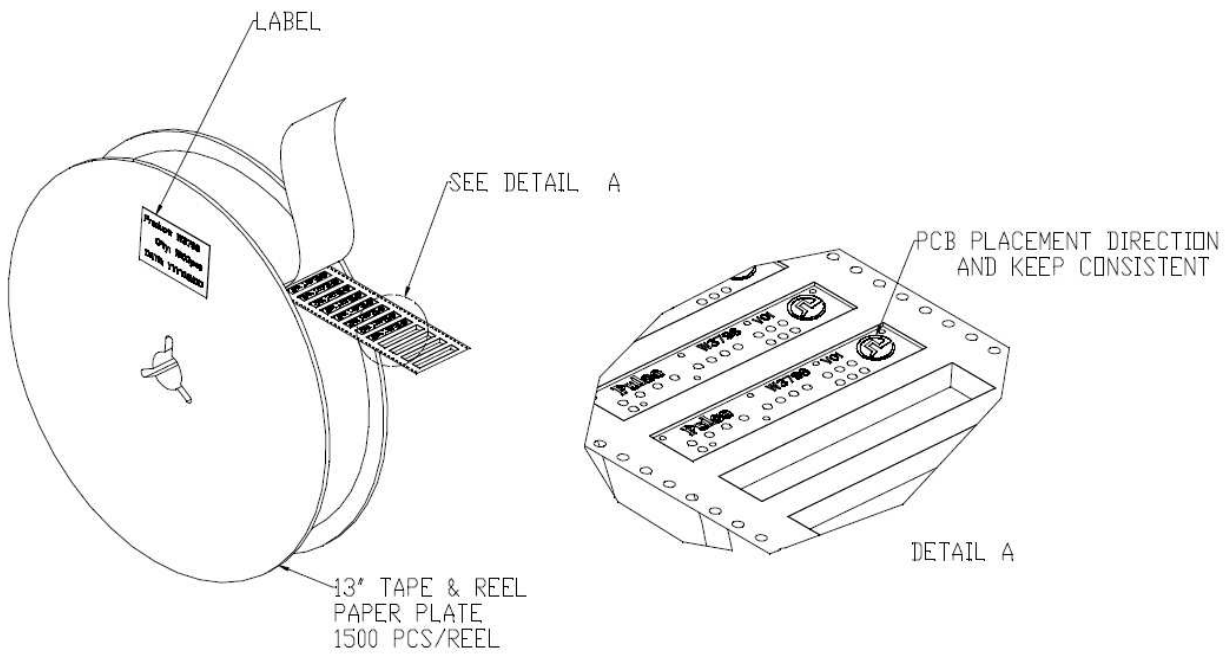
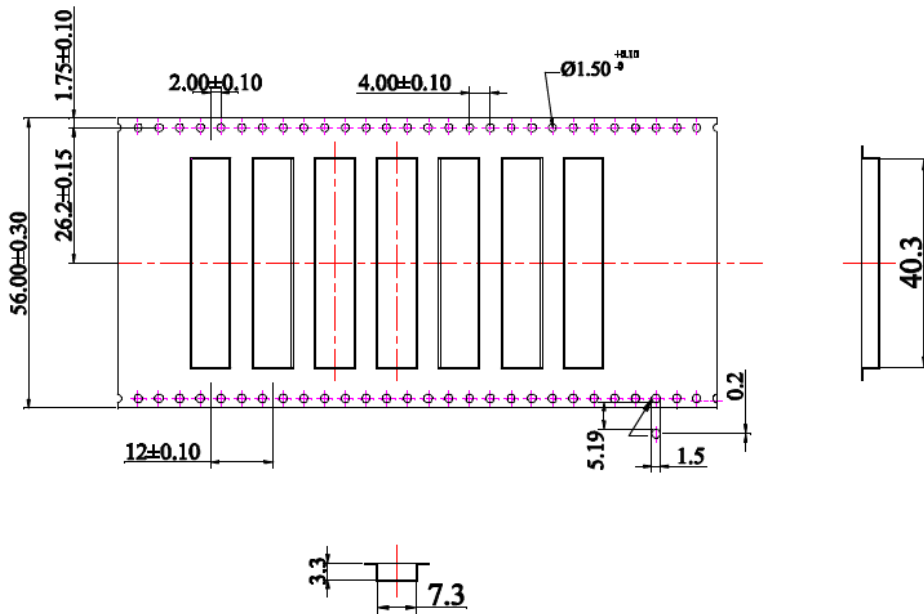
Figure 1. Minimum temperature profile recommendation for reflow soldering process

**Recommendation for reflow soldering process**

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 60 sec
5	Time above 230 °C	Max 50 sec
6	Time above 250 °C	Max 10 sec
7	Peak temperature in reflow	260 °C for 5 seconds
8	Temperature gradient in cooling	Max -5 °C/s



PACKAGING (TAPE & REEL)



Issue: 1710

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.