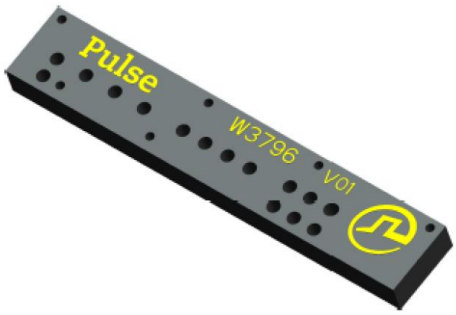
LTE Surface Mount ANTENNA

Domino Series

Part# W3796



The W3796 compact, sleek LTE antenna is part of the Surface Mount Antenna, Domino series of embedded antennas. LTE, also referred to as 4G, is designed to increase traffic capacity and reduce overall power consumption. This sleek multi-band embedded antenna is the ideal option for many LTE applications, offering high efficiency where space is limited. As an added feature, the W3796 also covers the GNSS/GPS band.

Features

- **Multi-band coverage in a compact design**
- **LTE Frequencies plus GNSS:** 698-960/1695-2200/2300-2700MHz plus added extra band covering 1427.9-1660.5
- **Small, low profile size of 7 x 40 x 3 mm**
- **SMD Solution – single port**
- **Efficiency at 65 – 75%**
- **RoHS compliant and Halogen free**

Applications

- **4G/LTE applications**
- **Data transmission for IoT applications**
- **High speed data terminals**
- **Routers using LTE frequencies**
- **Hot Spots**
- **Public safety applications**
- **Radio modules**

Confidential and Proprietary – Pulse Electronics – All Rights reserved – 2015
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 content, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden. Information subject to change without notice.

For More Information

Pulse Worldwide Headquarters
12220 World Trade Drive
San Diego, CA 92128
USA

Tel:1- 858-674-8100
Fax: 1-858-674-8262

Larsen Brand Antennas
3611 NE 112th Ave
Vancouver, WA 98682
USA

Tel: 1-360-944-7551
Fax: 1-360-944-7556

Europe Headquarters
Pulse GmbH & Do, KG
Zeppelinstrasse 15
Herrenberg, Germany

Tel: 49 7032 7806 0
Fax: 49 7032 7806 135

Pulse (Suzhou) Wireless Products Co, Inc.
99 Huo Ju Road(#29 Bldg, 4th Phase
Suzhou New District
Science & Tech Industrial Park
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998
Fax: 86 512 6809 8023

Performance warranty of products offered in this data sheet is limited to the parameters specified. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners.
©Copyright, 2015. Pulse Electronics, Inc. All rights Reserved.

LTE SMD ANTENNA

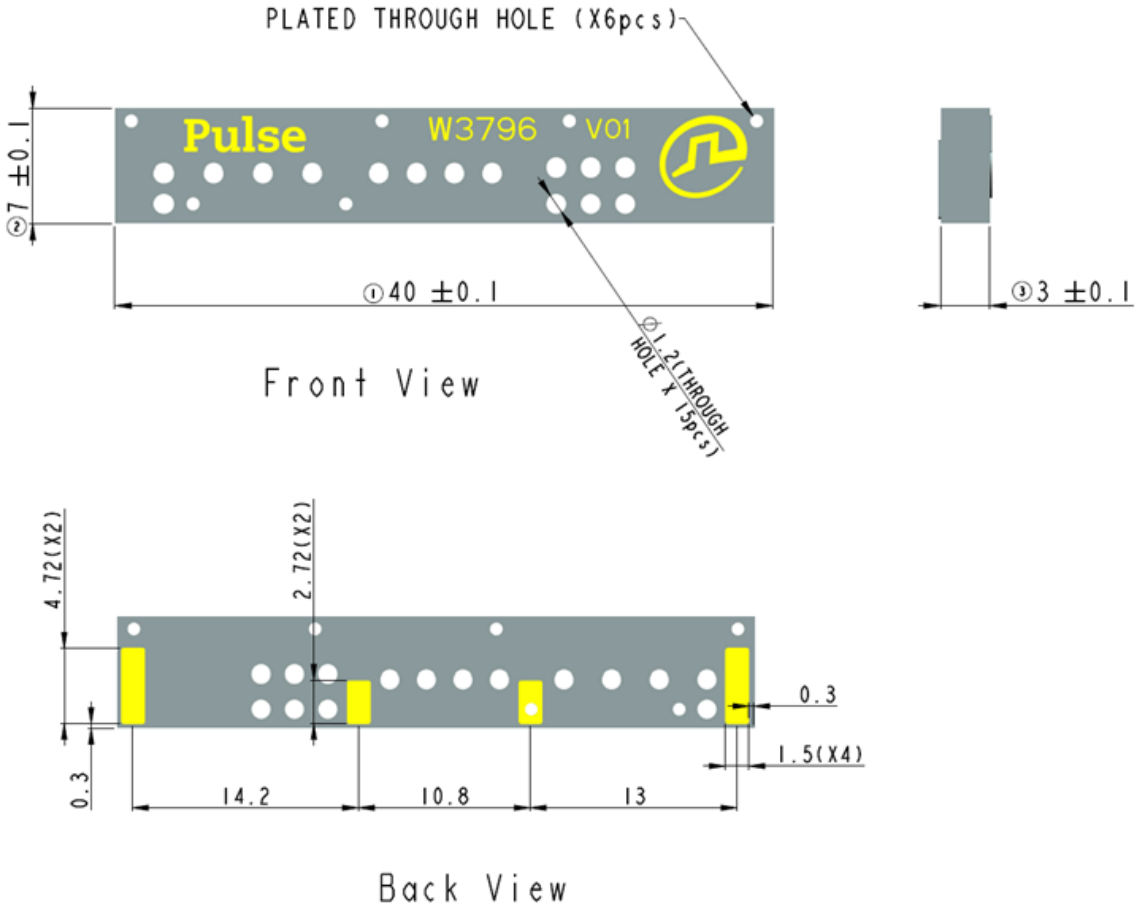
Part# W3796

ELECTRICAL SPECIFICATIONS	
FREQUENCY (MHz)	698-960/1427.9-1660.5/1695-2200/2300-2700MHz
NOMINAL IMPEDANCE (Ω)	50
VSWR	3:01
RETURN LOSS	6dB
TOTAL EFFICENCY (698-960MHz)	65%
TOTAL EFFICENCY (1427.9-1660.5MHz)	55%
TOTAL EFFICENCY (1695-2200MHZ)	75%
TOTAL EFFICENCY (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

ENVIRONMENTAL SPECIFICATIONS	
OPERATION TEMPERATURE	-40 TO +85 ° C
TEMPERATURE STATIONARY	-40 TO +85 ° C
TEMPERATURE CYCLIC	3 Cycles Rate 15 ° C/min
HUMIDITY STATIONARY	93% RH @ 30° C
HUMIDITY CYCLIC	24 hours
DROP TEST	1 M

MECHANICAL SPECIFICATIONS	
COLOR	Black
SIZE	40mm (L) * 7mm (W) * 3mm (T)
WEIGHT	1.65 g
FIXING SYSTEM	SMT

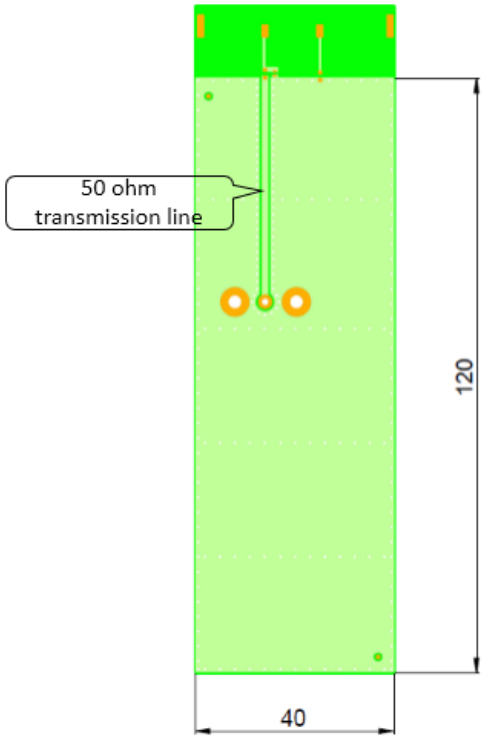
Part# W3796



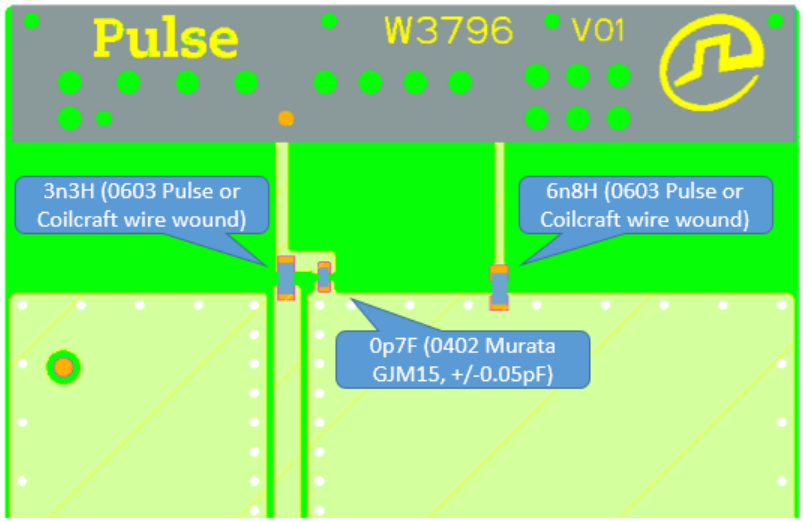
The Antenna W3796 is in compliance with requirements of ROHS and Halogen Free.

Part# W3796

Reference Test PCB

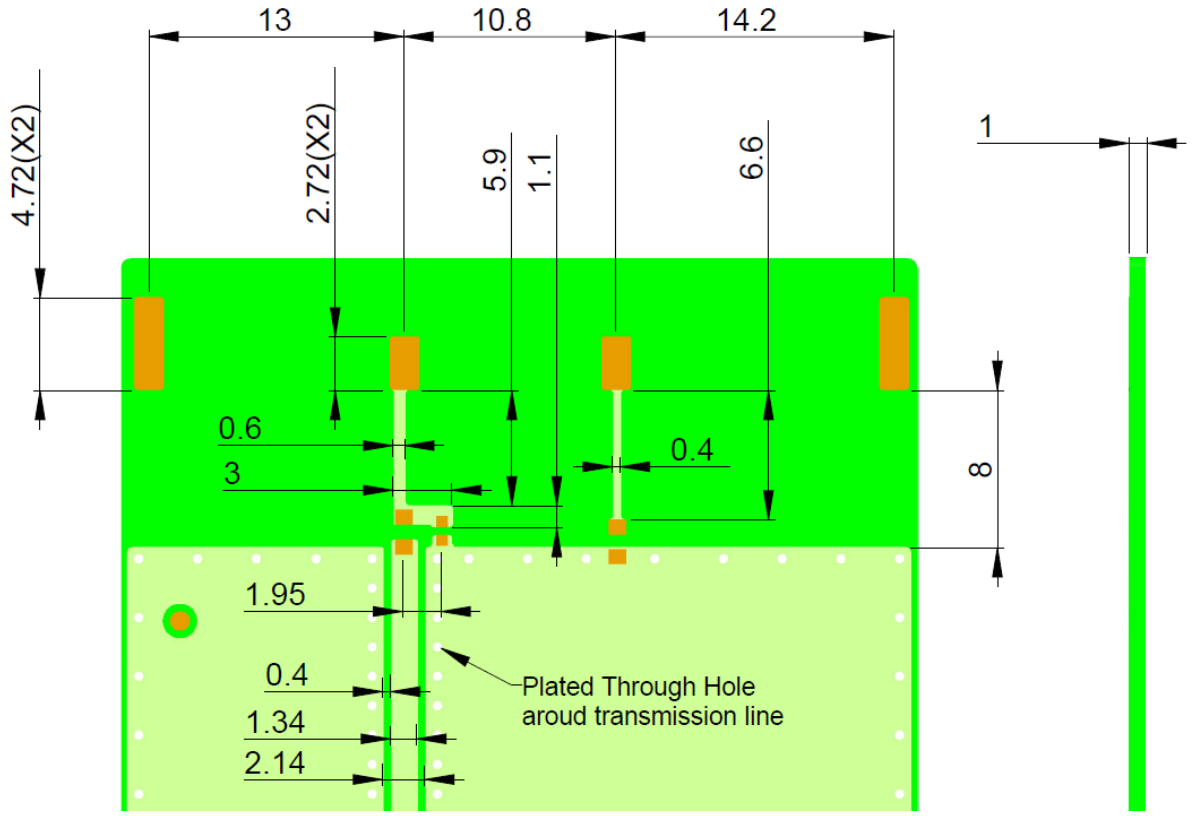


Ground plane dimensions (mm)



Ground clearance dimensions (mm) and matching component values

Part# W3796

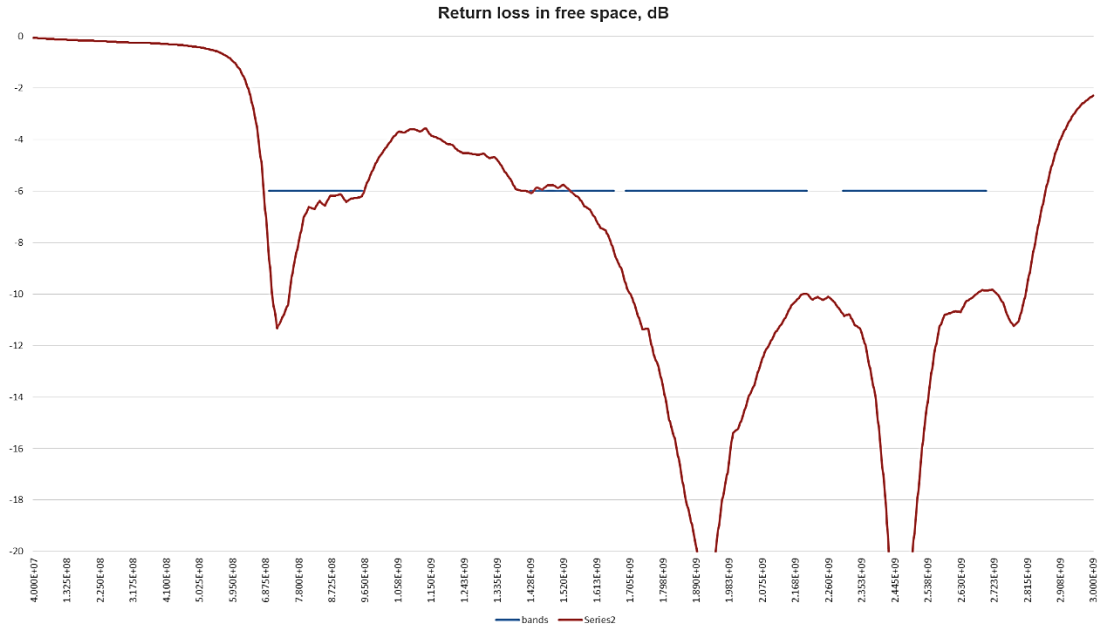


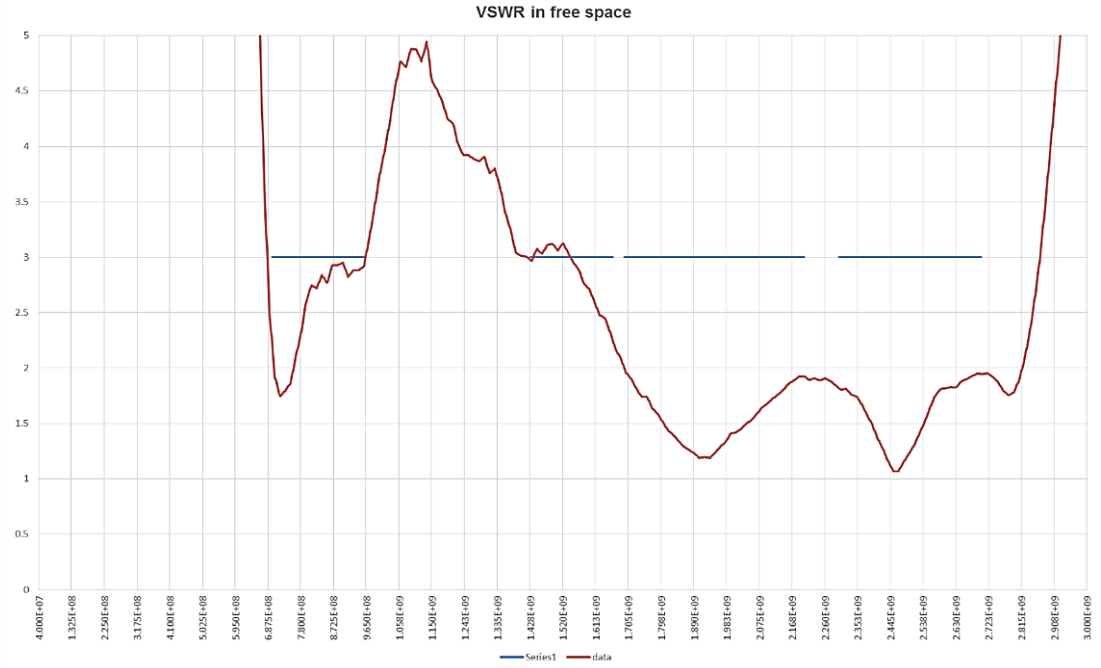
Recommended test board PCB layout for electrical characteristic measurement. Substrate material FR4.

All dimensions are in mm

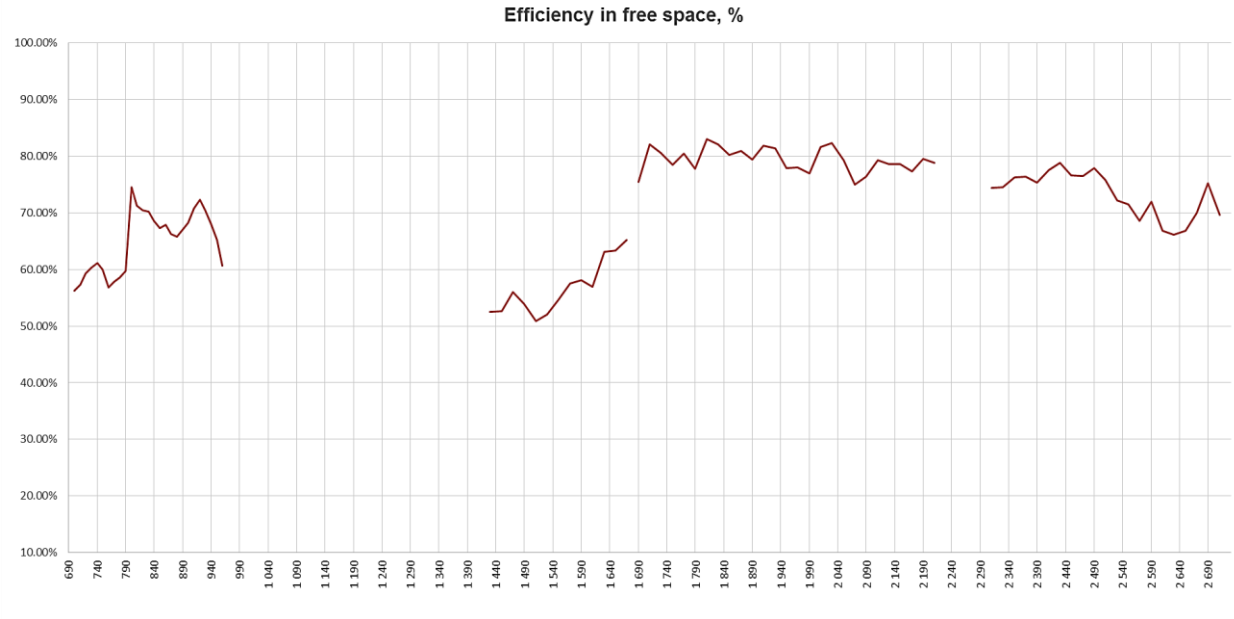
Part# W3796

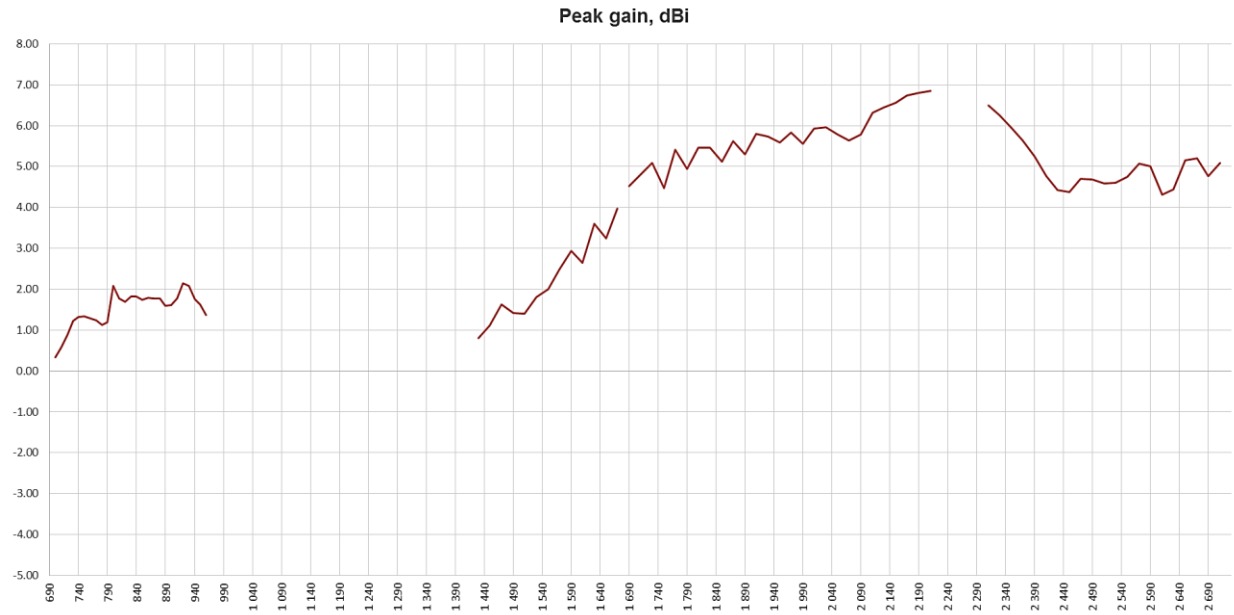
Charts (free space measurements on Pulse reference test PCB)



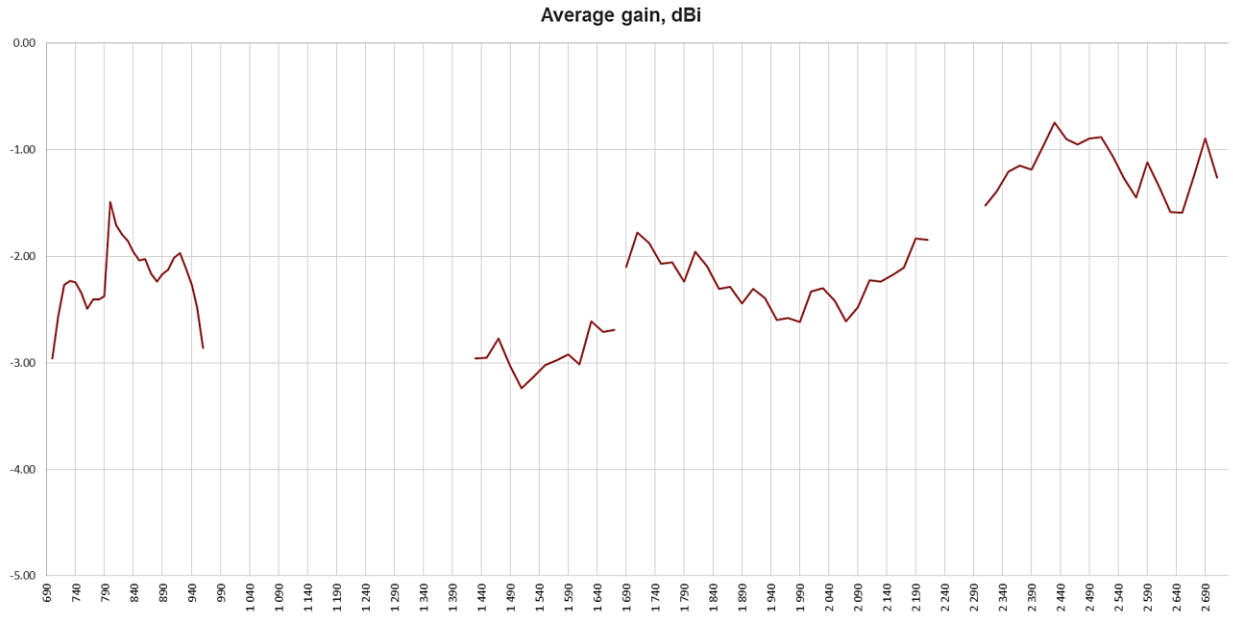


Part# W3796


Efficiency in free space, %
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
690
740
790
840
890
940
990
1 040
1 090
1 140
1 190
1 240
1 290
1 340
1 390
1 440
1 490
1 540
1 590
1 640
1 690
1 740
1 790
1 840
1 890
1 940
1 990
2 040
2 090
2 140
2 190
2 240
2 290
2 340
2 390
2 440
2 490
2 540
2 590
2 640
2 690

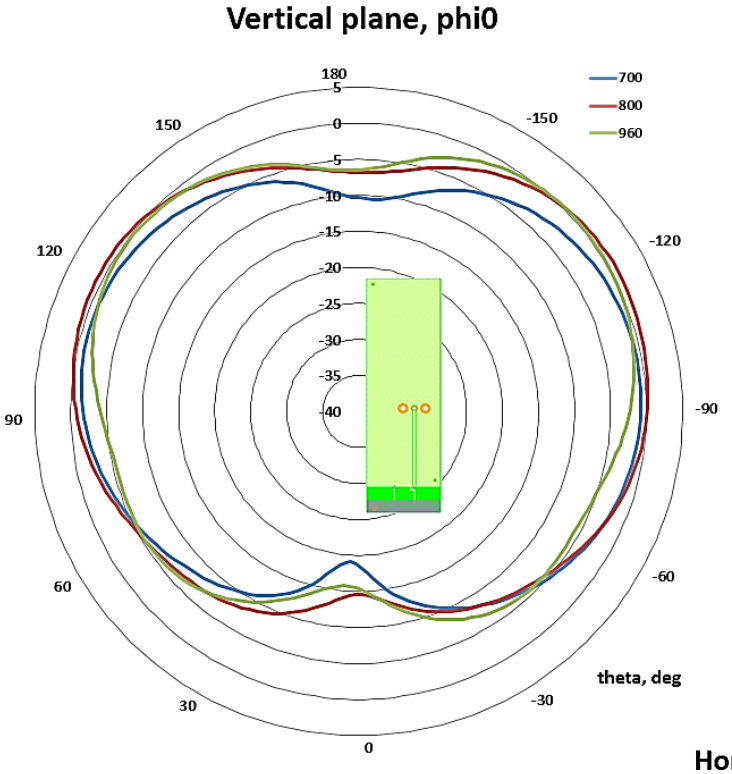

Peak gain, dBi
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
690
740
790
840
890
940
990
1 040
1 090
1 140
1 190
1 240
1 290
1 340
1 390
1 440
1 490
1 540
1 590
1 640
1 690
1 740
1 790
1 840
1 890
1 940
1 990
2 040
2 090
2 140
2 190
2 240
2 290
2 340
2 390
2 440
2 490
2 540
2 590
2 640
2 690

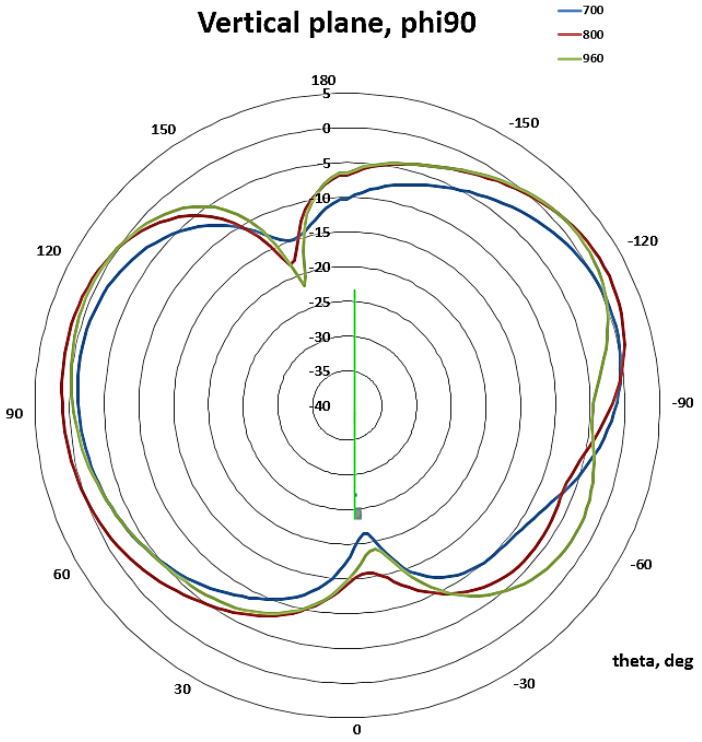
Part# W3796

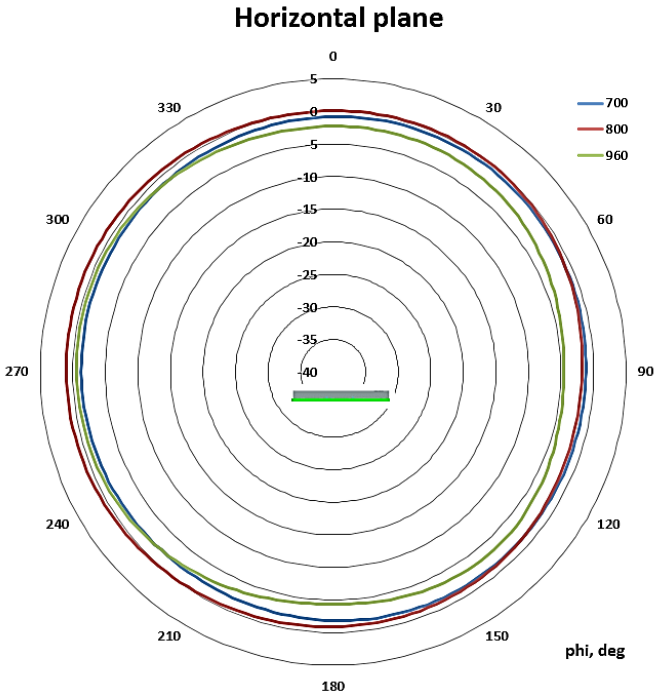

Average gain, dBi
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
690
740
790
840
890
940
990
1 040
1 090
1 140
1 190
1 240
1 290
1 340
1 390
1 440
1 490
1 540
1 590
1 640
1 690
1 740
1 790
1 840
1 890
1 940
1 990
2 040
2 090
2 140
2 190
2 240
2 290
2 340
2 390
2 440
2 490
2 540
2 590
2 640
2 690

Part# W3796

PATTERN DATA



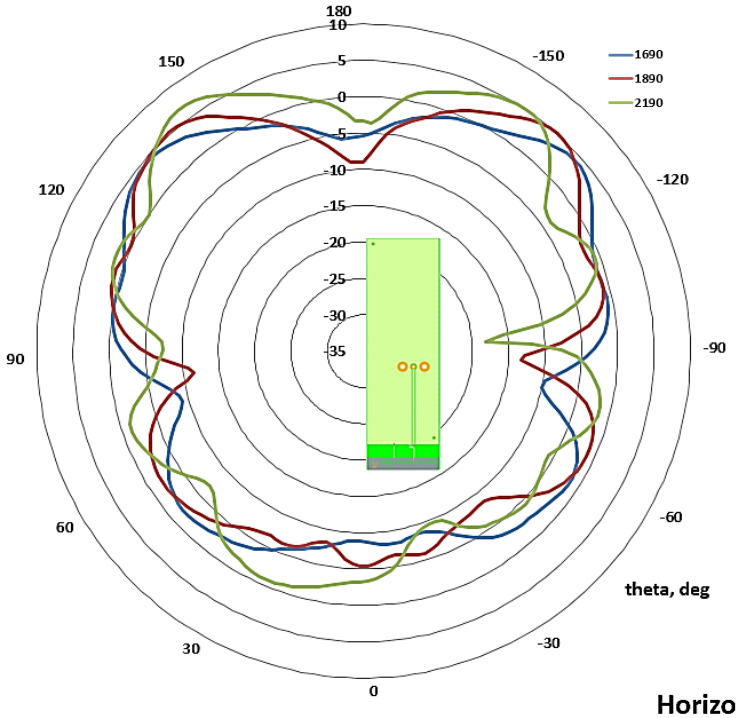




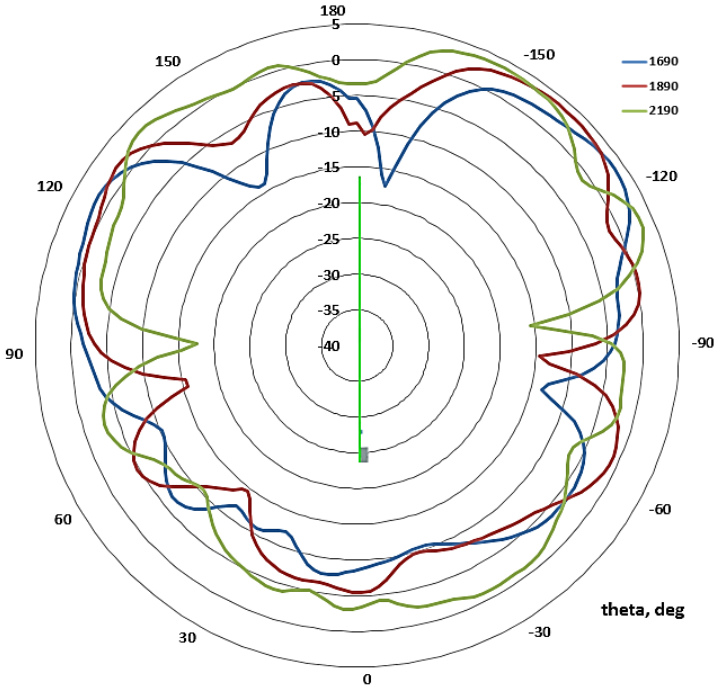
Part# W3796

PATTERN DATA

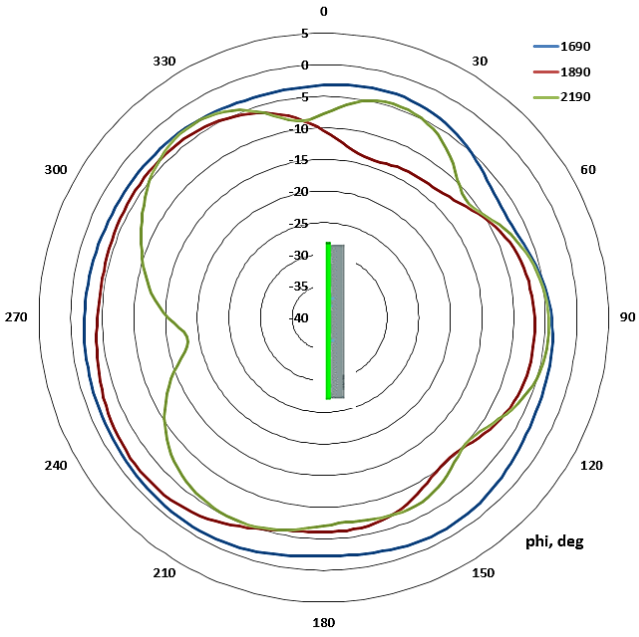
Vertical plane, phi0



Vertical plane, phi90



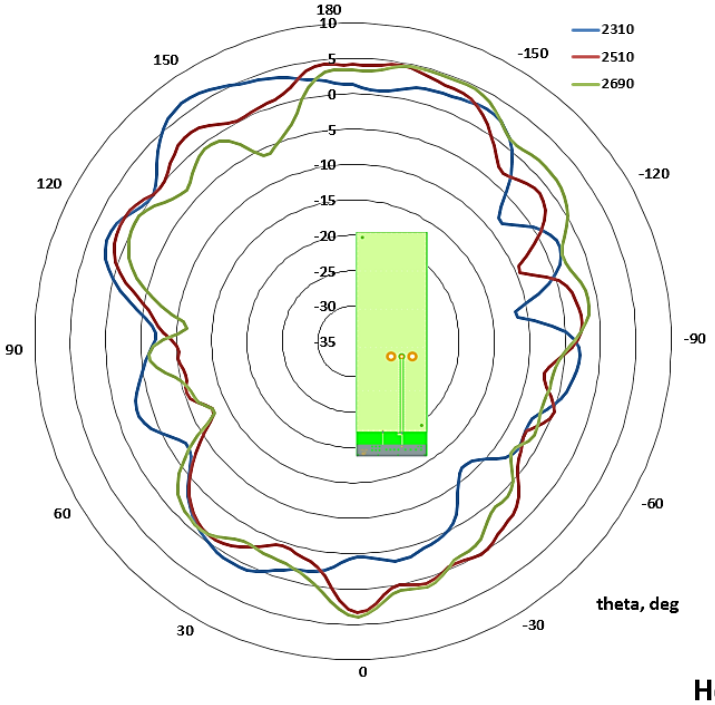
Horizontal plane



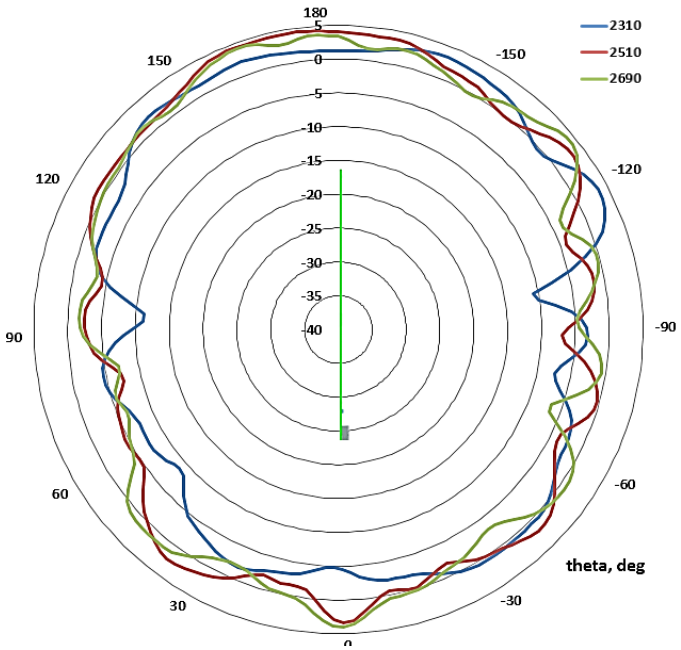
Part# W3796

PATTERN DATA

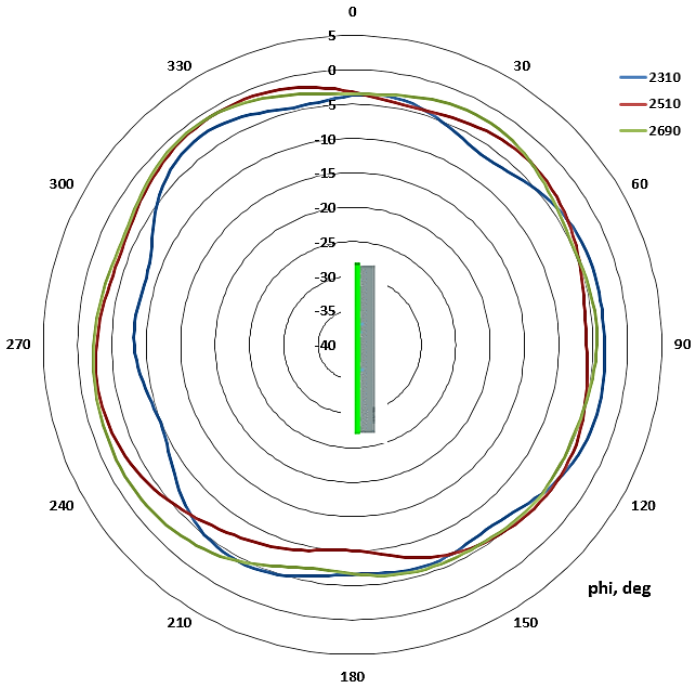
Vertical plane, phi0



Vertical plane, phi90



Horizontal plane



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

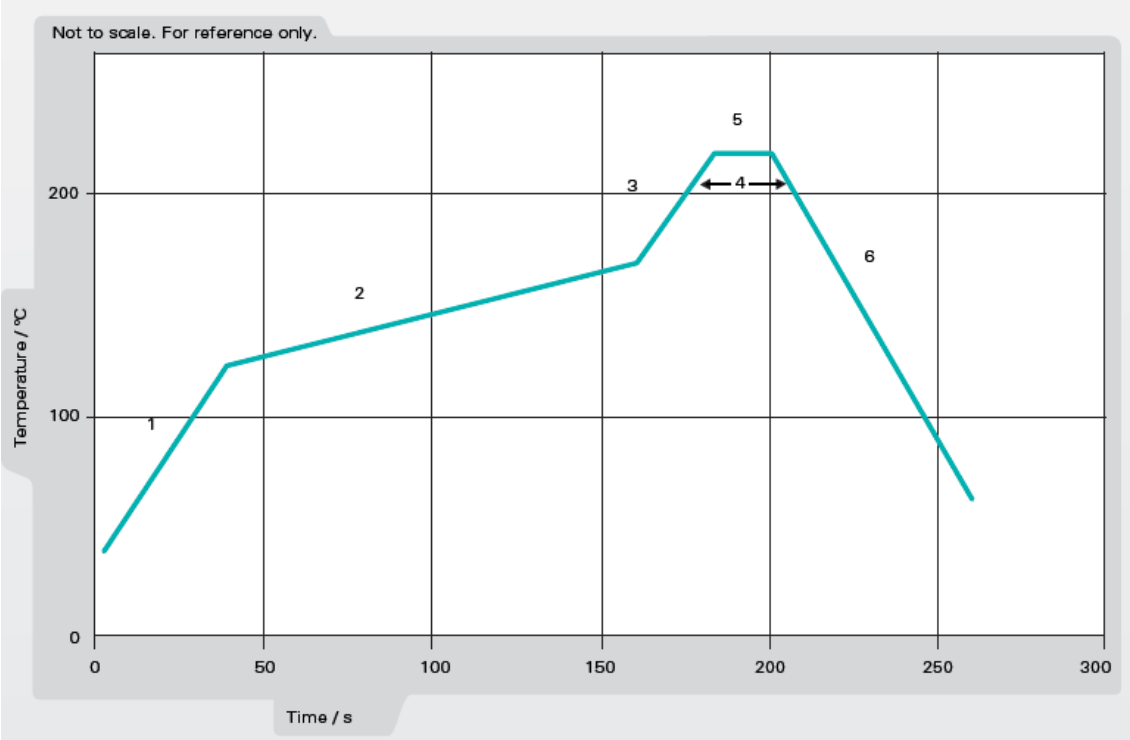


Figure 1. Minimum temperature profile recommendation for reflow soldering process

	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

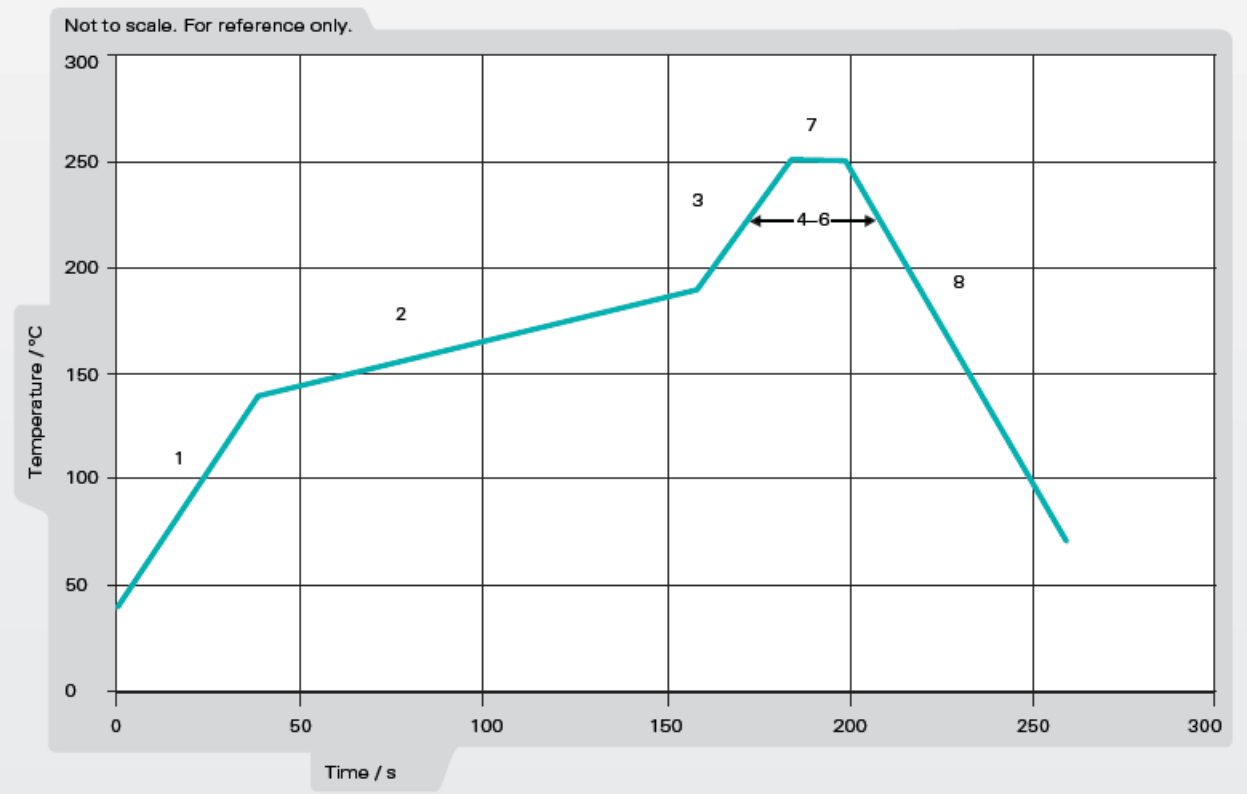


Figure 2. Maximum temperature profile recommendation for reflow soldering process

Part# W3796

Package (TAPE & REEL)

