



MARUWA

Register No. : MEPS-12060042150101




Date : 3rd February 2015

MARUWA MWSL1206: Product Specification
(Preliminary)

Part Identity

Maruwa drawing No.	Customer drawing No.
MEFP12060158140101	

Customer's Approval

Approved (Manager)	Checked (QA)	Prepared (Engineer)
		
Date : 03 Feb. 2015	Date : 03 Feb. 2015	Date : 03 Feb. 2015

株式会社 MARUWA
MARUWA Co., Ltd.

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101

1. Scope

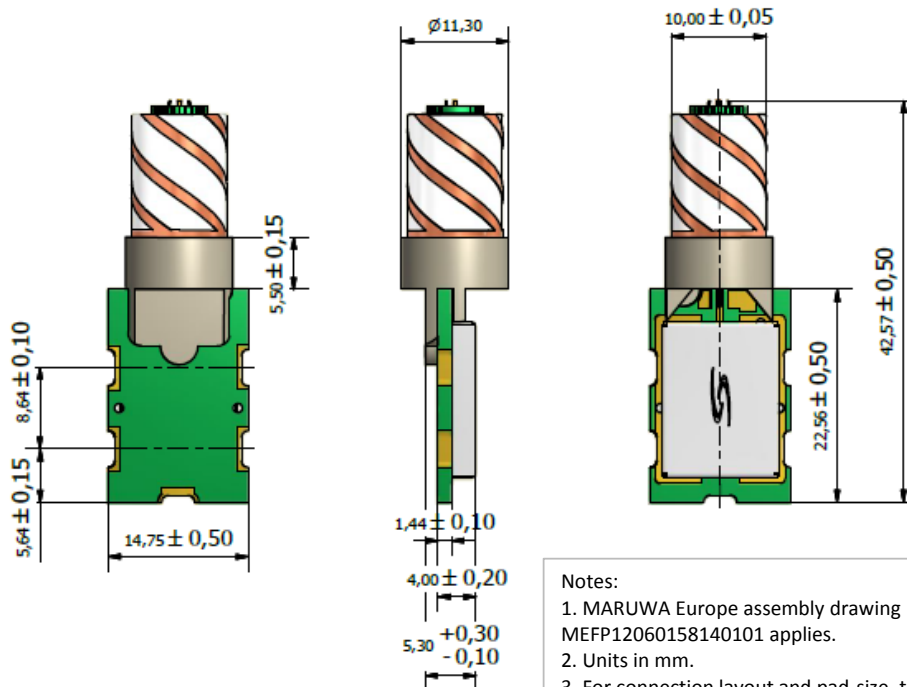
This specification applies to the MARUWA MWSL1206 GPS L1 active antenna, which in addition to the basic MWSL1206 fo can be supplied in two optional forms: MWSL1206R supplied with a loosely fitting black radome cap/cover for external use and MWSL1206SB supplied with a loosely fitting plastic sleeve for internal use.

2. Specifications

	Minimum	Typical	Maximum	Unit
Part Number	MWSL1206 (MARUWA dwg No: MEFP12060158140101)			
Type	Dielectric-loaded Quadrifilar Helix			
Connector Type	Refer to embedding information / connection diagrams			
Frequency	1573.42	1575.42	1577.42	MHz
Polarisation	Right-hand Circular Polarised			
Voltage (+ve to co-ax centre-wire)	3	3	3.6	V
Current		13	15	mA
Gain (no ground-plane)	+24	+25		dBic at zenith
Beamwidth		>115		Degrees
Bandwidth (3dB)		15		MHz
Axial Ratio		<2.0		at zenith
VSWR		<2.0:1	2.3:1	
Impedance		50		Ohms
Noise Figure		1	1.3	dB
Input 3rd Order Intercept Point		-10		dBm
Operating Temperature	-40	20	85	°C
Overall Dimensions	Refer to mechanical drawings			
Weight (excl radome or sleeve)		8.4		grams

3. Dimensions

Basic MWSL1206 form:



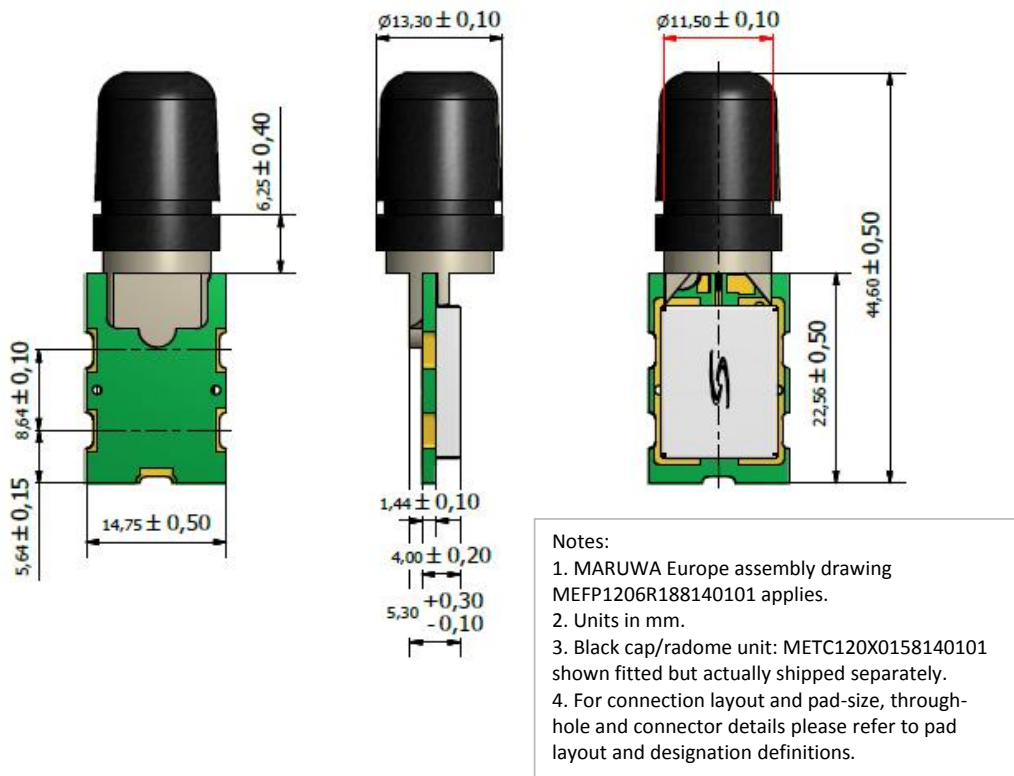
Notes:

- MARUWA Europe assembly drawing MEFP12060158140101 applies.
- Units in mm.
- For connection layout and pad-size, through-hole and connector details please refer to pad layout and designation definitions.

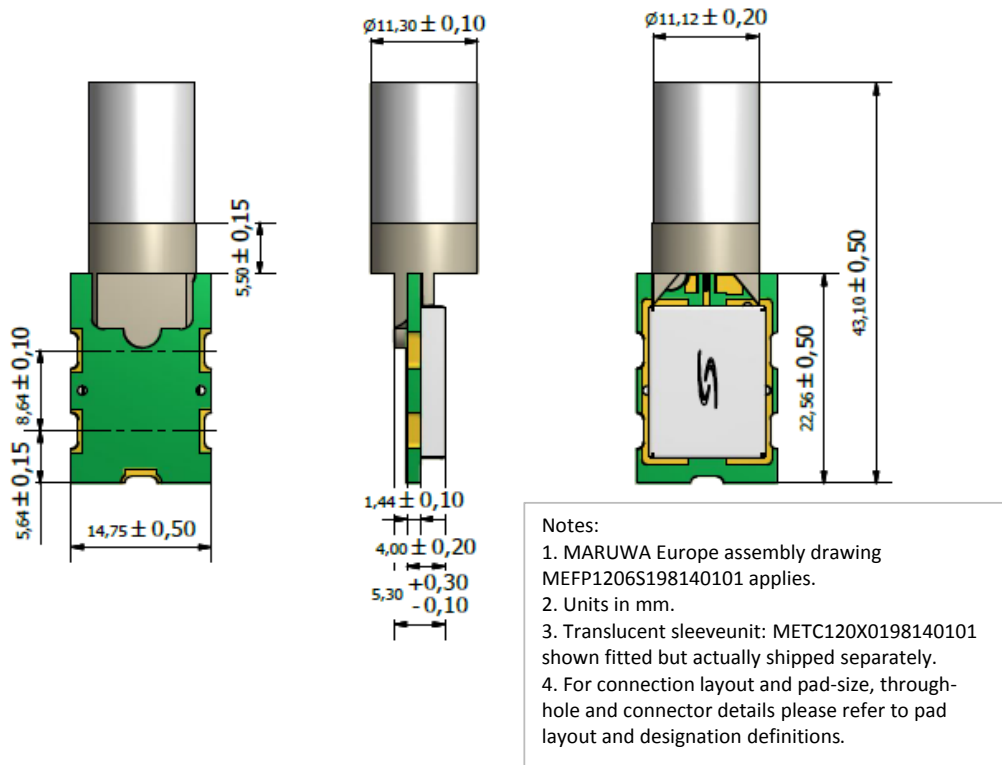
Rev.	Date	Description	Approved	Checked	Prepared
01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101

MWSL1206R form with loosely fitting black radome cap.



MWSL1206SB form with loosely fitting translucent sleeve.



01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten
Rev.	Date	Description	Approved	Checked	Prepared

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101

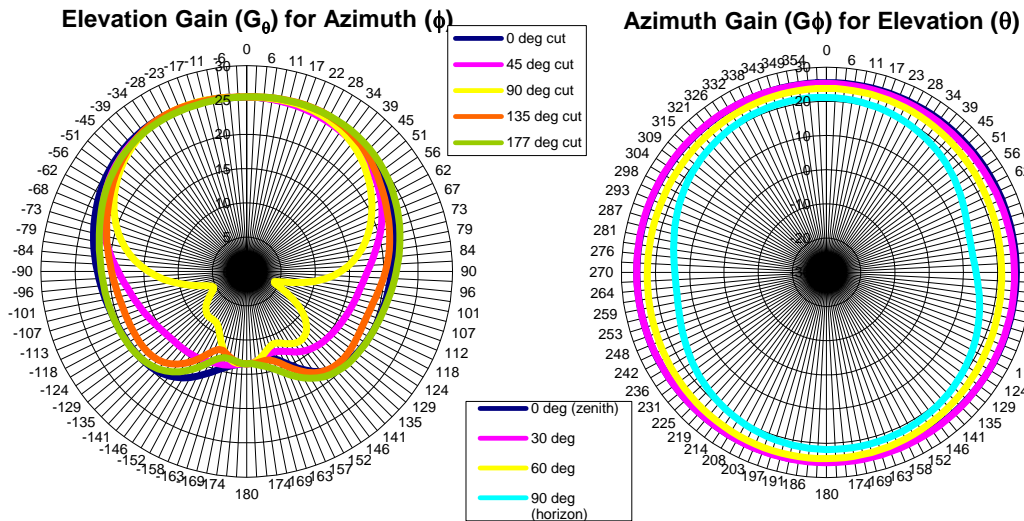
4. Product Description

The MWSL1206 GPS L1 miniature high-gain active dielectric-loaded antenna uses MARUWA’s distinctive materials technology to provide unrivalled circularly-polarised gain from a uniquely small volume. It enables excellent GPS performance in tightly integrated devices that require good positional accuracy. By combining a high-quality dielectric antenna with a high-performance low-noise amplifier the MWSL1206 active antenna provides an excellent solution wanting an active gain input.

The MWSL1206 antenna has a sharp filtering response and is particularly suitable for applications where:

- * The device is hand-held, body-worn, or otherwise surrounded by materials of high relative dielectric-constant which would de-tune other antennas.
- * The antenna is installed in close proximity to other antennas sharing the same device housing and ground-plane: for example Bluetooth®, WiFi, LTE, WiMax and other cellular radio antennas.
- * The antenna must fit into a very small installation volume with close proximity to other components and little or no space available for a ground-plane.
- * The GPS receiver requires 20dB or more of input pre-amplification.
- * The device is noisy and requires front-end amplification to achieve the required GPS sensitivity.
- * The orientation of the device is random.
- * The antenna must be embedded into the device.

The MWSL1206 antenna is balanced, which isolates it from the device ground enabling it to reject common-mode noise present on the device ground-plane. The construction and materials of the antenna constrain its near-field region to occupy a very small volume so that materials near the antenna cause negligible de-tuning effects. Therefore the antenna maintains its pattern and efficiency in the presence of dielectric loading. As a dielectric-loaded antenna, equipped with an additional SAW band-pass filter in the amplifier, the MWSL1300 has a stable filtering effect; attenuating signals from common cellular and ISM frequency bands by as much as 30dB without external filtering.



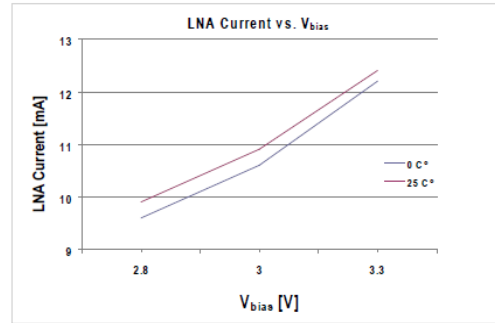
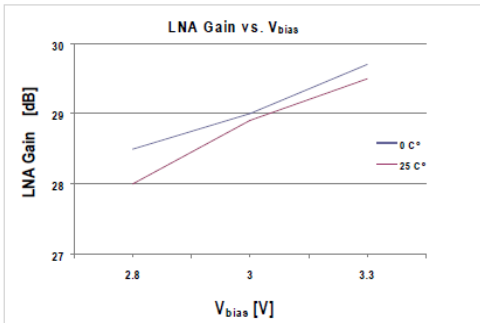
Typical Gain Pattern

01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten
Rev.	Date	Description	Approved	Checked	Prepared

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101

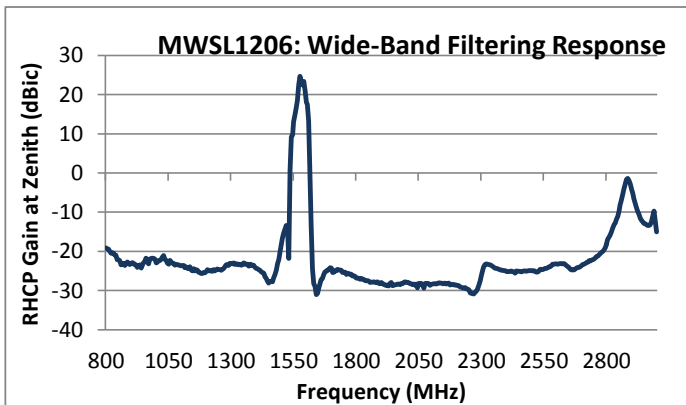
A major advantage of this MARUWA dielectric-loaded antenna technology is its immunity to de-tuning in close-proximity to human tissues and other in-use causes of dielectric-loading. The MWSL1206 antenna retains efficiency and polarization near the human body. Conventional antennas may lose 5-10dB of gain in similar circumstances.

Though it is electrically isolated from the device ground plane, through the action of an integrated balun, the rugged MWSL1206 antenna can be expected to increase efficiency by up to 100% when mounted over a ground plane due to constructive near-field signal reflections.



Low Noise Amplifier Characteristics.

The MWSL1206 incorporates a high-gain low-noise amplifier is optimised for 3V dc which is connected to the amplifier through the signal output pad (see pad-layout designations). It provides 25dB peak gain and a very low noise figure of less than 1.3dB. It draws less than 14mA for all specified conditions. In addition to the sharp filtering response of the MARUWA dielectric-loaded antenna the MW1206 has a built-in SAW band-pass filter with less than 1.25dB of insertion loss.

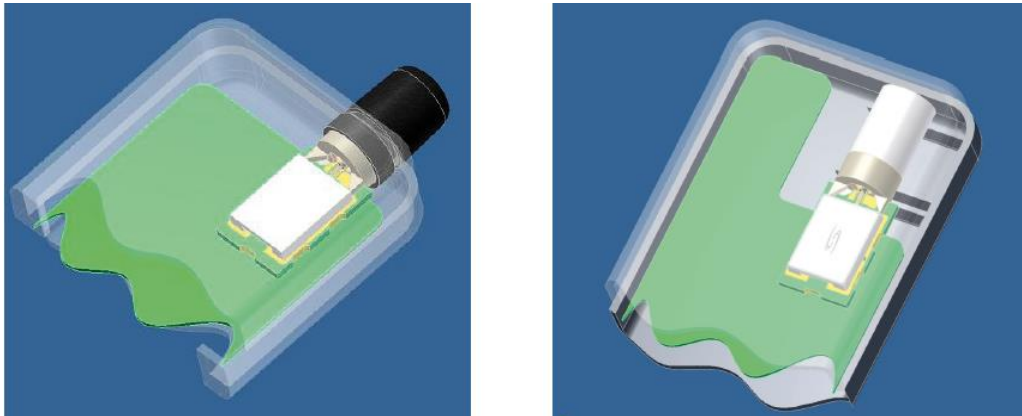


Frequency (MHz)	S ₂₁ dB
860	-24
970	-24
1575.42	+25
1700	-25
1800	-27
1900	-28
2450	-27

Wide-band Frequency Response

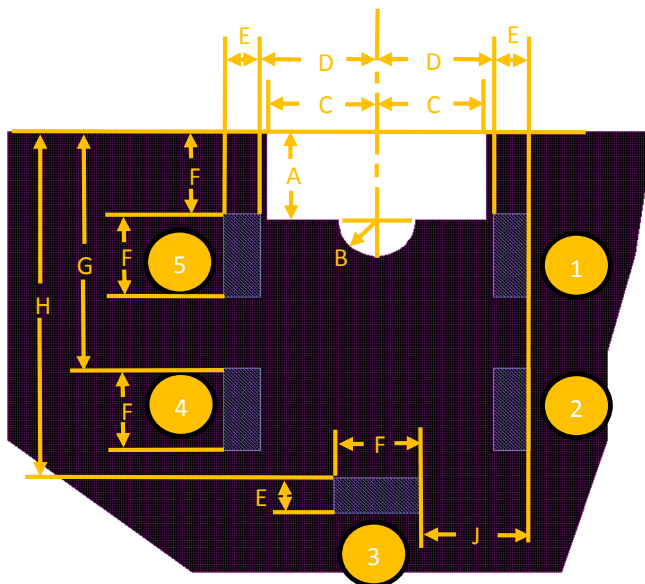
01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten
Rev.	Date	Description	Approved	Checked	Prepared

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101



Antenna Integration Options

MWSL1206 antennas may be mounted externally (order MWSL1206R version) or embedded within a device (order MWSL1206SB version). The product is designed to tune to the correct frequency when the sleeve or radome-cap is fitted. In the case of external mounting the device housing should be designed to seal around the radome-cap groove in order to provide mechanical support. When internally mounted the sleeve should be fitted and the antenna can be fitted into a corner cut-out in the device PCB. Adjacent metal ground-surfaces (PCB ground-layers or screening cans) can uplift the radiation efficiency compared with the antenna operating separately in free-space. For optimum performance the gap between the antenna and the copper edge of the PCB ground-plane should be greater than 5mm. MARUWA can provide application notes with integration guidance. Please contact your MARUWA sales representative for this information.



Pad Number	Function
1	Ground
2	Ground
3	RF Out, DC In
4	Ground
5	Ground

Dimensions	mm ± 0.1
A	5.0
B	2.1
C	5.95
D	6.3
E	2.0
F	4.7
G	13.4
H	19.6
J	6.0

Pad Layout and Pad Designations

01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten
Rev.	Date	Description	Approved	Checked	Prepared

Product Specification (Preliminary)		
MARUWA Antenna Products MWSL1206	Document No	MEPS-12060042150101

Ordering Guide for the MWSL1206 Antenna

MARUWA can supply three options. Please order according to the following table:

MARUWA Part	Description	MOQ	Pack Size
MWSL1206	No Radome/Cap or Sleeve (MEFP12060158140101 applies)	400	400
MWSL1206R	With Radome for External Use (MEFP1206R188140101 applies)	400	400
MWSL1206SB	With Sleeve for Internal Use (MEFP1206S188140101 applies)	400	400

Please note that when MWSL1206R or MWSL1206SB are ordered the radome or sleeve parts shall be delivered in separate packaging and will not be fitted to the MWSL1206 product. The radome and sleeve parts are designed to fit loosely.

5. Notes

1. The contents of this document assure the characteristics and quality of the antenna components themselves.
2. Please ensure that they work correctly in the installed configuration and method of use of your equipment.

01	03 Feb. 2015	Issue of the first edition	K.Inagaki	F.Frimpong	O.Leisten
Rev.	Date	Description	Approved	Checked	Prepared

单击下面可查看定价，库存，交付和生命周期等信息

[>>MARUWA\(丸和\)](#)