



PRODUCT SPECIFICATION

TITLE

GLONESS L1/L2 36MM STACKED PATCH SINGLE FEED

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PENDING
APPROVAL

REVISION: A	ECR/ECN INFORMATION: EC No: 623029 DATE: 2019/08/26	TITLE: GPS L1/L2 36mm Stacked Patch Single Feed Product Specification	SHEET No. 1 of 8
DOCUMENT NUMBER: PS-2136020001	CREATED / REVISED BY: Kang Cheng 2019/08/19	CHECKED BY: Cooper Zhou 2019/08/19	APPROVED BY: Stary Song 2019/08/19



PRODUCT SPECIFICATION

GLONASS L1/L2 36MM STACKED PATCH SINGLE FEED

1.0 SCOPE

This product specification covers the mechanical, electrical and environmental performances specification for GPS L1/L2 36mm stacked patch single feed.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

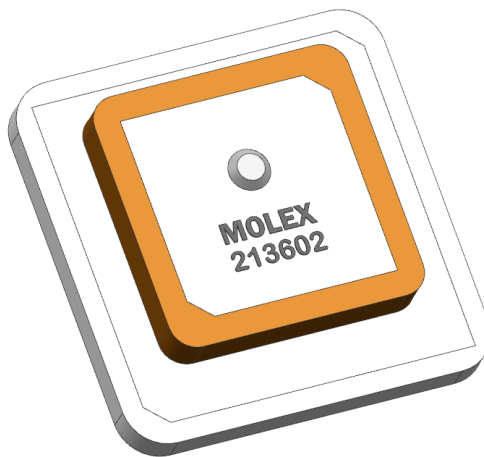
Product name: GPS L1/L2 36mm stacked patch single feed
Series Number: 213602

2.2 DESCRIPTION

213602 is a 36x36mm and 25x25mm two ceramic patch stacked for GPS L1/L2. It's designed for high precision tracking applications: UAV and drones, Vehicle tracking...

2.3 FEATURES

- High precision, GPS L1/L2 band operation
- Dims:36x36x7 mm, Two patch stacked, single feed patch assembly
- Right-handed circular polarization
- Tuned on 70x70mm ground plane
- Through-hole Mounting Pin type
- RoHS Compliant



Molex 2136020001 GPS L1/L2 36mm stacked patch single feed 3D View

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2.4 PRODUCT STRUCTURE INFORMATION

P/N	2136020001
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IN K MARK

RELEASE PAPER

3D VIEW

NOTES:

1. MATERIAL: CERAMIC.
2. GENERAL COSMETIC APPEARANCE AS DEFINED BY MOLEX COSMETIC SPECIFICATION.
3. STRUCTURE AND MATERIAL REFERENCE TABLE A
4. NITTO 5000NS THICKNESS :0.16mm(6,30mil)
DOES NOT INCLUDED RELEASE PAPER THICKNESS.

TABLE A		
No.	DESCRIPTION	STRUCTURE AND MATERIAL
1	ANTENNA SUBSTRATE	DIELECTRIC CERAMICS
2	PIN	COPPER AND TINPLATED
3	PATCH	Ag
4	ADHESIVE TYPE	NITTO 5000NS

MECHANICAL STRUCTURE INFORMATION FOR 2136020001

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3.0 APPLICABLE DOCUMENTS

DOCUMENT	NUMBER	DESCRIPTION
Sale Drawing(SD)	SD-2136020001	Mechanical Dimension of the product
Application Guide(AS)	AS-2136020001	Antenna Application and surrounding
Packing Drawing(PK)	PK-2136020001	Product packaging specifications

4.0 GENERAL SPECIFICATION

PRODUCT NAME	GPS L1/L2 36mm stacked patch single feed	
PART NUMBER	2136020001	
FREQUENCY RANGE	L2: 1227.6 +/-1.023MHz	L1: 1575.42 +/-1.023 MHz
POLARIZATION	Right-Handed Circular	
IMPEDANCE WITH MATCHING	50 Ohms	
OPERATING TEMPERATURE	-40°C to 85°C	
STORAGE TEMPERATURE	-40°C to 85°C	
HUMIDITY	Storage:15%-70% RH (Non-condensing)	
RF POWER	2 Watts	
ANTENNA TYPE	Ceramic	
CERAMIC DIMENSION	36x36x7 mm	
PIN DIAMETER	0.8 mm	
PIN LENGTH	2.6 mm	
ADHESIVE TYPE	NITTO 5000NS (Thickness:0.16mm)	
SINGLE WEIGHT	23.490g (FOR P/N:2136020001)	

Note: if you plan to re-use the products that be taken out from packaging. Suggest to re-pack them within 48 hours by re-seal to prevent oxidation!

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PRODUCT SPECIFICATION

5.0 ANTENNA SPECIFICATION

All measurements are done of the antenna mounted on reference PCB (70*70*1.5mm) with VNA Agilent E5071C and Over-The-Air (OTA) chamber.

5.0.1 ANTENNA PERFORMANCE		
P/N	2136020001	
FREQUENCY RANGE	L2:1227.6MHz	L1:1575.42MHz
PEAK GAIN(MAX)	2.1dBi	5.3dBi
AVERAGE TOTAL EFFICIENCY	>50%	>80%
RETURN LOSS	<-15dB	
AXIAL RATIO	<5dB	<3dB

Note that the above antenna performance is measured with just the antenna mounted on a PC/ABS block to similar a free-space condition. When implement into the system, the frequency resonant might be off-tune due to the loading of surrounding components especially metal plane. This off-tune can be compensated through matching. Although module manufacturers specify a peak gain limit, it is based on free-space conditions. The peak gain will be degraded by 1 to 2dBi in the actual implementation as the radiation pattern will change due to the surround components. As such, during selection of antenna, you can select one with high peak gain to compensate for the loss. Molex can offer assistant to choose the best location and best tuning in-order to meet this peak gain requirement.

6.0 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	TEST RESULT
CROSS CUT TEST	Cross cut adhesion test Testing is performed in accordance with ASTM D-3359-93	Acceptance criteria > ASTM Class 2B as acceptance

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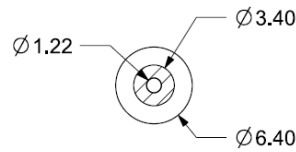
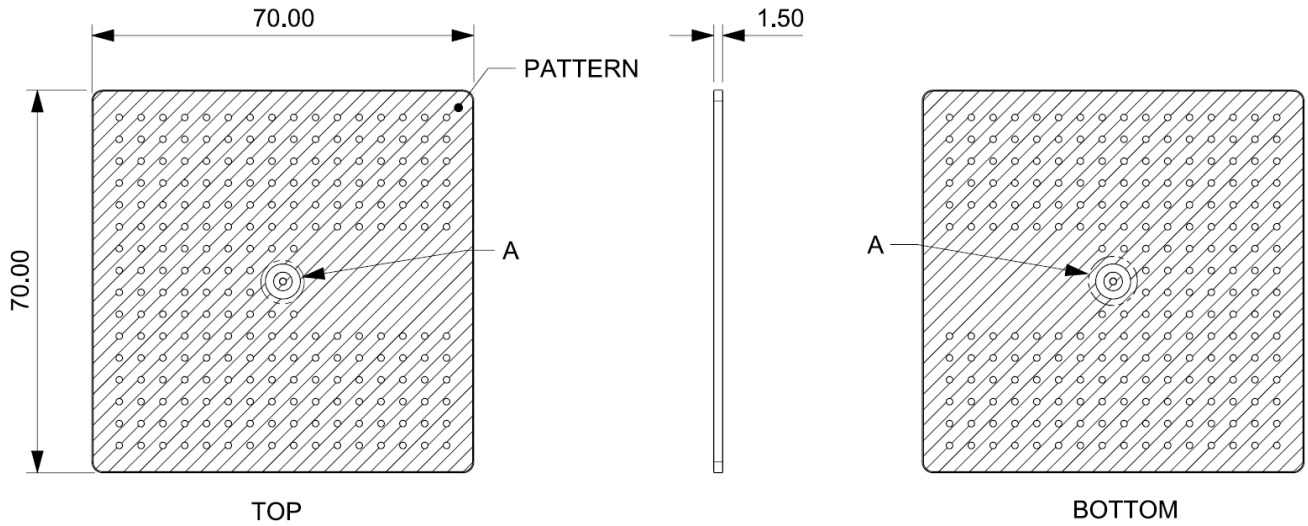
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7.0 ENVIRONMENTAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Humidity Test Cycling	<ol style="list-style-type: none"> The device under test is kept for 12 hours in an environment with a temperature of 55 degrees and a relating humidity of 95%. Thereafter for 12 Hours in an environment with a temperature of 25 degrees and a relative humidity of 95%. The cycle is repeated until a total of 6 cycles have been completed. Hereafter the conditions are stabilized at room temperature. Parts should meet RF spec before and after test. No cosmetic problem (No bubble issue、 No plating peeling off issue、 No mechanical damage.)
Temperature Cycling Test	<ol style="list-style-type: none"> Perform 72 cycles of test at -40 ° C and 125 ° C for 30 minutes each time, 15 seconds for the transition time, and observe the appearance after 24 hours at room temperature. Parts should meet RF spec before and after test. No cosmetic problem (No bubble issue、 No plating peeling off issue、 No mechanical damage.)
High Temperature	<ol style="list-style-type: none"> Temperature:125°C, time:1008 hours There is no substantial obstruction to air flow across and around the samples, and the samples are not touching each other Parts should meet RF spec before and after test. No cosmetic problem (No bubble issue、 No plating peeling off issue、 No mechanical damage.)
Salt Mist Test	<ol style="list-style-type: none"> The device under test is exposed to a spray of a 5% (by volume) resolution of NACL in water for 2 hours. Thereafter the device under test is left for 1 week in room temperature at a relative humidity of 95%. The cycle is repeated until a total of 2 cycles have been completed. Here after the conditions are stabilized at room temperature. Parts should meet RF spec before and after test. No visible corrosion. Discoloration Accept.

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8.0 PCB FOOTPRINT RECOMMENDATION



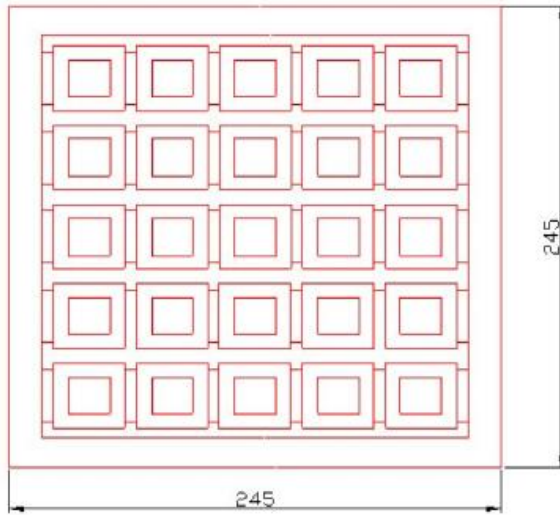
DETAIL A
SCALE 2:1
PAD SIZE

Recommended solder paste: ALPHA CAP-390 SAC305

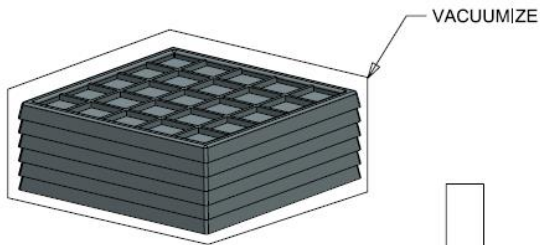
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9.0 PACKING

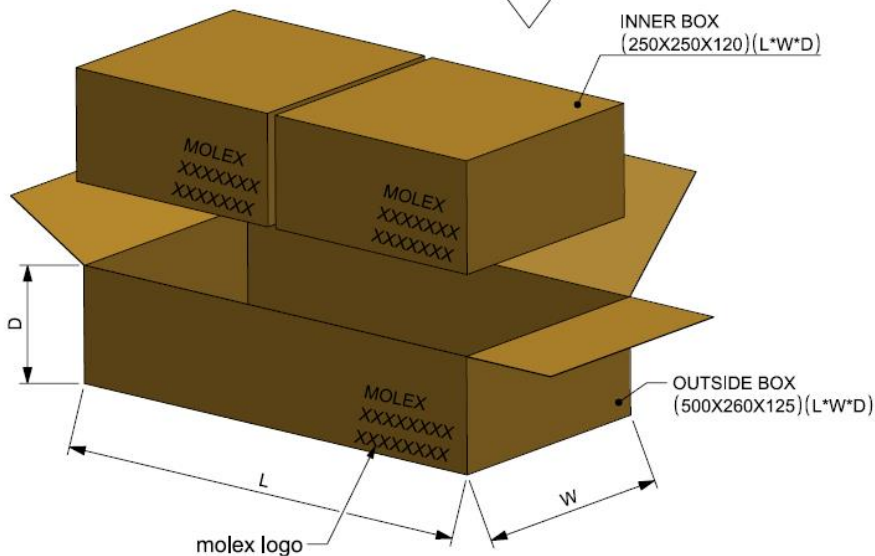


TRAY SIZE



NOTE:

1. PRODUCTS MUST BE PACKED IN CARTONS AND SEALED UP WITH TAPE.
2. STICK LABEL WITH PART NUMBER AND DATE CODE
3. STANDARD PACKAGING QUANTITY (SPQ): 400PCS.
4. THIS PACKAGING SPECIFICATION TO BE USED WITH "GPS L1/L2&GLONASS 36MM STACKED ANTENNA" (P/N:2136020001)



P/N	PCS/TRAY	TRAY/INNER BOX	INNER BOX/OUTSIDE BOX	PCS/OUTSIDE BOX
2136020001	25	8	2	400 PCS

PACKAGING INFORMATION FOR 2136020001

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