



Apr. 2015 Ver.2.0  
TDK Corporation

## Multilayer Antenna

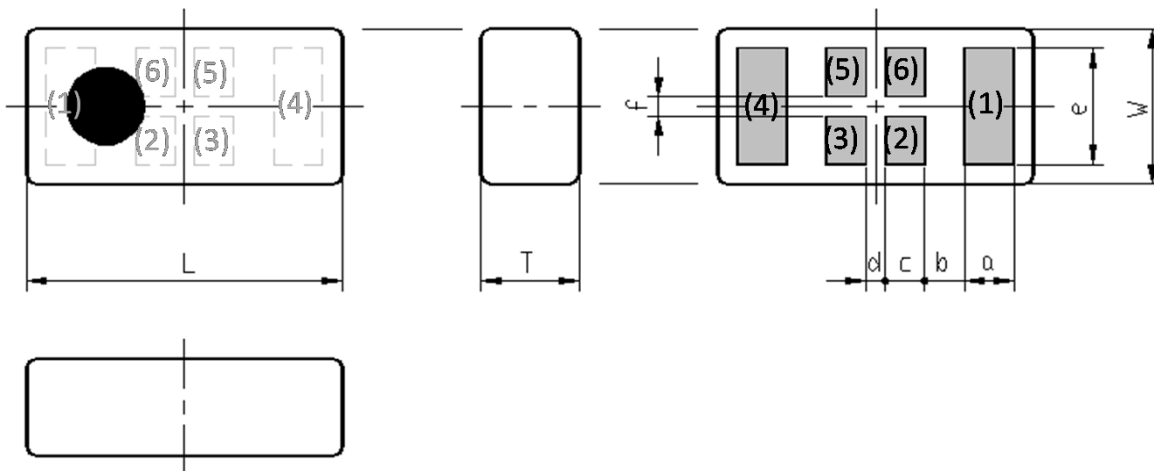
For 2.4GHz W-LAN & Bluetooth / 5GHz W-LAN

ANT Series                      1608 TYPE

P/N: **ANT016008LCD2442MA1**

## ANT016008LCD2442MA1

### SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	a	b	c	d	e	f
1.60	0.80	0.40	0.215	0.25	0.20	(0.10)	0.63	(0.10)
+/-0.10	+/-0.10	Max	+/-0.10	+/-0.10	+/-0.10		+/-0.10	

Terminal functions

(1)	Radiator electrode for 2.4GHz ISM
(2)	Feed point
(3)	Feed point
(4)	Radiator electrode for 5.5GHz
(5)	Feed point

(6)	Feed point
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\*Terminal (2),(3),(5) and (6) :Connected in inner structure

Note:

These samples are marked with trial sample identification.

In mass production, this sample marking will be changed to show in the TDK full specification.

### TEMPERATURE RANGE

Operating temperature	Storage temperature
-40 to +85 °C	-40 to +85 °C

## ANT016008LCD2442MA1

### ■ ELECTRICAL CHARACTERISTICS

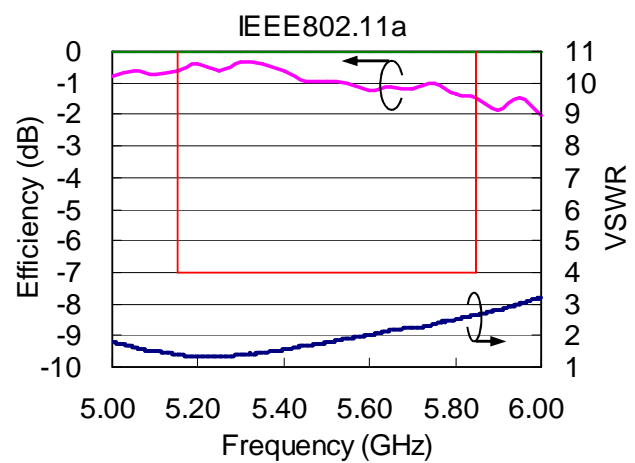
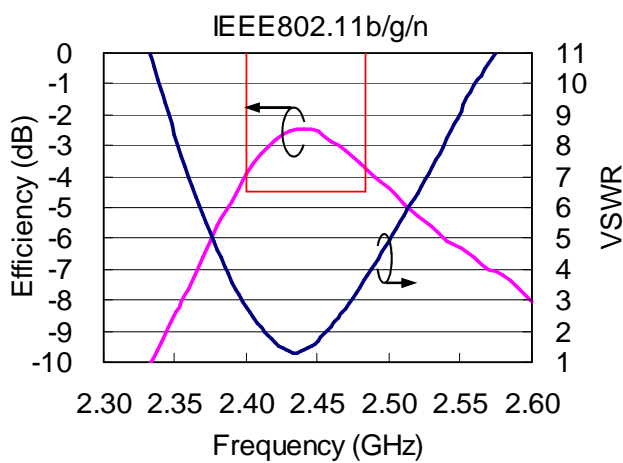
( Measurement )

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
VSWR	2400 to 2484	-	3.81	6.5
	5150 to 5850	-	2.65	4.0
Polarization		Linear		
PCB Size (mm)		120x65		
Antenna keep-out Area (mm)		8x5		
Characteristic Impedance (ohm)		50 (Nominal)		

\* This is typical antenna performance with the standard PCB.

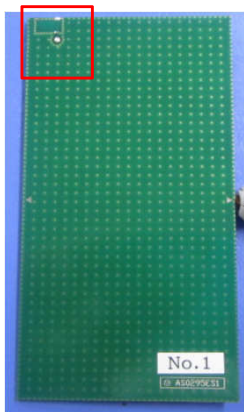
### ■ FREQUENCY CHARACTERISTICS

Note: Tested antenna has been soldered. Evaluation board size is 120x65x1 mm.

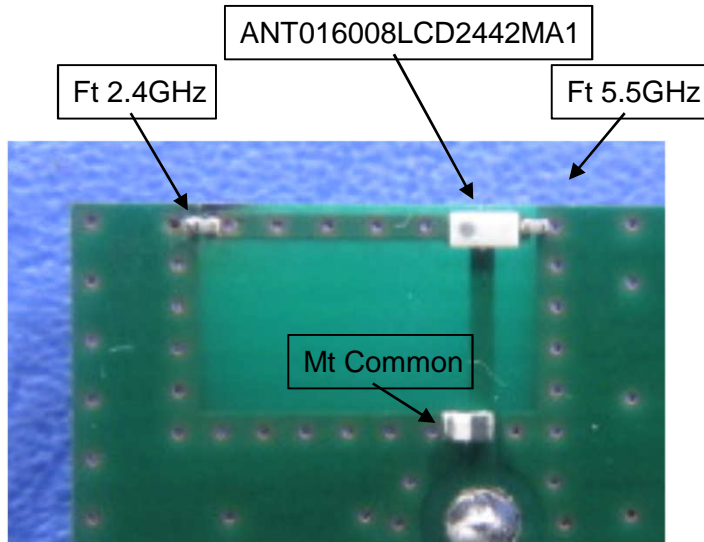


# ANT016008LCD2442MA1

## EVALUATION BOARD

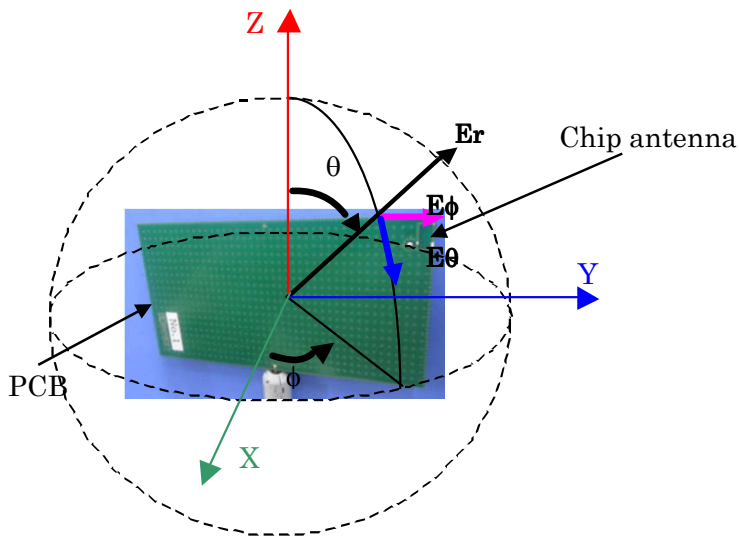


PCB size : 120mm x 65mm x 1mm  
Antenna area : 8 x 5 mm



	Component P/N
Ft 2.4GHz	2.5pF(C0603CH1E2R5B:TDK)
Ft 5.5GHz	0.3pF(C0603CH1E0R3B:TDK)
Mt Common	1.5nH(MLG1005S1N5C:TDK)

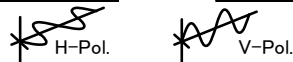
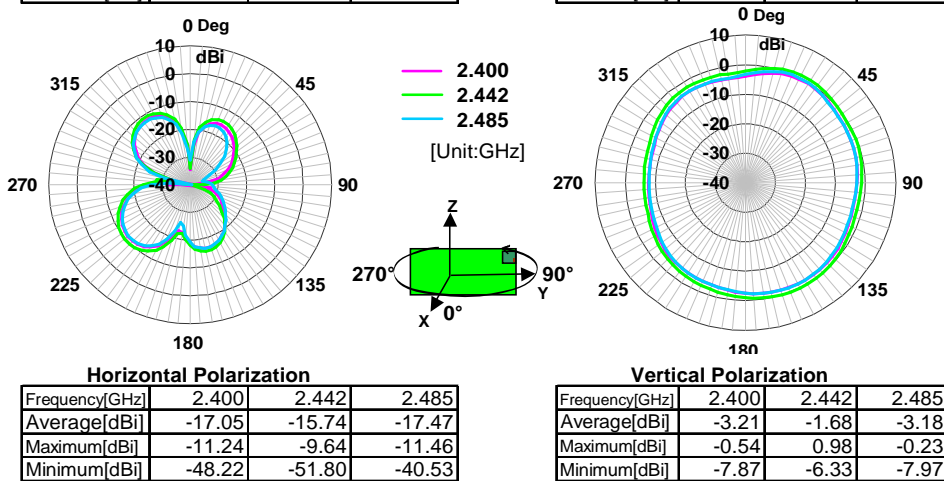
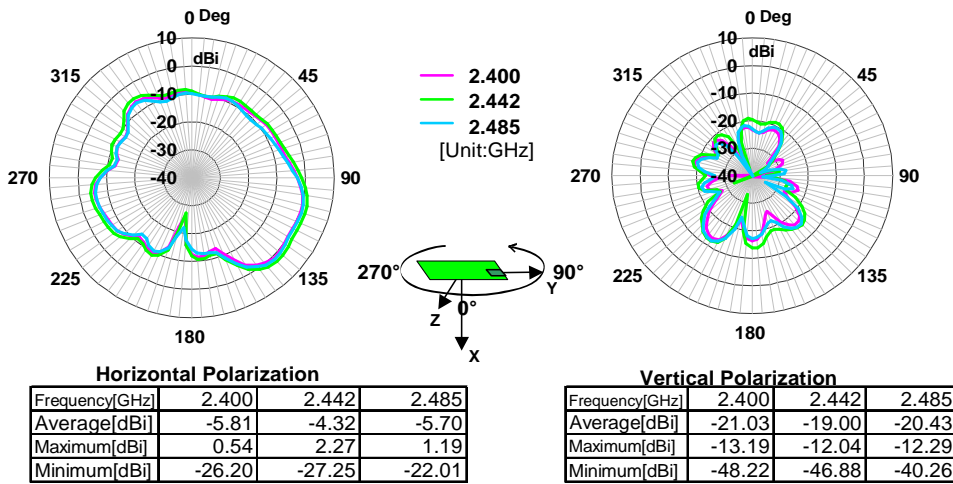
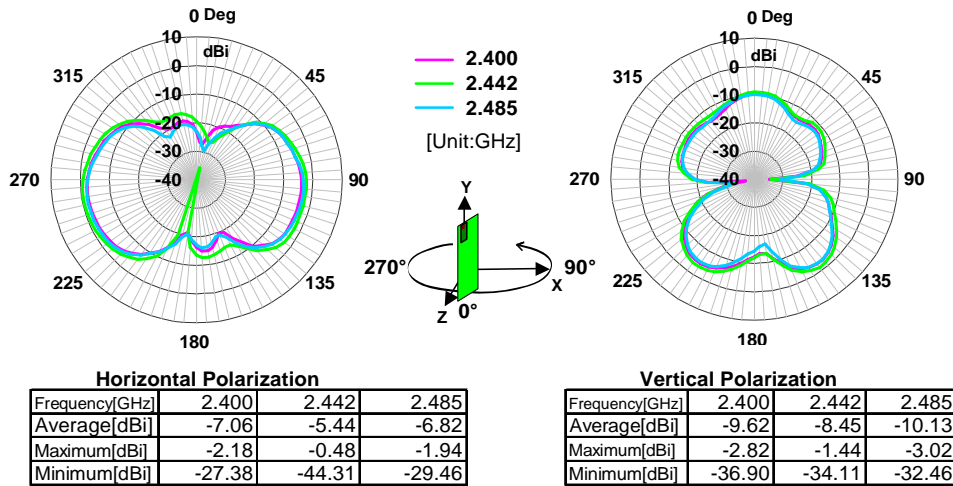
Measurement condition for Radiation Pattern



# ANT016008LCD2442MA1

## Radiation Pattern

Note: Tested antenna has been soldered. Evaluation board size is 120x65x1 mm.  
2.4GHz ISM Band

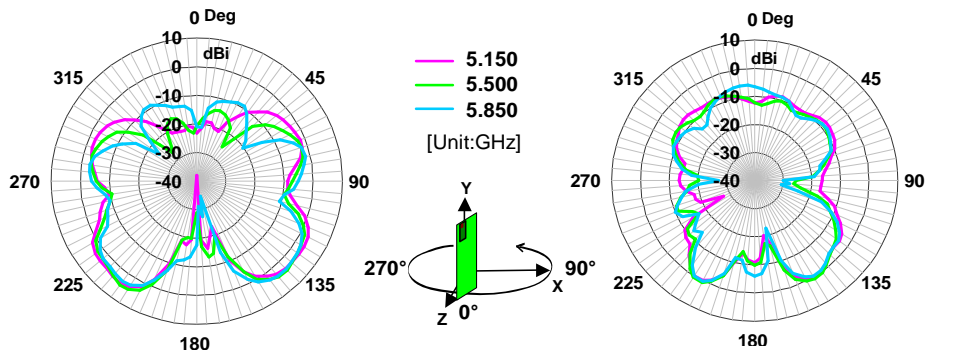


All specifications are subject to change without notice.

# ANT016008LCD2442MA1

## Radiation Pattern

Note: Tested antenna has been soldered. Evaluation board size is 120x65x1 mm.  
5.5GHz Band

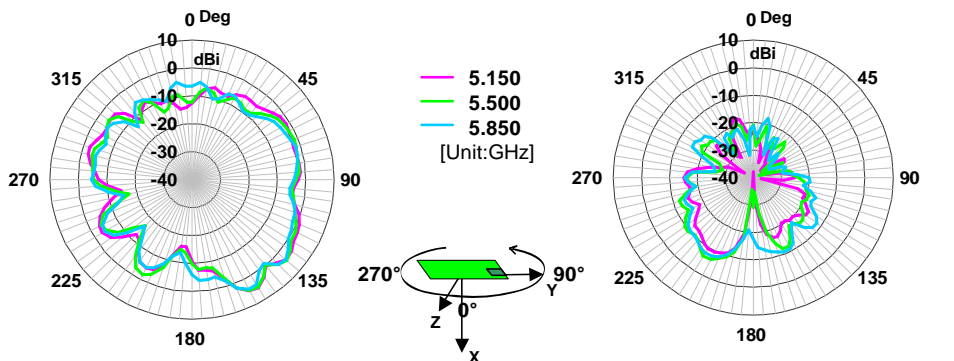


**Horizontal Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-2.39	-2.73	-3.25
Maximum[dBi]	4.22	4.78	3.29
Minimum[dBi]	-42.06	-29.06	-34.55

**Vertical Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-7.05	-7.06	-7.32
Maximum[dBi]	0.04	0.89	0.31
Minimum[dBi]	-27.83	-26.31	-30.64

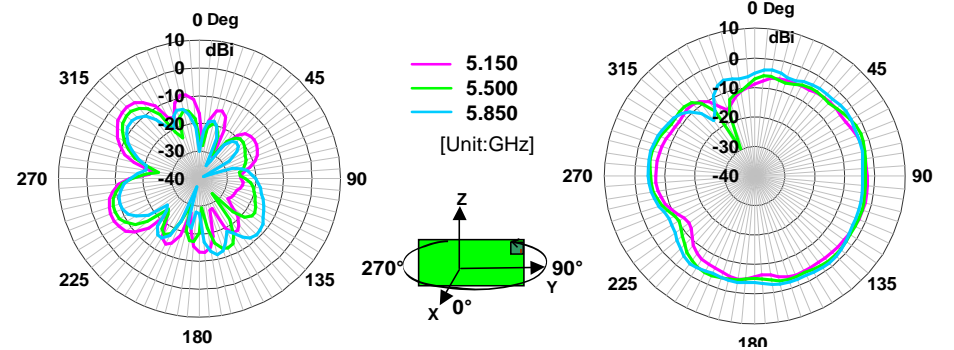


**Horizontal Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-2.74	-3.11	-3.60
Maximum[dBi]	5.18	5.04	4.09
Minimum[dBi]	-15.95	-17.14	-16.56

**Vertical Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-17.92	-15.62	-15.19
Maximum[dBi]	-9.40	-6.43	-7.73
Minimum[dBi]	-42.06	-37.80	-33.50

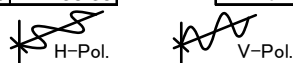


**Horizontal Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-11.65	-13.95	-15.05
Maximum[dBi]	-3.56	-5.67	-8.20
Minimum[dBi]	-31.10	-32.99	-38.35

**Vertical Polarization**

Frequency[GHz]	5.150	5.500	5.850
Average[dBi]	-5.64	-4.76	-4.21
Maximum[dBi]	-2.18	-1.95	-1.61
Minimum[dBi]	-15.95	-29.68	-16.91

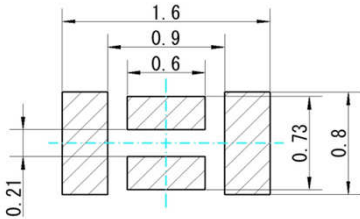


# ANT016008LCD2442MA1

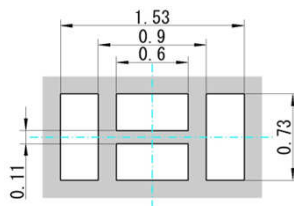
## RECOMMENDED LAND PATTERN

Recommend land pattern and solder resist pattern

< Land pattern >

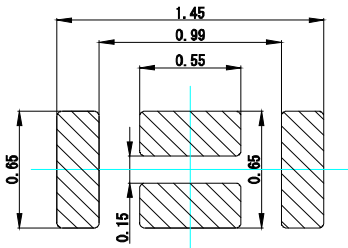


< Solder resist pattern >



- Center line of Chip
- Land Pattern
- Resist Pattern

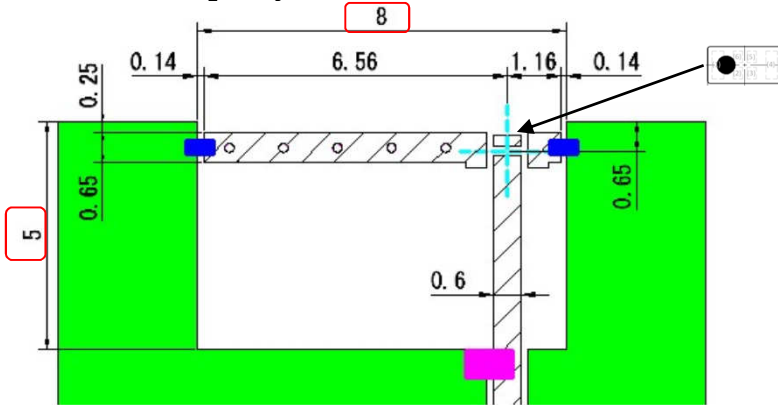
Recommend aperture size of metal mask for solder printing



- Center line of Chip
- Aperture of metal

Example of Antenna pattern layout (TDK Standard PCB)

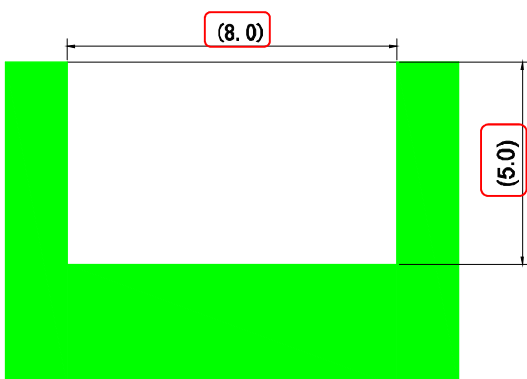
<Top Layer (Parts mounted side) >



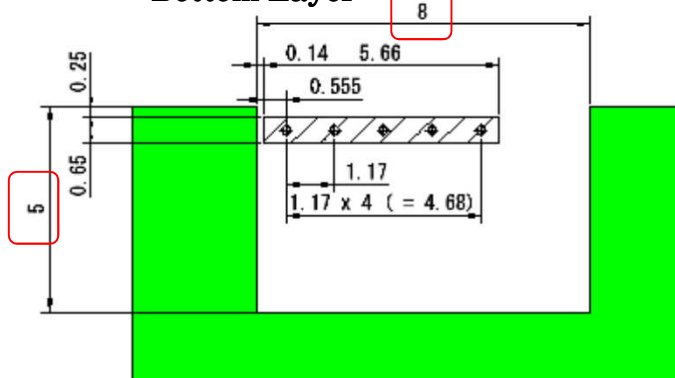
- Center line of Chip antenna
  - Antenna keep out area (All Layer GND off)
  - Ft : Frequency tuning component
  - Mt : Impedance matching component
  - Antenna Pattern
  - VIA :  $\Phi 0.2\text{mm}$
  - GND
- [ Unit : mm ]

50ohm line feeding

<Inner Layer >



<Bottom Layer >



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### ■ ENVIROMENT INFORMATION

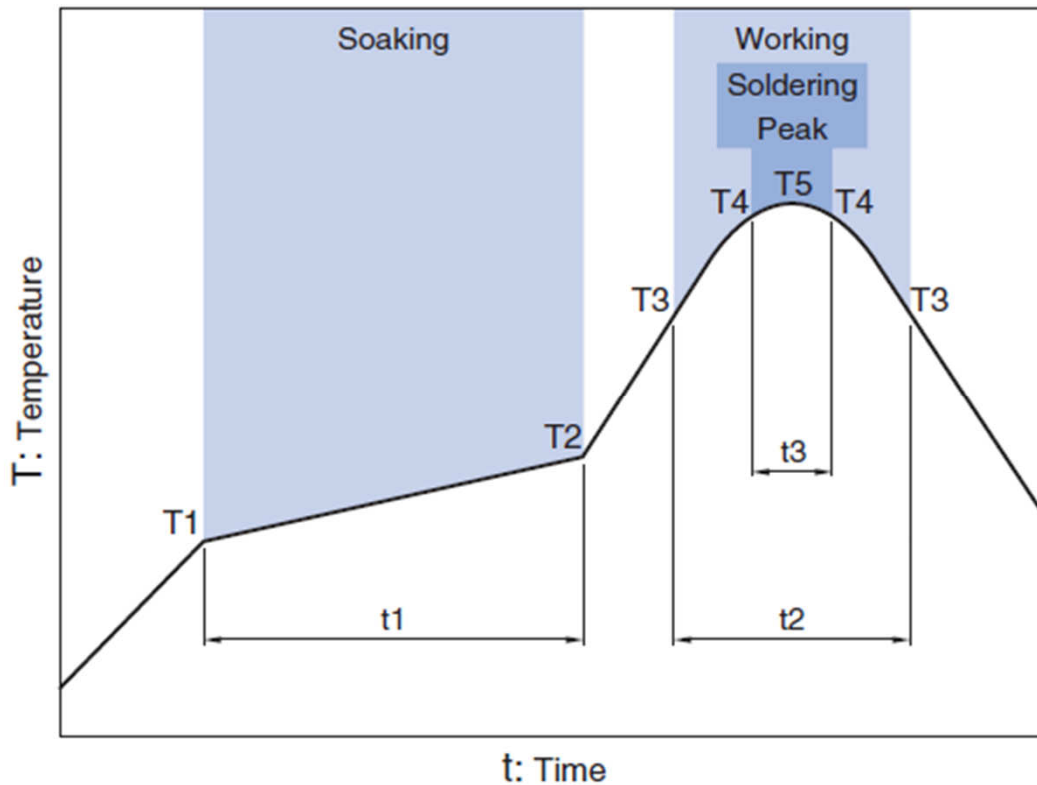
RoHS Statement  
RoHS Compliance



## ANT016008LCD2442MA1

### ■ RECOMMENDED REFLOW PROFILE

Pb free solder

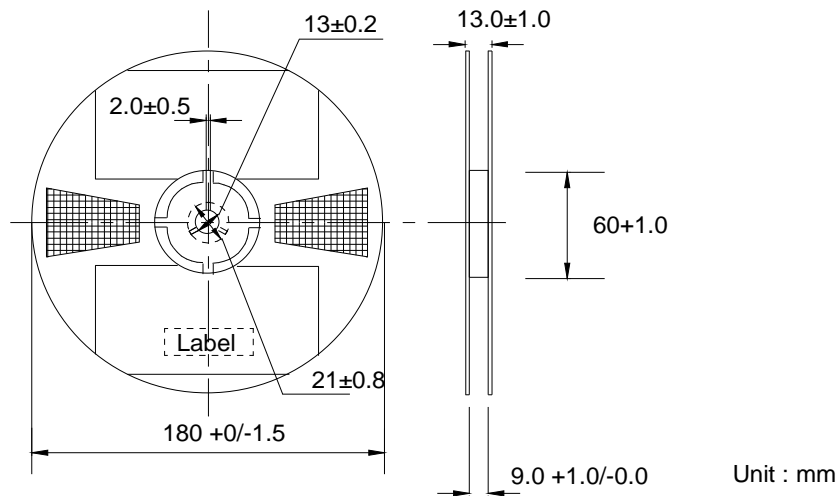


Soaking			Working		Soldering		Peak
Temp.	Temp.	Time	Temp.	Time	Temp.	Time	Temp.
T1	T2	t1	T3	t2	T4	t3	T5
150°C	180°C	60 to 120sec	230°C	30 to 60sec	247 to 253°C	within 10sec	260°C Max.

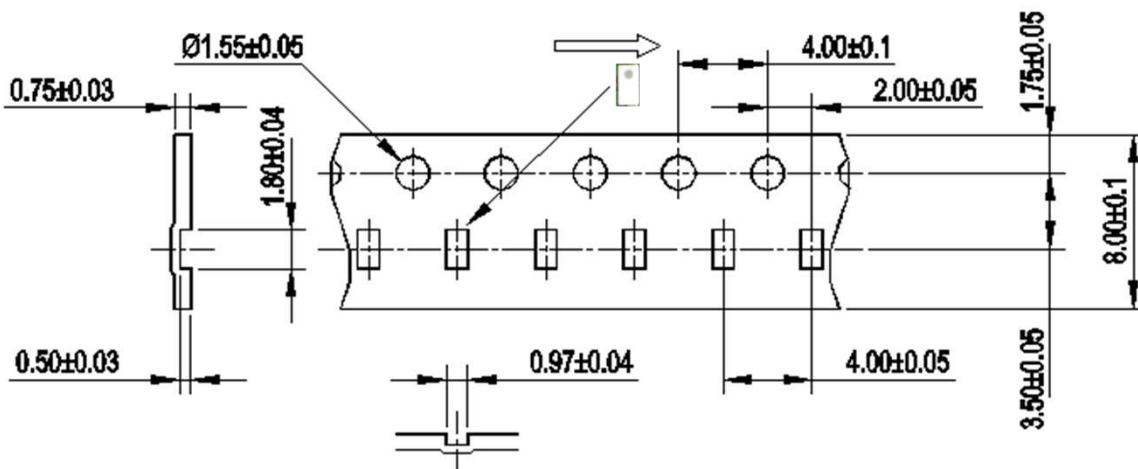
# ANT016008LCD2442MA1

## PACKAGING STYLE

### Reel Dimensions



### Carrier Tape



STANDARD PACKAGE QUANTITY ( pieces/reel )
4,000

## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

 <b>REMINDERS</b>
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The products listed on this specification sheet are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

1. Aerospace/Aviation equipment
2. Transportation equipment (cars, electric trains, ships, etc.)
3. Medical equipment
4. Power-generation control equipment
5. Atomic energy-related equipment
6. Seabed equipment
7. Transportation control equipment
8. Public information-processing equipment
9. Military equipment
10. Electric heating apparatus, burning equipment
11. Disaster prevention/crime prevention equipment
12. Safety equipment
13. Other applications that are not considered general-purpose applications

When using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.