

样品承认规格书

PART SHEET FOR APPROVAL

制造商名称: Manufacturer:	TDK 股份有限公司 TDK Corporation
供应商名称 Supplier::	深圳市天河星供应链有限公司 Galaxy Holding International Co., Limited
产品名称: Part Description:	天线 ANTENNA
规格型号: Model No:	ANT(陶瓷), ANT016008LCS2442MA2,2.4G,0603,DV6112G,ANT00166-CA
制造商 P/N Manufacturer P/N:	ANT016008LCS2442MA2
华曦达编码: SDMC P/N:	360600002
日期: Issued Date:	2023.10.18

供应商确认 Supplier confirmation

承办 Made By	审核 Engineer	批准 Approver
李健飞	陈胜君	王应艳



华曦达确认 SDMC confirmation

承认原因: Approval Reason:	<input type="checkbox"/> 新物料 New Part <input type="checkbox"/> 替代料 Substitute Part			
承办 Made By	审核 Engineer			批准 Approver
	品质 Quality	研发 R&D	业务 Sales	

备注: 签名表明提交样品获得承认, 图纸规格已经受控。Note: Signature indicates that the submitted sample is approved and the drawing/specification is now the controlling document.

地址: 深圳市南山区高新科技园科技南十二路 18 号长虹科技大厦 19 层
Address: 19/F, Changhong Science & Technology Mansion, No.18, Keji South 12th Road, High-tech Industrial Park, Nanshan District, Shenzhen, China



May. 2020 Ver.6.0
TDK Corporation

Multilayer Antenna

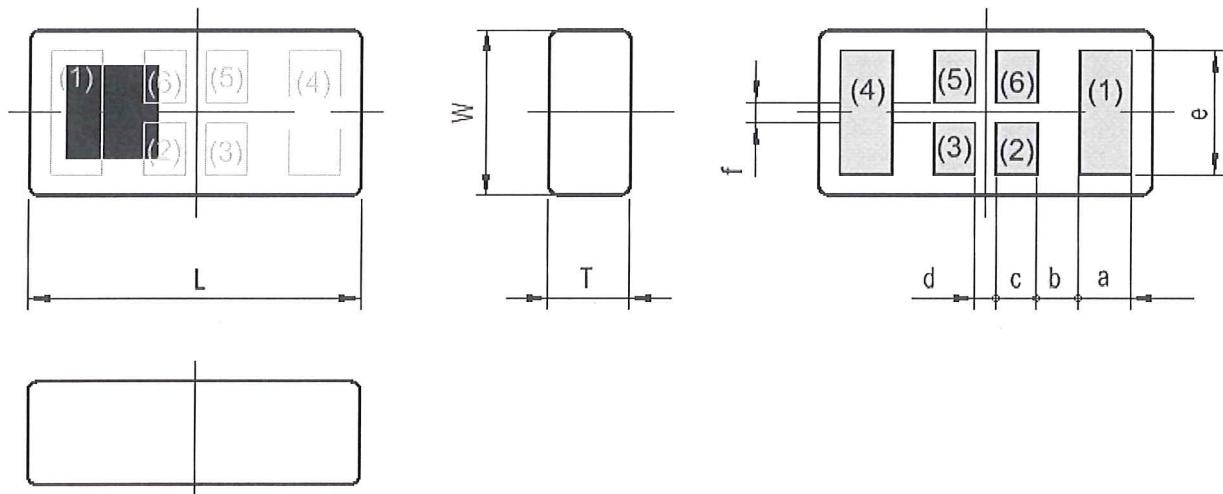
For 2.4GHz W-LAN & Bluetooth

ANT Series 1.6x0.8mm [EIA 0603] TYPE

P/N: **ANT016008LCS2442MA2**

ANT016008LCS2442MA2

■ SHAPES AND DIMENSIONS



Dimensions (mm)

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

Terminal functions

(1)	Radiator electrode
(2)	Dummy pad
(3)	Dummy pad
(4)	Feed point
(5)	Dummy pad

(6)	Dummy pad
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■ TERMINATION FINISH

Material
Au plate

ANT016008LCS2442MA2

■ ELECTRICAL CHARACTERISTICS

(Measurement)

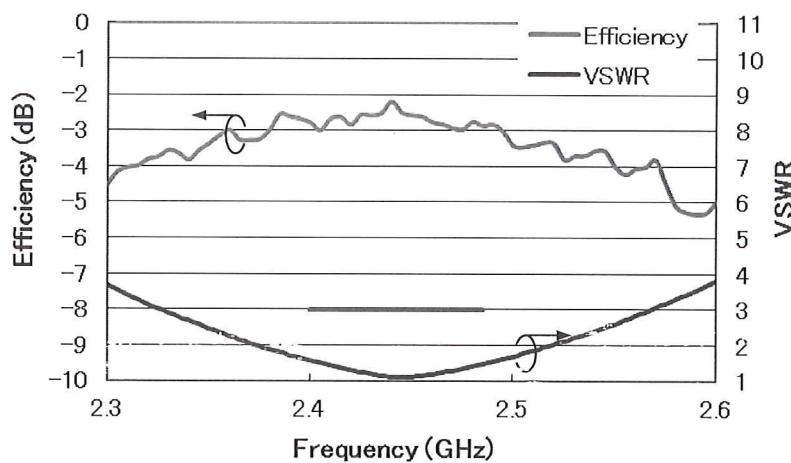
Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
VSWR	2400 to 2484	-	1.60	3.0
Antenna Gain (dBi)**	2400 to 2484	-	2.5	-
Polarization	Linear			
PCB Size (mm)	50 x 10			
Antenna keep-out Area (mm)	6 x 2.5			
Characteristic Impedance (ohm)	50 (Nominal)			

* This is typical antenna performance with the standard PCB.

** Reference value

■ FREQUENCY CHARACTERISTICS

Note: Tested antenna has been soldered. Evaluation board size is 50x10x1 mm.
Efficiency and VSWR



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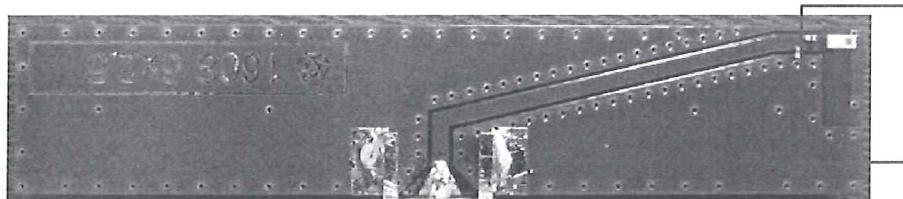
■ MAXIMUM RATINGS

Parameter	TDK Spec	Conditions
Operating temperature (°C)	-40 to +85 °C	
Storage temperature (°C)	-40 to +85 °C	
Power Handling (W) *1	0.8	CW
Human Body Model : HBM @Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : MM @Each Port (V)	+/-150	200pF / 0ohm
Charged Device Model : CDM @Each Port (V)	+/-500	Humidity : 60%RH max

*1 : Refer to 3GPP TS 38.101-1 V15.2.0

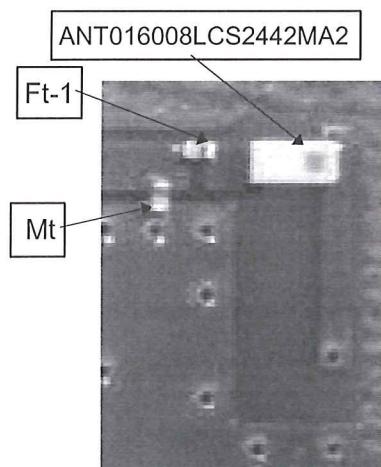
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EVALUATION BOARD



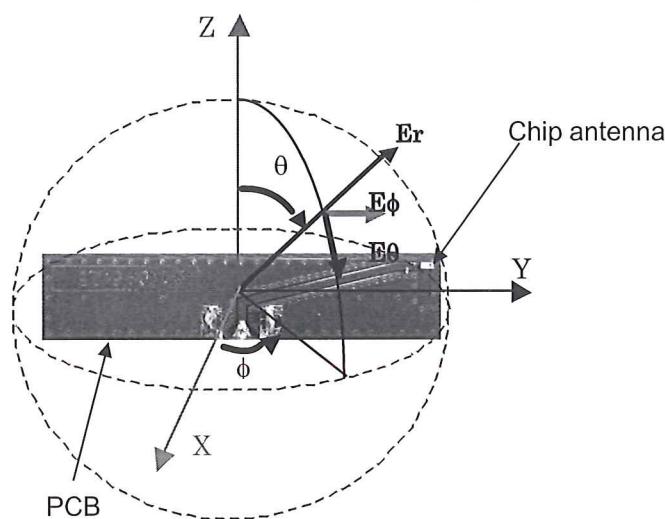
PCB size : 50mm x 10mm x 1mm

Antenna area : 6 x 2.5 mm



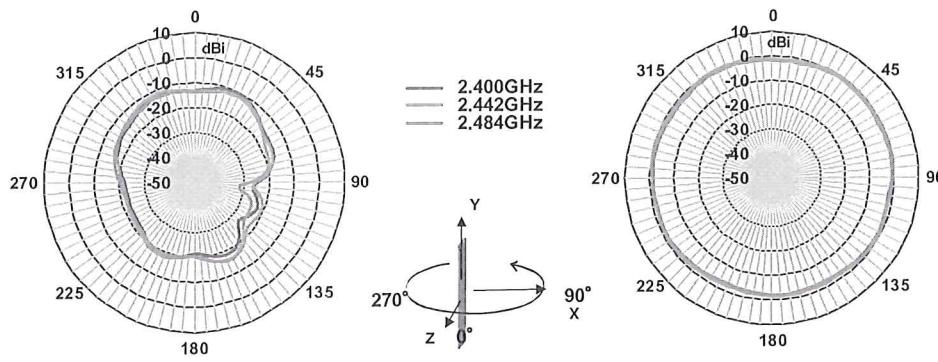
	Component P/N
Ft-1	2.0nH(MLG0603P2N0:TDK)
Mt	3.0nH(MLG0603P3N0:TDK)

Measurement condition for Radiation pattern



ANT016008LCS2442MA2**Radiation Pattern**

Note: Tested antenna has been soldered. Evaluation board size is 50x10x1 mm.
2.4GHz band

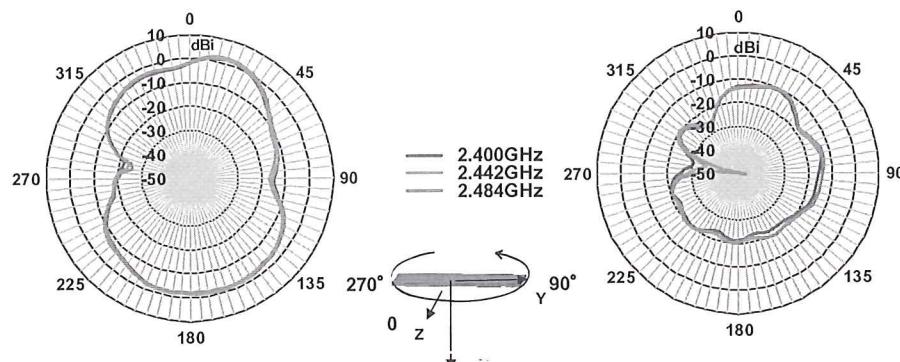


Horizontal Polarization

Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-16.1	-16.0	-16.4
Maximum[dBi]	-10.5	-11.3	-11.7
Minimum[dBi]	-26.9	-26.5	-31.9

Vertical Polarization

Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-1.4	-0.8	-1.6
Maximum[dBi]	-0.5	0.0	-0.9
Minimum[dBi]	-2.4	-2.1	-3.0

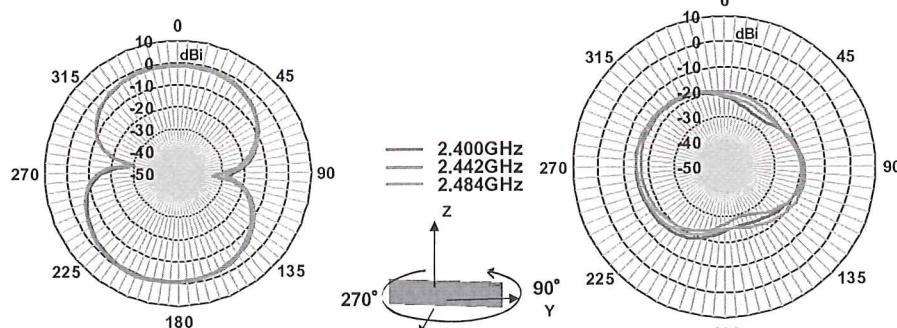


Horizontal Polarization

Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-4.3	-3.6	-4.2
Maximum[dBi]	1.6	2.5	2.0
Minimum[dBi]	-21.9	-24.0	-25.5

Vertical Polarization

Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-17.5	-16.8	-17.0
Maximum[dBi]	-11.1	-10.4	-10.4
Minimum[dBi]	-30.4	-36.3	-53.3



Horizontal Polarization

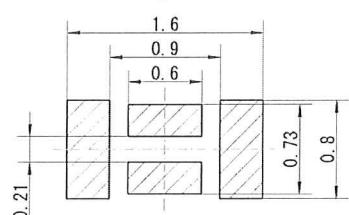
Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-3.9	-3.3	-4.0
Maximum[dBi]	-0.5	0.2	-0.3
Minimum[dBi]	-29.4	-28.7	-34.7

Frequency(GHz)	2.4	2.442	2.484
Average[dBi]	-18.7	-18.6	-19.8
Maximum[dBi]	-14.8	-15.0	-16.7
Minimum[dBi]	-26.3	-25.3	-29.1

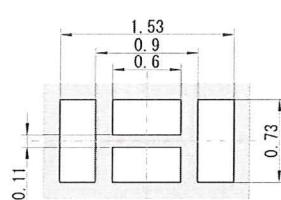
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■ RECOMMENDED LAND PATTERN

Recommend land

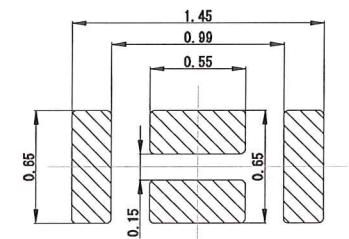


< Solder resist pattern >



- · — · Center line of Chip
-  Land Pattern
- Resist Pattern

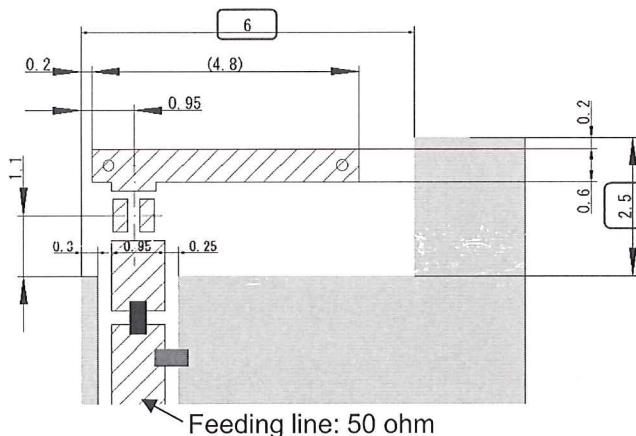
Recommend aperture size of metal mask for solder



— · — · Center line of Chip
[diagonal lines] Aperture of metal

Example of Antenna pattern layout (TDK Standard PCB)

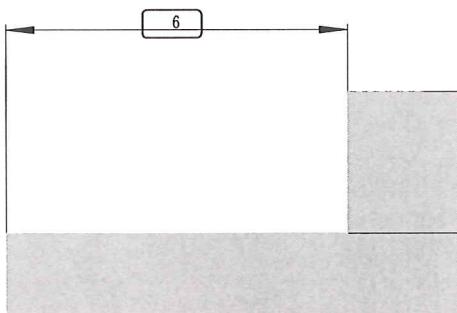
<Top Layer (Parts mounted side) >



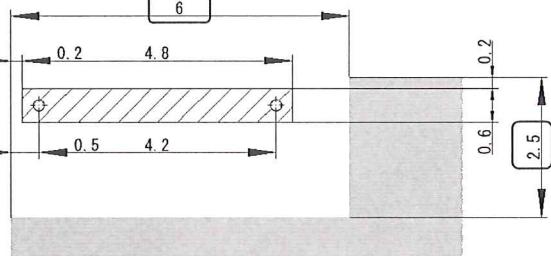
- Center line of Chip antenna
- [] Antenna keep out area (All Layer GND off)
- [] Ft : Frequency tuning component
- [] Mt : Impedance matching component
- [] Antenna Pattern
- () VIA : $\Phi 0.2\text{mm}$
- [] GND

[Unit : mm]

<Inner Layer >



<Bottom Layer >



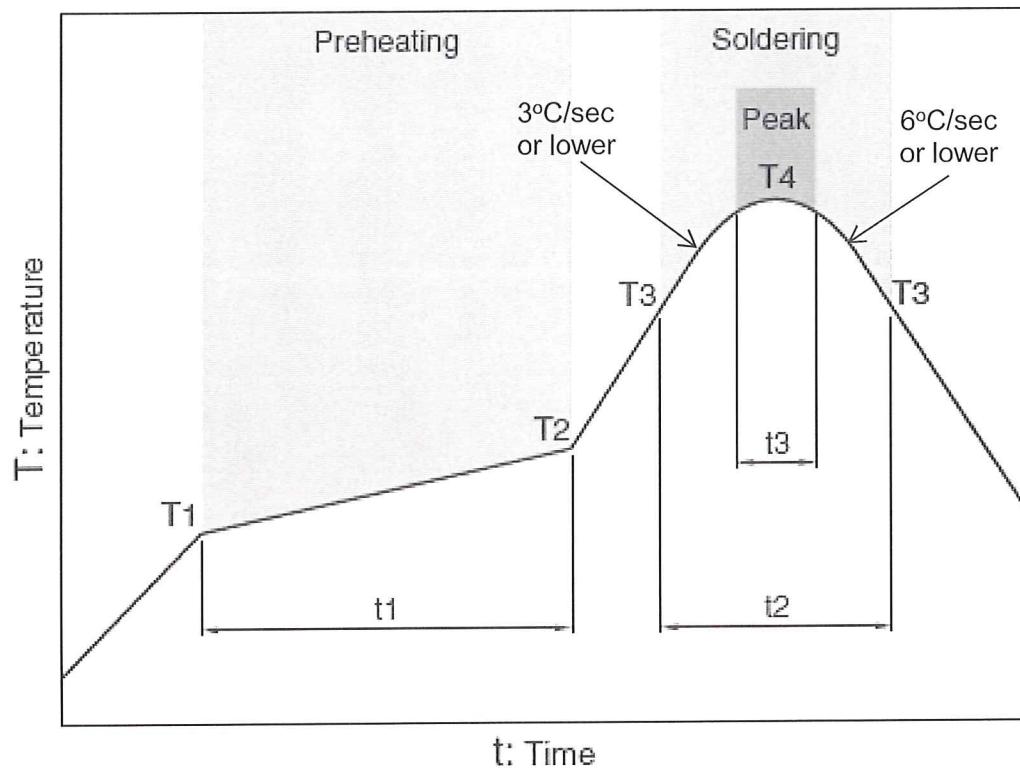
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■ ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

■ RECOMMENDED REFLOW PROFILE



Preheating			Soldering			
			Critical zone (T3 to T4)		Peak	
Temp.	Time		Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3 *

* t3 : Time within 5°C of actual peak temperature

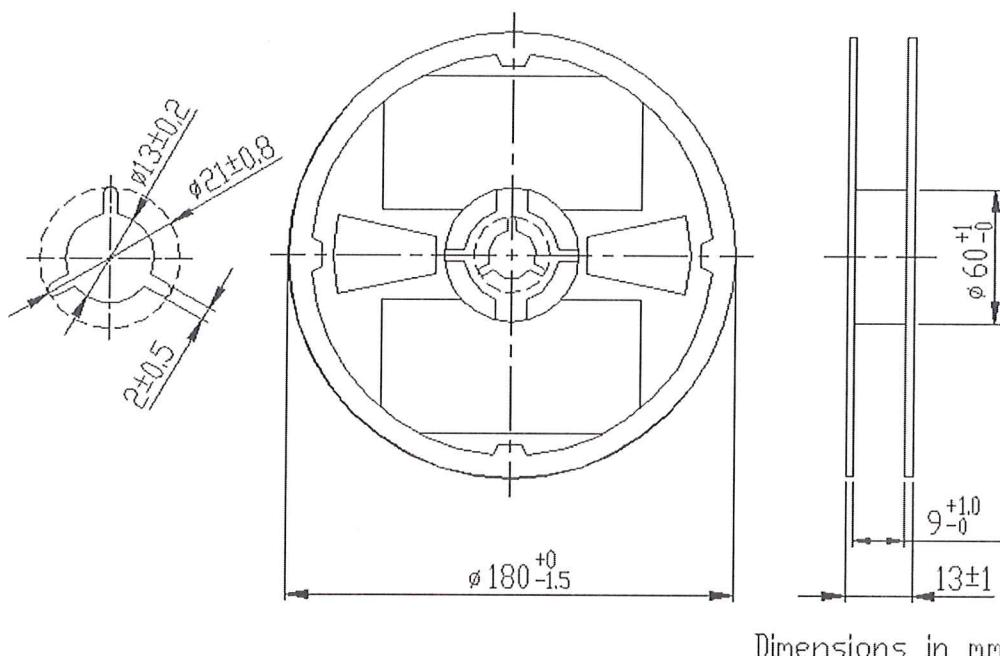
The maximum number of reflow is 3.

Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

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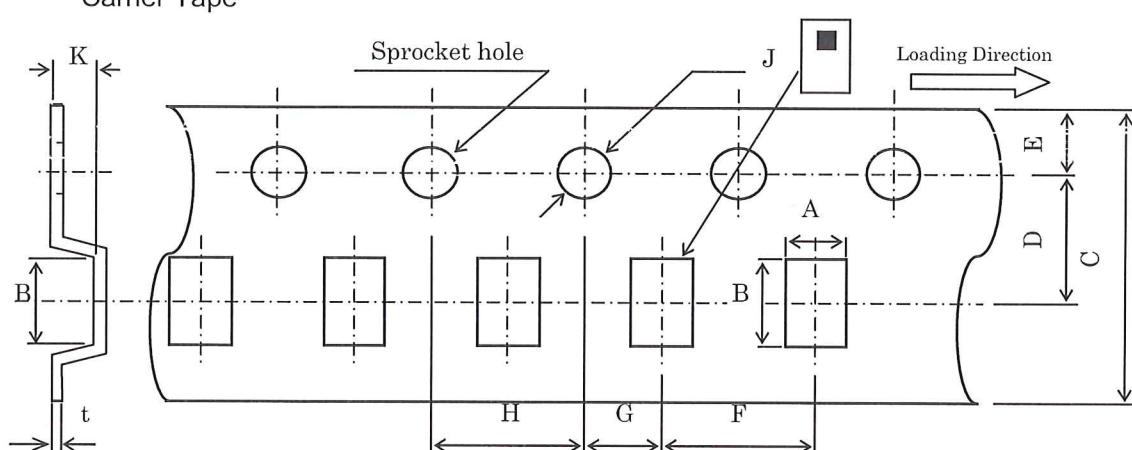
■ PACKAGING STYLE

Reel Dimensions



Dimensions in mm

Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
0.97 +/-0.05	1.8 +/-0.05	8.0 +/-0.2	3.5 +/-0.05	1.75 +/-0.1	4.0 +/-0.1	2.0 +/-0.05	4.0 +/-0.1	1.5 +0.1/-0	0.55 MAX	0.25 +/-0.05

STANDARD PACKAGE QUANTITY (pieces/reel)
4,000

All specifications are subject to change without notice.

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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.

REMINDERS

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.