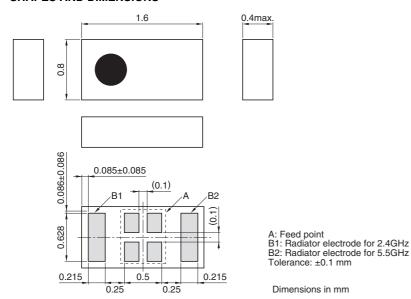


## Multilayer Chip Antennas For IEEE802.11a/b/g/n

Conformity to RoHS Directive Halogen-free

#### ANT Series ANT016008LCD2442MA1

#### **SHAPES AND DIMENSIONS**

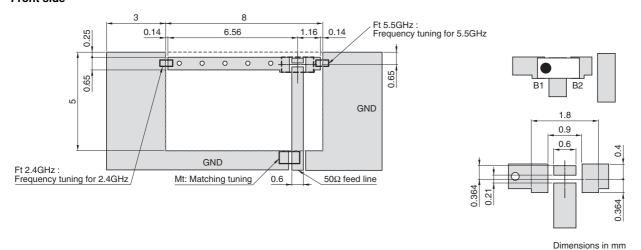


- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
- Halogen-free: Indicates that CI content is less than 900ppm, Br content is less than 900ppm, and that the total CI and Br content is less than 1500ppm.

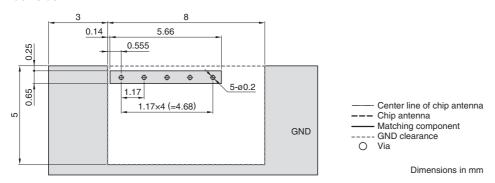
#### **RECOMMENDED PC BOARD PATTERNS**

#### **ELECTRODE**

#### Front side

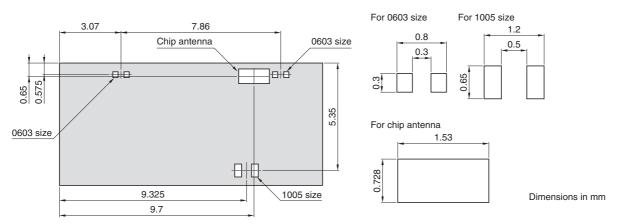


#### Back side

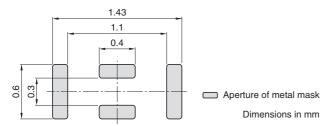


#### **SOLDER RESIST**

#### Front side



#### RECOMMEND APERTURE SIZE OF METAL MASK FOR SOLDER PRINTING

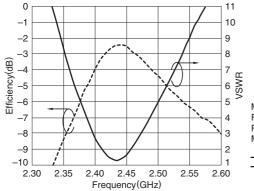


#### **ELECTRICAL CHARACTERISTICS**

Center frequency (F11b/g/n, F11a)		F11b/g/n 2442MHz,
		,
		F11a 5500MHz
Band width(BW) (F11b/g/n, F11a)		F11b/g/n ±42MHz,
		F11a ±350MHz
VSWR (at BW) (F11b/g/n, F11a)		F11b/g/n 6.5max.
		F <sub>11a</sub> 4max.
Polarization		Linear
Impedance		50Ω
PCB size		120×65×1.0mm
Temperature range	Operating	-40 to +85°C
	Storage	-40 to +85°C

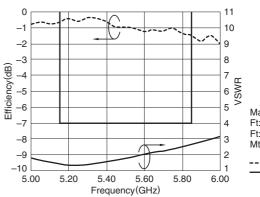
<sup>•</sup> This is typical antenna performance with the standard PCB.

#### FREQUENCY CHARACTERISTICS EFFICIENCY AND VSWR IEEE802.11b/g/n



# Matching circuit Ft: 2.4GHz: 2.5pF Ft: 5.5GHz: 0.3pF Mt: 1.5nH ---- Total efficiency VSWR

#### IEEE802.11a



Matching circuit
Ft: 2.4GHz: 2.5pF
Ft: 5.5GHz: 0.3pF
Mt: 1.5nH
----- Total efficiency
VSWR

<sup>•</sup> All specifications are subject to change without notice.

#### **RADIATION PATTERNS** IEEE802.11b/g/n

Directivity angle Vertical polarization Horizontal polarization 0° ∏10(dBi) 0° □10(dBi) 315 270 . 135 2.400GHz 2.400GHz ---- 2.442GHz ---- 2.442GHz 180 180 --- 2.485GHz --- 2.485GHz Vertical polarization Horizontal polarization 2.400 2.442 Frequency(GHz) 2.485 Frequency(GHz) 2.400 2.442 2.485 Average(dBi) Maximum(dBi) -9.62 -2.82 -8.45 -10.13 Average(dBi) -7.06 -2.18 -5.44 -6.82 -1.94 -1.44 -3.02-0.48 Maximum(dBi) -36.90 -34.11 -32.46 Minimum(dBi) -27.38 -29.46 Minimum(dBi) -44.31 , 10(dBi) , 10(dBi) 315 315 270° 90 270 90 225 - 2.400GHz 225 - 2.400GHz ---- 2.442GHz ---- 2.442GHz 180 180 --- 2.485GHz --- 2.485GHz Vertical polarization Horizontal polarization 2.400 2.442 2.485 -21.03 -19.00 -20.43 2.400 2.442 2.485 Frequency(GHz) Frequency(GHz) -5.70 1.19 -5.81 -4.32 Average(dBi) Average(dBi) Maximum(dBi) -13.19 -12.04 -12.29 Maximum(dBi) 0.54 Minimum(dBi) -48.22 -46.88 Minimum(dBi) -26.20 -27.25 0° ∏10(dBi) 0° ⊓10(dBi) 315 315 45 270 270 135 135° 225 - 2.400GHz 225 - 2.400GHz ---- 2.442GHz ---- 2.442GHz 180 180 --- 2.485GHz --- 2.485GHz Horizontal polarization Vertical polarization Frequency(GHz) 2.400 2.442 2.400 2.442 2.485 Frequency(GHz) 2.485 Average(dBi) -3.21 -1.68 -3.18 Average(dBi) –17.05 *–*15.74 *–*17.47 Maximum(dBi) -0.54 0.98 -0.23 Maximum(dBi) -11.24-9.64 - 11.46

<del>-</del>7 97

-48.22

Minimum(dBi)

-51.80 -40.53

Minimum(dBi) • Tested antenna has been soldered. Evaluation board size is 120×65×1 mm.

#### **&TDK**

### RADIATION PATTERNS IEEE802.11a

Directivity angle Vertical polarization Horizontal polarization 0° ∏10(dBi) 0° □10(dBi) 315 5.150GHz 5.150GHz ---- 5.500GHz ---- 5.500GHz 180 180 --- 5.850GHz --- 5.850GHz Vertical polarization Horizontal polarization 5.150 5.500 Frequency(GHz) 5.850 Frequency(GHz) 5.150 5.500 5.850 -7.05 0.04 Average(dBi) Maximum(dBi) -7.06 0.89 -7.32Average(dBi) -2.39 4.22 -2.73 4.78 -3.25 3.29 0.31 Maximum(dBi) -27.83 -26.31 -30.64 Minimum(dBi) Minimum(dBi) -42.06 -29.06 -34.55 , 10(dBi) , 10(dBi) 315 270 90 270 90 225 - 5.150GHz - 5.150GHz 225 ---- 5.500GHz ---- 5.500GHz 180 180 --- 5.850GHz --- 5.850GHz Vertical polarization Horizontal polarization Frequency(GHz) 5.150 5.850 5.500 5.150 5.500 5.850 Frequency(GHz) -15.19 -7.73 -17.92 -15.62 -2.74 -3.60 -3.11 Average(dBi) Average(dBi) Maximum(dBi) -9.40 Maximum(dBi) 5.18 5.04 -6.43 Minimum(dBi) -42.06 -37.80 Minimum(dBi) -15.95 -17.14 0° ||1,0,(dBi) 0° ⊓1,0,(dBi) 315 315 135° 225 **-** 5.150GHz - 5.150GHz ---- 5.500GHz ---- 5.500GHz 180 180 --- 5.850GHz --- 5.850GHz Vertical polarization Horizontal polarization Frequency(GHz) 5.150 5.500 5.150 5.500 5.850 Frequency(GHz) 5.850 Average(dBi) -5.64 -4.76 -4.21 Average(dBi) -11.65 -13.95 -15.05 Maximum(dBi) -2.18-195-1.61Maximum(dBi) -3.56-8.20-15.95 -29.68 -31.10 -32.99 Minimum(dBi) -16.91Minimum(dBi) -38.35

 $<sup>\</sup>bullet$  Tested antenna has been soldered. Evaluation board size is 120×65×1 mm.