Cellular Ceramic Antennas

molex

Compact Ceramic Cellular Antenna supports high-performance MIMO applications in telecommunications, industrial and other wide-frequency-band operations

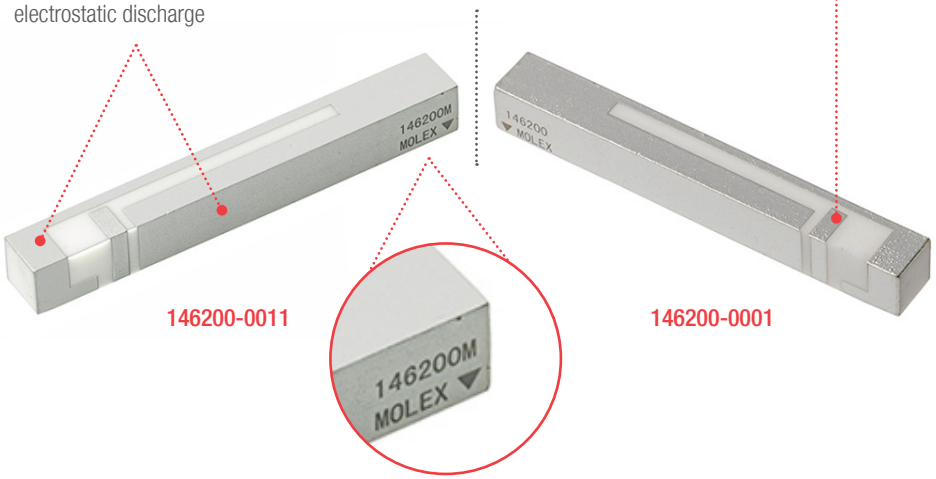
790 MHz to 2.7 GHz Ceramic Antenna
(Series 204774)

Features and Benefits

SERIES 146200

ESD-protecting radiation pattern
All radiation patterns are directly connected to the system ground to eliminate damage caused by electrostatic discharge

Indirect-feed design
Enables wider impedance bandwidth



146200-0011

146200-0001

Indicator ("M")
Denotes '**M**irror-image' to matching part 146200-0001

698 MHz to 2.7 GHz Ceramic Antennas
Matching-pair with mirror-image antenna patterns shown (Series 146200)

Advantages

As these antennas are similar in design and attributes, only one matching circuit is needed when used in MIMO systems. The advantage of this is lower overall application costs. Other advantages include: indirect feed design, leading to improved antenna performance when the phone is held in hand or placed near the user's body.

Features and Benefits

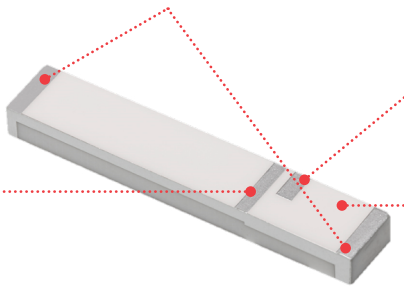
SERIES 204774

Fixing pads
Firmly anchor the antenna housing onto the SMT pads of the PCB

Feeding pad
Ensures electrical signals form a 50-Ohm transmission line on the PCB is fed into the antenna

Grounding pad
Ensures the antenna is safely grounded on the application PCB

Ceramic antenna housing
High thermal conduction and resistance against detuning effects of environmental interference



790 MHz to 2.7 GHz Ceramic Antenna
(Series 204774)

Applications

Telecommunications/Networking

- MIMO routers
- VPN routers
- Wireless LAN systems

Wireless Infrastructure

- Wireless embedded systems
- Wireless radio communication equipment
- MIMO satellite communications (SatCom) systems

MIMO's multipath reflection in urban cities is suited for Infrastructure / Networking applications

MIMO Satellite Communications Systems for Wireless Infrastructure Constructions

Cellular Ceramic Antennas

molex

Specifications (790 MHz to 2.7 GHz Cellular Ceramic Antenna, Series 204774)

REFERENCE INFORMATION
Packaging: Tape on reel
Reference Platform: 130 by 60 by 0.8mm PCB
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes
Ground clearance: 10.00 by 3.00mm around the perimeter of the antenna footprint

ELECTRICAL
Voltage (Watt): 2
Return Loss - S11(dB): <-6
Average Total Radiation Efficiency(%): >50% (790 to 960 MHz); >70% (1.70 to 2.70 GHz)
Peak Gain (dBi): 0.2 (790 to 960 MHz) : 3.8 (1.70 to 2.70 GHz)
Polarization: Linear
Input Impedance (Ohms): 50

MECHANICAL
Shear Force: 20N min.

PHYSICAL
Housing: Ceramic
Plating: Silver 8-10µm
Operating Temperature: -40 to +125°C

Specifications (698 MHz to 2.7 GHz Cellular Ceramic Antennas, Series 146200)

REFERENCE INFORMATION
Packaging: Tape on reel
Reference Platform: 130.00 by 60.00 by 1.00mm
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes
Ground clearance: 5.00 by 5.00mm
SMT compatible: Yes

ELECTRICAL
Voltage (Watt): 2
Return Loss - S11(dB): <-5
Average Total Radiation Efficiency(%): >45 (824 to 960 MHz); >60 (1.7 to 2.7 GHz) for 146200-0011>40 (824 to 960 MHz); >60 (1.7 to 2.7 GHz) for 146200-0001
Peak Gain (dBi): 1.1 (698 to 960 MHz); 4.5 (1.71 to 2.7 GHz)
Polarization: Linear
Input Impedance (Ohms): 50

MECHANICAL
Shear Force: 50N min.

PHYSICAL
Housing: Ceramic
Plating: Silver 8-10µm
Operating Temperature: -40 to +85°C

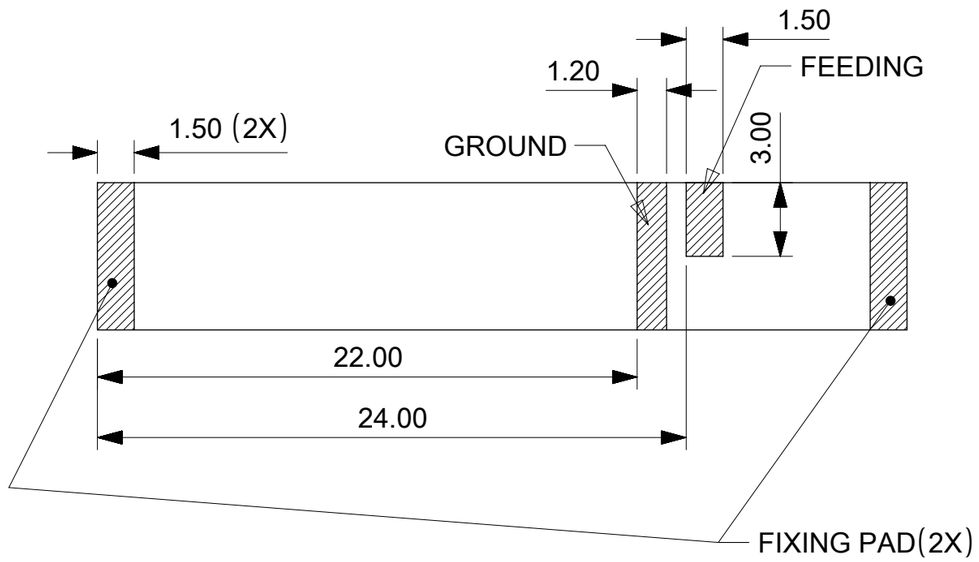
Ordering Information

Series No.	Description	Frequency Bands	Dimension (mm)
204774	790 MHz to 2.7 GHz Cellular Ceramic Antenna	790 to 960 MHz and 1.7 to 2.7 GHz	40.00(L) by 5.00(W) by 5.00(H)
146200	698 MHz to 2.7 GHz Cellular Ceramic Antennas	698 to 960; 1.7 to 2.70 GHz	40.00(L) by 5.00(W) by 5.00(H)

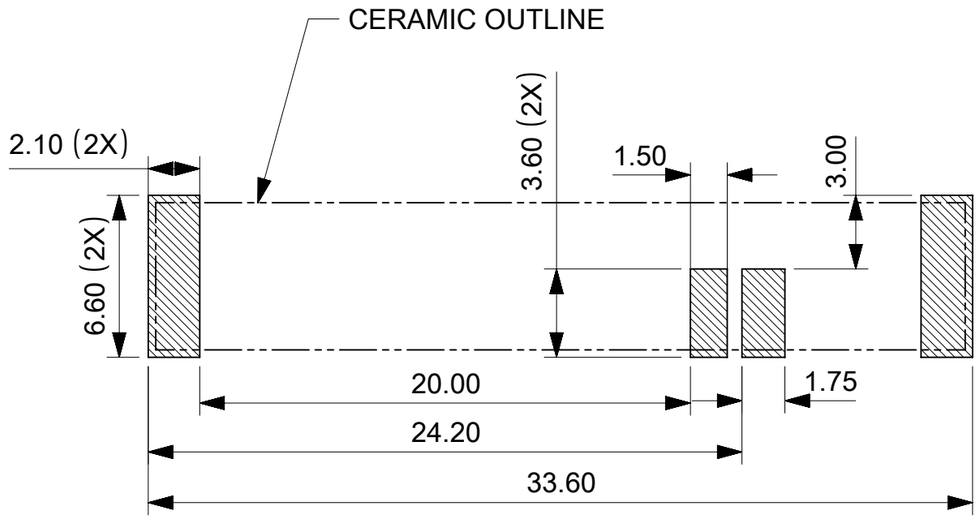
www.molex.com/link/standard_antennas.html

Order No. 987650-7481 Rev. 4 APS/0k/GF/2018.03

3D VIEW



PADS OF PRODUCT FOR SOLDER



RECOMMENDED PCB LAYOUT

NOTES:
1. MATERIAL:CERAMIC
2. PATTERN: Ag PLATED, THICKNESS 4-11um
3. PACKAGE SPEC. REFER TO PK OF 2047740001
4. PRODUCT SPEC. REFER TO PS OF 2047740001
5. APPLICATION SPEC. REFER TO AS OF 2047740001
6. SUGGEST TO USE RED GLUE UNDER PART BEFORE SMT IF APPLICATION CONDITION IS STRICT

RELEASE STATUS	P1	RELEASE DATE	16.11.2017 07:25:28

EC NO: 167789 2017/11/07
DRWN: KCHENG06 2017/11/16
CHK'D: CXU11 2017/11/16
APPR: XJSONG

GENERAL TOLERANCES (UNLESS SPECIFIED)

ANGULAR TOL	±	1 °
4 PLACES	±	
3 PLACES	±	0.1
2 PLACES	±	0.25
1 PLACE	±	0.3
0 PLACES	±	0.5

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION UNITS	MM
SCALE	4:1
DRWN BY	CXU11
DATE	2017/06/29
CHK'D BY	YPXING
DATE	2017/08/17
APPR BY	XJSONG
DATE	2017/08/17
DRAWING SIZE	A3
	THIRD ANGLE PROJECTION
REV	A2

molex®

CELLULAR 790-2700MHZ CERAMIC ANTENNA

PRODUCT CUSTOMER DRAWING

SERIES	MATERIAL NUMBER	CUSTOMER
204774	2047740001	GENERAL MARKET

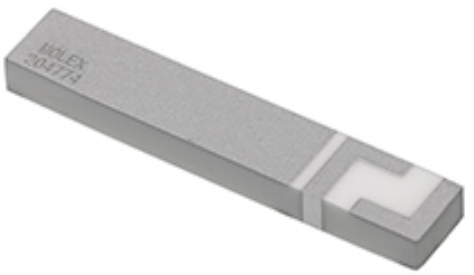
DOCUMENT NUMBER	DOC TYPE	DOC PART	SHEET NUMBER
2047740001	PSD	SD	1 OF 1

FORMAT: master-tb-prod-A3
REVISION: G
DATE: 2017/02/06

This document was generated on 03/12/2018

PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION

Part Number: 2047740001
Status: Active
Overview: Antennas
Description: Cellular 790-2700MHz Penta-band Ceramic Antenna



Series image - Reference only

Documents:

3D Model
Drawing (PDF)
Product Specification 2047740001-PS (PDF)
Application Specification 2047740001-AS (PDF)
Packaging Specification 2047740001-PK (PDF)
RoHS Certificate of Compliance (PDF)
Product Literature (PDF)

General	
Product Family	Antennas
Series	204774
Component Type	Surface Mount Device Antenna
Overview	Antennas
Product Literature Order No	987650-7481
Product Name	Cellular Penta-band Ceramic
Protocol	Cellular
Type	Cellular Antenna
UPC	191128391221
Physical	
Cable Length	N/A
Length	33.00mm
Mounting Style	Surface Mount
Net Weight	2.150/g
Packaging Type	Embossed Tape on Reel
Polarization	Linear
Radiation Pattern	Omnidirectional
Thickness	3.00mm
Width	6.00mm
Electrical	
Band#1 F_End (MHz)	960
Band#1 F_Start (MHz)	790
Band#2 F_End (MHz)	2700
Band#2 F_Start (MHz)	1710
Electrical Connectivity	SMD
Impedance	50Ω
Number of Bands	7 - Cellular
Peak Gain (dBi)	0.6 @ 790M, 4.8 @ 1710M
Return Loss - S11 (dB)	< -6
Total Efficiency	>50% @ 790M, >70% @ 1710M
Material Info	
Reference - Drawing Numbers	
Application Specification	2047740001-AS
Packaging Specification	2047740001-PK
Product Specification	2047740001-PS
Sales Drawing	2047740001-SD

EU ELV
Not Relevant

EU RoHS | **China RoHS**
Compliant

REACH SVHC
Contained Per - ED/01/2018 (15 January 2018)
2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)p

Halogen-Free Status
Low-Halogen

Need more information on product environmental compliance?

Email productcompliance@molex.com
Please visit the Contact Us section for any non-product compliance questions.

China ROHS	Green Image
ELV	Not Relevant
RoHS Phthalates	Not Contained

Search Parts in this Series
204774 Series

This document was generated on 03/12/2018

PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION