

Cellular Ceramic Antennas

molex

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

Features and Benefits

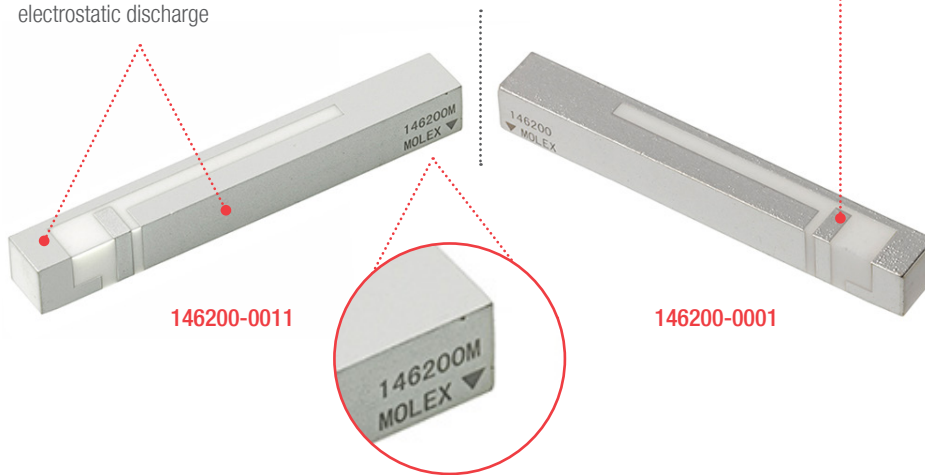
SERIES 146200

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



Indicator ("M")

Denotes 'Mirror-image' to matching part 146200-0001



790 MHz to 2.7 GHz Ceramic Antenna (Series 204774)



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

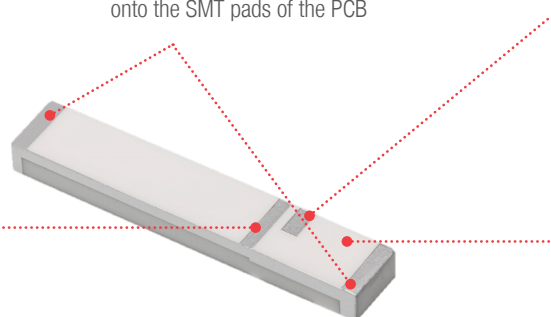
Firmly anchor the antenna housing onto the SMT pads of the PCB

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

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

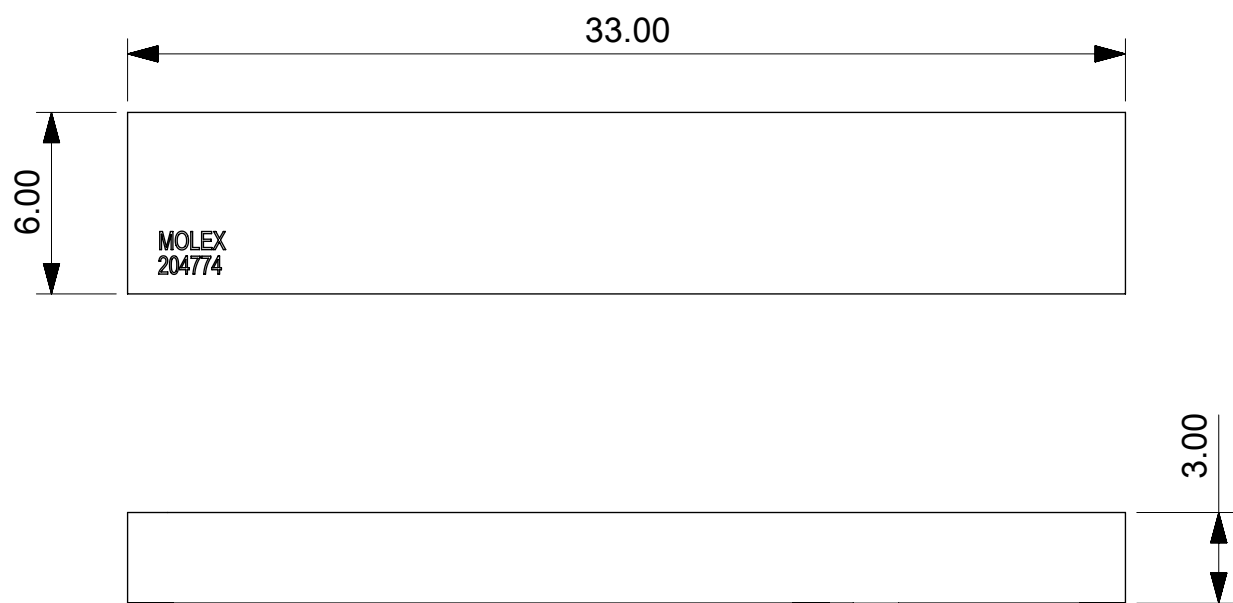
Shear Force: 50N min.

PHYSICAL

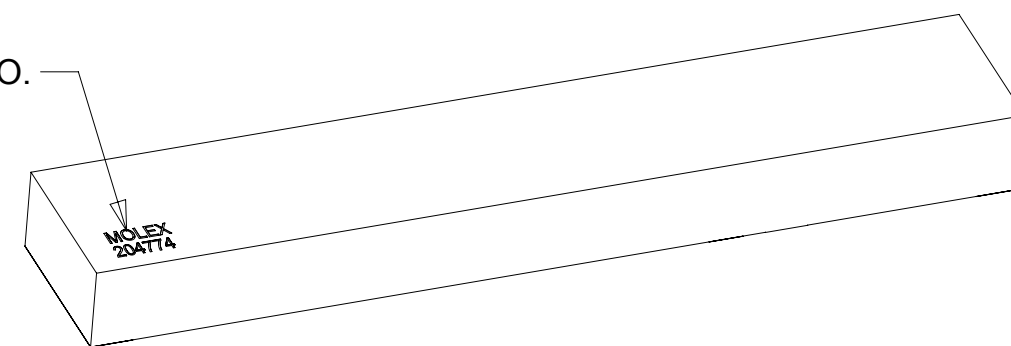
Housing: Ceramic
Plating: Silver 8-10µm
Operating Temperature: -40 to +85°C

Ordering Information

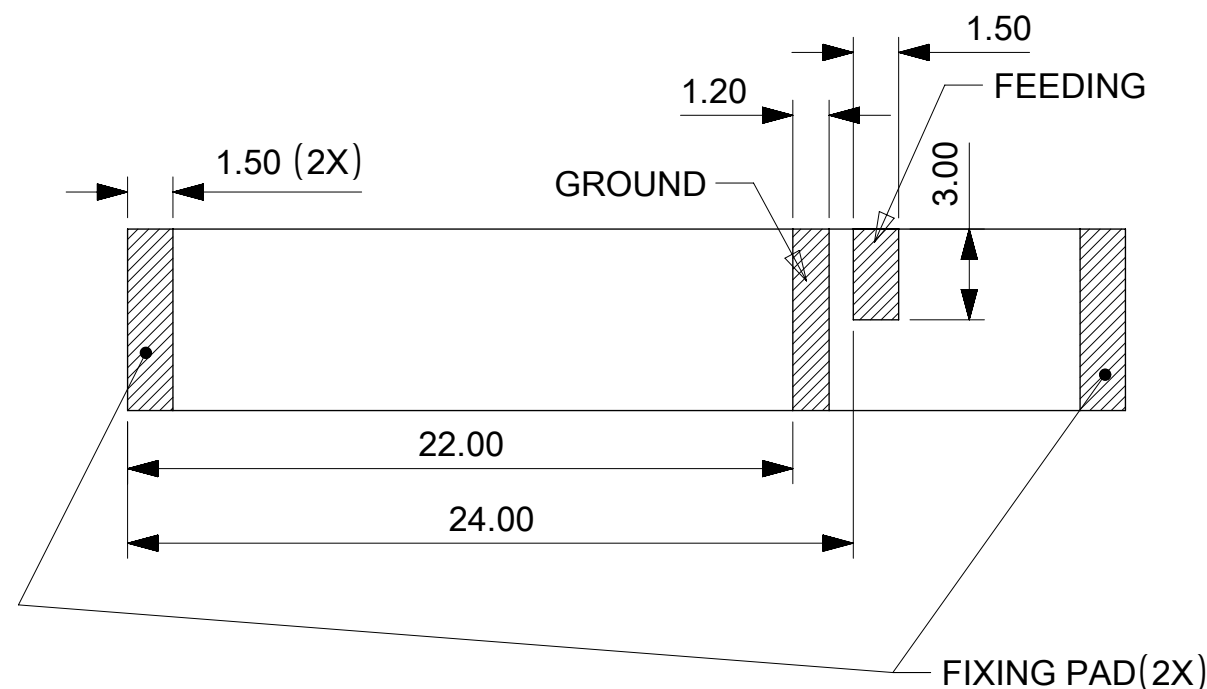
Series No.	Description	Frequency Bands	Dimension (mm)
204774	790 MHz to 2.7 GHz Cellular Ceramic Antenna	790 to 960 MHz and 1.7 to 2.7 GHz	40.00(L) by 5.00(W) by 5.00(H)
146200	698 MHz to 2.7 GHz Cellular Ceramic Antennas	698 to 960; 1.7 to 2.70 GHz	40.00(L) by 5.00(W) by 5.00(H)



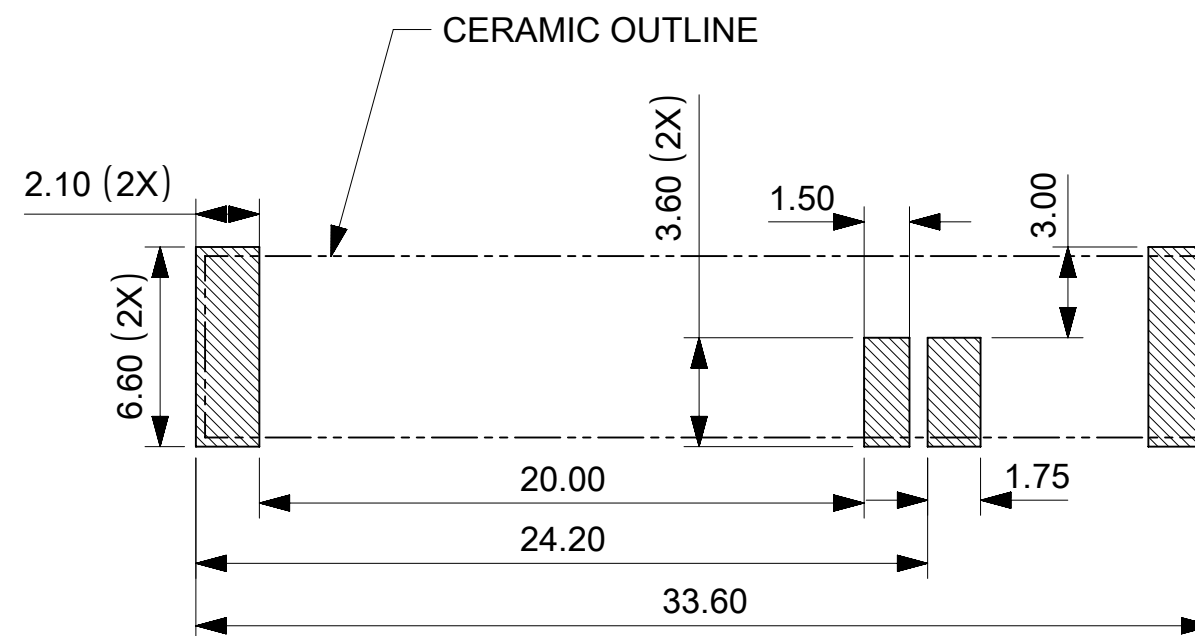
LOGO WITH SERIES NO.



3D VIEW



PADS OF PRODUCT FOR SOLDER

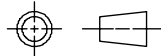


RECOMMENDED PCB LAYOUT

NOTES:

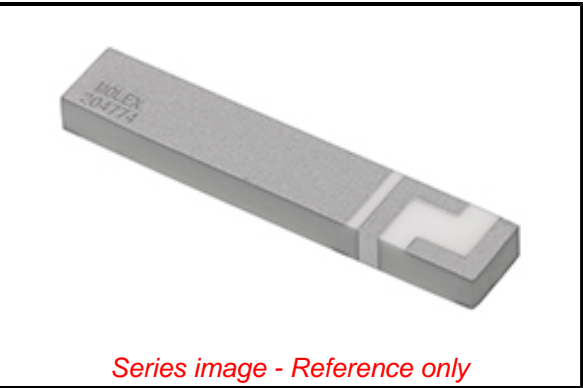
1. MATERIAL:CERAMIC
2. PATTERN: Ag PLATED, THICKNESS 4-11um
3. PACKAGE SPEC. REFER TO PK OF 2047740001
4. PRODUCT SPEC. REFER TO PS OF 2047740001
5. APPLICATION SPEC. REFER TO AS OF 2047740001
6. SUGGEST TO USE RED GLUE UNDER PART BEFORE SMT IF APPLICATION CONDITION IS STRICT

RELEASE STATUS	P1	RELEASE DATE	16.11.2017	07:25:28
----------------	----	--------------	------------	----------

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION															
EC NO: 167789 DRWN: KCHENG06 CHK'D: CXU11 APPR: XJSONG	2017/11/07 2017/11/16 2017/11/16	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION UNITS		SCALE		molex®							
				MM		4:1									
				ANGULAR TOL ± 1 °		DRWN BY		DATE		CELLULAR 790-2700MHZ CERAMIC ANTENNA					
						CXU11		2017/06/29							
				4 PLACES ±		CHK'D BY		DATE							
				3 PLACES ± 0.1		YPXING		2017/08/17							
				2 PLACES ± 0.25		APPR BY		DATE		PRODUCT CUSTOMER DRAWING					
				1 PLACE ± 0.3		XJSONG		2017/08/17							
				0 PLACES ± 0.5		DRAWING SIZE		THIRD ANGLE PROJECTION		SERIES		MATERIAL NUMBER		CUSTOMER	
				DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		A3				204774		2047740001		GENERAL MARKET	
DOCUMENT NUMBER		DOC TYPE								DOC PART		SHEET NUMBER			
2047740001		PSD								SD		1 OF 1			

PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION

Part Number: [2047740001](#)
Status: **Active**
Overview: [Antennas](#)
Description: Cellular 790-2700MHz Penta-band Ceramic Antenna



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

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](#)

PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION