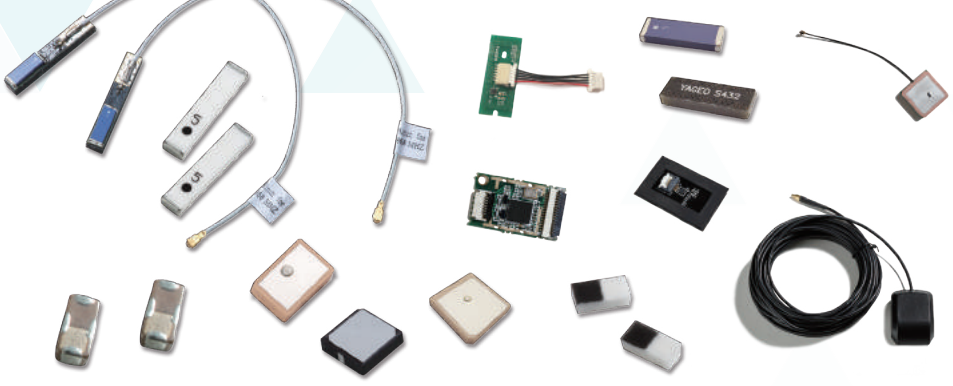
Innovative Service Around the Globe YAGEO

Wireless Components



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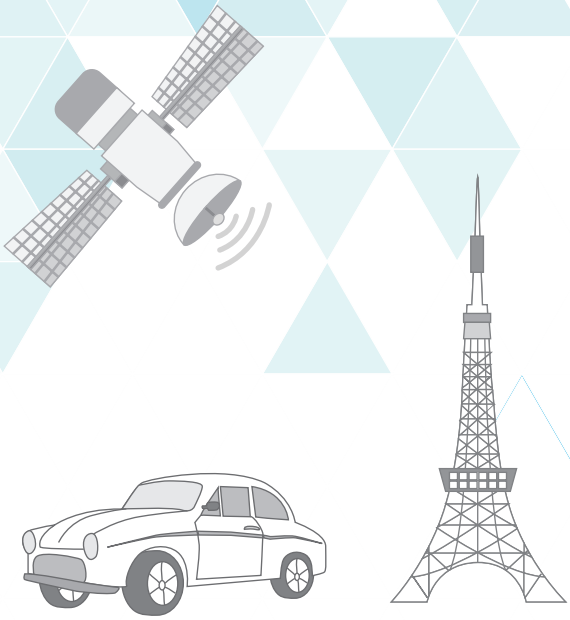
YAGEO Phycomp

About Yageo

Established in 1977, the Yageo Corporation has become the world's leading total service provider of passive components with capabilities on a global scale, including production and sales facilities in Asia, Europe and the Americas. Yageo has a strong global footprint 37 sales/service offices in 17 countries, 11 manufacturing sites, 6 JIT logistic hubs and 6 R&D centers worldwide.

The corporation provides one-stop-shopping, offering its complete product portfolio of resistors, capacitors and wireless components to meet the diverse requirements of customers.

Yageo's broad product offerings are targeting at key vertical markets, including applications for consumer electronics, computers & peripherals, industrial/power, alternative energy, telecommunication and automotive. We serve diversified leading global customers, such as EMS, ODM, OEM and distributors.



Introduction

Yageo produces a comprehensive range of wireless components, including metal/PCB/FPCB antennas, patch antennas (ceramic bulk), chip antennas, active antennas , RF IPD (Integrated Passive Device, filter/balun/coupler/diplexer) and modules (internal GPS active antenna, external GPS active antenna, NFC module, N-Tag module).

Our products cover a wide variety of wireless communication protocols, including Bluetooth & IEEE 802.11b/g, WPAN (Wireless Personal Area Network), WLAN (Wireless Local Area Network), WMAN (Wireless Metropolitan Area Network), WWAN (Wireless Wide Area Network) and LTE (Long Term Evolution).

Antenna

Metal

PCB

FPCB

LTCC / Ceramic

Patch / Ceramic

RF IPD
Integrated Passive Device, Filter/Balun/Coupler/Diplexer

Balun

Filter

Diplexer

Balun + Filter

X2Y Filter

Module

GPS Internal Module

GPS External Antenna

NFC Module

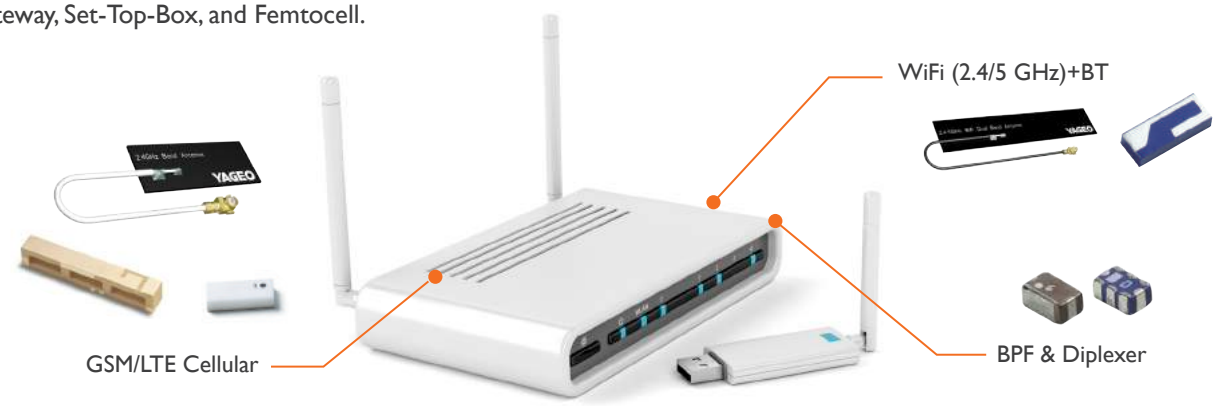
N-Tag Module

Applications

Yageo's broad product offering of wireless components targets key vertical markets, such as: automotive, smart meter, smart home, wireless networking devices, tablet and mobile phones, and navigation & tracker, etc.

Wireless Networking Device

A wireless networking device can be best defined as a network device used to connect terminal device without cables, normally through radio signals. Some examples of a common wireless networking device are a wireless router / gateway, Set-Top-Box, and Femtocell.

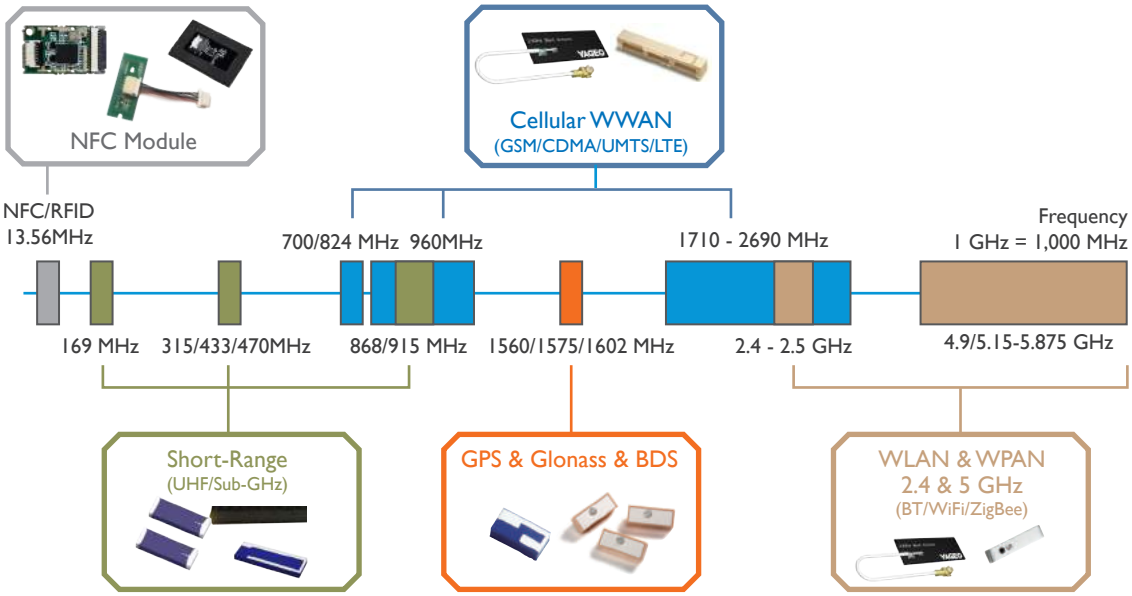


Product Series	Part Number	Frequency range (MHz)	Gain (dBi)	Size (mm)	Assembly
Cellular WWAN	ANT1204LL00R0918A	900/1800 MHz	1.08 dBi	12*4.4*1.2	SMD
	ANT2112LL00B0918A	900/1800 MHz	0.5~1 dBi	20.5*11.8*3	SMD
	ANT3505B002TWPENS	824~960 / 1710~2170	2.9 dBi	35*5*6	SMD
	ANT4010F000RWPENA	824~960 / 1710~2170	3.3 dBi	40*10.3*3.4	SMD
	ANTX100P001BWPEN3	824~960/ 1710~2170	4.2	50*20*0.55	I-PEX dia 1.13, 100mm
	ANT4005B000RWHEXS	698~960/ 1710~2690	3.2/4.0 dBi	40*5*6	SMD
2.4 GHz	ANT1204F001R2400A	2400~2500	6.66 dBi	12*4*2	SMD
	ANT3216LL00R2400A	2400~2500	5 dBi	3.2*1.6*1.3	SMD
	ANT3216LL11R2400A	2400~2500	3.68 dBi	3.2*1.6*1.2	SMD
	ANT2012LL00R2400A	2400~2500	3.77 dBi	2.0*1.25*1.1	SMD
	ANT2012LL13R2400A	2400~2500	2.72 dBi	2.0*1.2*1	SMD
	ANTX200P001B24003	2400~2500	4.8 dBi	18.4*7.5*0.55	I-PEX dia 1.13, 200mm
	ANT1608LL14R2400A	2400~2500	2.0 dBi	1.6*0.8*0.4	SMD
	ANT1005LL14R2400A	2400~2500	2.21 dBi	1.0*0.5*0.37	SMD
2.4/5 GHz	ANT1003LL15R2455A	2400~2500/ 5150~5875	2.45 / 1.55 dBi	1.0*3.2*1.6	SMD
	ANT5320LL04R2455A	2400~2500/ 5150~5875	2.72 / 3.85 dBi	5.3*2.0*1.4	SMD
	ANT5320LL24R2455A	2400~2500/ 5150~5875	2.17 / 3.51 dBi	5.3*2.0*1.2	SMD
	ANTX100P001B24553	2400~2500/ 5150~5875	5.1 dBi	50*10*0.9	I-PEX dia 1.13, 200mm
	ANT1608LL14R2455A	2400~2500/ 5150~5875	5/ 3.5 dBi	1.6*0.8*0.4	SMD

Product Series	Part Number	Pass Band(MHz)	I.L (dB)	Attenuation I (dB) (min)@25°C	Attenuation II (dB) (min)@25°C
BPF	BPF2012LL03R2400A	2400~2500	2.3	40dB @ 1000~1600MHz	40dB @ 4900MHz
	BPF2012LL03R5000A	4900~5900	2.2	25dB @ 6850~7150MHz	20dB @ 7500~9000MHz
	BPF2012LL01R5000A	4900~5900	1.5	30dB @ 1280~3000MHz	25dB @ 3300~4000MHz
	BPF1608LM02R2400A	2400~2500	1.7	25dB @ 1850~1910MHz	25dB @ 4800~5000MHz
	BPF1608LM11R2400A	2400~2500	1.8	6.5dB @ 2110~2170MHz	25dB @ 4800~5000MHz
LPF	LPF1608LL53R2400A	2400~2500	0.48	35dB @ 4800~5000MHz	27dB @ 7200~7500MHz
	LPF1005LL50R2400A	2400~2500	0.5	25dB @ 4800~5000MHz	20dB @ 7200~7500MHz
Diplexer	DPX1608LL80R2455A	2400~2500/4900~6000	Low: 0.7; High: 0.8	28dB @ 2170MHz	20dB @ 4800~5000MHz
	DPX1608LL82R2455A	2400~2500/4900~6000	Low:0.5; High:1.0	25dB(Min).@4800~5000MHz	32dB (Min).@300~2700 MHz
	DPX1608LL85R2455A	2400~2500/4900~6000	Low:0.7; High:0.8	20dB(Min).@4.8~5GHz	28dB(Min).@860~960MHz
	DPX1608LL83R2455A	2400~2500/4900~5950	Low:0.5; High:1.0	25 dB Min@4800 ~ 5000 MHz	32 dB Min. @ 30 ~ 2700 MHz
	DPX1608LL86R2455A	2400~2500/4900~5950	Low: 0.6; High: 1.2	28dB @ 30-2700MHz	20dB @ 4800-5000MHz
	DPX2012LL76R2455A	2400~2500/4900~5950	Low:0.65; High:0.65	20dB(Min).@4800~5000MHz	20dB (Min).@1800~2500 MHz
	DPX2012LL75R2455A	2400~2500/4900~5950	Low:0.65; High:0.65	20dB(Min).@4800~5000MHz	20dB (Min).@1800~2500 MHz

Product Series	Part Number	Pass Band	I.L (dB)	Balance Impedance
Balun	BLN1608LL30R2400A	2400~2500 MHz	1.2	50 Ω
	BLN1608LL01R5000A	4900~5950	1.2	100Ω

Yageo Antenna Product Line



Portable devices, home appliances, industrial/medical equipment will be equipped with wireless connectivity for Peer-to-Peer data exchange. More wireless components are needed.

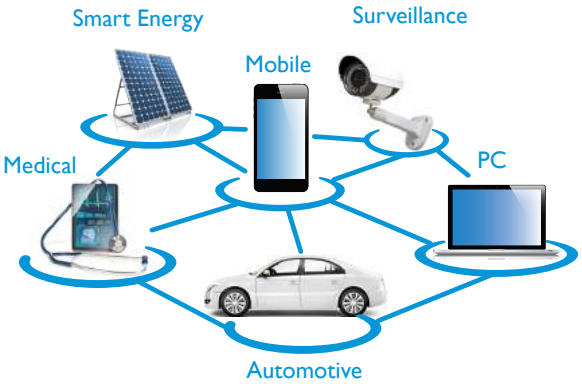
Key features of wireless components:

Compact

- Maximize performance with the smallest size required
- The smallest 2.4/5 GHz antenna : PCB 18.4x7.5 mm / LTCC 1.0x0.5 mm

Multi-Band & High Efficiency

- WWAN: Quad-band (850/900/1800/1900 MHz) to Penta-band (850/900/1800/1900/2100 MHz)
- Support 4G cellular network LTE 700 MHz (Band 12,13,17), 2300/2600 MHz
- Multi-band 2.3/2.4/2.7 & 5 GHz supporting WLAN/WiMAX/LTE
- Operating in worldwide navigational systems, GPS, GLONASS and Beidou, 1561-1602MHz
- ISM bands (169/315/433/868Mhz)



High Reliability

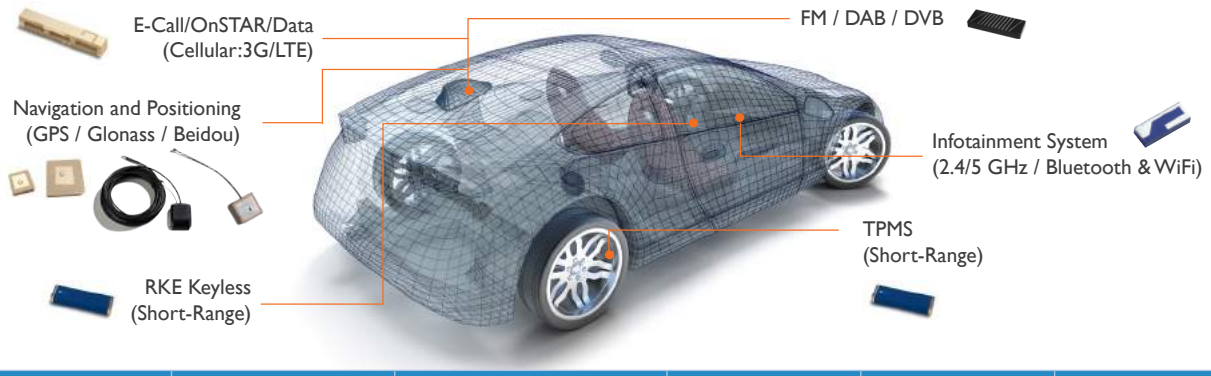
- Operating temperature range: -40°C ~ 105°C
- Operating humidity 95% RH at 40°C
- Vibration verification

Easy Installation

- Reliable adhesive tape, surface mount, and flexible cable/connector selection

Automotive

Innovative electronic design is essential to meet the stringent requirements of automotive market. The applications cover: TPMS (Tyre Pressure Monitoring Systems), infotainment and navigation systems, Bluetooth connectivity, telematics, which enrich drivers' experiences and enhance safety while driving.



Product Series	Part Number	Frequency range (MHz)	Gain	Size (mm)	Assembly
Cellular WWAN	ANT1204LL00R0918A	900/1800 MHz	1.08 dBi	12*4.4*1.2	SMD
	ANT2112LL00B0918A	900/1800 MHz	0.5~1 dBi	20.5*11.8*3	SMD
	ANT3505B002TWPENS	824~960 / 1710~2170	2.9 dBi	35*5*6	SMD
	ANT4010F000RWPENA	824~960 / 1710~2170	3.3 dBi	40*10.3*3.4	SMD
	ANTX100P001BWPEN3	824~960/ 1710~2170	4.2 dBi	50*20*0.55	I-PEX dia 1.13, 100mm
	ANT4005B000RWHEXS	698~960/ 1710~2690	3.2/4.0 dBi	40*5*6	SMD
2.4 GHz	ANT1204F001R2400A	2400~2500	6.66 dBi	12*4*2	SMD
	ANT3216LL00R2400A	2400~2500	5 dBi	3.2*1.6*1.3	SMD
	ANT3216LL11R2400A	2400~2500	3.68 dBi	3.2*1.6*1.2	SMD
	ANT2012LL00R2400A	2400~2500	3.77 dBi	2.0*1.25*1.1	SMD
	ANT2012LL13R2400A	2400~2500	2.72 dBi	2.0*1.2*1	SMD
	ANTX200P001B24003	2400~2500	4.8 dBi	18.4*7.5*0.55	I-PEX dia 1.13, 200mm
	ANT1608LL14R2400A	2400~2500	2.0 dBi	1.6*0.8*0.4	SMD
	ANT1005LL14R2400A	2400~2500	2.21 dBi	1.0*0.5*0.37	SMD
GPS	ANT1515B00FT1575S	1575	2 dBi	15*15*4	Pin Solder
	ANT1818B00BT1575S	1575	2 dBi	18*18*4	SMD
	ANT2525B00BT1575S	1575	5.5 dBi	25*25*4	SMD
GPS+Glonass	ANT1818B00BT1516S	1575 / 1602	1.89 / 2.59 dBi	18*18*4	SMD
	ANT1818B00DT1516S	1575 / 1602	2.65 / 2.79 dBi	18*18*4	Pin Solder
	ANT2525B00BT1516S	1575 / 1602	4.7 / 4.51 dBi	25*25*4	SMD
	ANT2525B00FT1516S	1575 / 1602	4.97 / 4.66 dBi	25*25*4	Pin Solder
Internal type Active GPS	ANT2525JB08B1575A	1575	16 dB	25*25*7.5	Connector
	ANT1606JB12B1575A	1575	20 dB	20*6*6.4	Connector
	ANT1212JB00B1575S	1575	18 dB	12*12*6.5	Connector
	ANT1515JB00B1575S	1575	18 dB	15*15*6.5	Connector
	ANT1818JB00B1575S	1575	18 dB	18*18*6.5	Connector
	ANT2525JB00B1575S	1575	18 dB	25*25*6.5	Connector
Internal type Active GPS+Glonass	ANT8010JLC1B1516A	1575 / 1602	18 dB	22*6*1.9	Connector
	ANT8010JLC4B1516A	1575 / 1602	20 dB	24*8*2.5	Connector
External type Active GPS+Glonass	ANT4938EN00B1516S	1575 / 1602	29 dB	49*37*17	Connector
	ANT4735EN00B1516S	1575 / 1602	29 dB	46.5*35*15	Connector
SDARS	ANT2525B00FT2300S	2320~2345	7.7 dBic	25*25*4	Pin Solder
ISM Bands	ANT1204LL05R0915A	915	3.32 dBi	12*4*1.6	SMD
	ANT1204LL08R0870A	870	0.5 dBi	12*4*1.6	SMD
	ANT1204LL16R0870A	870	1.05 dBi	12.0*4.0*1.2	SMD
	ANT7020LL05R0870A	870	1.83 dBi	7.0*2.0*0.7	SMD
	ANT1204LL20R0433A	433	0.83 dBi	12*4*1.2	SMD
	ANT1204LL20R0315A	315	N/A	12*4*1.2	SMD
	ANT2405F001R0169A	169	N/A	24*5*1.2	SMD
FM	ANT2405F001R0098A	88~108	N/A	24*5*1.6	SMD
GNSS	ANT1204LL04RGNSSA	1559~1610	2.23 dBic	12*4*1.1	SMD
	ANT1818B00FTGNSSS	1559 ~ 1610	-2.0 dBic	18*18*4	Pin Solder
	ANT2525B00FTGNSSS	1559~1610	5.16 dBic	25*25*4	Pin Solder

Pad and Mobile Phone

Pad and mobile phones are an A/V entertainment system, communications control center and important instrument of individual expression. They feature ease of use, long battery life, mobility, ability to multi-task, instant on/off and substantial breadth of applications.

Product Series	Part Number	Frequency range (MHz)	Gain	Size (mm)	Assembly
2.4 GHz	ANT1204F001R2400A	2400~2500	6.66 dBi	12*4*2	SMD
	ANT3216LL00R2400A	2400~2500	5 dBi	3.2*1.6*1.3	SMD
	ANT3216LL11R2400A	2400~2500	3.68 dBi	3.2*1.6*1.2	SMD
	ANT2012LL00R2400A	2400~2500	3.77 dBi	2.0*1.25*1.1	SMD
	ANT2012LL13R2400A	2400~2500	2.72 dBi	2.0*1.2*1	SMD
	ANTX200P001B24003	2400~2500	4.8 dBi	18.4*7.5*0.55	I-PEX dia 1.13, 200mm
	ANT1608LL14R2400A	2400~2500	2.0 dBi	1.6*0.8*0.4	SMD
	ANT1005LL14R2400A	2400~2500	2.21 dBi	1.0*0.5*0.37	SMD
2.4/5 GHz	ANT1003LL15R2455A	2400~2500/ 5150~5875	2.45 / 1.55 dBi	1.0*3.2*1.6	SMD
	ANT5320LL04R2455A	2400~2500/ 5150~5875	2.72 / 3.85 dBi	5.3*2.0*1.4	SMD
	ANT5320LL24R2455A	2400~2500/ 5150~5875	2.17 / 3.51 dBi	5.3*2.0*1.2	SMD
	ANTX100P001B24553	2400~2500/ 5150~5875	5.1 dBi	50*10*0.9	I-PEX dia 1.13, 200mm
	ANT1608LL14R2455A	2400~2500/ 5150~5875	5/ 3.5 dBi	1.6*0.8*0.4	SMD
GPS	ANT5320LL14R1575A	1575	3.16 dBi	5.3*2.0*1.2	SMD
	ANT3216LL15R1575A	1575	7.32 dBi	3.2*1.6*1.2	SMD
GPS+Glonass	ANT8010LL05R1516A	1575 / 1602	1.53/1.69 dBi	8.0*1.0*1.0	SMD
	ANT5320LL14R1516A	1575 / 1602	1.45/1.46 dBi	5.3*2.0*1.2	SMD
Internal type Active GPS+Glonass	ANT8010JLC1B1516A	1575 / 1602	18 dB	22*6*1.9	Connector
	ANT8010JLC4B1516A	1575 / 1602	20 dB	24*8*2.5	Connector

Product Series	Part Number	Frequency range (MHz)	Control Interface	Size (mm)
NFC TAG Function	NTG3020PF01BN3110	13.56	Contactless	30*20*2.5
	NTG2811P001BN3211	13.56	Contactless/I2C	28*11*4.1
NFC Reader Function	NMD1710P001BN3000	13.56	I2C	17*10*1.9

Product Series	Part Number	Pass Band(MHz)	I.L (dB)	Attenuation I (dB) (min)@25°C	Attenuation II (dB) (min)@25°C
BPF	BPF2012LL03R2400A	2400~2500	2.0	40dB Min@ 1000~1600MHz	40dB Min @ 4900MHz
LPF	LPF2012LM59RWPENA	800~2025	0.5/0.8/1.5	26dB @ 2300~6100MHz	35dB @ 3400~3820MHz
	LPF1608LL52R2500A	2300~2700	1.25	35dB @ 4800~5390MHz	25dB @ 7200~8085MHz
	LPF1608LL54RWHEXA	699~2690	0.25	23dB @ 5150~5960MHz	
	LPF1608LL55R0709A	698~960	0.6/0.7/0.75/0.9	30dB @ 1554~1830MHz	35dB @ 2097~2745MHz
	LPF1608LL56RWHEXA	600~2700	0.5	30dB @ 4800~8000MHz	25dB @ 8500~12500MHz
Diplexer	DPX1608LL86R2455A	2400~2500/4900~5950	Low: 0.6; High: 1.2	28dB @30-2700MHz	20dB @4800-5000MHz
	DPX1608LL87R1524A	1570~1610/2400~2500/ 4900~6000	Low: 0.6; High: 0.7/0.6	15dB @1570~1610MHz	15dB @2400~2500MHz
Triplexer	TPX2012LL90R1525A	1570~1610/2400~2500/ 4900~5950	Low: 0.8/Mid.: 0.7; High: 0.8	25dB @1545~1605MHz	20dB @2400~2500MHz
	TPX2012LL95R1525A	1570~1610/2400~2500/ 4900~5950	Low: 2.0/Mid.: 2.0; High: 1.6	25dB @1545~1605MHz	20dB @2400~2500MHz
Coupler	CPL1608LL09RWHEXA	689.5~960.5/1700~2100/ 2300~2700	0.25/0.3/ 0.4	23~28dB @689.5-960.5MHz	19.5~24.5dB @2300-2700MHz
	CPL1608LL12RWHEXA	689~960/1710~2170/ 2300~2690	0.5/0.25/0.3	23~27dB @689-960MHz	22.5~27.5dB @2300-2690MHz

Product Series	Part Number	Pass Band	I.L (dB)	Balance Impedance
Balun	BLN1608LL30R2400A	2400~2500	1.2	50Ω

IOT & Connectivity

The IoT is a burgeoning new field combining sensing, embedded computing and communication technologies, and the easiest way to describe it is the "interconnect and control of sensors/actuators via a smart phone/tablet".

The applications cover smart home, smart meter, wearable devices like smart watch, smartband, etc. As device functionality increases, smaller electronics and wireless data transmissions replace conventional solutions.

Product Series	Part Number	Frequency range (MHz)	Gain (dBi)	Size (mm)	Assembly
Cellular WWAN	ANT1204LL00R0918A	900/1800 MHz	1.08 dBi	12*4.4*1.2	SMD
	ANT2112LL00B0918A	900/1800 MHz	0.5~1 dBi	20.5*11.8*3	SMD
	ANT3505B002TWPENS	824~960 / 1710~2170	2.9 dBi	35*5*6	SMD
	ANT4010F000RWPENA	824~960 / 1710~2170	3.3 dBi	40*10.3*3.4	SMD
	ANTX100P001BWPEN3	824~960/ 1710~2170	4.2	50*20*0.55	I-PEX dia 1.13, 100mm
	ANT4005B000RWHEXS	698~960/ 1710~2690	3.2/4.0 dBi	40*5*6	SMD
2.4 GHz	ANT1204F001R2400A	2400~2500	6.66 dBi	12*4*2	SMD
	ANT3216LL00R2400A	2400~2500	5 dBi	3.2*1.6*1.3	SMD
	ANT3216LL11R2400A	2400~2500	3.68 dBi	3.2*1.6*1.2	SMD
	ANT2012LL00R2400A	2400~2500	3.77 dBi	2.0*1.25*1.1	SMD
	ANT2012LL13R2400A	2400~2500	2.72 dBi	2.0*1.2*1	SMD
	ANTX200P001B24003	2400~2500	4.8 dBi	18.4*7.5*0.55	I-PEX dia 1.13, 200mm
	ANT1608LL14R2400A	2400~2500	2.0 dBi	1.6*0.8*0.4	SMD
	ANT1005LL14R2400A	2400~2500	2.21 dBi	1.0*0.5*0.37	SMD
ISM Bands	ANT1204F005R0915A	915	1.59	12*4*1.6	SMD
	ANT1204F007R0870A	870	1.67	12*4*1.6	SMD
	ANT1204F002R0433A	433	0.79	12*4*1.6	SMD
	ANT1204F002R0315A	315	N/A	12*4*1.6	SMD
	ANT2405F001R0169A	169	N/A	24*5*1.2	SMD

Product Series	Part Number	Pass Band (MHz)	I.L (dB)	Attenuation I (dB) (min) @25°C	Attenuation II (dB) (min) @25°C
BPF	BPF2012LL03R2400A	2400~2500	2.3	40dB @ 1000~1600MHz	40dB @ 4900MHz
	BPF1608LM02R2400A	2400~2500	1.7	25dB @ 1850~1910MHz	25dB @ 4800~5000MHz
	BPF1608LM11R2400A	2400~2500	1.8	6.5dB @ 2110~2170MHz	25dB @ 4800~5000MHz
LPF	LPF1608LL53R2400A	2400~2500	0.48	35dB @ 4800~5000MHz	27dB @ 7200~7500MHz

Product Series	Part Number	Pass Band (MHz)	I.L (dB)	Balance Impedance	Attenuation I (dB) (min) @25°C
Combo	BLF2012LL98R2400A	2400~2500	3.5	Conjugate match to CSRBC03/04 series	25dB @1300~1600MHz

YAGEO - A GLOBAL COMPANY
www.yageo.com

HQ

Taipei, Taiwan
Tel. +886 2 6629 9999
Fax. +886 2 6628 8886

China and ASIA

Suzhou, China
Tel. +86 512 6825 5568
Fax. +86 512 6825 5386

Shanghai, China
Tel. +86 21 64858697

Dongguan, China
Tel. +86 769 8772 0275
Fax. +86 769 8791 0053

Tokyo, Japan
Tel. +81 3 6809 3972
Fax. +81 3 6809 3982

Seongnam, Korea
Tel. +82 31 712 4797
Fax. +82 31 712 5866

Singapore
Tel. +65 6244 7800
Fax. +65 6244 4943

Kuala Lumpur, Malaysia
Tel. +60 3 8063 8864
Fax. +60 3 8063 7376

EUROPE

Munich, Germany
Tel. +49 8990 7784 380
Fax. +49 8990 7784 379

Milan, Italy
Tel. +39 02 6129 1017
Fax. +39 02 6601 7490

Roermond, Benelux
Tel. +31 475 385 555
Fax. +31 475 385 589

Szombathely, Hungary
Tel. +36 94 517 702
Fax. +36 94 517 701

Moscow, Russian Federation
Tel. +7 965 408 18 11
Fax. +7 498 610 07 07

NORTH AMERICA

San Jose, U.S.A.
Tel. +1 408 240 6200
Fax. +1 408 240 6201

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