Innovative Service Around the Globe YAGEO

Telecommunications

Application Selection Guide

www.yageo.com

About Yageo

Founded in 1977, the Yageo Corporation has become a world-class provider of passive component services with capabilities on a global scale, including production and sales facilities in Asia, Europe and the Americas.

Yageo currently ranks as the world No.1 in chip-resistors, No. 3 in MLCCs and No. 4 in ferrite products, with a strong global presence: 23 sales offices in 15 countries, 9 production sites, 8 JIT logistic hubs, and 2 R&D centers worldwide. Ferroxcube and Vitrohm, who produce ferrites and leaded resistors, are also a part of the Yageo group.

We support our customers with extensive literature including datasheets, brochures and application notes, which are also available electronically on our website at: www.yageo.com

Content

Telecommunications

Telecommunications

Introduction

The telecom environment is developing at a tremendous speed and more devices are wirelessly connected by way of the Internet, seamlessly bringing together not only personal electronics such as smart phones, tablets, and computers, but also devices found in homes, cars, and industrial equipment.

The amount of data flooding existing infrastructure is dramatically increasing, posing a growing challenge to base stations, routers, and switches. Standards such as 4G and LTE are now the norm with 5G predicted in 2020.

The rapid developments in the telecom environment have accelerated the trend for ever-smaller and portable devices—smart watches, wearable technology, and personal health care are some examples.

How can product designers meet and stay ahead of market demands? In answer, Yageo has developed comprehensive passive product offerings from resistors, capacitors, varistors, to wireless components.

By building on its unique strengths, Yageo is set to deliver the solutions to meet the unrelenting drive for miniaturization—a case in point is the extremely small 01005 case size for Rchip and MLCC. Further optimization of space on the PCB is achieved by integration of discrete components in 2 and 4 element resistors and capacitor arrays, also available in various case sizes.

Current sensors for battery power management in mobile devices can be obtained as small as 0201.

Yageo's thin film chip resistor series offer a wide resistance range in low TCR precision and tight tolerance, while the current sensor features low TCR and values in the sub-milliohm range. Both series are used in large quantities in base stations where accuracy in signal processing is a critical requirement.

The CQ High Frequency MLCC series has a high Q factor combined with a very low ESR in cases sizes down to 01005, making efficient antenna impedance matching possible and ideal for PA design.

High Caps in X5R ceramic are available up to 220uF for DC/DC conversion, smoothing, and filtering.

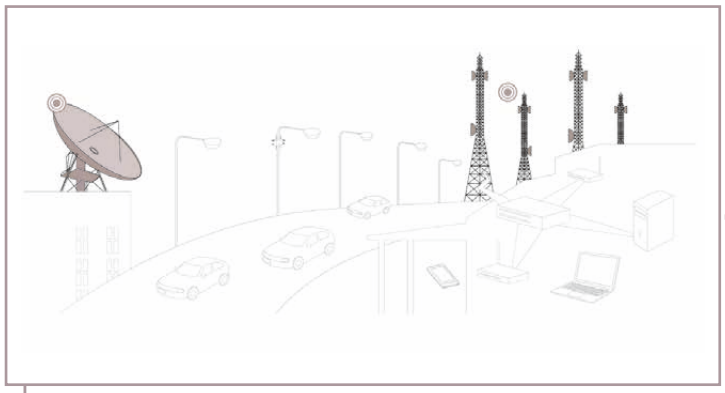
Yageo's multilayer ceramic varistors are designed to protect increasingly sensitive semiconductors in portable devices from transient voltages—the alternative choice to diode suppressors.

In addition to the resistors and capacitors, our broad portfolio of wireless component antennas and filters enables devices unimpeded access to smart communication standards without sacrificing performance.

Although leaded resistors belong to a very mature area of passives, large quantities still find their way into various telecom applications, such as fusible wirewound (FKN series) and safety wirewound (FAE series) resistors in networking equipment and high power (AHB/ATH/ATC series) resistors in infrastructure.

For telecom applications fully RoHS and REACH compliancy is just the beginning. To fulfill the entire spectrum of market requirements, product designers need only look at Yageo's extensive lineup specifically designed to meet all aspects of the telecom industry.

Infrastructure



Base Stations

Telecommunications

Infrastructure

Base Stations

• Chip Resistors

AF Series

Sulfur resistance chip resistors

Feature

- Superior resistance against sulfur-containing environments
- Highly reliable electrode construction
- FOS test method: ASTM B809-95 105°C, 750 hours

• Chip Resistors

RT Series

Thin film high precision high stability chip resistor

Feature

- High precision & stability
- Low TCR
- Low electrical noise
- Advanced sputtering technology

• Chip Resistors

PE Series

Automotive grade metal current sensor, low TCR chip resistor

Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Low thermal EMF
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

PS(4 termination) Series

Metal current sensor, low TCR chip resistor, 4 termination

Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Extremely low resistance

• Chip Resistors

PA Series

Automotive grade metal current sensor, low TCR chip resistor

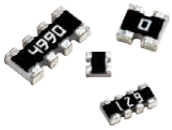
Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Low thermal EMF
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

AF array Series

Sulfur resistance chip resistor, Array



Feature

- Integrated discrete chip resistors from 2 and 4 pcs
- Superior resistance against sulfur containing atmosphere
- Highly reliable electrode construction
- FOS test method: ASTM B809-95 105°C, 750 hours

• MLCC

CC-HC Series

High Capacitance

Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HCV Series

High CV

Feature

- High capacitance and high voltage
- Higher energy density
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HV Series

High Voltage

Feature

- Operates at high voltage
- Wide case size available
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class I and Class II (≧0201) Series

Gereral purpose

Feature

- Suitable for all general purpose
- Low ESR and self-heating
- Stable capacitance and low impedance over wide frequency range
- High reliability with no polarity
- RoHS-complaint & halogen-free

• MLCC

IC Series

Industrial grade

Feature

- Good for Harsh Outdoor environment application
- High Thermal Stability
- High Reliability

• MLCC

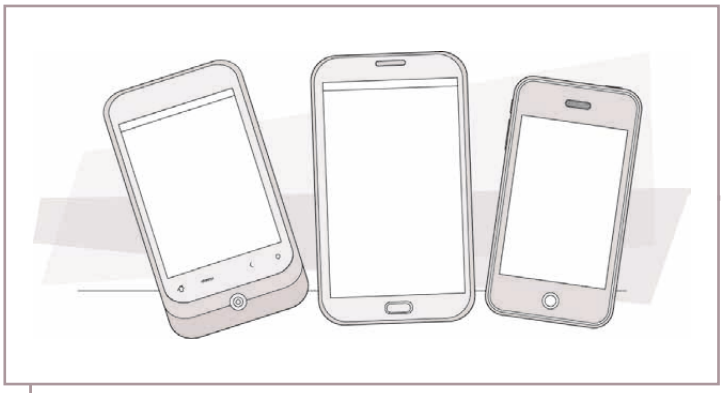
CQ Series

High Frequency

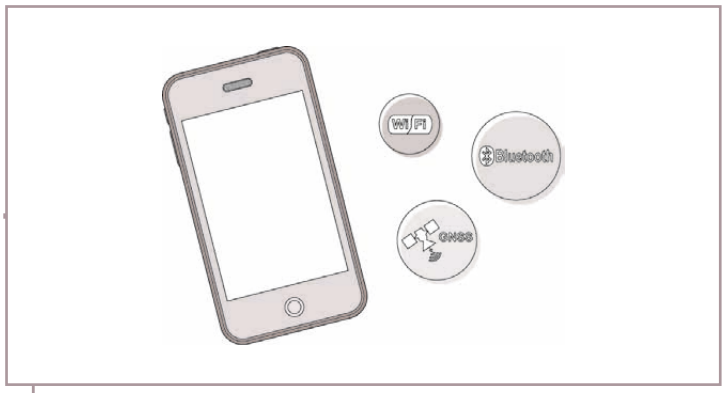
Feature

- HiQ and low ESR in VHF, UHF and microwave frequency bands
- BME process with copper inner electrodes
- Tight tolerance (min.±0.05pF)
- High reliability with no polarity

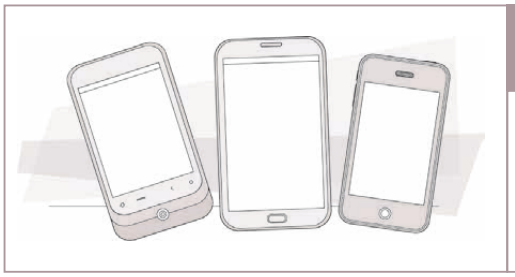
Mobile Solutions



Smartphones/ Featurephones



PA & WIFI/BT Modules



Telecommunications | Mobile Solutions

Smartphones/ Featurephones

• Chip Resistors

RL Series

Thick film low ohmic chip resistor

Feature

- Good current sensing performance
- High power rating for large current detection
- Accurate power control
- Highly reliable electrode construction
- AEC-Q200 compliant

• Chip Resistors

UE Series

ESD Suppressor

Feature

- Extremely low capacitance
- Very low leakage current
- ESD protection for high speed data lines to IEC61000-4-2

• Chip Resistors

PE Series

Automotive grade metal current sensor, low TCR chip resistor

Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Low thermal EMF
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

YC(YC102/YC104) Series

Ultra small thick film array chip resistor

Feature

- Integrated descrete chip resistors from 2 and 4pcs
- Greater efficiency in pick & place application
- Low assembly cost
- Reduce PCB space
- High reliability

• Chip Resistors

RC(RC0100) Series

Ultra small 01005 thick film general purpose chip resistor

Feature

- Extremely light and thin
- Highly reliable electrode construction
- Compatible for all soldering processes
- Highly stable in auto-placement surface mounting applications
- Barrier layer end termination

• MLCC

CC-HC Series

High Capacitance

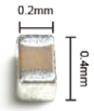
Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC (01005) Series

Miniaturization(01005)



Feature

- Extremely small and space saving
- Accurate dimension control
- Effective pick & place implementation
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class II (≧0201) Series

General purpose class II

Feature

- Class II temperature characteristics
- Suitable for all general purpose
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class I (≧0201) Series

General purpose class I

Feature

- Class I temperature characteristics
- High stability and no capacitance aging
- Operates in temperature up to 125°C
- High reliability with no polarity
- RoHS-compliant & halogen-free

• Wireless

LTCC Filter

Diplexer/Triplexer

Feature

- Low insertion loss
- High attenuation
- RoHS-compliant & halogen-free

• Wireless

LTCC Filter

Low-pass filter(LPF)/Band-pass filter(BPF)

Feature

- Low insertion loss
- High attenuation
- RoHS-compliant & halogen-free

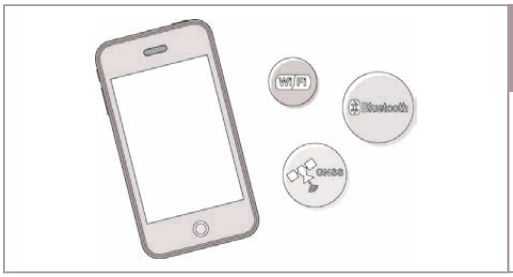
• Wireless

LTCC Filter

Balun

Feature

- Low insertion loss
- RoHS-compliant & halogen-free



PA & WIFI/BT Modules

• Chip Resistors

YC(YC102/YC104) Series

Ultra small thick film array chip resistor

Feature

- Integrated descrete chip resistors from 2 and 4pcs
- Greater efficiency in pick & place application
- Low assembly cost
- Reduce PCB space
- High reliability

• Chip Resistors

RC(RC0075) Series

Ultra small 0075 thick film general purpose chip resistor

Feature

- Extremely light and thin
- Highly reliable electrode construction
- Compatible for all soldering processes
- Highly stable in auto-placement surface mounting applications
- Barrier layer end termination

• Chip Resistors

RC(RC0100) Series

Ultra small 01005 thick film general purpose chip resistor

Feature

- Extremely light and thin
- Highly reliable electrode construction
- Compatible for all soldering processes
- Highly stable in auto-placement surface mounting applications
- Barrier layer end termination

• MLCC

CC-HC Series

High Capacitance

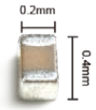
Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC (01005) Series

Miniaturization(01005)



Feature

- Extremely small and space saving
- Accurate dimension control
- Effective pick & place implementation
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class II (≧0201) Series

General purpose class II

Feature

- Class II temperature characteristics
- Suitable for all general purpose
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class I (≧0201) Series

General purpose class I

Feature

- Class I temperature characteristics
- High stability and no capacitance aging
- Operates in temperature up to 125°C
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CQ Series

High Frequency

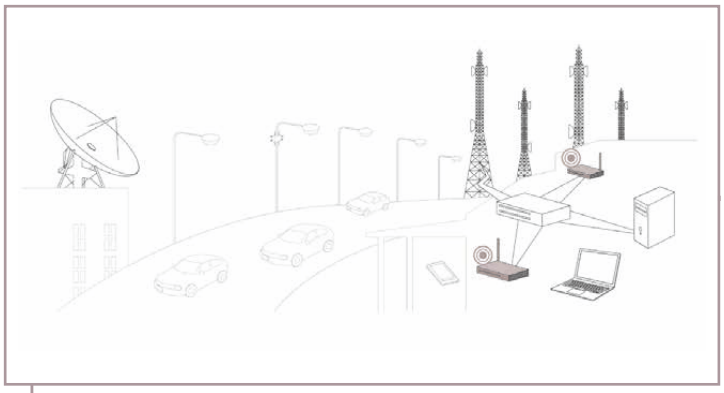
Feature

- HiQ and low ESR in VHF, UHF and microwave frequency bands
- BME process with copper inner electrodes
- Tight tolerance (min. ±0.05pF)
- High reliability with no polarity

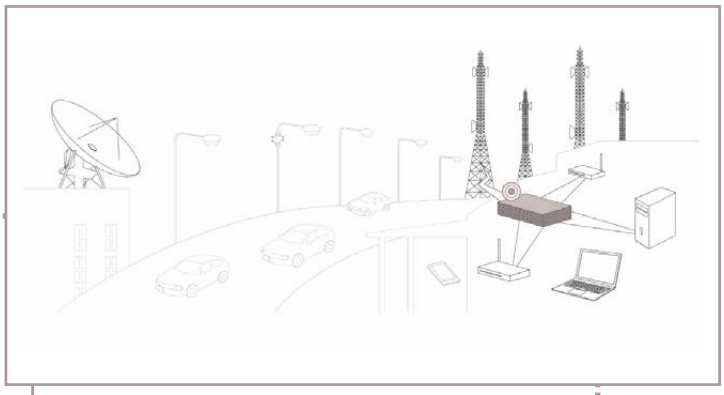
Check Products Datasheets
On Our Website

www.yageo.com

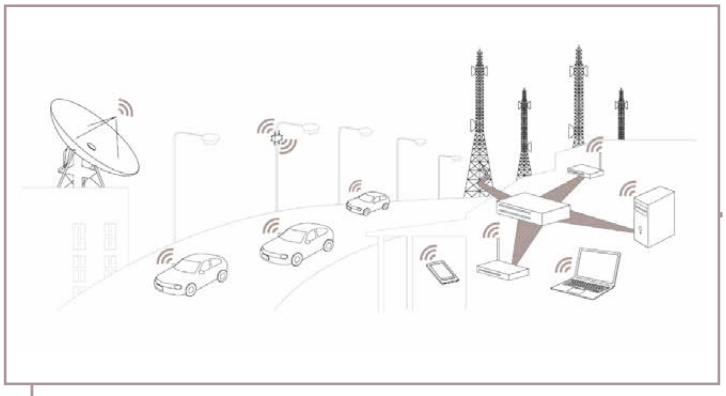
Networking



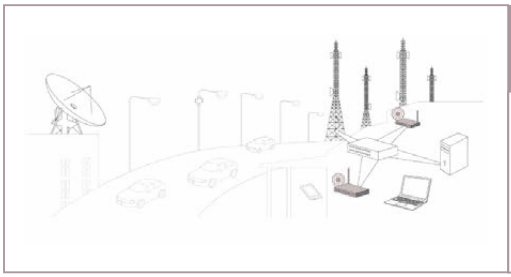
Modems, Switches & Routers



Set Top Boxes



Access Points



Telecommunications | Networking

Modems, Switches & Routers

• Chip Resistors

RT Series

Thin film high precision high stability chip resistor

Feature

- High precision & stability
- Low TCR
- Low electrical noise
- Advanced sputtering technology

• Chip Resistors

PE Series

Automotive grade metal current sensor, low TCR chip resistor

Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Low thermal EMF
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

YC Series

Thick film array/network chip resistor

Feature

- Integrated descrete chip resistors from 2 to 8pcs
- Greater efficiency in pick & place application
- Low assembly cost
- Reduce PCB space
- Higher component and equipment reliability

• Chip Resistors

RC Series

Thick film general purpose chip resistor

Feature

- Highly reliable electrode construction
- Compatible for all soldering processes
- Highly stable in auto-placement surface mounting application
- Barrier layer end termination

• MLCC

CC-HC Series

High Capacitance

Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HCV Series

High CV

Feature

- High capacitance and high voltage
- Higher energy density
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HV Series

High Voltage

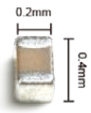
Feature

- Operates at high voltage
- Wide case size available
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC (01005) Series

Miniaturization(01005)



Feature

- Extremely small and space saving
- Accurate dimension control
- Effective pick & place implementation
- High reliability with no polarity
- RoHS-compliant & halogen-free

• Wireless

WLAN/BT/ISM Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Wireless

WWAN Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Through Hole

FAE Series

Wirewound resistors, fusible & safety, anti-explosion

Feature

- UL1412 certified
- Fusing time <60S for 25 times rated power
- Fusible function
- Safty, anti-explosion
- Excellent surge performance, customized surge requirment
- Flameproof silicone-coated
- Fully lead-free compliance with no RoHS exemptions(7C-1)

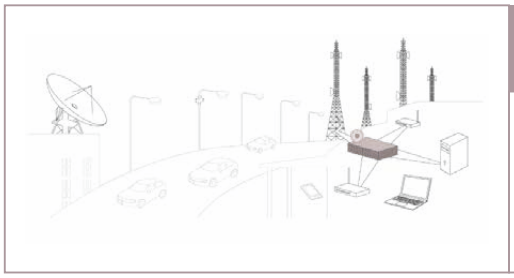
• Through Hole

FKN Series

Wirewound resistors, fusilbe, flameproof

Feature

- UL1412 certified
- Fusing time <60S for 25 or 36 times rated power
- Fusible function
- Excellent surge performance, customized surge requirements
- Flameproof silicone-coated
- Fully lead-free compliance with no RoHS exemptions(7C-1)



Telecommunications | Networking

Set Top Boxes

• Chip Resistors

PE Series

Automotive grade metal current sensor, low TCR chip resistor

Feature

- Excellent current sensing performance
- High power rating for large current detection
- Accurate power control
- Reduce power consumption
- Low thermal EMF
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

YC Series

Thick film array/network chip resistor

Feature

- Integrated descrete chip resistors from 2 to 8pcs
- Greater efficiency in pick & place application
- Low assembly cost
- Reduce PCB space
- Higher component and equipment reliability

• Chip Resistors

UE Series

ESD Suppressor

Feature

- Extremely low capacitance
- Very low leakage current
- ESD protection for high speed data lines to IEC61000-4-2

• Chip Resistors

RC Series

Thick film general purpose chip resistor

Feature

- Highly reliable electrode construction
- Compatible for all soldering processes
- Highly stable in auto-placement surface mounting application
- Barrier layer end termination

• MLCC

CC-HC Series

High Capacitance

Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HCV Series

High CV

Feature

- High capacitance and high voltage
- Higher energy density
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HV Series

High Voltage

Feature

- Operates at high voltage
- Wide case size available
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-Class II (≧0201) Series

General purpose class II

Feature

- Class II temperature characteristics
- Suitable for all general purpose
- High reliability with no polarity
- RoHS-compliant & halogen-free

• Wireless

WLAN/BT/ISM Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Wireless

WWAN Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Wireless

WLAN/BT/ISM Antenna

Chip Antenna

Feature

- Compact size, small clearance
- SMD type antenna
- Operating temperature: -40°C-105°C
- RoHS-compliant & halogen-free

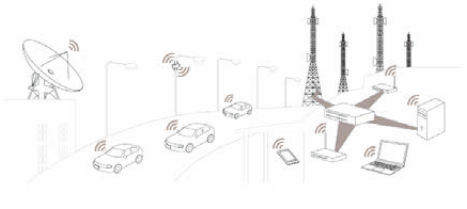
• Wireless

LTCC Filter

Diplexer/Triplexer

Feature

- Low insertion loss
- High attenuation
- RoHS-compliant & halogen-free



Telecommunications

Networking

Access Points

• Chip Resistors

RT Series

Thin film high precision high stability chip resistor

Feature

- High precision & stability
- Low TCR
- Low electrical noise
- Advanced sputtering technology

• Chip Resistors

RL Series

Thick film low ohmic chip resistor

Feature

- Good current sensing performance
- High power rating for large current detection
- Accurate power control
- Highly reliable electrode construction
- AEC-Q200 compliant

• Chip Resistors

PT Series

Thick film low ohmic, low TCR chip resistor

Feature

- Good current sensing performance
- High power rating for large current detection
- Accurate power control
- Highly reliable electrode construction
- AEC-Q200 compliant
- Low TCR

• Chip Resistors

YC Series

Thick film array/network chip resistor

Feature

- Integrated descrete chip resistors from 2 to 8pcs
- Greater efficiency in pick & place application
- Low assembly cost
- Reduce PCB space
- Higher component and equipment reliability

• MLCC

CC-HC Series

High Capacitance

Feature

- High capacitance
- Very Low ESR and ESL
- Low self heating
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HCV Series

High CV

Feature

- High capacitance and high voltage
- Higher energy density
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC-HV Series

High Voltage

Feature

- Operates at high voltage
- Wide case size available
- High reliability with no polarity
- RoHS-compliant & halogen-free

• MLCC

CC (01005) Series

Miniaturization(01005)

Feature

- Extremely small and space saving
- Accurate dimension control
- Effective pick & place implementation
- High reliability with no polarity
- RoHS-compliant & halogen-free

• Wireless

WLAN/BT/ISM Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Wireless

WWAN Antenna

PCB Antenna

Feature

- Easy installation
- Flexible cable length and connector type
- Operating temperature: -40°C-85°C
- RoHS-compliant & halogen-free

• Wireless

WLAN/BT/ISM Antenna

Chip Antenna

Feature

- Compact size, small clearance
- SMD type antenna
- Operating temperature: -40°C-105°C
- SRoHS-compliant & halogen-free

• Wireless

LTCC Filter

Diplexer/Triplexer

Feature

- Low insertion loss
- High attenuation
- RoHS-compliant & halogen-free

Chip Resistors
Ordering information - Global part number

Global part number - Single resistor [2]

Ordering example: RC0402JR-0710RL

RC 0402 J R — 07 10R L

Series name (code 1-2)
- RC = Thick film general
- RE = Thick film precision
- AC = Thick film automotive grade
- AA = Thick film anti-FOS automotive grade
- AF = Thick film anti-FOS
- SR = Thick film anti-surge
- RV = Thick film high voltage
- TR = Thick film trimmable
- AR = Thick film NiAu termination
- RT = Thin film high precision
- AT = Thin film high precision automotive grade
- RL/PT = Thick film low ohmic
- PA/PE/PS/PU = Metal current sensor
- UE = ESD suppressor[3]
- VRS = Multilayer chip varistor[3]

Size code (code 3-6)
(inch / metric)
- 0075 = 0.3x 0.15
- 0100 = 0.4 x 0.2
- 0201 = 0.6 x 0.3
- 0402 = 1.0 x 0.5
- 0603 = 1.6 x 0.8
- 0612 = 1.6 x 3.2
- 0805 = 2.0 x 1.25
- 0815 = 2.15 x 3.75
- 0830 = 2.0 x 7.5
- 1206 = 3.2 x 1.6
- 1210 = 3.2 x 2.6
- 1218 = 3.2 x 4.5
- 2010 = 5.0 x 2.5
- 2512 = 6.35 x 3.2

Tolerance (code 7)
- L = ±0.01%
- W = ±0.05%
- B = ±0.1%
- C = ±0.25%
- D = ±0.5%
- F = ±1%
- G = ±2%
- J = ±5% (for Thick Film Jumper ordering)
- K = ±10% (for TR = 0/-10%)
- M = ±20% (for TR = 0/-20%)
- N = ±30% (for TR = 0/-30%)
- "—" for RL/PT Jumper ordering

Default code[1] (code 17)

Resistance (code 12-16)
- 0R = Jumper
- 0U5 = 0.0005Ω
- 0R1 = 0.1Ω
- 1R = 1Ω
- 10R = 10Ω
- 100R = 100Ω
- 1K = 1 000Ω
- 1M = 1 000 000Ω
- 100M = 100 000 000Ω

Taping reel (code 10-11)
- 07 = 7 inch Dia. reel
- 13 = 13 inch Dia. reel
- 7N = 7 inch,ESD safe reel
- 7W = 7 in Dia. reel
  2 x standard quantity
- 7T = 3 x standard power
- 47 = 4 x standard power
- 57 = 5 x standard power

T. C. R. (code 9)
- A = ±5 ppm/°C
- B = ±10 ppm/°C
- C = ±15 ppm/°C
- D = ±25 ppm/°C
- E = ±50 ppm/°C
- M = ±75 ppm/°C
- F = ±100 ppm/°C
- L = ±150 ppm/°C
- G = ±200 ppm/°C
- I = ±300 ppm/°C
- J = ±350 ppm/°C
- K = ±400 ppm/°C
- Q = ± 700 ppm/°C
- "—" = Based on spec (for thick film)

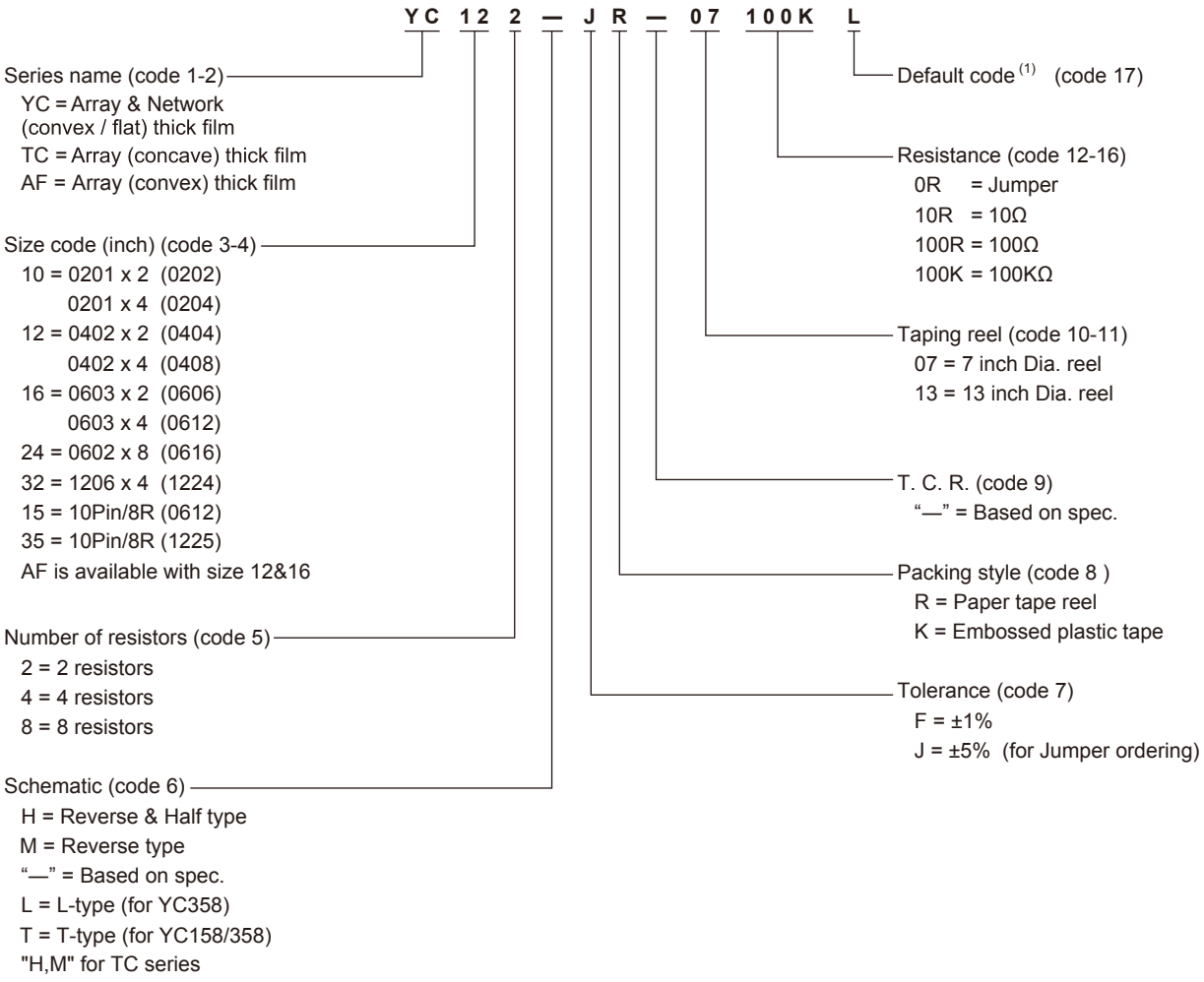
Packing style (code 8)
- R = Paper tape reel
- K = Embossed plastic tape reel
- S = ESD safe reel

Note: 1. System default code for ordering only. Please refer to series datasheets for different default codes
2. Global Part Number is the preferred clear text code for ordering Yageo and Phycomp branded products.
3. Please refer to UE/VRS series datacheets for coding details.

Chip Resistors
Ordering information - Global part number - Arrays

Global part number - Arrays

Ordering example: YC122-JR-07100KL



Note: 1. System default code for ordering only. Please refer to series datasheets for different default codes

MLCC
Ordering information - Global part number

Global part number

Ordering example: CC0201KRX7R8BB102

C C 0 2 0 1 K R X 7 R 8 B B 1 0 2

Series name (code 1-2)
- CA = 4 x Capacitors array
- CC = Multilayer chip capacitors
- CL = Low inductance capacitors
- CQ = High frequency capacitors
- SC = Safety certification capacitors
- AC = Automotive grade capacitors
- CS = Soft termination capacitors

Size code (code 3-6)
- 0100
- 0201
- 0402
- 0603
- 0805
- 1206
- 1210
- 1808
- 1812
- 2220
- 0306
- 0508
- 0612

Capacitance tolerance (code 7)
- A = ±0.05 pF (CQ series only)
- B = ±0.1 pF
- C = ±0.25 pF
- D = ±0.5 pF
- F = ±1%
- G = ±2%
- J = ±5%
- K = ±10%
- M = ±20%
- Z = -20% to +80%

Packing style (code 8)
- R = Paper / PE tape reel Ø7 inch
- P = Paper / PE tape reel Ø13 inch
- K = Embossed plastic tape reel Ø7 inch
- F = Embossed plastic tape reel Ø13 inch
- C = Bulk case

TC material (code 9-11)
- NPO
- X5R
- X7R
- Y5V

Rated voltage (code 12)
- 5 = 6.3 V
- 6 = 10 V
- 7 = 16 V
- 8 = 25 V
- G = 35 V
- 9 = 50 V
- 0 = 100 V
- A = 200 V
- Y = 250 V
- B = 500 V
- Z = 630 V
- C = 1 kV
- D = 2 kV
- E = 3 kV
- T = X2 / Y3 for TUV / UL
- W = X1 / Y2 for TUV / UL
- U = X1 for UL (X7R, 1812)

Termination (code 13)
- B = Ni-Barrier

Process code (code 14)
- N = NP0
- B = Class 2 product

Capacitance value (code 15-17)
- 102 = 1 000 pF
- (2 significant digits+number of zeros; the 3rd digit signifies the multiplying factor, and letter R is decimal point)
- 0 = x 1
- 1 = x 10^1
- 2 = x 10^2
- 3 = x 10^3
- 4 = x 10^4
- 5 = x 10^5
- 6 = x 10^6
- 7 = x 10^7
- X X R = Special capacitance
- (X X: capacitance before decimal point)

Wireless
Ordering information - Global part number

Explanation of ordering code - New

Ordering example : ANT3216A063R2400A

ANT 3216 A 063 R 2400 A

Product Type (code 1)
ANT: Antenna
BPF: Band-Pass Filter
LPF: Low-Pass Filter
BLN: Balun
BLF: Balun Filter
DPX: Diplexer

(1) Size (mm) - SMD (LTCC) (code 2)
3216: 3.2 x 1.6 mm
2012: 2.0 x 1.2 mm
2520: 2.5 x 2.0 mm

(2) Connector - Cable length (mm) Stand-alone (code 2)
Ex: X100 – IPEX connector, 100 mm cable length
X: IPEX, M: MMCX, S: SMA, Z: Stripped
100: 100 mm cable length

Type (code 3)
L, F, A: Chip antenna / Filter / Balun
B: Bulk antenna
P: PCB
X: FPCB
S: Metal
E: External
J: Integrated antenna

Serial No. (code 4)

Packing Style (code 5)
R: Tape & Reel
T: Tray
B: Bulk

Frequency Band (MHz)(code 6)
2400: 2.4 – 2.5 GHz;
2455: 2.4&5 GHz
1575: GPS; 1516: GPS+Glonass
0433: 433 MHz
0870: 868 MHz
0918: 900/1800 MHz
WQUD: 850/900/1800/1900 MHz
WPEN: 850/900/1800/1900/2100 MHz

Factory Control Code / Cable Type (code 7)

Through Hole

Ordering information - Global part number

MFR	-12	F	T	F	52-	100R

Code 1 - 3
Series Name
See Index

Code 4 - 6
Power Rating

-05 = ød0.5mm
-06 = ød0.6mm
-07 = ød0.7mm
-08 = ød0.8mm
-10 = ød1.0mm
-14 = ød1.4mm
-12 = 1/6W
-25 = 1/4W
25S = 1/4WS
-50 = 1/2W
50S = 1/2WS
100 = 1W
1WS = 1WS
200 = 2W
2WS = 2WS
204 = 0.4W
207 = 0.6W
300 = 3W
3WS = 3WS
3WM = 3WM
400 = 4W
500 = 5W
5WS = 5WS
5SS = 5WSS
700 = 7W
7WS = 7WS
10A = 10W
20A = 20W
30A = 30W
40A = 40W
50A = 50W
10S = 10WS
15A = 15W
25A = 25W
10B = 100W
25B = 250W

Code 7
Tolerance

P = ±0.02 %
A = ±0.05 %
B = ±0.1 %
C = ±0.25%
D = ±0.5 %
F = ±1 %
G = ±2 %
J = ±5 %
K = ±10 %
- = Base on Spec.

Code 8
Packing Style

T = Tape/Box
R = Tape/Reel
B = Bulk

Code 9
Temperature Coefficient of Resistance

- = Base on Spec.
A = ±5 ppm/°C
B = ±10 ppm/°C
C = ±15 ppm/°C
S = ± 20ppm/°C
D = ±25 ppm/°C
E = ±50 ppm/°C
F = ±100 ppm/°C
G = ±200 ppm/°C
H = ±250 ppm/°C
I = ±300 ppm/°C
J = ±350 ppm/°C

Code 10 - 12
Forming Type

26- = 26mm
52- = 52.4mm
73- = 73mm
81- = 81mm
91- = 91mm
F = F Type
FK = FK Type
FKK = FKK Type
FFK = F-form Kink
M = M-Type Forming
M-formMBVA//flat
MT = MT Type Forming
MR = MR Type
AV = AVIsert
PN = PANAsert

Code 13 - 17
Resistance Value

0R1 = 0.1
100R = 100
10K = 10,000
10M = 10,000,000

EXCEPTION:

• Cement series:

<Code 8>: Special packing style code
B: Bulk with wirewound or metal oxide sub-assembly for resistance value
W: Bulk with ceramic based wirewound sub-assembly for resistance value
M: Bulk with metal oxide sub-assembly for resistance value
F: Bulk with Fiberglass based wirewound sub-assembly for resistance value

<Code 10-12>: Without forming code
Example: SQP500JB-10R

• JPW series:

<Code 13-17>: without resistance value code
Example: JPW-06-T-52-

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