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MLCC

NP0 Ceramic Chip Series

GENERAL PURPOSE
MEDIUM VOLTAGE
HIGH VOLTAGE
Surface Mount Chip



Size _ 0201 to 1812
Capacitance Range _ 0.22pF to 33nF
Capacitance Tolerance _
C < 10pF: 0.1pF, 0.25pF, 0.5pF
C ≥ 10pF: ±1%, ±2%, ±5%

Rated Working Voltage _ 16Vdc to 1,000Vdc
Operating Temp. Range _ -55°C to +125°C
Packaging _ Reel, Bulk

X5R Ceramic Chip Series

GENERAL PURPOSE
MEDIUM VOLTAGE
HIGH CAPACITANCE
Surface Mount Chip



Size _ 0201 to 1812
Capacitance Range _ 100pF to 100µF
Capacitance Tolerance _ ±10%, ±20%

Rated Working Voltage _ 6.3Vdc to 50Vdc
Operating Temp. Range _ -55°C to +85°C
Packaging _ Reel, Bulk

X7R Ceramic Chip Series

GENERAL PURPOSE
MEDIUM VOLTAGE
HIGH VOLTAGE
HIGH CAPACITANCE
Surface Mount Chip



Size _ 0201 to 1812
Capacitance Range _ 100pF to 22µF
Capacitance Tolerance _ ±10%, ±20%

Rated Working Voltage _
6.3Vdc to 4,000Vdc
Operating Temp. Range _ -55°C to +125°C
Packaging _ Reel, Bulk

Y5V Ceramic Chip Series

GENERAL PURPOSE
HIGH CAPACITANCE
Surface Mount Chip



Size _ 0201 to 1210
Capacitance Range _ 10nF to 47µF
Capacitance Tolerance _ ±20%, -20% to +80%

Rated Working Voltage _ 6.3Vdc, 50Vdc
Operating Temp. Range _ -25°C to +85°C
Packaging _ Reel, Bulk

Array Series

NP0, X7R, Y5V CERAMIC CHIPS
MULTI-VALUE CAPACITORS ARRAY
Surface Mount Chip



Size _ 0508, 0612
Capacitance Range _ 10pF to 100nF
Capacitance Tolerance _
NP0: ±5%, ±10%
X7R: ±10%, ±20%
Y5V: -20% to +80%

Rated Working Voltage _ 16Vdc to 50Vdc
Packaging _ Reel

Safety Certification Series

NP0, X7R CERAMIC CHIPS
Surface Mount Chip



Size _ 1808 to 1812
Capacitance Range _ 2pF to 1.5nF
Capacitance Tolerance _
NP0: ±5%
X7R: ±10%

Rated Working Voltage _ X1 / Y2, X2 / Y3
Operating Temp. Range _ -55°C to +125°C
Packaging _ Reel, Bulk

High Frequency Series

NP0 CERAMIC CHIPS
Surface Mount Chip



Size _ 0402 to 0805
Capacitance Range _ 0.22pF to 8.2pF
Capacitance Tolerance _
C < 10pF: ±0.1pF, ±0.25pF, ±0.5pF

Rated Working Voltage _ 50Vdc
Operating Temp. Range _ -55°C to +125°C
Packaging _ Reel

Microwave Series

NP0 CERAMIC CHIPS
Surface Mount Chip

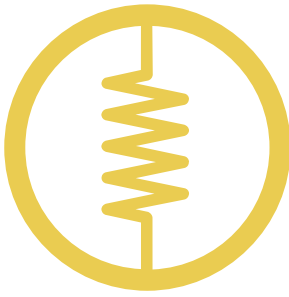


Size _ 0603 to 1206
Capacitance Range _ 0.47pF to 47pF
Capacitance Tolerance _
C < 10pF: ±0.1pF, ±0.25pF, ±0.5pF
C ≥ 10pF: ±1%, ±2%, ±5%

Rated Working Voltage _ 50Vdc
Operating Temp. Range _ -55°C to +125°C
Packaging _ Reel



MLCC	<p>Low Inductance Series X7R CERAMIC CHIPS Surface Mount Chip</p>	<p>Size _ 0306 to 0612 Capacitance Range _ 10nF to 220nF Capacitance Tolerance _ $\pm 10\%$, $\pm 20\%$</p>	<p>Rated Working Voltage _ 10Vdc to 50Vdc Operating Temp. Range _ -55°C to $+125^{\circ}\text{C}$ Packaging _ Reel, Bulk</p>
X2Y	<p>X5R X2Y Series HIGH CAPACITANCE Surface Mount Chip</p>	<p>Size _ 0603 Capacitance Range _ 220nF to 470nF Capacitance Tolerance _ $\pm 20\%$ Insulation Resistance _ $R_{ins} \times C > 500\text{sec}$ or $R_{ins} > 10\text{G}\Omega$</p>	<p>Rated Working Voltage _ 10Vdc Operating Temp. Range _ -55°C to $+85^{\circ}\text{C}$ Packaging _ Reel</p>
	<p>X7R X2Y Series GENERAL PURPOSE Surface Mount Chip</p>	<p>Size _ 0603 to 1410 Capacitance Range _ 1nF to 1μF Capacitance Tolerance _ $\pm 20\%$ Insulation Resistance _ $R_{ins} \times C > 500\text{sec}$ or $R_{ins} > 10\text{G}\Omega$</p>	<p>Rated Working Voltage _ 10Vdc to 100Vdc Operating Temp. Range _ -55°C to $+125^{\circ}\text{C}$ Packaging _ Reel</p>
	<p>NP0 X2Y Series GENERAL PURPOSE Surface Mount Chip</p>	<p>Size _ 0805 Capacitance Range _ 22pF and 47pF Capacitance Tolerance _ $\pm 20\%$ Insulation Resistance _ $R_{ins} \times C > 500\text{sec}$ or $R_{ins} > 10\text{G}\Omega$</p>	<p>Rated Working Voltage _ 50Vdc Operating Temp. Range _ -55°C to $+125^{\circ}\text{C}$ Packaging _ Reel</p>



Chip Resistors

General Purpose

RC SERIES
THICK FILM CHIP



Case Sizes _ 01005 to 2512
Resistance Range (E24/E96) _ 1Ω to 100MΩ / Jumper
Rated Power @ 70°C _ 1/32W to 2W
Temp. Coefficient _
±100, ±200, ±250, ±300, ± 350ppm/°C

Resistance Tolerance _
±0.5%, ±1%, ±5%, ±10%, ±20%
Max. Working Voltage _ 15Vdc to 200Vdc
Max. Overload Voltage _ 30Vdc to 500Vdc
Packaging _ Reel, Bulk

Precision Grade Series

RE SERIES
THICK FILM CHIP



Case Sizes _ 0402 to 1206
Resistance Range (E24/E96) _ 10Ω to 1MΩ
Rated Power @ 70°C _ 1/16W to 1/4W
Temp. Coefficient _ ±50ppm/°C

Resistance Tolerance _ ±0.5%, ±1%
Packaging _ Reel

Low Ohmic

RL / PT SERIES
THICK FILM CHIP
Current Sensing Applications



Case Sizes _ 0402 to 2512
Resistance Range (E24) _ 0.01Ω to 1Ω
Rated Power @ 70°C _ 1/16W to 2W
Temp. Coefficient _ 75ppm/°C to 1,500ppm/°C

Resistance Tolerance _ ±1%, ±2%, ±5%
Packaging _ Reel

Low Ohmic Low TCR (Wide Termination Type)

PT SERIES
THICK FILM CHIP
Current Sensing Applications



Case Sizes _ 0815
Resistance Range (E24) _ 0.025Ω to 0.05Ω
Rated Power @ 70°C _ 1/2W & 1W
Temp. Coefficient _ ±100ppm/°C

Resistance Tolerance _ ±1%, ±2%, ±5%
Packaging _ Reel

Current Sensor Low TCR

PR / PF / PH / PE SERIES
METAL TECHNOLOGY
Current Sensing Applications



Case Sizes _ 0402 to 2728
Resistance Range (E24) _ 0.001Ω to 0.91Ω
Rated Power @ 70°C _ 1/16W to 2W
Temp. Coefficient _ ±50, ±75, ±100, ±200ppm/°C

Resistance Tolerance _ ±1%, ±2%, ±5%
Packaging _ Reel

Current Sensor Low TCR (Wide Termination Type)

PF SERIES
METAL TECHNOLOGY
Current Sensing Applications



Case Sizes _ 0508, 0612, 0815
Resistance Range (E24) _ 0.002Ω to 0.05Ω
Rated Power @ 70°C _ 1/2W to 1W
Temp. Coefficient _ ±75, ±100, ±150ppm/°C

Resistance Tolerance _ ±1%, ±2%, ±5%
Packaging _ Reel

High Precision High Stability Series

RT SERIES
THIN FILM CHIP



Case Sizes _ 0402 to 2512
Resistance Range (E24/E96) _ 5.1Ω to 1.5MΩ
Rated Power @ 70°C _ 1/16W to 3/4W
Temp. Coefficient _ ±10, ±15, ±25, ±50ppm/°C

Resistance Tolerance _
±0.05%, ±0.1%, ±0.25%, ±0.5%, ±1%
Max. Working Voltage _ 50Vdc to 200Vdc
Max. Overload Voltage _ 100Vdc to 400Vdc
Packaging _ Reel

General Purpose Thin Film Series

RJ SERIES
THIN FILM CHIP



Case Sizes _ 0402 to 2512
Resistance Range (E24/E96) _ 5.1Ω to 1.5MΩ
Rated Power @ 70°C _ 1/16W to 3/4W
Temp. Coefficient _ ±50ppm/°C

Resistance Tolerance _ ±1%
Max. Working Voltage _ 25Vdc to 150Vdc
Max. Overload Voltage _ 100Vdc to 400Vdc
Packaging _ Reel



Arrays

0201 * 2 Series

YC102 SERIES
THICK FILM ARRAY
Convex 0202



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ / Jumper
Number of Resistance _ 2
Rated Power Per Element _ 1/32W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 15Vdc
Max. Overload Voltage _ 30Vdc
Packaging _ Reel

0402 * 2 Series
0402 * 4 Series

YC122 SERIES
YC124 SERIES
THICK FILM ARRAY
Convex 0404 / 0408



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 1Ω to 1MΩ / Jumper
Number of Resistance _ 2 and 4
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

0402 * 2 Series
0402 * 4 Series

TC122 SERIES
TC124 SERIES
THICK FILM ARRAY
Concave 0404 / 0408



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ / Jumper
Number of Resistance _ 2 and 4
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

0603 * 2 Series

YC162 SERIES
THICK FILM ARRAY
Convex 0606



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ / Jumper
Number of Resistance _ 2
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

0603 * 4 Series

YC164 SERIES
THICK FILM ARRAY
Convex 0612



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 1Ω to 1MΩ / Jumper
Number of Resistance _ 4
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

0603 * 4 Series

TC164 SERIES
THICK FILM ARRAY
Concave 0612



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ / Jumper
Number of Resistance _ 4
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

0602 * 8 Series

YC248 SERIES
THICK FILM ARRAY
Convex 0616



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ / Jumper
Number of Resistors _ 8
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc
Max. Overload Voltage _ 100Vdc
Packaging _ Reel

1206 * 4 Series

YC324 SERIES
THICK FILM ARRAY
Convex 2012



Circuit Types _ Isolated
Resistance Range (E24/E96) _ 10Ω to 1MΩ
Number of Resistors _ 4
Rated Power Per Element _ 1/8W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 200Vdc
Max. Overload Voltage _ 500Vdc
Packaging _ Reel



Networks

10P8R Series

YC158 SERIES
YC358 SERIES
THICK FILM ARRAY
Convex 0612 / 1225



Circuit Types _ Dual Common
Resistance Range (E24) _ 10Ω to 330KΩ
Number of Resistors _ 8
Rated Power Per Element _ 1/16W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±5%
Max. Working Voltage _ 25Vdc to 50Vdc
Max. Overload Voltage _ 50Vdc to 100Vdc
Packaging _ Reel

Application
Specific Resistors

NiAu-termination Series

AR SERIES
THICK FILM CHIP



Case Sizes _ 0402 to 1206
Resistance Range (E24) _ 1Ω to 10M / Jumper
Rated Power @ 70°C _ 1/16W to 1/4W
Temp. Coefficient _ ±100, ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc to 200Vdc
Max. Overload Voltage _ 100Vdc to 500Vdc
Packaging _ Reel

High Voltage Series

RV SERIES
THICK FILM CHIP



Case Sizes _ 0805, 1206, 2512
Resistance Range (E24) _ 100KΩ to 27MΩ
Rated Power @ 70°C _ 1/8W to 1W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 400Vdc to 500Vdc
Max. Overload Voltage _ 800Vdc to 1,000Vdc
Packaging _ Reel

Trimmable Series

TR SERIES
THICK FILM CHIP



Case Sizes _ 0402 to 1206
Resistance Range (E24) _ 1Ω to 10MΩ
Rated Power @ 70°C _ 1/16W to 1/4W
Temp. Coefficient _ ±100, ±200ppm/°C

Resistance Tolerance _ 0/-10%, 0/-20%, 0/-30%
Max. Working Voltage _ 50Vdc to 200Vdc
Max. Overload Voltage _ 100Vdc to 500Vdc
Packaging _ Reel

Surge Series

SR SERIES
THICK FILM CHIP



Case Sizes _ 0805 to 2512
Resistance Range (E24) _ 1Ω to 100KΩ
Rated Power @ 70°C _ 1/8W to 1W
Temp. Coefficient _ ±200ppm/°C

Resistance Tolerance _ ±5%, ±10%, ±20%
Max. Working Voltage _ 150Vdc to 200Vdc
Max. Overload Voltage _ 300Vdc to 400Vdc
Packaging _ Reel

Anti-Sulfuration Series

AF SERIES
THICK FILM CHIP



Case Size _ 0402 to 1206
Resistance Range (E24) _ 1Ω to 22MΩ
Rated Power @ 70°C _ 1/16W to 1/4W
Temp. Coefficient _ ±100, ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc to 200Vdc
Max. Overload Voltage _ 100Vdc to 500Vdc
Packaging _ Reel

Automotive Grade Series

AC SERIES
THICK FILM CHIP



Case Size _ 0402 to 1206
Resistance Range (E24) _ 1Ω to 22MΩ
Rated Power @ 70°C _ 1/16W to 1/4W
Temp. Coefficient _ ±100, ±200ppm/°C

Resistance Tolerance _ ±1%, ±5%
Max. Working Voltage _ 50Vdc to 200Vdc
Max. Overload Voltage _ 100Vdc to 500Vdc
Packaging _ Reel

Chip Resistors
RF Attenuators

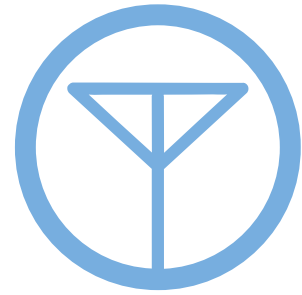
Attenuator

ATV321 SERIES
THICK FILM CHIP



Case Size _ 0404
Attenuance Range _ 1dB to 20dB
Attenuation Tolerance _ 1dB to 5dB: ±0.3dB
6dB to 10dB: ±0.5dB
15dB: ±1dB
20dB: ±2dB

Frequency Range _ 1dB to 10dB: DC to 2.5GHz
15dB and 20dB: DC to 2.0GHz
Max. Permissible Voltage _ 50V
Power Rating _ 40mW
Temp. Range _ -55°C to +125°C
Packaging _ Reel



High Frequency Antennas

Chip Antenna

FM



Size (mm) _ 24 x 5.0 x 1.6
 Frequency Range* _ 88MHz to 108MHz
 Polarization _ Linear
 Azimuth _ Omni-Directional

Temp. Range _ -25°C to +85°C
 Packaging _ Reel

Chip Antenna

UHF



Size (mm) _ 37.5 x 6.8 x 0.9
 Frequency Range* _ 400MHz to 500MHz
 Band Width _ > 20MHz
 Gain (Max.)* _ 0.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +125°C
 Packaging _ Bulk, Reel

Chip Antenna

UHF

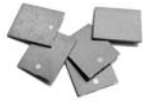


Size (mm) _ 4 x 12 x 1.5
 Frequency Range* _ 400MHz to 500MHz
 Band Width _ > 20MHz
 Gain (Max.)* _ 0.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 3.0
 Temp. Range _ -40°C to +125°C
 Packaging _ Reel

Chip Antenna

UHF



Size (mm) _ 16.5 x 14 x 0.9
 Frequency Range* _ 850MHz to 950MHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 1.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +125°C
 Packaging _ Bulk, Reel

Chip Antenna

UHF



Size (mm) _ 12 x 4 x 0.9
 Frequency Range* _ 850MHz to 950MHz
 Band Width _ > 20MHz
 Gain (Max.)* _ 0.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +125°C
 Packaging _ Reel

Chip Antenna

DUAL-BAND
 900 / 1800 MHz



Size (mm) _ 21 x 12 x 0.9
 Frequency Range* _ 880MHz to 960MHz, 1,710MHz to 1,880MHz
 Band Width _ > 30MHz, > 170MHz
 Gain (Max.)* _ 0.5dB to 1dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.7
 Temp. Range _ -55°C to +125°C
 Packaging _ Bulk

Chip Antenna

DUAL-BAND
 2.45 / 5.2 GHz



Size (mm) _ 8.7 x 8.0 x 0.9
 Frequency Range* _ 2.45 / 5.20 GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 3.5dB / 1.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.5
 Temp. Range _ -55°C to +85°C
 Packaging _ Reel

Triple-band Antenna

PCB VERTICAL
 900 / 1800 / 1900 MHz



Size (mm) _ 30 x 9.4 x 0.8
 Frequency Range* _ 880MHz to 960MHz, 1,710MHz to 1,880MHz
 Band Width _ > 80MHz, > 280MHz
 Gain (Max.)* _ 1dB to 1.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.5
 Temp. Range _ -55°C to +125°C
 Packaging _ Bulk

* Depends on the Yageo demoboard



High Frequency Antennas

Triple-band Antenna

WITH CABLE & CONNECTOR
900 / 1800 / 1900 MHz



Size (mm) _ 35 x 6.0 x 0.4
Frequency Range* _ 880MHz to 960MHz, 1,710MHz to 1,880MHz, 1,850MHz to 1,990MHz
Band Width _ > 80MHz, > 170MHz
Gain (Max.)* _ 0dB to 0.5dB, 0.5dB to 1dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 3.5
Temp. Range _ -40°C to +85°C
Packaging _ Bulk

Chip Antenna

DECT / WCDMA



Size (mm) _ 8.8 x 6.8 x 0.9
Frequency Range* _ 1.88GHz to 2.1GHz
Band Width _ W > 100MHz
Gain (Max.)* _ 2.0dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.0
Temp. Range _ -55°C to +125°C
Packaging _ Reel

Chip Antenna

BT / WIFI
PIFA MODE



Size (mm) _ 12 x 4.0 x 2.0, 19 x 3.0 x 3.6
Frequency Range* _ 2.45GHz
Band Width _ > 200MHz
Gain (Max.)* _ 5.0dB for Size 1930
6.66dB for Size 1240
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.0
Temp. Range _ -40°C to +85°C for size 1930
-25°C to +85°C for size 1240
Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 9.5 x 2.0 x 1.1
Frequency Range* _ 2.70GHz, 2.79GHz, 2.90GHz
Band Width _ > 200MHz
Gain (Max.)* _ 2.85dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.8
Temp. Range _ -55°C to +125°C
Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 8.0 x 1.0 x 1.0
Center Frequency _ 2.10GHz, 2.20GHz, 2.30GHz, 2.45GHz, 2.50GHz, 2.60GHz, 2.70GHz, 2.80GHz
Band Width _ > 100MHz
Gain (Max.)* _ 3.8dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.5
Temp. Range _ -55°C to +125°C
Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 7.8 x 3.6 x 0.9
Frequency Range* _ 2.45GHz, 2.60GHz, 2.70GHz
Band Width _ > 100MHz
Gain (Max.)* _ 4.1dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.5
Temp. Range _ -55°C to +85°C
Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 7.3 x 5.5 x 1.3
Frequency Range* _ 2.45GHz, 2.60GHz, 2.70GHz, 2.80GHz
Band Width _ > 100MHz
Gain (Max.)* _ 1.2dB
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.0
Temp. Range _ -55°C to +125°C
Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 4.0 x 1.8 x 1.2, 6.0 x 2.0 x 1.2, 6.5 x 2.2 x 1.2
Frequency Range* _ 2.45GHz
Band Width _ > 200MHz
Gain (Max.)* _ 2.97dB for Size 4018
4.57dB for Size 6522
5.1dB for Size 6020
Polarization _ Linear

Azimuth _ Omni-Directional
VSWR* _ < 2.0
Temp. Range _ -25°C to +85°C for size 6522
-55°C to +125°C for size 6020, 4018
Packaging _ Reel



High Frequency Antennas

Chip Antenna

BT / WIFI



Size (mm) _ 5.3 x 2.0 x 1.3
 Frequency Range* _ 2.00GHz, 2.10GHz, 2.20GHz, 2.30GHz, 2.40GHz, 2.45GHz, 2.50GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 4.0dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.5
 Temp. Range _ -55°C to +85°C
 Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 5.0 x 1.0 x 1.0
 Frequency Range* _ 2.30GHz, 2.40GHz, 2.80GHz, 2.45GHz, 2.50GHz, 2.60GHz, 3.10GHz, 3.30GHz, 3.70GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 2.45dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +85°C
 Packaging _ Reel

Chip Antenna

BT / WIFI / WIMAX



Size (mm) _ 3.2 x 1.6 x 1.2
 Center Frequency _ 2.20GHz, 2.30GHz, 2.40GHz, 2.45GHz, 2.50GHz, 2.60GHz, 2.70GHz, 2.80GHz, 2.90GHz, 3.3GHz to 3.9GHz for Wimax
 Band Width _ > 100MHz
 Gain (Max.) _ 3.1dB for BT / Wifi
 2.8dB for Wimax

Polarization _ Linear
 Azimuth _ Omni-Directional
 VSWR* _ < 2.5
 Temp. Range _ -25°C to +85°C
 Packaging _ Reel

Chip Antenna

BT / WIFI



Size (mm) _ 2.0 x 1.25 x 1.0
 Frequency Range* _ 2.45 GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 2.1dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.5
 Temp. Range _ -25°C to +85°C
 Packaging _ Reel

Chip Antenna

BT / WIFI
 PIFA MODE



Size (mm) _ 3.2 x 1.6 x 1.2, 5.3 x 2.0 x 1.2
 Frequency Range* _ 2.45 GHz
 Band Width _ > 200MHz
 Gain (Max.)* _ 3.48dB for Size 3216
 2.84dB for Size 5320
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.8
 Temp. Range _ -25°C to +85°C
 Packaging _ Reel

Chip Antenna

GPS
 LP MODE
 CHIP-SMD



Size (mm) _ 12.5 x 6.6 x 0.9
 Frequency Range* _ 1.575GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 1.5dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +125°C
 Packaging _ Bulk

Chip Antenna

GPS
 LP MODE
 CHIP-SMD



Size (mm) _ 6.15 x 3.0 x 1.25
 Frequency Range* _ 1.575GHz, 1.675GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 1dB
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0
 Temp. Range _ -55°C to +85°C
 Packaging _ Reel

Chip Antenna

GPS
 PIFA MODE
 LP MODE
 CHIP-SMD



Size (mm) _ 3.2 x 1.6 x 1.2, 5.3 x 2.0 x 1.25
 Frequency Range* _ 1.575GHz
 Band Width _ > 100MHz
 Gain (Max.)* _ 7.32dB for Size 3216
 3.16dB for Size 5320
 Polarization _ Linear

Azimuth _ Omni-Directional
 VSWR* _ < 2.0 for Size 5320
 < 2.8 for Size 3216
 Temp. Range _ -25°C to +85°C
 Packaging _ Reel

* Depends on the Yageo demoboard



High Frequency Antennas

Active Antenna

GPS / GLONASS / SDARS
CABLE + IPEX CONNECTOR



Size (mm) _ 13 x 13 x 5, 13 x 13 x 7,
16 x 16 x 5, 16 x 16 x 7,
19 x 19 x 5, 19 x 19 x 7,
21 x 15 x 5.5, 28 x 28 x 5.5,
30 x 30 x 5.5, 35 x 28 x 5.5
Frequency Range* _ 1.575GHz
Gain* _ 17 ±1dB (at fc, without SAW filter)

Noise Figure _ 1.5dB typ (at fc, 1.8dB Max)
Output VSWR _ 2.0 (at fc)
Supply Voltage _ 3.3 ±5% V
Current Consumption _ 6mA
Output Impedance* _ 50Ω
Packaging _ Bulk

High Frequency Filters

Low Pass Filter



Size (mm) _ 1.6 x 0.8 x 0.65
Frequency Range _ 2.45GHz
Pass Band _ 2,400MHz to 2,500MHz
Impedance _ 50Ω
Insertion Loss (Max.) _ 0.45dB
Ripple (Max.) _ 0.6dB

VSWR* _ 1.5
Attenuation _ 25dB Min @ 2 fo
18dB Min @ 3 fo
Packaging _ Reel

Low Pass Filter



Size (mm) _ 2.0 x 1.25 x 0.85
Frequency Range _ 2.45GHz
Pass Band _ 2,400MHz to 2,500MHz
Impedance _ 50Ω
Insertion Loss (Max.) _ 0.5dB
Ripple (Max.) _ 0.6dB

VSWR* _ 1.8
Attenuation _ 27dB Min @ 5,000MHz
25dB Min @ 7,500MHz
Packaging _ Reel

Band Pass Filter



Size (mm) _ 1.6 x 0.8 x 0.65
Frequency Range _ 2.45GHz
Pass Band _ 2,400MHz to 2,500MHz
Impedance _ 50Ω
Insertion Loss (Max.) _ 2.4dB
Ripple (Max) _ 0.5dB
VSWR* _ 2.0

Attenuation _
30dB Min @ 880MHz to 960MHz
20dB Min @ 1,710MHz to 1,910MHz
8.5dB Min @ 2,170MHz
30dB Min @ 4,800MHz to 5,000MHz
30dB Min @ 7,200MHz to 7,500MHz
Packaging _ Reel

Band Pass Filter



Size (mm) _ 2.0 x 1.25 x 0.6 to 1.0
Frequency Range _ 2.45GHz
Pass Band _ 2,400MHz to 2,500MHz
Impedance _ 50Ω
Insertion Loss (Max.) _ 2.0dB
Ripple (Max.) _ 0.6dB
VSWR* _ 2.0

Attenuation _
40dB Min @ 1,000MHz to 1,600MHz
40dB Min @ 4,900MHz
20dB Min @ 7,500MHz
Packaging _ Reel

Band Pass Filter



Size (mm) _ 2.5 x 2.0 x 0.95 to 1.2
Frequency Range _ 2.45GHz
Pass Band _ 2,400MHz to 2,500MHz
Impedance _ 50Ω
Insertion Loss (Max.) _ 1.5dB
Ripple (Max.) _ 0.6dB
VSWR* _ 2.0

Attenuation _
40dB Min @ 880MHz to 960MHz
30dB Min @ 1,710MHz to 1,785MHz
30dB Min @ 1,850MHz to 1,910MHz
20dB Min @ 4,800MHz to 5,000MHz
30dB Min @ 7,200MHz to 7,500MHz
Packaging _ Reel

Diplexer



Size (mm) _ 2.0 x 1.25 x 0.75
Frequency Range _ 2.4 / 5.0GHz
Pass Band _ 2,400GHz to 2,500GHz
Insertion Loss (Max.) _ 0.6dB
VSWR* (Max.) _ 2.0
Attenuation _ 18dB Min @ 4,800MHz to 6,000MHz
20dB Min @ 7,200MHz to 7,500MHz

Pass Band _ 4,900GHz to 5,900GHz
Insertion Loss (Max.) _ 1.1dB
VSWR* (Max.) _ 2.0
Attenuation _
18dB Min @ 1,800MHz to 2,500MHz
15dB Ref @ 10,300MHz to 10,700MHz
Packaging _ Reel

Diplexer



Size (mm) _ 2.0 x 1.25 x 0.75
Frequency Range _ 2.4 / 5.0GHz
Pass Band _ 2,400GHz to 2,500GHz
Insertion Loss (Max.) _ 0.6dB
VSWR* (Max.) _ 2.0
Attenuation _ 17dB Min @ 4,800MHz to 6,000MHz
20dB Min @ 7,200MHz to 7,500MHz

Pass Band _ 4,900GHz to 5,900GHz
Insertion Loss (Max.) _ 1.1dB
VSWR* (Max.) _ 2.0
Attenuation _
17dB Min @ 1,800MHz to 2,500MHz
20dB Ref @ 10,300MHz to 10,700MHz
Packaging _ Reel

* Depends on the Yageo demoboard



High Frequency Filters

Diplexer



Size (mm) _ 2.0 x 1.25 x 0.85
 Frequency Range _ 2.4 / 5.0GHz
 Pass Band _ 2,400GHz to 2,500GHz
 Insertion Loss (Max.) _ 0.7dB
 VSWR* (Max.) _ 2.0
 Attenuation _
 20dB Min @ 4,900MHz to 5,900MHz

Pass Band _ 4,900GHz to 5,900GHz
 Insertion Loss (Max.) _ 0.9dB
 VSWR* (Max.) _ 2.0
 Attenuation _
 20dB Min @ 2,400MHz to 2,500MHz
 Packaging _ Reel

High Frequency Balancers

Balanced Filter

COMBO



Size (mm) _ 2.0 x 1.25 x 0.9
 Frequency Range _ 2.40GHz
 Pass Band _ 2,400MHz to 2,500MHz
 Impedance _ Conjugate match to CSR BC03 / 04 / 05 series
 Insertion Loss (Max.) _ 3.5dB
 Ripple (Max.) _ 0.5dB
 Amplitude Balance (Max) _ 1.0dB
 Phase Differential _ 180 ±10 degree

Attenuation _
 40dB Min @ 880MHz to 960MHz
 25dB Min @ 1,300MHz to 1,600MHz
 35dB Min @ 4,800MHz to 5,000MHz
 30dB Min @ 7,200MHz to 7,500MHz
 Packaging _ Reel

Balanced Filter

COMBO



Size (mm) _ 2.0 x 1.25 x 0.8
 Frequency Range _ 2.40GHz
 Pass Band _ 2,400MHz to 2,500MHz
 Impedance _ Conjugate match to CSR BC04/05/06 series
 Conjugate match to MTK MT6616 series
 Insertion Loss (Max.) _ 2.8dB, 3.1dB
 Ripple (Max.) _ 0.6dB
 Amplitude Balance (Max) _ 1.5dB

Phase Differential _ 180 ±10 degree
 Attenuation _
 35dB Min @ 880MHz to 960MHz
 30dB Min @ 1,710MHz to 1,880MHz
 20dB Min @ 1,880MHz to 1,990MHz
 30dB Min @ 4,800MHz to 5,000MHz
 Packaging _ Reel

Balanced Filter

COMBO



Size (mm) _ 2.5 x 2.0 x 1.2
 Frequency Range _ 2.40GHz
 Pass Band _ 2,400MHz to 2,500MHz
 Impedance _ Conjugate match to CSR BC02/03 series
 Insertion Loss (Max.) _ 3.1dB
 Ripple (Max.) _ 1.0dB
 Amplitude Balance (Max) _ 1.0dB
 Phase Differential _ 180 ±10 degree

Attenuation _
 48dB Min @ 880MHz to 960MHz
 48dB Min @ 1,710MHz to 1,880MHz
 40dB Min @ 1,880MHz to 1,990MHz
 20dB Min @ 2,110MHz to 2,170MHz
 20dB Min @ 4,800MHz to 5,000MHz
 20dB Min @ 7,200MHz to 7,500MHz
 Packaging _ Reel

Balun



Size (mm) _ 1.6 x 0.8 x 0.65
 Frequency Range _ 5.0GHz
 Pass Band _ 4,900MHz to 5,950MHz
 Impedance _ 50 / 100Ω
 Insertion Loss (Max.) _ 1.2dB
 Ripple (Max.) _ 0.6dB

VSWR* _ 2.0
 Amplitude Balance (Max.) _ 1.5dB
 Phase Differential _ 180 ±10 degree
 Packaging _ Reel

Balun



Size (mm) _ 2.0 x 1.25 x 0.8
 Frequency Range _ 2.40GHz
 Pass Band _ 2,400MHz to 2,500MHz
 Impedance _ 50 / 50Ω, 50 / 100Ω, 50 / 200Ω
 Insertion Loss (Max.) _ 1.0dB
 Ripple (Max.) _ 0.6dB

VSWR* _ 2.0
 Amplitude Balance (Max) _ 2.0dB
 Phase Differential _ 180 ±10 degree
 Packaging _ Reel

Balun



Size (mm) _ 2.0 x 1.25 x 0.8
 Frequency Range _ 5.0GHz
 Pass Band _ 4,900MHz to 5,900MHz
 Impedance _ 50 / 100Ω
 Insertion Loss (Max.) _ 1.2dB
 Ripple (Max.) _ 0.6dB

VSWR* _ 2.0
 Amplitude Balance (Max.) _ 2.0dB
 Phase Differential _ 180 ±10 degree
 Packaging _ Reel



MLV

MLV Series

SURGE SUPPRESSOR
ESD PROTECTION
 Meet IEC 61051-2-2



Size _ 0402 to 1206
Capacitance Range _ 3pF to 3000pF
Capacitance Tolerance _ $\pm 30\%$
Varistor Voltage Tolerance _
 $\pm 10\%$, $\pm 15\%$, $\pm 20\%$, Special Range

Rated Working Voltage _ 3.3Vdc to 42Vdc
Operating Temp. Range _ -40°C to $+85^{\circ}\text{C}$
Packaging _ Reel



Aluminum Electrolytic Caps.

S5/SS Series

MINIATURE
5mm and 7mm Height Radial



Capacitance Range _ 0.1 μ F to 470 μ F
Rated Working Voltage _ 4Vdc to 63Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 1,000Hr. @ 105°C
Packaging _ Bulk / Tape

SK Series

GENERAL PURPOSE
Radial



Capacitance Range _ 0.1 μ F to 22,000 μ F
Rated Working Voltage _ 6.3Vdc to 450Vdc
Operating Temp. Range _ -40°C to +85°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV + 3 μ A \leq 100Vdc
= 0.03CV + 10 μ A \geq 160Vdc
Load Life _ 2,000Hr. @ 85°C
Packaging _ Bulk / Tape

SE-K Series

GENERAL PURPOSE
Radial



Capacitance Range _ 0.47 μ F to 15,000 μ F
Rated Working Voltage _ 6.3Vdc to 450Vdc
Operating Temp. Range _
V \leq 250Vdc: -40°C to +105°C
V \geq 350Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV + 3 μ A \leq 100Vdc
= 0.03CV + 10 μ A \geq 160Vdc
Load Life _ 1,000Hr. @ 105°C
Packaging _ Bulk / Tape

SH Series

GENERAL PURPOSE
Radial



Capacitance Range _ 0.47 μ F to 15,000 μ F
Rated Working Voltage _ 6.3Vdc to 450Vdc
Operating Temp. Range _
V \leq 100Vdc: -40°C to +105°C
V \geq 160Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV + 3 μ A \leq 100Vdc
= 0.03CV + 10 μ A \geq 160Vdc
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk / Tape

SG Series

MINIATURE AND LONG LIFE
Radial



Capacitance Range _ 3.3 μ F to 330 μ F
Rated Working Voltage _ 160Vdc to 450Vdc
Operating Temp. Range _ -40°C to +105°C
V \leq 400Vdc: -40°C to +105°C
V \geq 450Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.06CV + 10 μ A
Load Life _ 5,000Hr. @ 105°C
Packaging _ Bulk / Tape

SP Series

LONG LIFE
Radial



Capacitance Range _ 3.3 μ F to 330 μ F
Rated Working Voltage _ 160Vdc to 450Vdc
Operating Temp. Range _
V \leq 400Vdc: -40°C to +105°C
V \geq 450Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.04CV + 100 μ A
Load Life _ 8,000Hr. to 10,000Hr. @ 105°C
Packaging _ Bulk / Tape

SQ Series

HIGH VOLTAGE AND LOW IMPEDANCE
Radial



Capacitance Range _ 2.2 μ F to 220 μ F
Rated Working Voltage _ 160Vdc to 450Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.03CV + 10 μ A
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk / Tape

SC Series

LOW IMPEDANCE
Radial



Capacitance Range _ 4.7 μ F to 15,000 μ F
Rated Working Voltage _ 6.3Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 2,000Hr. to 3,000Hr. @ 105°C
Packaging _ Bulk / Tape



Aluminum
Electrolytic Caps.

SZ Series

ULTRA LOW IMPEDANCE AND
HIGH RIPPLE
Radial



Capacitance Range _ 470 μ F to 3,300 μ F
Rated Working Voltage _ 6.3Vdc to 16Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.03CV
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk / Tape

SY Series

LOW IMPEDANCE AND
LONG LIFE
Radial



Capacitance Range _ 2.2 μ F to 15,000 μ F
Rated Working Voltage _ 6.3Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 3,000Hr. to 6,000Hr. @ 105°C
Packaging _ Bulk / Tape

SN Series

NON-POLAR
Radial



Capacitance Range _ 0.22 μ F to 2,200 μ F
Rated Working Voltage _ 6.3Vdc to 250Vdc
Operating Temp. Range _
V \leq 100Vdc: -40°C to +105°C
V \geq 160Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.03CV + 3 μ A
Load Life _ 1,000Hr. @ 105°C
Packaging _ Bulk / Tape

SB Series

LOW LEAKAGE CURRENT
Radial



Capacitance Range _ 0.1 μ F to 4,700 μ F
Rated Working Voltage _ 6.3Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.002CV or 0.4 μ A
Load Life _ 1,000Hr. @ 105°C
Packaging _ Bulk / Tape

SR Series

BI-POLAR
Radial

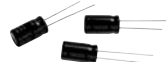


Capacitance Range _ 2.2 μ F to 47 μ F
Rated Working Voltage _ 25Vdc to 50Vdc
Operating Temp. Range _ -40°C to +85°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _
100 μ A (after 2Min. both direction)
Load Life _ 1,000Hr. @ 85°C
Packaging _ Bulk / Tape

SJ Series

LOW IMPEDANCE AND
LONG LIFE
Radial



Capacitance Range _ 5.6 μ F to 6,800 μ F
Rated Working Voltage _ 6.3Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 1,000Hr. to 5,000Hr. @ 105°C
Packaging _ Bulk / Tape

ST Series

LOW IMPEDANCE AND
LONG LIFE
Radial



Capacitance Range _ 6.8 μ F to 15,000 μ F
Rated Working Voltage _ 10Vdc to 63Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 4,000Hr. to 10,000Hr. @ 105°C
Packaging _ Bulk / Tape

SU Series

HIGH TEMPERATURE
Radial



Capacitance Range _ 4.7 μ F to 4,700 μ F
Rated Working Voltage _ 10Vdc to 63Vdc
Operating Temp. Range _ -40°C to +125°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 2,000Hr. @ 125°C
Packaging _ Bulk / Tape



Aluminum Electrolytic Caps.

SW Series

HIGH TEMPERATURE AND LONG LIFE
Radial



Capacitance Range _ 47 μ F to 4,700 μ F
Rated Working Voltage _ 10Vdc to 63Vdc
Operating Temp. Range _ -40°C to +125°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.01CV or 3 μ A
Load Life _ 2,000Hr. to 5,000Hr. @ 125°C
Packaging _ Bulk / Tape

SD Series

HIGH RIPPLE CURRENT
Radial

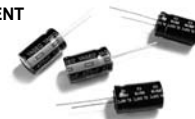


Capacitance Range _ 22 μ F to 330 μ F
Rated Working Voltage _ 160Vdc to 450Vdc
Operating Temp. Range _ -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.02CV +15 μ A
Load Life _ 5,000Hr. @ 105°C
Packaging _ Bulk / Tape

SL Series

HIGH RIPPLE CURRENT AND LONG LIFE
Radial



Capacitance Range _ 2.2 μ F to 18,000 μ F
Rated Working Voltage _ 6.3Vdc to 450Vdc
Operating Temp. Range _ 6.3Vdc to 100Vdc: -40°C to +105°C
160Vdc to 450Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 3,000Hr. to 7,000Hr. @ 105°C
Packaging _ Bulk / Tape

LH Series

GENERAL PURPOSE
Snap-In



Capacitance Range _ 56 μ F to 120,000 μ F
Rated Working Voltage _ 6.3Vdc to 500Vdc
Operating Temp. Range _ 6.3Vdc to 100Vdc: -40°C to +85°C
160Vdc to 500Vdc: -25°C to +85°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.02CV or 3mA
Load Life _ 2,000Hr. @ 85°C
Packaging _ Bulk

LG Series

GENERAL PURPOSE
Snap-In



Capacitance Range _ 47 μ F to 82,000 μ F
Rated Working Voltage _ 6.3Vdc to 450Vdc
Operating Temp. Range _ 6.3Vdc to 100Vdc: -40°C to +105°C
160Vdc to 450Vdc: -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ I = 0.02CV, L = 20 m/m
I = 0.03CV or 3mA
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk

LV Series

LONG LIFE
Snap-In



Capacitance Range _ 270 μ F to 68,000 μ F
Rated Working Voltage _ 10Vdc to 450Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.02VC or 3mA
Load Life _ 3,000Hr. @ 105°C
Packaging _ Bulk

LC Series

LONG LIFE
Snap-In



Capacitance Range _ 270 μ F to 2,200 μ F
Rated Working Voltage _ 4Vdc to 100Vdc
Operating Temp. Range _ -25°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.02VC or 3mA
Load Life _ 5,000Hr. @ 105°C
Packaging _ Bulk

CA Series

LOW PROFILE
SMD V-Chip



Capacitance Range _ 0.1 μ F to 1,000 μ F
Rated Working Voltage _ 4Vdc to 100Vdc
Operating Temp. Range _ -40°C to +85°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 2,000Hr. @ 85°C
Packaging _ Reel



Aluminum
Electrolytic Caps.

CB Series

LOW PROFILE
SMD V-Chip



Capacitance Range _ 0.1 μ F to 1,000 μ F
Rated Working Voltage _ 4Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 1,000Hr. @ 105°C
Packaging _ Reel

CD Series

ULTRA LOW IMPEDANCE
SMD V-Chip



Capacitance Range _ 4.7 μ F to 1,500 μ F
Rated Working Voltage _ 6.3Vdc to 35Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 2,000Hr. @ 105°C
Packaging _ Reel

CE Series

LONG LIFE
SMD V-Chip



Capacitance Range _ 0.1 μ F to 1,000 μ F
Rated Working Voltage _ 6.3Vdc to 100Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 2,000Hr. @ 105°C
Packaging _ Reel

CZ Series

LOW IMPEDANCE
SMD V-Chip



Capacitance Range _ 0.1 μ F to 1,000 μ F
Rated Working Voltage _ 4Vdc to 50Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 1,000Hr. @ 105°C
Packaging _ Reel

CH Series

**ULTRA LOW IMPEDANCE AND
HIGH TEMPERATURE**
SMD V-Chip



Capacitance Range _ 47 μ F to 1,000 μ F
Rated Working Voltage _ 6.3Vdc to 50Vdc
Operating Temp. Range _ -40°C to +125°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 1,000Hr. to 2,000Hr. @ 125°C
Packaging _ Reel

CX Series

**ULTRA LOW IMPEDANCE
AND LONG LIFE**
SMD V-Chip



Capacitance Range _ 1 μ F to 1,000 μ F
Rated Working Voltage _ 6.3Vdc to 50Vdc
Operating Temp. Range _ -40°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.01CV or 3 μ A
Load Life _ 3,000Hr. to 5,000Hr. @ 105°C
Packaging _ Reel

CP Series

ULTRA LOW IMPEDANCE
8mm Height Radial
Conductive Polymer Capacitor



Capacitance Range _ 470 μ F to 820 μ F
Rated Working Voltage _ 2.5Vdc to 6.3Vdc
Operating Temp. Range _ -55°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.2CV
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk / Tape

CG Series

ULTRA LOW IMPEDANCE
Conductive Polymer Capacitor



Capacitance Range _ 33 μ F to 2,700 μ F
Rated Working Voltage _ 2.5Vdc to 25Vdc
Operating Temp. Range _ -55°C to +105°C
Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ \leq 0.2CV
Load Life _ 2,000Hr. @ 105°C
Packaging _ Bulk / Tape



Aluminum Electrolytic Caps.

NP Series

GENERAL PURPOSE
Screw Type



Capacitance Range _ 270 μ F to 820,000 μ F
 Rated Working Voltage _ 10Vdc to 450Vdc
 Operating Temp. Range _
 10Vdc to 250Vdc: -40°C to +85°C
 315Vdc to 450Vdc: -25°C to +85°C
 Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.02CV or 5 μ A
 Load Life _ 2,000Hr. @ 85°C
 Packaging _ Bulk

NM Series

FOR WIDE TEMPERATURE
Screw Type



Capacitance Range _ 220 μ F to 330,000 μ F
 Rated Working Voltage _ 25Vdc to 450Vdc
 Operating Temp. Range _
 25Vdc to 100Vdc: -40°C to +105°C
 160Vdc to 450Vdc: -25°C to +105°C
 Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.02CV or 5 μ A
 Load Life _ 2,000Hr. @ 105°C
 Packaging _ Bulk

NF Series

LONG LIFE FOR INVERTER
Screw Type



Capacitance Range _ 1,800 μ F to 22,000 μ F
 Rated Working Voltage _ 400Vdc to 450Vdc
 Operating Temp. Range _ -40°C to +85°C
 Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.02CV or 5 μ A
 Load Life _ 5,000Hr. @ 85°C
 Packaging _ Bulk

NH Series

HIGH TEMPERATURE AND LONG LIFE FOR INVERTER
Screw Type



Capacitance Range _ 330 μ F to 390,000 μ F
 Rated Working Voltage _ 10Vdc to 500Vdc
 Operating Temp. Range _
 10Vdc to 100Vdc: -40°C to +105°C
 160Vdc to 500Vdc: -25°C to +105°C
 Capacitance Tolerance _ \pm 20%

Max. Leakage Current _ = 0.02CV or 5 μ A
 Load Life _ 5,000Hr. @ 105°C
 Packaging _ Bulk

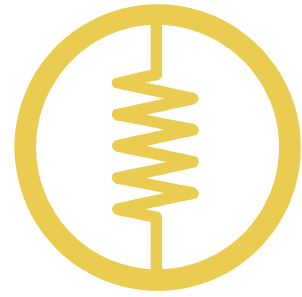
NG Series

FOR LOW VOLTAGE AND LARGE CAPACITY
Screw Type



Capacitance Range _ 2,200 μ F to 1,000,000 μ F
 Rated Working Voltage _ 10Vdc to 100Vdc
 Operating Temp. Range _ -40°C to +85°C
 Capacitance Tolerance _ \pm 20%

Max. Leakage Current _
 = 35mm l \leq 0.02CV (μ A) or 4mA
 \geq 51mm l \leq 0.03CV (μ A) or 6mA
 Load Life _ 2,000Hr. @ 85°C
 Packaging _ Bulk



Leaded Resistors

MFR Series

METAL FILM
Normal & Miniature Style

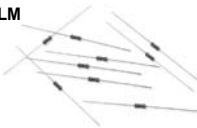


Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/6W to 3W
Temp. Coefficient _
±15, ±25, ±50, ±100ppm/°C
Resistance Tolerance _ ±0.5%, ±1%

Max. Working Voltage _ 200Vdc to 500Vdc
Max. Overload Voltage _ 400Vdc to 1KVdc
Packaging _ Bulk, Tape / Box, Tape / Reel

MFP Series

PRECISION METAL FILM
Normal & Miniature Style

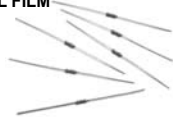


Resistance Range _ 10Ω to 1MΩ
Rated Power @ 70°C _ 1/6W to 3W
Temp. Coefficient _ ±15, ±25ppm/°C
Resistance Tolerance _ ±0.1%, ±0.25%

Max. Working Voltage _ 150Vdc to 500Vdc
Max. Overload Voltage _ 300Vdc to 1KVdc
Packaging _ Bulk, Tape / Box, Tape / Reel

MHP Series

HIGH PRECISION METAL FILM
Normal Style

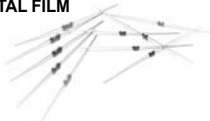


Resistance Range _ 100Ω to 500KΩ
Rated Power @ 70°C _ 1/4W & 1/2W
Temp. Coefficient _ ±5, ±10ppm/°C
Resistance Tolerance _ ±0.02%, ±0.05%

Max. Working Voltage _ 200Vdc to 250Vdc
Max. Overload Voltage _ 400Vdc to 500Vdc
Packaging _ Bulk

MF0 Series

PROFESSIONAL METAL FILM
Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 0.4W & 0.6W
Temp. Coefficient _ ±50ppm/°C
Resistance Tolerance _ ±1%

Max. Working Voltage _ 250Vdc to 350Vdc
Max. Overload Voltage _ 500Vdc to 700Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

MFN Series

METAL FILM
High Temp / High Humidity

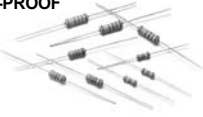


Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/6W to 3W
Temp. Coefficient _ ±15, ±25, ±50, ±100ppm/°C
Resistance Tolerance _ ±0.5%, ±1%

Max. Working Voltage _ 200Vdc to 500Vdc
Max. Overload Voltage _ 400Vdc to 1KVdc
Packaging _ Bulk, Tape / Box, Tape / Reel

FMF Series

METAL FILM FLAME-PROOF
Normal & Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ ±50, ±100ppm/°C
Resistance Tolerance _ ±1%

Max. Working Voltage _ 250Vdc to 500Vdc
Max. Overload Voltage _ 500Vdc to 1KVdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

FM0 Series

PROFESSIONAL METAL FILM FLAME-PROOF
Miniature Style

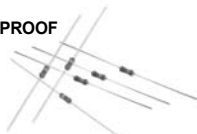


Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 0.4W & 0.6W
Temp. Coefficient _ ±50ppm/°C
Resistance Tolerance _ ±1%

Max. Working Voltage _ 200Vdc to 300Vdc
Max. Overload Voltage _ 400Vdc to 600Vdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

FMP Series

HIGH POWER FLAME-PROOF METAL FILM
Ultra Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/2W to 3W
Temp. Coefficient _ ±100ppm/°C
Resistance Tolerance _ ±1%, ±5%

Max. Working Voltage _ 200Vdc to 750Vdc
Max. Overload Voltage _ 400Vdc to 1KVdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel



Leaded Resistors

RSF Series

METAL OXIDE FILM
Normal & Miniature Style



Resistance Range _ 1Ω to 1MΩ & 0Ω
Rated Power @ 70°C _ 1/4W to 5W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 200Vdc to 750Vdc
Max. Overload Voltage _ 300Vdc to 1KVdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

LIR Series

LOW INDUCTIVE METAL OXIDE FILM
Normal & Miniature Style



Resistance Range _ 1Ω to 100KΩ & 0Ω
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%, ±10%

Max. Working Voltage _ 200Vdc to 350Vdc
Max. Overload Voltage _ 300Vdc to 600Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

FRM Series

FUSIBLE METAL FILM
Normal & Miniature Style



Resistance Range _ 4.7Ω to 560Ω (±2%)
2.2Ω to 560Ω (±5%)
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ ±200ppm/°C
Resistance Tolerance _ ±2%, ±5%

Fusing Characteristics _
Fusing time within 30 seconds at 16 times of rated power.
Fusing residual resistive value at least 100 times rated resistance.
Packaging _ Bulk, Tape / Box, Tape / Reel

HTM Series

HIGH TEMPERATURE
Normal Style



Resistance Range _ 2KΩ to 68KΩ
Rated Power @ 70°C _ 2.5W
Temp. Coefficient _ ±250ppm/°C
Resistance Tolerance _ ±5%

Max. Working Voltage _ 750Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

MMF Series

MELF METAL RESISTORS
Normal & Miniature Style



Resistance Range _ 1Ω to 1MΩ & 0Ω
Rated Power @ 70°C _ 0.25W to 1W
Temp. Coefficient _ ±15, ±25, ±50, ±100, ±200ppm/°C
Resistance Tolerance _ ±0.1%, ±0.25%, ±0.5%, ±1%

Max. Working Voltage _ 150Vdc to 350Vdc
Max. Overload Voltage _ 300Vdc to 700Vdc
Packaging _ Tape / Reel

MMP Series

MELF METAL RESISTORS
Ultra Miniature Style



Resistance Range _ 1Ω to 1MΩ & 0Ω
Rated Power @ 70°C _ 1W & 2W
Temp. Coefficient _ ±50, ±100, ±200ppm/°C
Resistance Tolerance _ ±1%, ±2%, ±5%

Max. Working Voltage _ 350Vdc
Max. Overload Voltage _ 700Vdc
Packaging _ Tape / Reel

CFR Series

CARBON FILM
Normal & Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/6W to 3W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 150Vdc to 500Vdc
Max. Overload Voltage _ 300Vdc to 1KVdc
Packaging _ Bulk, Tape / Box, Tape / Reel

CF0 Series

PROFESSIONAL CARBON FILM
Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 0.4W & 0.6W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

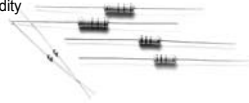
Max. Working Voltage _ 200Vdc to 300Vdc
Max. Overload Voltage _ 400Vdc to 600Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel



Leaded Resistors

CFN Series

CARBON FILM
High Temp / High Humidity

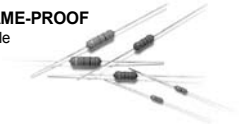


Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/6W to 3W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 150Vdc to 500Vdc
Max. Overload Voltage _ 300Vdc to 1KVdc
Packaging _ Bulk, Tape / Box, Tape / Reel

FCR Series

CARBON FILM FLAME-PROOF
Normal & Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 250Vdc to 500Vdc
Max. Overload Voltage _ 500Vdc to 1KVdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

FC0 Series

**PROFESSIONAL CARBON FILM
FLAME-PROOF**
Miniature Style



Resistance Range _ 1Ω to 10MΩ & 0Ω
Rated Power @ 70°C _ 0.4W & 0.6W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 200Vdc to 300Vdc
Max. Overload Voltage _ 400Vdc to 600Vdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

NCR Series

NON-INDUCTIVE CARBON FILM
Normal & Miniature Style



Resistance Range _ 2.2Ω to 10KΩ
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ -800ppm/°C to -500ppm/°C
Resistance Tolerance _ ±5%, ±10%

Max. Working Voltage _ 250Vdc to 500Vdc
Max. Overload Voltage _ 500Vdc to 1KVdc
Flameproof Silicone Coating Meet _ UL94V-0
Inductance _ < 1μH
Packaging _ Bulk, Tape / Box, Tape / Reel

HTR Series

HIGH TEMPERATURE
Normal Style



Resistance Range _ 2KΩ to 68KΩ
Rated Power @ 70°C _ 2W
Temp. Coefficient _ ±250ppm/°C
Resistance Tolerance _ ±5%

Max. Working Voltage _ 500Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

MCF Series

MELF CARBON RESISTORS
Normal & Miniature Style



Resistance Range _ 1Ω to 1MΩ & 0Ω
Rated Power @ 70°C _ 1/6W to 1W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 200Vdc to 350Vdc
Max. Overload Voltage _ 400Vdc to 700Vdc
Packaging _ Tape / Reel

MCP Series

MELF CARBON RESISTORS
Ultra Miniature Style



Resistance Range _ 1Ω to 1MΩ & 0Ω
Rated Power @ 70°C _ 1W & 2W
Temp. Coefficient _ -1,500ppm/°C to +350ppm/°C
Resistance Tolerance _ ±2%, ±5%

Max. Working Voltage _ 350Vdc
Max. Overload Voltage _ 700Vdc
Packaging _ Tape / Reel

HHV Series

**HIGH VOLTAGE &
HIGH OHMIC RESISTORS**
Normal Style



Resistance Range _ 100KΩ to 68MΩ
Rated Power @ 70°C _ 1/4W to 3W
Temp. Coefficient _ ±200ppm/°C
Resistance Tolerance _ ±1%, ±5%

Max. Working Voltage _ 1.6KVdc to 7KVdc
Max. Overload Voltage _ 3KVdc to 14KVdc
Packaging _ Tape / Box



Leaded Resistors

APR Series

PULSE-LOADING RESISTORS
Normal & Miniature Style



Resistance Range _ 100KΩ to 10MΩ
Rated Power @ 70°C _ 1/4W to 2W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%

Packaging _ Bulk, Tape / Box, Tape / Reel

ZOR Series

ZERO OHM RESISTORS
Normal Style



Max. Resistance Value _ 20mΩ or less
Rated Power _ 1/6W & 1/4W

Rated Current _
2.5AMPS @ 70°C for 1/4W
1.5AMPS @ 70°C for 1/6W
Packaging _ Bulk, Tape / Box, Tape / Reel

JPW Series

JUMPER WIRES
Normal Style



Material _ Soft Copper Wire with Tin Plating
Conductor Resistance _ 0.54mΩ / cm
Wire Diameter _
Φ0.5mm to Φ0.8mm & Φ1.0mm (±0.05mm)

Conductivity _
Φ0.5mm: Min. 94%
Φ0.6mm to 1.0mm: Min. 96%
Thickness of Plating _ 4μm ± 1μm
Packaging _ Tape / Box, Tape / Reel

KNP Series

WIREWOUND RESISTORS
Normal & Miniature Style



Resistance Range _ 0.1Ω to 1KΩ
Rated Power @ 70°C _ 1/4W to 7W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±1%, ±5%

Dielectric Withstanding Voltage _
200Vdc to 400Vdc
Flameproof Silicone Coating Meet _
UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

NKN Series

NON-INDUCTIVE WIREWOUND RESISTORS
Normal & Miniature Style



Resistance Range _ 0.1Ω to 33Ω
Rated Power @ 70°C _ 1/2W to 7W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%

Dielectric Withstanding Voltage _
250Vdc to 400Vdc
Flameproof Silicone Coating Meet _ UL94V-0
Packaging _ Bulk, Tape / Box, Tape / Reel

FKN Series

FUSIBLE WIREWOUND FLAME-PROOF TYPE
Normal & Miniature Style

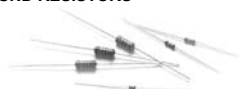


Resistance Range _ 0.1Ω to 390Ω
Rated Power @ 70°C _ 1/4W to 4W
Temp. Coefficient _ ±350ppm/°C
Resistance Tolerance _ ±1%, ±5%

Dielectric Withstanding Voltage _
200Vdc to 300Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

PNP Series

POWER WIREWOUND RESISTORS
Ultra Miniature Style



Resistance Range _ 0.1Ω to 330Ω
Rated Power @ 70°C _ 1W to 4W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±1%, ±5%

Dielectric Withstanding Voltage _ 300Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel

PNP V Series

POWER WIREWOUND RESISTORS
High Power Style



Resistance Range _ 0.1Ω to 8.2KΩ
Rated Power @ 70°C _ 1W to 10W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±1%, ±5%

Dielectric Withstanding Voltage _ 300Vdc
Packaging _ Bulk, Tape / Box, Tape / Reel



Leaded Resistors

SQP & NSP Series

CEMENT RESISTORS
Axial Lead Style



Resistance Range _ 0.1Ω to 200KΩ
Rated Power @ 70°C _ 2W to 40W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%

Load Life _ ±5.0% + 0.05Ω
Insulation Resistance _ > 1,000MΩ
Packaging _ Bulk

SQM & NSM Series

CEMENT RESISTORS
Vertical Lead Style



Resistance Range _ 0.1Ω to 200KΩ
Rated Power @ 70°C _ 2W to 10W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%

Load Life _ ±5.0% + 0.05Ω
Insulation Resistance _ > 1,000MΩ
Packaging _ Bulk

SQZ & NSZ Series

CEMENT RESISTORS
Radial Terminals Style



Resistance Range _ 0.1Ω to 200KΩ
Rated Power @ 70°C _ 3W to 20W
Temp. Coefficient _ ±300ppm/°C
Resistance Tolerance _ ±5%

Load Life _ ±5.0% + 0.05Ω
Insulation Resistance _ > 1,000MΩ
Packaging _ Bulk

PSP Series

CEMENT RESISTORS
AXIAL LEAD TYPE
Power Wirewound Style



Resistance Range _ 0.1Ω to 3.9KΩ
Rated Power @ 70°C _ 4W to 9W
Temp. Coefficient _ ±400ppm/°C
Resistance Tolerance _ ±5%, ±10%

Load Life _ ±5.0% + 0.1Ω
Insulation Resistance _ ≥ 1,000MΩ
Packaging _ Bulk

PSM Series

CEMENT RESISTORS
VERTICAL LEAD TYPE
Power Wirewound Style



Resistance Range _ 0.1Ω to 3.9KΩ
Rated Power @ 70°C _ 4W to 9W
Temp. Coefficient _ ±400ppm/°C
Resistance Tolerance _ ±5%, ±10%

Load Life _ ±5.0% + 0.1Ω
Insulation Resistance _ ≥ 1,000MΩ
Packaging _ Bulk

FTR Series

CEMENT RESISTORS
VERTICAL LEAD TYPE
Fusible Thermal Style



Resistance Range _ 1Ω to 10KΩ
Rated Current _ 2A to 10A
Temp. Coefficient _ ±250ppm/°C
Resistance Tolerance _ ±5%, ±10%

Standard Voltage _ 250Vdc
Packaging _ Bulk

SLR Series

CERAMIC METAL PLATE RESISTORS
Normal Style



Resistance Range _ 0.05Ω to 3.3Ω
Rated Power @ 70°C _ 2W to 10W
Temp. Coefficient _ ±250ppm/°C
Resistance Tolerance _ ±5%, ±10%

Max. Working Voltage _ 250Vdc to 500Vdc
Max. Overload Voltage _ 500Vdc to 1KVdc
Packaging _ Bulk

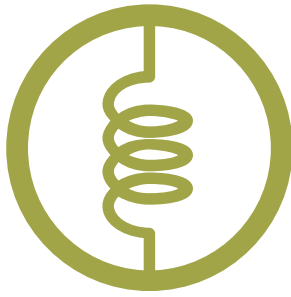
AHA & AHP Series

ALUMINUM HOUSED RESISTORS
Power Wirewound Style



Resistance Range _ 0.1Ω to 3KΩ
Rated Power @ 70°C _ 5W to 250W
Temp. Coefficient _ ±200ppm/°C
Resistance Tolerance _ ±0.25% to ±10%

Packaging _ Bulk



SMD Chip Beads

SB Series

MULTILAYER FERRITE
General Applications



Size _ 100505, 160808, 201209, 321611, 321616, 322513, 451616, 453215
Impedance Range _ 6Ω to 2,700Ω
Test Frequency _ 30MHz to 100MHz
Tolerance _ ±25%

DC Resistance _ 0.05Ω to 1.4Ω
Rated Current _ 100mA to 600mA
Packaging _ Tape, Reel

NB Series

MULTILAYER FERRITE
Data Line / Digital Signals



Size _ 100505, 160808, 201209, 321611
Impedance Range _ 6Ω to 2,700Ω
Test Frequency _ 100MHz
Tolerance _ ±25%

DC Resistance _ 0.05Ω to 1.0Ω
Rated Current _ 50mA to 800mA
Packaging _ Tape, Reel

HF Series



Size _ 100505, 160808
Impedance Range _ 120Ω to 1,800Ω
Test Frequency _ 100MHz & 1,000MHz
Tolerance _ ±25%

DC Resistance _ 0.095Ω to 2.2Ω
Rated Current _ 50mA to 1,500mA
Packaging _ Tape, Reel

GB Series

MULTILAYER FERRITE
Medium Current Applications



Size _ 160808, 201209, 321611, 321616, 322513, 451616, 453215
Impedance Range _ 7Ω to 2,000Ω
Test Frequency _ 30MHz to 100MHz
Tolerance _ ±25%

DC Resistance _ 0.03Ω to 0.55Ω
Rated Current _ 300mA to 1,000mA
Packaging _ Tape, Reel

PB Series

MULTILAYER FERRITE
Large Current Applications



Size _ 100505, 160808, 201209, 321611, 322513, 451616, 453215
Impedance Range _ 10Ω to 1,500Ω
Test Frequency _ 50MHz to 100MHz
Tolerance _ ±25%

DC Resistance _ 0.01Ω to 0.25Ω
Rated Current _ 800mA to 6,000mA
Packaging _ Tape, Reel

UPB Series

MULTILAYER FERRITE
Ultra Current Applications



Size _ 160808, 201209, 201212, 321611, 451616, 453215
Impedance Range _ 11Ω to 150Ω
Test Frequency _ 100MHz
Tolerance _ ±25%

DC Resistance _ 0.01Ω to 0.025Ω
Rated Current _ 4,500mA to 9,000mA
Packaging _ Tape, Reel

FB Series

SHIELDED BEADS
Surface Mount



Size _ 423226, 784729, 863226, 865626
Impedance Range _ 24Ω to 72Ω
Test Frequency _ 25MHz & 100MHz
Tolerance _ ±20%

DC Resistance _ 0.6Ω to 0.9Ω
Packaging _ Tape, Reel

SMD Multilayer
Chip Inductors

CL Series

MULTILAYER FERRITE
Monolithic Structure For Signals



Size _ 100505, 160808, 201209, 201212, 321611
Inductance Range _ 0.01μH to 33μH
Test Frequency _ 1MHz to 50MHz
Tolerance _ ±10%, ±20%

DC Resistance _ 0.15Ω to 2.2Ω
IDC _ 1mA to 300mA
Packaging _ Tape, Reel



SMD Multilayer
Chip Inductors

CLH Series

MULTILAYER HIGH FREQUENCY



Size _ 1005, 1608, 2012
Inductance Range _ 1nH to 470nH
Test Frequency _ 50MHz to 800MHz
Tolerance _ ± 0.3 , $\pm 5\%$, $\pm 10\%$
SRF _ 300MHz to 10,000MHz

DC Resistance _ 0.1 Ω to 4 Ω
IDC _ 100mA to 600mA
Packaging _ Tape, Reel

SMD Wire Wound
Chip Inductors

SQV Series

FERRITE
High Q & F /
Low DC Resistance



Size _ 322520, 453226
Inductance Range _ 0.1 μ H to 2,200 μ H
Test Frequency _ 1KHz to 1MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$, $\pm 20\%$
SRF _ 1.3MHz to 200MHz

DC Resistance _ 0.025 Ω to 50 Ω
Rated Current _ 30mA to 700mA
Packaging _ Tape, Reel

SQC Series

FERRITE
High Current /
Low DC Resistance



Size _ 201609, 321618, 322517, 322520, 453226
Inductance Range _ 0.12 μ H to 560 μ H
Test Frequency _ 0.001MHz to 1MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$, $\pm 20\%$
SRF _ 3MHz to 250MHz

DC Resistance _ 0.08 Ω to 15.6 Ω
Rated Current _ 60mA to 1,080mA
Packaging _ Tape, Reel

NL Series

FERRITE
Open Wire



Size _ 201614, 252018
Inductance Range _ 0.005 μ H to 100 μ H
Test Frequency _ 0.796MHz to 25.2MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 12MHz to 3,000MHz

DC Resistance _ 0.08 Ω to 15.6 Ω
IDC _ 70mA to 2,000mA
Packaging _ Tape, Reel

NLC Series

FERRITE
Open for High Current



Size _ 252018, 322522
Inductance Range _ 0.47 μ H to 680 μ H
Test Frequency _ 0.796MHz to 25.2MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 2MHz to 450MHz

DC Resistance _ 0.07 Ω to 28 Ω
IDC _ 65mA to 1,800mA
Packaging _ Tape, Reel

NLV Series



Size _ 322522
Inductance Range _ 0.01 μ H to 470 μ H
Test Frequency _ 0.796MHz to 100MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 4MHz to 2,500MHz

DC Resistance _ 0.13 Ω to 40 Ω
IDC _ 25mA to 450mA
Packaging _ Tape, Reel

NLCV Series



Size _ 453232
Inductance Range _ 1 μ H to 330 μ H
Test Frequency _ 0.796MHz to 7.96MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 4MHz to 200MHz

DC Resistance _ 0.11 Ω to 13 Ω
IDC _ 90mA to 1,050mA
Packaging _ Tape, Reel

LS Series

HIGH FREQUENCY

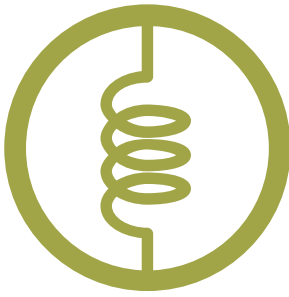


Size _ 0603, 0805, 1008
Inductance Range _ 1.2nH to 47,000nH
Test Frequency _ 2.5MHz to 7.9MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 15MHz to 1,700MHz

RDC _ 0.06 Ω to 14.5 Ω
IDC _ 180mA to 2,000mA
Packaging _ Tape, Reel

SMD Multilayer Chip Inductors, SMD Wire Wound Chip Inductors

YAGEO



SMD Wire Wound
Chip Inductors

LT Series



Size _ 0805, 1210
Inductance Range _ 120nH to 39,000nH
Test Frequency _ 2.52MHz to 25.2MHz
Tolerance _ $\pm 5\%$, $\pm 10\%$
SRF _ 15MHz to 1,500MHz

RDC _ 0.33 Ω to 16 Ω
IDC _ 190mA to 1,500mA
Packaging _ Tape, Reel

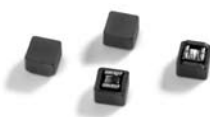
LD Series



Size _ 0805
Inductance Range _ 1.0 μ H to 100 μ H
Test Frequency _ 1MHz to 7.96MHz
Tolerance _ $\pm 10\%$, $\pm 20\%$
SRF _ 9MHz to 100MHz

RDC _ 0.1 Ω to 9 Ω
IDC _ 70mA to 800mA
Packaging _ Tape, Reel

PS Series



Size _ 1008
Inductance Range _ 1.0 μ H to 1,000 μ H
Test Frequency _ 100KHz
Tolerance _ $\pm 10\%$, $\pm 20\%$
SRF _ 1.5MHz to 344MHz

RDC _ 0.05 Ω to 29.2 Ω
IDC _ 0.1A to 3A
Packaging _ Tape, Reel

CS Series

HIGH FREQUENCY



Size _ 0402, 0603, 0805, 1008
Inductance Range _ 1.0nH to 10,000nH
Test Frequency _ 2.52MHz to 250MHz
Tolerance _ $\pm 2\%$, $\pm 5\%$, $\pm 10\%$
SRF _ 25MHz to 12,500MHz

RDC _ 0.03 Ω to 8 Ω
I_{rms} _ 30mA to 1,360mA
Packaging _ Tape, Reel

CT Series



Size _ 0805
Inductance Range _ 1.8nH to 1,000nH
Test Frequency _ 25MHz to 250MHz
Tolerance _ $\pm 2\%$, $\pm 5\%$, $\pm 10\%$
SRF _ 330MHz to 9,400MHz

RDC _ 0.03 Ω to 3.1 Ω
I_{rms} _ 300mA to 800mA
Packaging _ Tape, Reel

HC Series



Size _ 0603
Inductance Range _ 1.6nH to 24nH
Test Frequency _ 250MHz
Tolerance _ $\pm 2\%$, $\pm 5\%$, $\pm 10\%$
SRF _ 2,400MHz to 12,500MHz

RDC _ 0.03 Ω to 0.105 Ω
I_{rms} _ 1,800mA to 2,400mA
Packaging _ Tape, Reel

HQ Series



Size _ 0805, 1008
Inductance Range _ 2.5nH to 390nH
Test Frequency _ 25MHz to 250MHz
Tolerance _ $\pm 2\%$, $\pm 5\%$, $\pm 10\%$
SRF _ 530MHz to 6,000MHz

RDC _ 0.02 Ω to 0.7 Ω
I_{rms} _ 900mA to 1,600mA
Packaging _ Tape, Reel

LCN Series

HIGH FREQUENCY



Size _ 0603, 0805, 1008, 1206
Inductance Range _ 1.6nH to 8,200nH
Test Frequency _ 7.9MHz to 250MHz
Tolerance _ $\pm 2\%$, $\pm 5\%$, $\pm 10\%$
SRF _ 25MHz to 12,500MHz

RDC _ 0.03 Ω to 6 Ω
I_{rms} _ 170mA to 1,000mA
Packaging _ Tape, Reel



SMD Wire Wound
Chip Inductors

CMM Series

COMMON MODE



Size _ 21
Impedance Range _ 30Ω to 900Ω
Test Frequency _ 100MHz
Tolerance _ ±20%

RDC _ 0.2Ω to 0.6Ω
IDC _ 80mA to 450mA
Packaging _ Tape, Reel

SMD Power Inductors

SSL Series

UNSHIELDED



Size _ 04LP, 0400, 0402, 0614, 0802, 0804, 0810, 1306
Inductance Range _ 1.0μH to 1,000μH
Test Frequency _ 100KHz
Tolerance _ ±20%

DC Resistance _ 0.009Ω to 22.6Ω
Isat _ 0.08A to 20A
Irms _ 0.05A to 8.6A
Packaging _ Tape, Reel

SSL_HC Series

UNSHIELDED



Size _ 0503, 0804, 1306
Inductance Range _ 0.33μH to 100μH
Test Frequency _ 100KHz
Tolerance _ ±20%

DC Resistance _ 0.002Ω to 32Ω
Isat2 _ 0.87A to 30A
Irms3 _ 0.72A to 16A
Packaging _ Tape, Reel

SCD Series

UNSHIELDED



Size _ 0301, 03011, 03015, 03021, 0403, 0501, 0502, 0503, 0504, 0506, 0703, 0705, 0706, 1004, 1005, 1006
Inductance Range _ 1.0μH to 8,200μH
Test Frequency _ 1KHz to 7.96MHz
Tolerance _ ±20%, ±30%

DC Resistance _ 0.005Ω to 50Ω
Rated Current _ 0.03A to 4.5A
Packaging _ Tape, Reel

SCDS Series

SHIELDED



Size _ 2D09, 2D11, 2D14, 2D18, 3D11, 3D16, 3D28, 4D18, 4D28, 5D18, 5D28, 6D28, 6D38, 62, 64, 73, 74, 124, 125, 127, 104R, 105R
Inductance Range _ 0.6μH to 1,000μH
Test Frequency _ 1KHz to 7.96MHz
Tolerance _ ±20%, ±30%, +40%/-20%

DC Resistance _ 1.09mΩ to 9,440mΩ
Rated Current _ 0.13A to 13.8A
Packaging _ Tape, Reel

SDS Series

SHIELDED



Size _ 0402BL, 0402, 0804, 1306
Inductance Range _ 0.1μH to 10,000μH
Test Frequency _ 100KHz
Tolerance _ ±20%
SRF _ 0.4MHz to 200MHz

DC Resistance _ 0.021Ω to 74Ω
Current _ 0.01A to 5.6A
Packaging _ Tape, Reel

SDT Series

SHIELDED



Size _ 0402, 0804
Inductance Range _ 1.0μH to 1,000μH
Test Frequency _ 100KHz
Tolerance _ ±20%
SRF _ 2.3MHz to 157MHz

DC Resistance _ 0.025Ω to 8.1Ω
Rated Current _ 0.08A to 5A
Packaging _ Tape, Reel

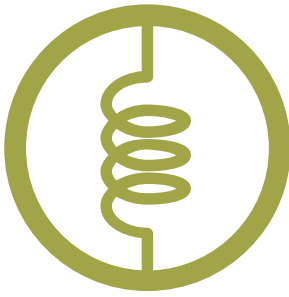
SLF Series

SHIELDED



Size _ 0628, 0728, 0730, 0732, 0745, 1045, 1055, 1255, 1265, 1275
Inductance Range _ 1.2μH to 1,500μH
Test Frequency _ 1KHz
Tolerance _ ±20%, ±30%

DC Resistance _ 0.0069Ω to 4.78Ω
Rated Current _ 0.13A to 13A
Packaging _ Tape, Reel



SMD Power Inductors

SCDA Series



Size _ 2D12, 2D15, 2D18
 Inductance Range _ 1.2 μ H to 47 μ H
 Test Frequency _ 100KHz / 1.0V
 Tolerance _ \pm 20%, \pm 30%

DC Resistance _ 120m Ω to 1,700m Ω
 IDC _ 0.23A to 1.3A
 Packaging _ Tape, Reel

STD Series

UNSHIELDED



Size _ 1109
 Inductance Range _ 10 μ H to 1,200 μ H
 Test Frequency _ 1KHz
 Tolerance _ \pm 20%

DC Resistance _ 0.06 Ω to 3.5 Ω
 Rated Current _ 0.35A to 3.5A
 Packaging _ Tape, Reel

SLH Series



Size _ 0630, 0650, 1040, 1250
 Inductance Range _ 0.1 μ H to 10 μ H
 Test Frequency _ 100KHz / 1.0V
 Tolerance _ \pm 20%

DC Resistance _ 0.53m Ω to 105m Ω
 Rated Current _ 4.5A to 118A
 Packaging _ Reel

SFI Series



Size _ 100605
 Inductance Range _ 0.1 μ H to 0.2 μ H
 Test Frequency _ 1MHz
 Tolerance _ \pm 10%, \pm 15%, \pm 20%

DC Resistance _ 0.65m Ω
 Packaging _ Reel

DIP Power Inductors

PMC Series



Size _ 107, 109, 115, 127, 129
 Inductance Range _ 0.25 μ H to 4.7 μ H
 Test Frequency _ 100MHz
 Tolerance _ \pm 20%

DC Resistance _ 0.45m Ω to 5.1m Ω
 Rated Current _ 8A to 40A
 Packaging _ Bulk

PMD Series



Size _ 0808, 1109, 9595
 Inductance Range _ 0.3 μ H to 1.2 μ H
 Test Frequency _ 100KHz / 200KHz
 Tolerance _ \pm 20%

DC Resistance _ 0.67m Ω to 4m Ω
 Rated Current _ 21A to 50A
 Packaging _ Bulk

PMF Series



Size _ 0806, 1008, 107, 109, 118, 129
 Inductance Range _ 0.25 μ H to 220 μ H
 Test Frequency _ 100KHz / 200KHz
 Tolerance _ \pm 20%

DC Resistance _ 0.65m Ω to 305m Ω
 Rated Current _ 1.5A to 50A
 Packaging _ Bulk

NSF Series



Size _ 0806, 0808, 109, 118, 1210, 1310
 Inductance Range _ 0.25 μ H to 220 μ H
 Test Frequency _ 100KHz / 1.0V
 Tolerance _ \pm 20%

DC Resistance _ 0.75m Ω to 350m Ω
 Rated Current _ 2A to 60A
 Packaging _ Bulk



DIP Power Inductors

MC Series

Size _ 1208, 1209, 1210, 1211
 Inductance Range _ 0.22 μ H to 4.7 μ H
 Test Frequency _ 100KHz / 1.0V
 Tolerance _ \pm 20%

DC Resistance _ 0.5m Ω to 10m Ω
 Rated Current _ 10A to 56A
 Packaging _ Bulk

SLM Series

Size _ 0709, 0808, 1112
 Inductance Range _ 1.0 μ H to 4,700 μ H
 Tolerance _ \pm 10%, \pm 15%, \pm 20%

DC Resistance _ 0.006 Ω to 7.6 Ω
 Packaging _ Bulk

SL Series

CHOKE COILS



Size _ 0406, 0608, 1016
 Inductance Range _ 1.0 μ H to 47,000 μ H
 Test Frequency _ 1KHz to 7.96MHz
 Tolerance _ \pm 10%

DC Resistance _ 0.018 Ω to 190 Ω
 IDC _ 15mA to 10A
 Packaging _ Tape, Bulk

MB Series

CHOKE COILS



Size _ 5018, 5026, 5052, 6018, 6052
 Inductance Range _ 1 μ H to 10 μ H
 Test Frequency _ 1KHz to 300KHz
 Tolerance _ \pm 15%

DC Current _ 2A to 20A

BC Series

CHOKE COILS



Size _ 1005, 1104, 1305, 1306, 1506, 1806,
 2006, 2310, 2711, 3311
 Inductance Range _ 30 μ H to 140 μ H
 Test Frequency _ 100KHz
 Tolerance _ \pm 15%

RDC _ 30m Ω to 71 Ω
 Turns _ 24 to 40
 Packaging _ Tape, Bulk



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Note

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