

A large, stylized lightning bolt graphic in shades of blue and white, extending from the top left towards the center of the page. It has multiple branches and a bright, glowing core.

Electronic Components  
**KEMET**  
**CHARGED.**<sup>®</sup>

---

**RF & Microwave**  
Surface Mount Ceramic Solutions


---





# Products

## RF & MICROWAVE

### Ultra HiQ-CBR Squared Series Offering

Case Size	Typical ESR (10 pF at 1 GHz)	Dielectric	Operating Frequency Range	Operating Temperature Range	Temp Coef. (TCC)	Capacitance Range	Max Voltage
 0505	< 0.068	COG	1 MHz – 50 GHz	–55°C to +125°C	0 ±30 ppm/°C	0.4pF - 100pF	250

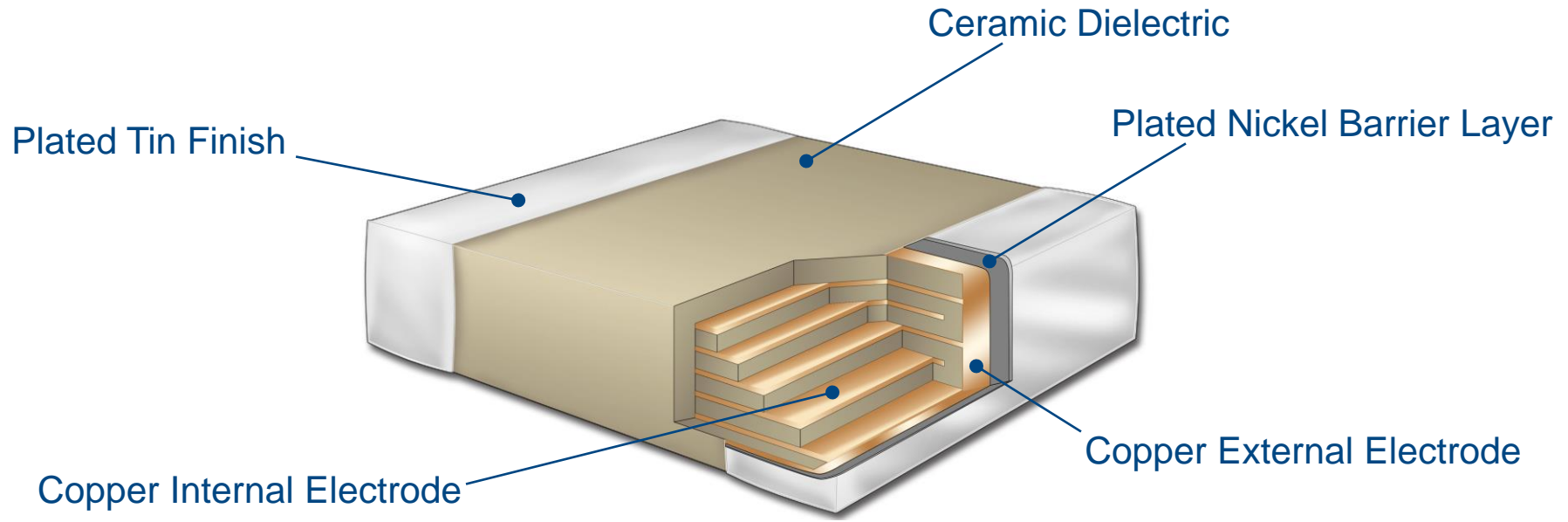
### HiQ-CBR Series Offering (EIA Case Sizes)

Case Size	Typical ESR Ohms (10pF @ 1 GHz)	Dielectric	Operating Frequency Range	Operating Temperature Range	Temp Coef. (TCC)	Capacitance Range	Max Voltage
0201	-	COG	1 MHz – 50 GHz	–55°C to +125°C	0 ±30 ppm/°C  (0 ±60 ppm/°C for 0201 case size ≥ 22 pF)	0.1pF - 33pF	50
 0402	< 0.095					0.1pF - 100pF	200
 0603	< 0.100					0.3pF - 100pF	250
0805	< 0.085					0.3pF - 100pF	500



# Capacitor Properties

 **HiQ-CBR**  
**RF & MICROWAVE**



Base Metal, **Copper Electrodes**

# PME vs. BME

- **BME = low-loss properties + lower cost**

Element	Electrical Resistance ( $\Omega$ -cm)	Cost
Silver (Ag, PME)	1.6	Medium
Palladium (Pd, PME)	10.8	High
Nickel (Ni, BME)	6.8	Low
Copper (Cu, BME)	1.7	Low

PME = Precious metal electrode technology  
BME = Base metal electrode technology

# PME vs. BME

- Low loss is important in terms of Power Dissipation.

## • Copper BME COG vs. Nickel BME:

Frequency (MHz)	Power Dissipation (mW) Copper BME	Power Dissipation (mW) Nickel BME
150	4.9	15.9
300	5.8	20.5
600	6.4	26.2
1200	7.8	37.0

- Copper BME = Lower ESR = Better power dissipation  
= Ideal for High Frequency applications

PME = Precious metal electrode technology  
BME = Base metal electrode technology



# Applications

## RF & MICROWAVE

# RF Circuits & Applications

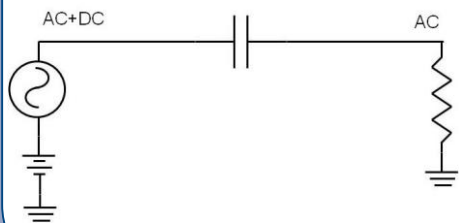
## High RF Power Circuits

- Coupling
- DC Blocking
- Impedance Matching
- Bypass

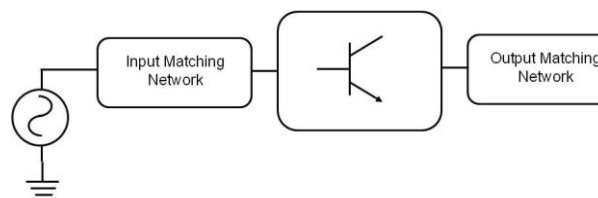
## Typical Applications

- Base Stations
- Satellite Communication
- Wireless
- Power Amplifiers
- Cellular Handsets

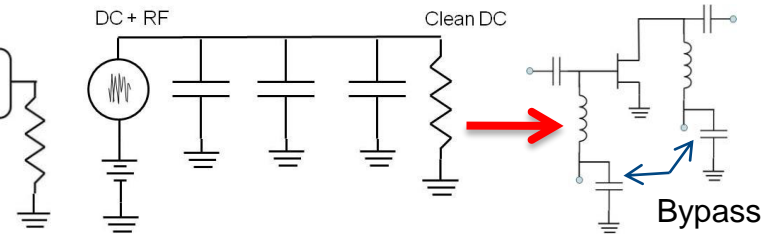
### DC BLOCKING



### MATCHING

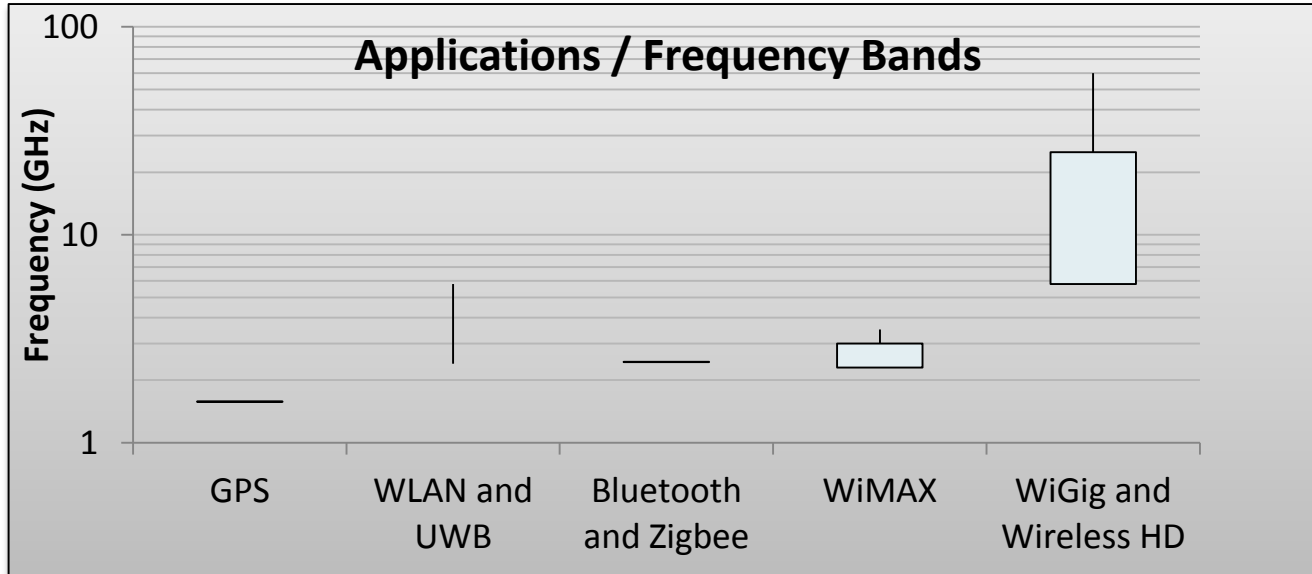


### BYPASS





# Functions

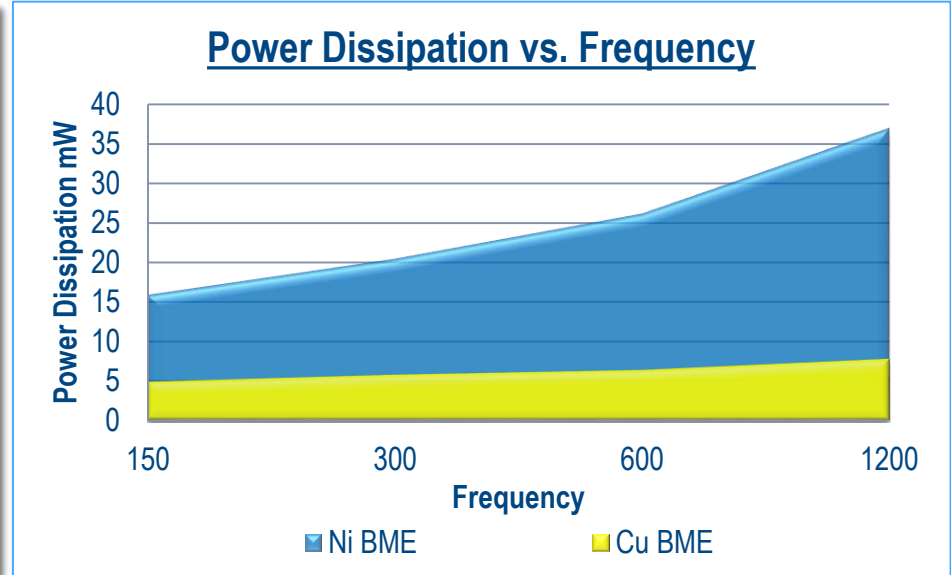
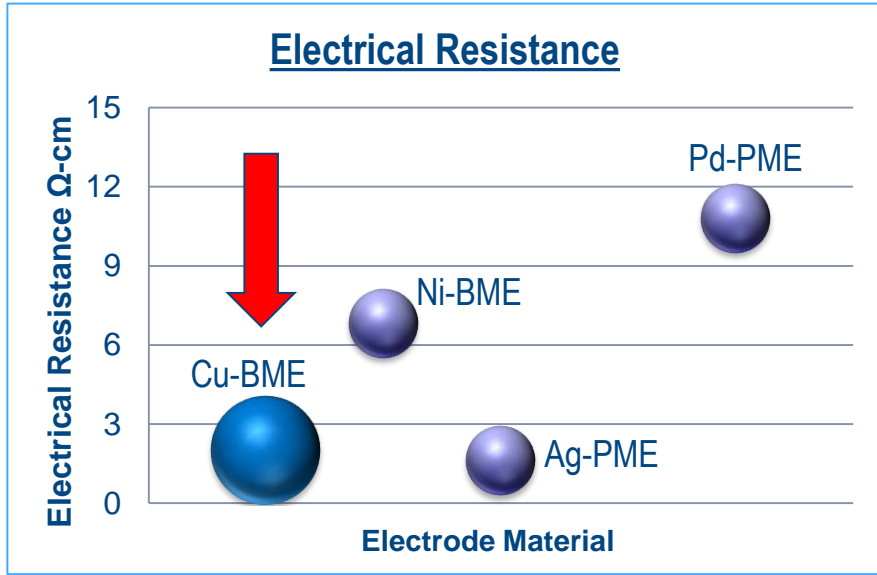


Frequency Range: 1 – 60 GHz

Microwave/RF Amplifiers  
Mixers  
Oscillators  
Low Noise Amplifiers  
Filter Networks

Diplexers  
Antenna Matching  
Timing Circuits  
Delay Lines

# RF Performance



Copper BME = Lower ESR = Better power dissipation = **Ideal for High Frequency applications**

Application	Power and Frequency Capabilities	
Base Station / Power Amp	C0603 - C2225 < 10W Power < 100 MHz Frequency	CBR06, CBR08 > 10W Power > 1 GHz Frequency
Mobile Phone	C0201, C0402 < 1W Power < 100 MHz Frequency	CBR02, CBR04 > 10W Power > 1 GHz Frequency
	<b>COMMERCIAL</b>	<b>RF &amp; MICROWAVE</b>



# Support

## RF & MICROWAVE

# Support Tools

- Product bulletin/datasheet
- Parts stocked at authorized distributors
- Sample kits available
- S-Parameter
- Qualification data
- Frequently asked questions
- Capacitor Edge ([kemet.com](http://kemet.com))
- Microsite ([www.kemet.com/rf](http://www.kemet.com/rf))



For additional support please contact your local KEMET representative

# CBR Series

## Ordering Information



CBR	02	C	330	F	9	G	A	C	
Ceramic	Case Size (L" x W")	Specification / Series	Capacitance Code (pF)	Capacitance Tolerance	Rated Voltage (VDC)	Dielectric	Failure Rate/Design	Termination Finish	Packaging/Grade (C-Spec) <sup>1</sup>
CBR	02 = 0201 04 = 0402 06 = 0603 08 = 0805 05 = 0505	C = Standard	2 significant digits + number of zeros  Use 9 for 1.0 - 9.9pF Use 8 for 0.5 - .99pF ex. 2.2pF = 229 ex. 0.5pF = 508	A = ± 0.05pF B = ±0.1pF C = ±0.25pF D = ±0.5pF F = ±1% G = ±2% J = ±5%	9 = 6.3V 8 = 10V 3 = 25V 5 = 50V 1 = 100V 2 = 200V A = 250V C = 500V	G = C0G	A = N/A	C = 100% Matte Sn	Blank = 7" Reel, Unmarked

<sup>1</sup> When ordering CBR series devices, a "suffix" or "C-spec" is not required to indicate a 7" reel packaging option. CBR devices are only available and shipped on 7" reels (paper tape). Bulk bag and cassette packaging options are not available. Please contact KEMET if you have a specific, non-standard packaging requirement.



Chip Size In. (mm)	Chip Thickness (mm)	Reel Quantity	
		7" Paper	13" Paper
0201 (0603)	0.30 ± 0.03	15,000	Contact KEMET for availability.
0402 (1005)	0.50 ± 0.05	10,000	
0603 (1608)	0.80 ± 0.07	4,000	
0805 (2012)	0.85 ± 0.10	4,000	
0505 (1414)	1.15 ± 0.15	3,000	



[www.kemet.com/rf](http://www.kemet.com/rf)

Thanks for Choosing KEMET