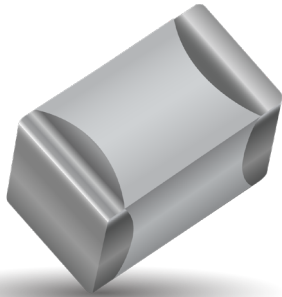


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### Ultra-Low ESR "KGU" Series COG (NP0) Capacitors



## GENERAL INFORMATION

"KGU" Series capacitors are COG (NP0) chip capacitors specially designed for "Ultra" low ESR for applications in the communications market. Sizes available are EIA chip sizes 01005 through 0805. This series also features high self-resonance frequencies.

## APPLICATIONS

- Cellular Base Stations
- Broadband Wireless Services
- Satellite Communications
- Subscriber-based Wireless Devices
- WiFi (802.11)
- Public Safety Radio

## CIRCUIT APPLICATIONS

- Filter Networks
- High Q Frequency Sources
- Matching Networks
- Tuning, Coupling, Bypass and DC Blocking

## HOW TO ORDER

KGU	02	A	CG	1C	100	J	H
<b>Series</b> General Purpose Tin/ Nickel Finish	<b>Size</b> 02 = 01005 05 = 0402 15 = 0603 21 = 0805	<b>Thickness</b> See Cap Chart	<b>Dielectric</b> COG (NP0)=CG	<b>Voltage</b> 1C = 16V 1E = 25V 2A = 100v 2D = 200V 2E = 250V	<b>Capacitance Code</b> Two Significant Digits + Number of Zeroes eg. 10µF = 106  10nF = 103 47pF = 470	<b>Tolerance</b> A = ±0.05 pF (<10pF) B = ±0.10 pF (<10pF) C = ±0.25 pF (<10pF) D = ±0.50 pF (<10pF) F = ±1% (≥10pF) G = ±2% (≥10pF) J = ±5% (≥10pF) K = ±10% (≥10pF) M = +/- 20%	<b>Packaging</b> See Table Below



## ENVIRONMENTAL CHARACTERISTICS

<b>Thermal Shock</b>	5 Cycles, -55°C to 125°C
<b>Life Test</b>	1000 hours at 125°C at 2X
<b>Solderability</b>	Solder Coverage > 90% of end termination
<b>Terminal Strength</b>	2 lbs. typ., 1 lb. min.

## PACKAGING CODE

Packaging Code	Size Code	EIA (Inch)	IEC (mm)	Width	Pitch	Material	Reel Size
H	02	01005	0402	8mm	2mm	Paper	7"
H	05	0402	1005	8mm	2mm	Embossed	
P*	02	01005	0402	4mm	1mm	Embossed	
T	15	0603	1608	8mm	4mm	Embossed	
U	21	0805	2012	8mm	4mm	Embossed	

\* Please check with factory for availability of this packaging option

## ELECTRICAL SPECIFICATIONS

<b>Temperature Coefficient of Capacitance (TC)</b>	0±30 ppm/°C (-55° to +125°C)
<b>Quality Factor</b>	C < 30pf ≥ 800 + 20X CAP @ 1MHz C ≥ 30pf ≥ 1500 @ 1MHz
<b>Insulation Resistance (IR)</b>	10 <sup>5</sup> Megohms min. @ 25°C at rated WVDC  10 <sup>4</sup> Megohms min. @ 125°C at rated WVDC
<b>Dielectric Withstanding Voltage (DWV)</b>	250% of rated WVDC for 5 seconds
<b>Aging Effects</b>	None
<b>Piezoelectric Effects</b>	None

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## CAPACITANCE RANGE

SIZE		01005		0402		0603		0805	
Soldering		All Paper		All Paper		All Paper		All Embossed	
(L) Length	mm	0.4±0.02mm		1.02±0.10		1.60±0.15		2.01±0.20	
	(in.)	(0.016±0.0008)		(0.040±0.004)		(0.063±0.006)		(0.079±0.008)	
(W) Width	mm	0.2±0.02mm		0.51±0.10		0.81±0.15		1.24±0.20	
	(in.)	(0.008±0.0008)		(0.020±0.004)		(0.032±0.006)		(0.049±0.008)	
(t) Terminal	mm	0.1±0.03		0.25±0.15		0.36±0.15		0.51±0.25	
	(in.)	(0.004±0.001)		(0.010±0.006)		(0.014±0.006)		(0.020±0.010)	
WVDC		16	25	100	200	100	250	100	250
Cap	0.1			F	F	A	A	R	R
(pF)	0.2	A	A	F	F	A	A	R	R
	0.3			F	F	A	A	R	R
	0.4			F	F	A	A	R	R
	0.5	A	A	F	F	A	A	R	R
	0.6			F	F	A	A	R	R
	0.7			F	F	A	A	R	R
	0.8			F	F	A	A	R	R
	0.9			F	F	A	A	R	R
	1.0	A	A	F	F	A	A	R	R
	1.1			F	F	A	A	R	R
	1.2			F	F	A	A	R	R
	1.3			F	F	A	A	R	R
	1.5	A	A	F	F	A	A	R	R
	1.6			F	F	A	A	R	R
	1.8			F	F	A	A	R	R
	2.0	A	A	F	F	A	A	R	R
	2.2			F	F	A	A	R	R
	2.4			F	F	A	A	R	R
	2.7			F	F	A	A	R	R
	3.0	A	A	F	F	A	A	R	R
	3.3			F	F	A	A	R	R
	3.6			F	F	A	A	R	R
	3.9			F	F	A	A	R	R
	4.0	A	A	F	F	A	A	R	R
	4.3			F	F	A	A	R	R
	4.7			F	F	A	A	R	R
	5.0	A	A	F	F	A	A	R	R
	5.1			F	F	A	A	R	R
	5.6			F	F	A	A	R	R
	6.0	A	A	F	F	A	A	R	R
	6.2			F	F	A	A	R	R
	6.8			F	F	A	A	R	R
	7.0	A	A	F	F	A	A	R	R
	7.5			F	F	A	A	R	R
	8.0	A	A	F	F	A	A	R	R
	8.2			F	F	A	A	R	R
	9.0	A	A	F	F	A	A	R	R
	9.1			F	F	A	A	R	R
	10	A	A	F	F	A	A	R	R
	11			F	F	A	A	R	R
	12	A	A	F	F	A	A	R	R
	15	A		F	F	A	A	R	R
	18	A		F	F	A	A	R	R
	20			F	F	A	A	R	R
	22	A		F	F	A	A	R	R
	24	A				A	A	R	R
	27					A	A	R	R
	30					A	A	R	R
	33					A	A	R	R
	36					A	A	R	R
	39					A	A	R	R
WVDC		16	25	100	200	100	250	100	250
SIZE		01005		0402		0603		0805	

SIZE		0603		0805	
Soldering		All Paper		All Embossed	
(L) Length	mm	1.60±0.15		2.01±0.20	
	(in.)	(0.063±0.006)		(0.079±0.008)	
(W) Width	mm	0.81±0.15		1.24±0.20	
	(in.)	(0.032±0.006)		(0.049±0.008)	
(t) Terminal	mm	0.36±0.15		0.51±0.25	
	(in.)	(0.014±0.006)		(0.020±0.010)	
WVDC		100	250	100	250
Cap	43	A	A	R	R
(pF)	47	A	A	R	R
	51	A	A	R	R
	56	A	A	R	R
	62	A	A	R	R
	68	A	A	R	R
	75	A	A	R	R
	82	A	A	R	R
	91			R	R
	100			R	R
WVDC		100	250	100	250
SIZE		0603		0805	

## TOLERANCE OPTIONS

Case Size	Tolerance Options	
	Capacitance Range	Available Tolerances
01005	0.2pF-5.0pF	B,C
	6.0pF-9.0pF	C,D
	10.0pF-24.0pF	J,K
0402/0603/0805	0.1pF-0.2pF	A,B
	0.3pF-0.9pF	A,B,C
	1.0pF-6.2pF	A,B,C,D
	6.8pF-9.1pF	B,C,J,K
	10pF-100pF	F,G,J,K,M

\*Please refer to capacitance values table to confirm capacitance availability

NOTE: Contact factory for non-specified capacitance values

Case Size	01005 (KGU02)	0402 (KGU05)	0603 (KGU15)	0805 (KGU21)
Thickness Letter	A	F	A	R
Max Thickness(mm)	0.22	0.60	0.90	1.3
Carrier Tape	PAPER	EMBOSSSED	EMBOSSSED	EMBOSSSED
Packaging Code 7" reel	H	H	T	U
	PAPER	EMBOSSSED		

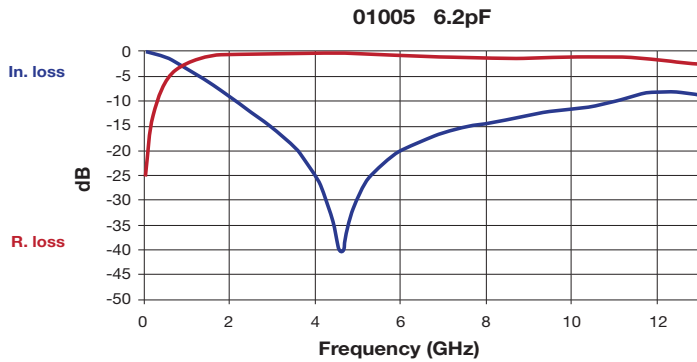
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#### ULTRA LOW ESR, KGU SERIES



	F (GHz)	IL	R. loss
F1	0.31	-0.40	-9.68
F2	1.28	-5.03	-1.44
F3	2.408	-11.58	-0.27
F4	4.635	-40.55	-0.39
F5	4.897	-31.82	-0.47

