

Features

- Good thermal stability
- High insulation resistance
- Low dissipation factor
- Low inductance

Applications

- Resonant circuits
- Filter circuits
- Timing elements
- Coupling and filtering, particularly in RF circuits

Terminations

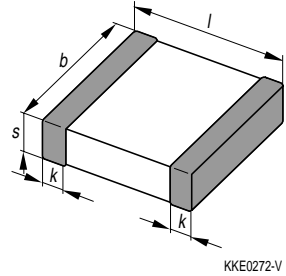
- For soldering: silver/nickel/tin
- For conductive adhesion: silver palladium

Packing

- Blister and cardboard tape, for details refer to chapter on “Taping and Packing”, page 111.
- Bulk case for sizes 0603, 0805 and 1206, for details see page 114.

Maximum ratings

Climatic category
in accordance with IEC 68-1: 55/125/56



Dimensions (mm)

Size inch/mm	<i>l</i>	<i>b</i>	<i>s</i>	<i>k</i>
0402/1005	1,0 ± 0,10	0,50 ± 0,05	0,5 ± 0,05	0,2
0603/1608	1,6 ± 0,15*)	0,80 ± 0,10	0,8 ± 0,10	0,3
0805/2012	2,0 ± 0,20	1,25 ± 0,15	1,3 max.	0,5
1206/3216	3,2 ± 0,20	1,60 ± 0,15	1,3 max.	0,5
1210/3225	3,2 ± 0,30	2,50 ± 0,30	1,7 max.	0,5

*) For bulk cases: 1,6 ± 0,1
Tolerances in acc. with CECC 32101-801

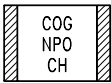
Available capacitance tolerances

Rated capacitance C_R	Tolerance	Symbol
$C_R < 10 \text{ pF}$:	$\Delta C_R = \pm 0,1 \text{ pF}$	B
	$\Delta C_R = \pm 0,25 \text{ pF}$	C
	$\Delta C_R = \pm 0,5 \text{ pF}$	D
$C_R \geq 10 \text{ pF}$:	$\Delta C_R/C_R = \pm 1 \%$	F
	$\Delta C_R/C_R = \pm 2 \%$	G
	$\Delta C_R/C_R = \pm 5 \%$	J
	$\Delta C_R/C_R = \pm 10 \%$	K

Standard tolerances in bold print
F and G tolerance not available for 200 V

Rated voltage values

$V_R = 50 \text{ V}, 100 \text{ V}, 200 \text{ V}$



Product range

	COG/NP0/CH											
Size ¹⁾ inch mm	0402 1005		0603 1608		0805 2012			1206 3216			1210 3225	
Type	B37920		B37930		B37940			B37871			B37949	
V _R (Vdc)	50		50		50 100 200			50 100 200			50 200	
1,0 pF	1,0 pF											
1,2 pF												
1,5 pF												
1,8 pF												
2,2 pF	2,0 pF ²⁾											
2,7 pF	3,0 pF ²⁾											
3,3 pF	4,0 pF ²⁾											
3,9 pF	5,0 pF ²⁾											
4,7 pF	6,0 pF ²⁾											
5,6 pF	7,0 pF ²⁾											
6,8 pF	8,0 pF ²⁾											
8,2 pF	9,0 pF ²⁾											
10 pF												
12 pF												
15 pF												
18 pF												
22 pF												
27 pF												
33 pF												
39 pF												
47 pF												
56 pF												
68 pF												
82 pF												

Chip thickness (s): 0,5 ± 0,1 mm 0,6 ± 0,1 mm 0,8 ± 0,1 mm 1,2 ± 0,1 mm

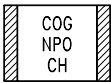
1) l × b (inch) / l × b (mm)
 2) Only listed capacitance values available
 Capacitance values < 1 pF upon request

Product range

COG/NPO/CH													
Size ¹⁾	0402		0603		0805			1206			1210		
inch	1005		1608		2012			3216			3225		
mm	B37920		B37930		B37940			B37871			B37949		
Type	50		50		50	100	200	50	100	200	50	100	200
100 pF	■		■		■	■	■	■	■	■	■	■	■
120 pF	■		■		■	■	■	■	■	■	■	■	■
150 pF	■		■		■	■	■	■	■	■	■	■	■
180 pF	■		■		■	■	■	■	■	■	■	■	■
220 pF	■		■		■	■	■	■	■	■	■	■	■
270 pF			■		■	■	■	■	■	■	■	■	■
330 pF			■		■	■	■	■	■	■	■	■	■
390 pF			■		■	■	■	■	■	■	■	■	■
470 pF			■		■	■	■	■	■	■	■	■	■
560 pF					■	■	■	■	■	■	■	■	■
680 pF					■	■	■	■	■	■	■	■	■
820 pF					■	■	■	■	■	■	■	■	■
1,0 nF					■	■	■	■	■	■	■	■	■
1,2 nF					■	■	■	■	■	■	■	■	■
1,5 nF					■	■	■	■	■	■	■	■	■
1,8 nF					■	■	■	■	■	■	■	■	■
2,2 nF					■	■	■	■	■	■	■	■	▨
2,7 nF								■	■	■	■	■	■
3,3 nF								■	■	■	■	■	■
3,9 nF								■	■	■	■	■	■
4,7 nF								■	■	■	■	■	■
5,6 nF								■	■	■	■	■	■
6,8 nF								■	■	■	■	■	■
8,2 nF										■	■	■	■
10 nF										■	■	■	■

Chip thickness (s): 0,5 ± 0,1 mm 0,6 ± 0,1 mm 0,8 ± 0,1 mm 1,2 ± 0,1 mm 1,6 ± 0,1 mm

1) l × b (inch) / l × b (mm)



Ordering codes for COG/NPO/CH, 50 Vdc, AgNiSn terminations

Size	0402/1005	0603/1608	0805/2012	1206/3216	1210/3225
C _R ¹⁾	Ordering code ²⁾				
	B37920-	B37930-	B37940-	B37871-	B37949-
1,0 pF	-K5010-C60 ▲	-K5010-C60 ○	-K5010-C60 □	-K5010-C60 ○	
1,2 pF		-K5010-C260 ○	-K5010-C260 □	-K5010-C260 ○	
1,5 pF		-K5010-C560 ○	-K5010-C560 □	-K5010-C560 ○	
1,8 pF		-K5010-C860 ○	-K5010-C860 □	-K5010-C860 ○	
2,2 (2,0) pF	-K5020-C60 ▲	-K5020-C260 ○	-K5020-C260 □	-K5020-C260 ○	
2,7 (3,0) pF	-K5030-C60 ▲	-K5020-C760 ○	-K5020-C760 □	-K5020-C760 ○	
3,3 (4,0) pF	-K5040-C60 ▲	-K5030-C360 ○	-K5030-C360 □	-K5030-C360 ○	
3,9 (5,0) pF	-K5050-C60 ▲	-K5030-C960 ○	-K5030-C960 □	-K5030-C960 ○	
4,7 (6,0) pF	-K5060-C60 ▲	-K5040-C760 ○	-K5040-C760 □	-K5040-C760 ○	
5,6 (7,0) pF	-K5070-C60 ▲	-K5050-C660 ○	-K5050-C660 □	-K5050-C660 ○	
6,8 (8,0) pF	-K5080-C60 ▲	-K5060-C860 ○	-K5060-C860 □	-K5060-C860 ○	
8,2 (9,0) pF	-K5090-C60 ▲	-K5080-C260 ○	-K5080-C260 □	-K5080-C260 ○	
10 pF	-K5100-J60 ▲	-K5100-J60 ○	-K5100-J60 □	-K5100-J60 ○	
12 pF	-K5120-J60 ▲	-K5120-J60 ○	-K5120-J60 □	-K5120-J60 ○	
15 pF	-K5150-J60 ▲	-K5150-J60 ○	-K5150-J60 □	-K5150-J60 ○	
18 pF	-K5180-J60 ▲	-K5180-J60 ○	-K5180-J60 □	-K5180-J60 ○	
22 pF	-K5220-J60 ▲	-K5220-J60 ○	-K5220-J60 □	-K5220-J60 ○	
27 pF	-K5270-J60 ▲	-K5270-J60 ○	-K5270-J60 □	-K5270-J60 ○	
33 pF	-K5330-J60 ▲	-K5330-J60 ○	-K5330-J60 □	-K5330-J60 ○	
39 pF	-K5390-J60 ▲	-K5390-J60 ○	-K5390-J60 □	-K5390-J60 ○	
47 pF	-K5470-J60 ▲	-K5470-J60 ○	-K5470-J60 □	-K5470-J60 ○	
56 pF	-K5560-J60 ▲	-K5560-J60 ○	-K5560-J60 □	-K5560-J60 ○	
68 pF	-K5680-J60 ▲	-K5680-J60 ○	-K5680-J60 □	-K5680-J60 ○	
82 pF	-K5820-J60 ▲	-K5820-J60 ○	-K5820-J60 □	-K5820-J60 ○	
100 pF	-K5101-J60 ▲	-K5101-J60 ○	-K5101-J60 □	-K5101-J60 ○	
120 pF	-K5121-J60 ▲	-K5121-J60 ○	-K5121-J60 □	-K5121-J60 ○	
150 pF	-K5151-J60 ▲	-K5151-J60 ○	-K5151-J60 □	-K5151-J60 ○	
180 pF	-K5181-J60 ▲	-K5181-J60 ○	-K5181-J60 □	-K5181-J60 ○	
220 pF	-K5221-J60 ▲	-K5221-J60 ○	-K5221-J60 □	-K5221-J60 ○	
270 pF		-K5271-J60 ○	-K5271-J60 □	-K5271-J60 ○	
330 pF		-K5331-J60 ○	-K5331-J60 □	-K5331-J60 ○	
390 pF		-K5391-J60 ○	-K5391-J60 □	-K5339-J60 ○	
470 pF		-K5471-J60 ○	-K5471-J60 □	-K5471-J60 ○	
560 pF			-K5561-J60 □	-K5561-J60 ○	
680 pF			-K5681-J60 □	-K5681-J60 ○	
820 pF			-K5821-J60 □	-K5821-J60 ○	

Chip thickness: ▲: 0,5 ± 0,1 mm □: 0,6 ± 0,1 mm ○: 0,8 ± 0,1 mm

1) E24 series available on request. For size 0402 only capacitance values in () available; capacitance values < 1 pF on request.

2) The tables contain the ordering codes for the standard capacitance tolerance:

C = ± 0,25 pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37920-K5010-C60

For other available capacitance tolerances see page 15

Ordering codes for COG/NP0/CH, 50 Vdc, AgNiSn terminations (cont'd)

Size	0402/1005	0603/1606	0805/2012	1206/3216	1210/3225
$C_R^{1)}$	Ordering code ²⁾				
	B37920-	B37930-	B37940-	B37871-	B37949-
1,0 nF			-K5102-J60 □	-K5102-J60 ○	-K5102-J62 ○
1,2 nF			-K5122-J60 ○	-K5122-J60 ○	-K5122-J62 ○
1,5 nF			-K5152-J60 ○	-K5152-J60 ○	-K5152-J62 ○
1,8 nF			-K5182-J62 ◆	-K5182-J60 ○	-K5182-J62 ○
2,2 nF			-K5222-J62 ◆	-K5222-J60 ○	-K5222-J62 ○
2,7 nF				-K5272-J60 ○	-K5272-J62 ○
3,3 nF				-K5332-J60 ○	-K5332-J62 ○
3,9 nF				-K5392-J60 ○	-K5392-J62 ○
4,7 nF				-K5472-J62 ◆	-K5472-J62 ○
5,6 nF				-K5562-J62 ◆	-K5562-J62 ○
6,8 nF					-K5682-J62 ○
8,2 nF					-K5822-J62 ◆
10 nF					-K5103-J62 ◆

Chip thickness: □: $0,6 \pm 0,1$ mm ○: $0,8 \pm 0,1$ mm ◆: $1,2 \pm 0,1$ mm

1) E24 series available on request

2) The tables contain the ordering codes for the standard capacitance tolerance:

C = $\pm 0,25$ pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37940-K5102-J60

For other available capacitance tolerances see page 15

Ordering codes for COG/NPO/CH, 100 Vdc, AgNiSn terminations

Size	0805/2012	1206/3216	Size	1206/3216	1210/3225
C_R	Ordering code ¹⁾		C_R	Ordering code ¹⁾	
	B37940-	B37871-		B37871-	B37949-
1,0 pF	-K1010-C60 □	-K1010-C60 ○	1,2 nF	-K1122-J60 ○	-K1122-J60 ○
1,2 pF	-K1010-C260 □	-K1010-C260 ○	1,5 nF	-K1152-J60 ○	-K1152-J60 ○
1,5 pF	-K1010-C560 □	-K1010-C560 ○	1,8 nF	-K1182-J60 ○	-K1182-J60 ○
1,8 pF	-K1010-C860 □	-K1010-C860 ○	2,2 nF	-K1222-J62 ◆	-K1222-J60 ○
2,2 pF	-K1020-C260 □	-K1020-C260 ○	2,7 nF		-K1272-J60 ○
2,7 pF	-K1020-C760 □	-K1020-C760 ○	3,3 nF		-K1332-J60 ○
3,3 pF	-K1030-C360 □	-K1030-C360 ○	3,9 nF		-K1392-J60 ○
3,9 pF	-K1030-C960 □	-K1030-C960 ○	4,7 nF		-K1472-J62 ◆
4,7 pF	-K1040-C760 □	-K1040-C760 ○	5,6 nF		-K1562-J62 ◆
5,6 pF	-K1050-C660 □	-K1050-C660 ○	6,8 nF		-K1682-J62 ◆
6,8 pF	-K1060-C860 □	-K1060-C860 ○			
8,2 pF	-K1080-C260 □	-K1080-C260 ○			
10 pF	-K1100-J60 □	-K1100-J60 ○			
12 pF	-K1120-J60 □	-K1120-J60 ○			
15 pF	-K1150-J60 □	-K1150-J60 ○			
18 pF	-K1180-J60 □	-K1180-J60 ○			
22 pF	-K1220-J60 □	-K1220-J60 ○			
27 pF	-K1270-J60 □	-K1270-J60 ○			
33 pF	-K1330-J60 □	-K1330-J60 ○			
39 pF	-K1390-J60 □	-K1390-J60 ○			
47 pF	-K1470-J60 □	-K1470-J60 ○			
56 pF	-K1560-J60 □	-K1560-J60 ○			
68 pF	-K1680-J60 □	-K1680-J60 ○			
82 pF	-K1820-J60 □	-K1820-J60 ○			
100 pF	-K1101-J60 □	-K1101-J60 ○			
120 pF	-K1121-J60 □	-K1121-J60 ○			
150 pF	-K1151-J60 □	-K1151-J60 ○			
180 pF	-K1181-J60 □	-K1181-J60 ○			
220 pF	-K1221-J60 □	-K1221-J60 ○			
270 pF	-K1271-J60 □	-K1271-J60 ○			
330 pF	-K1331-J60 □	-K1331-J60 ○			
390 pF	-K1391-J60 □	-K1391-J60 ○			
470 pF	-K1471-J60 □	-K1471-J60 ○			
560 pF	-K1561-J60 ○	-K1561-J60 ○			
680 pF	-K1681-J60 ○	-K1681-J60 ○			
820 pF	-K1821-J62 ◆	-K1821-J60 ○			
1,0 nF	-K1102-J62 ◆	-K1102-J60 ○			

Chip thickness: □: 0,6 ± 0,1 mm ○: 0,8 ± 0,1 mm ◆: 1,2 ± 0,1 mm

1) The tables contain the ordering codes for the standard capacitance tolerance:
 C = ± 0,25 pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37940-K1010-C60
 For other available capacitance tolerances see page 15

Ordering codes for COG/NP0/CH, 200 Vdc, AgNiSn terminations

Size	0805/2012	1206/3216	1210/3225		
C_R	Ordering code ¹⁾				
	B37940-	B37871-	B37949-		
1,0 pF	-K2010-C60 □	-K2010-C60 ○			
1,2 pF	-K2010-C260 □	-K2010-C260 ○			
1,5 pF	-K2010-C560 □	-K2010-C560 ○			
1,8 pF	-K2010-C860 □	-K2010-C860 ○			
2,2 pF	-K2020-C260 □	-K2020-C260 ○			
2,7 pF	-K2020-C760 □	-K2020-C760 ○			
3,3 pF	-K2030-C360 □	-K2030-C360 ○			
3,9 pF	-K2030-C960 □	-K2030-C960 ○			
4,7 pF	-K2040-C760 □	-K2040-C760 ○			
5,6 pF	-K2050-C660 □	-K2050-C660 ○			
6,8 pF	-K2060-C860 □	-K2060-C860 ○			
8,2 pF	-K2080-C260 □	-K2080-C260 ○			
10 pF	-K2100-J60 □	-K2100-J60 ○			
12 pF	-K2120-J60 □	-K2120-J60 ○			
15 pF	-K2150-J60 □	-K2150-J60 ○			
18 pF	-K2180-J60 □	-K2180-J60 ○			
22 pF	-K2220-J60 □	-K2220-J60 ○			
27 pF	-K2270-J60 □	-K2270-J60 ○			
33 pF	-K2330-J60 □	-K2330-J60 ○			
39 pF	-K2390-J60 □	-K2390-J60 ○			
47 pF	-K2470-J60 □	-K2470-J60 ○			
56 pF	-K2560-J60 □	-K2560-J60 ○			
68 pF	-K2680-J60 □	-K2680-J60 ○			
82 pF	-K2820-J60 □	-K2820-J60 ○			
100 pF	-K2101-J60 □	-K2101-J60 ○	-K2101-J62 ○		
120 pF	-K2121-J60 □	-K2121-J60 ○	-K2121-J62 ○		
150 pF	-K2151-J60 □	-K2151-J60 ○	-K2151-J62 ○		
180 pF	-K2181-J60 □	-K2181-J60 ○	-K2181-J62 ○		
220 pF	-K2221-J60 □	-K2221-J60 ○	-K2221-J62 ○		
270 pF	-K2271-J62 ◆	-K2271-J60 ○	-K2271-J62 ○		
330 pF	-K2331-J62 ◆	-K2331-J60 ○	-K2331-J62 ○		
390 pF		-K2391-J60 ○	-K2391-J62 ○		
470 pF		-K2471-J60 ○	-K2471-J62 ○		
560 pF		-K2561-J60 ○	-K2561-J62 ○		
680 pF		-K2681-J62 ◆	-K2681-J62 ○		
820 pF		-K2821-J62 ◆	-K2821-J62 ○		

Chip thickness: □: 0,6 ± 0,1 mm ○: 0,8 ± 0,1 mm ◆: 1,2 ± 0,1 mm

1) The tables contain the ordering codes for the standard capacitance tolerance:
 C = ± 0,25 pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37940-K2010-C62
 For other available capacitance tolerances see page 15

Ordering codes for COG/NPO/CH, 200 Vdc, AgNiSn terminations (cont'd)

Size	0805/2012	1206/3216	1210/3225		
C_R	Ordering code ¹⁾				
	B37940-	B37871-	B37949-		
1,0 nF		-K2102-J62 ◆	-K2102-J62 ○		
1,2 nF			-K2122-J62 ◆		
1,5 nF			-K2152-J62 ◆		
1,8 nF			-K2182-J62 ◆		
2,2 nF			-K2222-J62 ●		

Chip thickness: □: $0,6 \pm 0,1$ mm ○: $0,8 \pm 0,1$ mm ◆: $1,2 \pm 0,1$ mm ●: $1,6 \pm 0,1$ mm

1) The tables contain the ordering codes for the standard capacitance tolerance:
 $C = \pm 0,25$ pF for < 10 pF; $J = \pm 5\%$ for ≥ 10 pF. Example: B37871-K2102-J62
 For other available capacitance tolerances see page 15

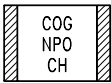
Ordering codes for C0G/NP0/CH, 50 Vdc, AgNiSn terminations, bulk case packing

Size	0603/1608	0805/2012	1206/3216	
C _R ¹⁾	Ordering code ²⁾			
	B37930-	B37940-	B37871-	
1,0 pF	-K5010-C01 ○	-K5010-C01 □	-K5010-C01 □	
1,2 pF	-K5010-C201 ○	-K5010-C201 □	-K5010-C201 □	
1,5 pF	-K5010-C501 ○	-K5010-C501 □	-K5010-C501 □	
1,8 pF	-K5010-C801 ○	-K5010-C801 □	-K5010-C801 □	
2,2 pF	-K5020-C201 ○	-K5020-C201 □	-K5020-C201 □	
2,7 pF	-K5020-C701 ○	-K5020-C701 □	-K5020-C701 □	
3,3 pF	-K5030-C301 ○	-K5030-C301 □	-K5030-C301 □	
3,9 pF	-K5030-C901 ○	-K5030-C901 □	-K5030-C901 □	
4,7 pF	-K5040-C701 ○	-K5040-C701 □	-K5040-C701 □	
5,6 pF	-K5050-C601 ○	-K5050-C601 □	-K5050-C601 □	
6,8 pF	-K5060-C801 ○	-K5060-C801 □	-K5060-C801 □	
8,2 pF	-K5080-C201 ○	-K5080-C201 □	-K5080-C201 □	
10 pF	-K5100-J01 ○	-K5100-J01 □	-K5100-J01 □	
12 pF	-K5120-J01 ○	-K5120-J01 □	-K5120-J01 □	
15 pF	-K5150-J01 ○	-K5150-J01 □	-K5150-J01 □	
18 pF	-K5180-J01 ○	-K5180-J01 □	-K5180-J01 □	
22 pF	-K5220-J01 ○	-K5220-J01 □	-K5220-J01 □	
27 pF	-K5270-J01 ○	-K5270-J01 □	-K5270-J01 □	
33 pF	-K5330-J01 ○	-K5330-J01 □	-K5330-J01 □	
39 pF	-K5390-J01 ○	-K5390-J01 □	-K5390-J01 □	
47 pF	-K5470-J01 ○	-K5470-J01 □	-K5470-J01 □	
56 pF	-K5560-J01 ○	-K5560-J01 □	-K5560-J01 □	
68 pF	-K5680-J01 ○	-K5680-J01 □	-K5680-J01 □	
82 pF	-K5820-J01 ○	-K5820-J01 □	-K5820-J01 □	
100 pF	-K5101-J01 ○	-K5101-J01 □	-K5101-J01 □	
120 pF	-K5121-J01 ○	-K5121-J01 □	-K5121-J01 □	
150 pF	-K5151-J01 ○	-K5151-J01 □	-K5151-J01 □	
180 pF	-K5181-J01 ○	-K5181-J01 □	-K5181-J01 □	
220 pF	-K5221-J01 ○	-K5221-J01 □	-K5221-J01 □	
270 pF	-K5271-J01 ○	-K5271-J01 □	-K5271-J01 □	
330 pF	-K5331-J01 ○	-K5331-J01 □	-K5331-J01 □	
390 pF	-K5391-J01 ○	-K5391-J01 □	-K5391-J01 □	
470 pF	-K5471-J01 ○	-K5471-J01 □	-K5471-J01 □	
560 pF		-K5561-J01 □	-K5561-J01 □	
680 pF		-K5681-J01 □	-K5681-J01 □	
820 pF		-K5821-J01 □	-K5821-J01 □	

Chip thickness: □: 0,6 ± 0,1 mm ○: 0,8 ± 0,1 mm

1) E24 series available on request

2) The tables contain the ordering codes for the standard capacitance tolerance:
 C = ± 0,25 pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37930-K5010-C01
 For other available capacitance tolerances see page 15



Ordering codes for COG/NPO/CH, 50 Vdc, AgNiSn terminations, bulk case packing (cont'd)

Size	0603/1608	0805/2012	1206/3216	
C_R ¹⁾	Ordering code ²⁾			
	B37930-	B37940-	B37871-	
1,0 nF		-K5102-J01 □	-K5102-J01 □	
1,2 nF			-K5122-J01 □	
1,5 nF			-K5152-J01 □	
1,8 nF			-K5182-J01 □	
2,2 nF			-K5222-J01 □	

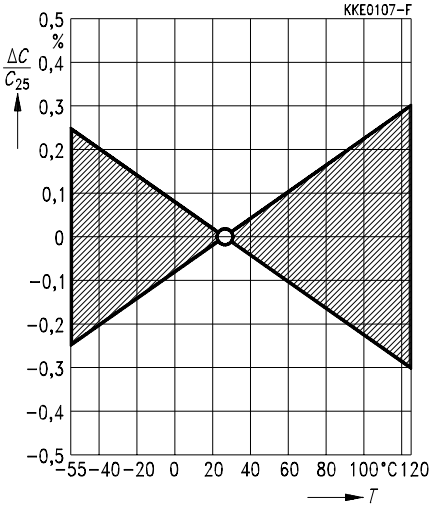
Chip thickness: □: 0,6 ± 0,1 mm

1) E24 series available on request

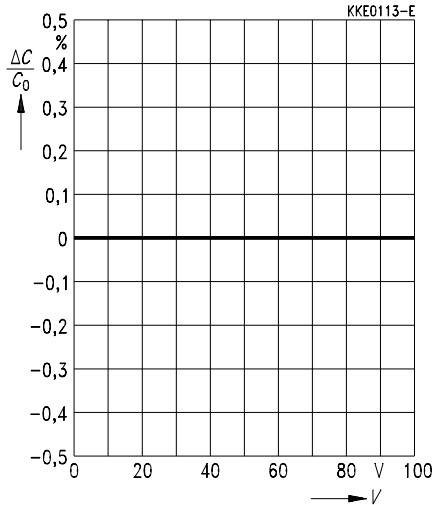
2) The tables contain the ordering codes for the standard capacitance tolerance:
 C = ± 0,25 pF for < 10 pF; J = ± 5 % for ≥ 10 pF. Example: B37871-K5102-J01
 For other available capacitance tolerances see page 15

Characteristics

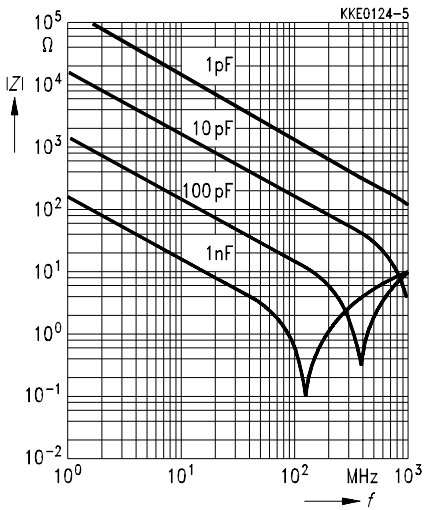
Capacitance change $\Delta C/C_{25}$ versus temperature T (tolerance range \square)



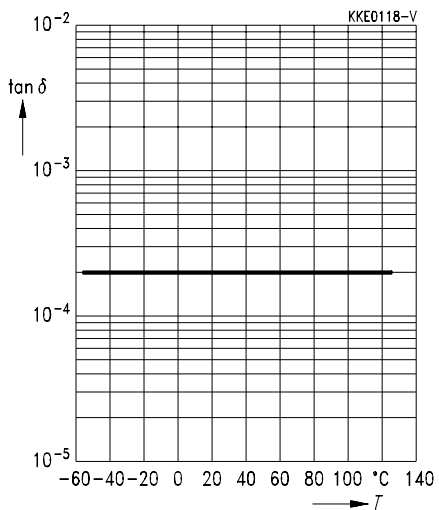
Capacitance change $\Delta C/C_0$ versus superimposed dc voltage V

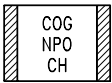


Impedance $|Z|$ versus frequency f

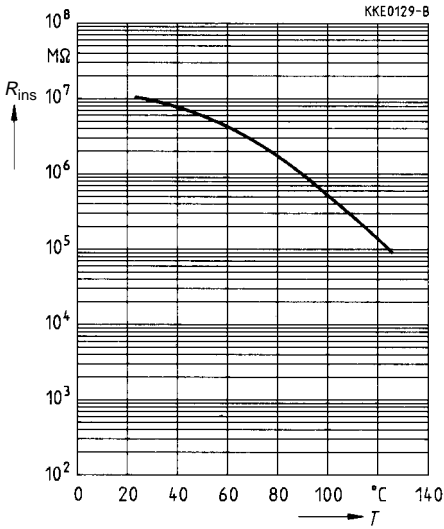


Dissipation factor $\tan \delta$ versus temperature T





Insulation resistance R_{ins} versus temperature T



Capacitance change $\Delta C/C_1$ versus time t

