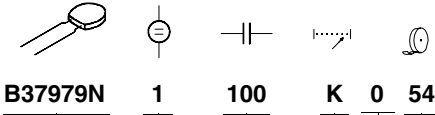


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**Ordering code system**

**Packaging**

51  $\triangleq$  cardboard tape, reel packing (360-mm reel)  
**54  $\triangleq$  Ammo packing (standard)**  
 00  $\triangleq$  bulk

**Internal coding**
**Capacitance tolerance**

J  $\triangleq$   $\pm$  5 %  
**K  $\triangleq$   $\pm$  10 % (standard for C0G)**  
 M  $\triangleq$   $\pm$  20 % (standard for X7R and Z5U (Y5U))

**Capacitance, coded**    101  $\triangleq$  10 · 10<sup>1</sup> pF = 100 pF  
 (example)                222  $\triangleq$  22 · 10<sup>2</sup> pF = 2,2 nF  
                                  473  $\triangleq$  47 · 10<sup>3</sup> pF = 47 nF

**Rated voltage**

Rated voltage [VDC]	50	100
Code	5	1

**Type and size**

With radial leads EIA standard	Temperature characteristic		
	C0G	X7R	Z5U (Y5U)
Lead spacing 2,5 mm 5,5 × 5,0 × 2,5 6,5 × 5,0 × 2,5	B37979N B37986N	B37981M B37987M	B37982N B37988N
Lead spacing 5,0 mm 5,5 × 5,0 × 2,5 6,5 × 5,0 × 2,5 9,0 × 7,5 × 2,5	B37979G B37986G —	B37981F B37987F B37984M	B37982G B37988G B37985N

**COG**
**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

**Termination**

- Parallel wire leads, iron-nickel, tinned
- Crimped leads
- Non-standard lead lengths on request

**Marking**

- Rated capacitance, tolerance, manufacturer's logo, ceramic material, voltage

**Delivery mode**

- Cardboard tape in Ammo packing (standard)
- Cardboard tape on 360-mm reel or bulk on request

**Electrical data**

Temperature characteristic		COG	
Climatic category (IEC 60068-1)		55/125/56	
Standard		EIA	
Dielectric		Class 1	
Rated voltage	$V_R$	50, 100	VDC
Test voltage	$V_{test}$	$2,5 \cdot V_R/5$ s	VDC
Capacitance range / E series	$C_R$	10 pF ... 10 nF (E12)	
Temperature coefficient		$0 \pm 30 \cdot 10^{-6}/K$	
Dissipation factor (limit value)	$\tan \delta$	$< 1,0 \cdot 10^{-3}$	
Insulation resistance <sup>1)</sup> at + 25 °C	$R_{ins}$	$> 10^5$	MΩ
Insulation resistance <sup>1)</sup> at +125 °C	$R_{ins}$	$> 10^4$	MΩ
Time constant <sup>1)</sup> at + 25 °C	$\tau$	$> 1000$	s
Time constant <sup>1)</sup> at +125 °C	$\tau$	$> 100$	s
Operating temperature range	$T_{op}$	-55 ... +125	°C
Ageing		none	

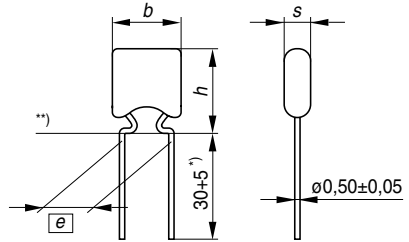
1) For  $C_R > 10$  nF the time constant  $\tau = C \cdot R_{ins}$  is given.



### Capacitance tolerances


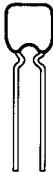
Code letter	J	K (standard)
Tolerance	±5%	±10%

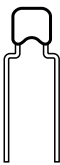
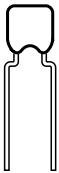
### Dimensional drawing



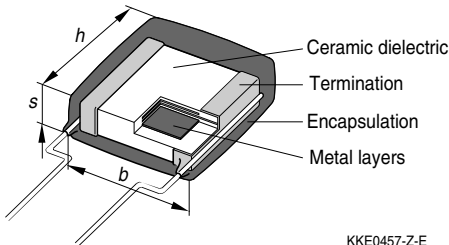
KKE0456-R-E

### Dimensions (mm)

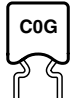
	Lead spacing $\square e \square = 2,5 + 0,6 / - 0,1$ mm	
Type	B37979N	B37986N
		
$h_{max}$	5,5	6,5
$b_{max}$	5,0	5,0
$s_{max}$	2,5	2,5

	Lead spacing $\square e \square = 5,0 + 0,6 / - 0,1$ mm	
Type	B37979G	B37986G
		
$h_{max}$	5,5	6,5
$b_{max}$	5,0	5,0
$s_{max}$	2,5	2,5

### Termination







KKE0457-Z-E




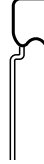


**Multilayer Ceramic Capacitors**  
**C0G**

**Product range leaded capacitors**

		C0G							
Lead spacing		2,5 mm				5,0 mm			
									
$h \times b \times s$ (mm)		5,5 × 5,0 × 2,5		6,5 × 5,0 × 2,5		5,5 × 5,0 × 2,5		6,5 × 5,0 × 2,5	
Type		B37979N		B37986N		B37979G		B37986G	
$V_R$ (VDC)		50		100		50		100	
$C_R$									
10 pF									
12 pF									
15 pF									
18 pF									
22 pF									
27 pF									
33 pF									
39 pF									
47 pF									
56 pF									
68 pF									
82 pF									
100 pF									
120 pF									
150 pF									
180 pF									
220 pF									
270 pF									
330 pF									
390 pF									
470 pF									
560 pF									
680 pF									
820 pF									


**Product range leaded capacitors**

		COG							
Lead spacing		2,5 mm				5,0 mm			
									
$h \times b \times s$ (mm)		5,5 × 5,0 × 2,5		6,5 × 5,0 × 2,5		5,5 × 5,0 × 2,5		6,5 × 5,0 × 2,5	
Type		B37979N		B37986N		B37979G		B37986G	
$V_R$ (VDC)		50		100		50		100	
$C_R$		50		100		50		100	
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									


**Multilayer Ceramic Capacitors**
**COG**
**Ordering codes and packing for COG, 50 VDC, lead spacing 2,5 mm**

C <sub>R</sub>	Ordering code <sup>1)</sup>	Ammo packing	Reel packing	Bulk
		** $\triangle$ 54	** $\triangle$ 51	** $\triangle$ 00
		pcs	pcs/reel	pcs

**B37979, 50 VDC, 5,5 × 5,0 × 2,5 mm**

100 pF	B37979N5101K0**	2500	2500	2000
120 pF	B37979N5121K0**	2500	2500	2000
150 pF	B37979N5151K0**	2500	2500	2000
180 pF	B37979N5181K0**	2500	2500	2000
220 pF	B37979N5221K0**	2500	2500	2000
270 pF	B37979N5271K0**	2500	2500	2000
330 pF	B37979N5331K0**	2500	2500	2000
390 pF	B37979N5391K0**	2500	2500	2000
470 pF	B37979N5471K0**	2500	2500	2000
560 pF	B37979N5561K0**	2500	2500	2000
680 pF	B37979N5681K0**	2500	2500	2000
820 pF	B37979N5821K0**	2500	2500	2000
1,0 nF	B37979N5102K0**	2500	2500	2000
1,2 nF	B37979N5122K0**	2500	2500	2000
1,5 nF	B37979N5152K0**	2500	2500	2000
1,8 nF	B37979N5182K0**	2500	2500	2000
2,2 nF	B37979N5222K0**	2500	2500	2000

**B37986, 50 VDC, 6,5 × 5,0 × 2,5 mm**

2,7 nF	B37986N5272K0**	2500	2500	2000
3,3 nF	B37986N5332K0**	2500	2500	2000
3,9 nF	B37986N5392K0**	2500	2500	2000
4,7 nF	B37986N5472K0**	2500	2500	2000
5,6 nF	B37986N5562K0**	2500	2500	2000
6,8 nF	B37986N5682K0**	2500	2500	2000
8,2 nF	B37986N5822K0**	2500	2500	2000
10 nF	B37986N5103K0**	2500	2500	2000

1) The table contains the ordering codes for the standard capacitance tolerance.  
For other available capacitance tolerances see page 154.


**Ordering codes and packing for C0G, 50 VDC, lead spacing 5,0 mm**

C <sub>R</sub>	Ordering code <sup>1)</sup>	Ammo packing	Reel packing	Bulk
		** $\Delta$ 54	** $\Delta$ 51	** $\Delta$ 00
		pcs	pcs/reel	pcs

**B37979, 50 VDC, 5,5 × 5,0 × 2,5 mm**

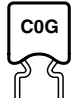
100 pF	B37979G5101K0**	2500	2500	2000
120 pF	B37979G5121K0**	2500	2500	2000
150 pF	B37979G5151K0**	2500	2500	2000
180 pF	B37979G5181K0**	2500	2500	2000
220 pF	B37979G5221K0**	2500	2500	2000
270 pF	B37979G5271K0**	2500	2500	2000
330 pF	B37979G5331K0**	2500	2500	2000
390 pF	B37979G5391K0**	2500	2500	2000
470 pF	B37979G5471K0**	2500	2500	2000
560 pF	B37979G5561K0**	2500	2500	2000
680 pF	B37979G5681K0**	2500	2500	2000
820 pF	B37979G5821K0**	2500	2500	2000
1,0 nF	B37979G5102K0**	2500	2500	2000
1,2 nF	B37979G5122K0**	2500	2500	2000
1,5 nF	B37979G5152K0**	2500	2500	2000
1,8 nF	B37979G5182K0**	2500	2500	2000
2,2 nF	B37979G5222K0**	2500	2500	2000

**B37986, 50 VDC, 6,5 × 5,0 × 2,5 mm**

2,7 nF	B37986G5272K0**	2500	2500	2000
3,3 nF	B37986G5332K0**	2500	2500	2000
3,9 nF	B37986G5392K0**	2500	2500	2000
4,7 nF	B37986G5472K0**	2500	2500	2000
5,6 nF	B37986G5562K0**	2500	2500	2000
6,8 nF	B37986G5682K0**	2500	2500	2000
8,2 nF	B37986G5822K0**	2500	2500	2000
10 nF	B37986G5103K0**	2500	2500	2000

1) The table contains the ordering codes for the standard capacitance tolerance.  
For other available capacitance tolerances see page 154.




**Multilayer Ceramic Capacitors**
**COG**
**Ordering codes and packing for COG, 100 VDC, lead spacing 2,5 mm**

C <sub>R</sub>	Ordering code <sup>1)</sup>	Ammo packing	Reel packing	Bulk
		** $\triangle$ 54	** $\triangle$ 51	** $\triangle$ 00
		pcs	pcs/reel	pcs

**B37979, 100 VDC, 5,5 × 5,0 × 2,5 mm**

10 pF	B37979N1100K0**	2500	2500	2000
12 pF	B37979N1120K0**	2500	2500	2000
15 pF	B37979N1150K0**	2500	2500	2000
18 pF	B37979N1180K0**	2500	2500	2000
22 pF	B37979N1220K0**	2500	2500	2000
27 pF	B37979N1270K0**	2500	2500	2000
33 pF	B37979N1330K0**	2500	2500	2000
39 pF	B37979N1390K0**	2500	2500	2000
47 pF	B37979N1470K0**	2500	2500	2000
56 pF	B37979N1560K0**	2500	2500	2000
68 pF	B37979N1680K0**	2500	2500	2000
82 pF	B37979N1820K0**	2500	2500	2000
100 pF	B37979N1101K0**	2500	2500	2000
120 pF	B37979N1121K0**	2500	2500	2000
150 pF	B37979N1151K0**	2500	2500	2000
180 pF	B37979N1181K0**	2500	2500	2000
220 pF	B37979N1221K0**	2500	2500	2000
270 pF	B37979N1271K0**	2500	2500	2000
330 pF	B37979N1331K0**	2500	2500	2000
390 pF	B37979N1391K0**	2500	2500	2000
470 pF	B37979N1471K0**	2500	2500	2000
560 pF	B37979N1561K0**	2500	2500	2000
680 pF	B37979N1681K0**	2500	2500	2000
820 pF	B37979N1821K0**	2500	2500	2000
1,0 nF	B37979N1102K0**	2500	2500	2000

**B37986, 100 VDC, 6,5 × 5,0 × 2,5 mm**

1,2 nF	B37986N1122K0**	2500	2500	2000
1,5 nF	B37986N1152K0**	2500	2500	2000
1,8 nF	B37986N1182K0**	2500	2500	2000
2,2 nF	B37986N1222K0**	2500	2500	2000

1) The table contains the ordering codes for the standard capacitance tolerance.  
For other available capacitance tolerances see page 154.



## Ordering codes and packing for C0G, 100 VDC, lead spacing 5,0 mm

C <sub>R</sub>	Ordering code <sup>1)</sup>	Ammo packing	Reel packing	Bulk
		** $\triangle$ 54	** $\triangle$ 51	** $\triangle$ 00
		pcs	pcs/reel	pcs

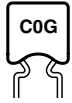
**B37979, 100 VDC, 5,5 × 5,0 × 2,5 mm**

10 pF	B37979G1100K0**	2500	2500	2000
12 pF	B37979G1120K0**	2500	2500	2000
15 pF	B37979G1150K0**	2500	2500	2000
18 pF	B37979G1180K0**	2500	2500	2000
22 pF	B37979G1220K0**	2500	2500	2000
27 pF	B37979G1270K0**	2500	2500	2000
33 pF	B37979G1330K0**	2500	2500	2000
39 pF	B37979G1390K0**	2500	2500	2000
47 pF	B37979G1470K0**	2500	2500	2000
56 pF	B37979G1560K0**	2500	2500	2000
68 pF	B37979G1680K0**	2500	2500	2000
82 pF	B37979G1820K0**	2500	2500	2000
100 pF	B37979G1101K0**	2500	2500	2000
120 pF	B37979G1121K0**	2500	2500	2000
150 pF	B37979G1151K0**	2500	2500	2000
180 pF	B37979G1181K0**	2500	2500	2000
220 pF	B37979G1221K0**	2500	2500	2000
270 pF	B37979G1271K0**	2500	2500	2000
330 pF	B37979G1331K0**	2500	2500	2000
390 pF	B37979G1391K0**	2500	2500	2000
470 pF	B37979G1471K0**	2500	2500	2000
560 pF	B37979G1561K0**	2500	2500	2000
680 pF	B37979G1681K0**	2500	2500	2000
820 pF	B37979G1821K0**	2500	2500	2000
1,0 nF	B37979G1102K0**	2500	2500	2000

**B37986, 100 VDC, 6,5 × 5,0 × 2,5 mm**

1,2 nF	B37986G1122K0**	2500	2500	2000
1,5 nF	B37986G1152K0**	2500	2500	2000
1,8 nF	B37986G1182K0**	2500	2500	2000
2,2 nF	B37986G1222K0**	2500	2500	2000

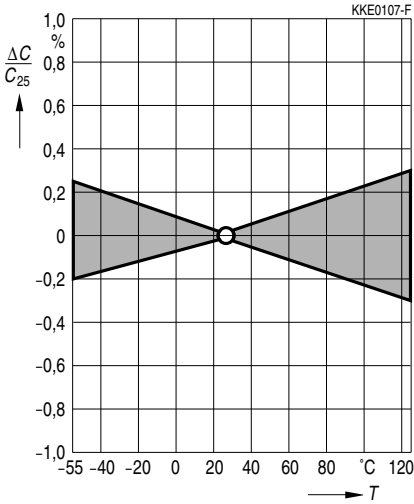
1) The table contains the ordering codes for the standard capacitance tolerance.  
For other available capacitance tolerances see page 154.



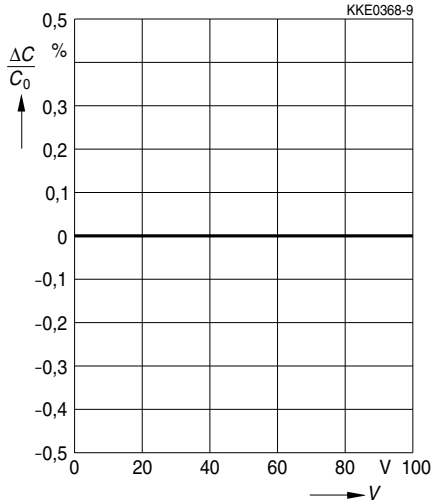
**Multilayer Ceramic Capacitors**  
**COG**

**Typical characteristics**

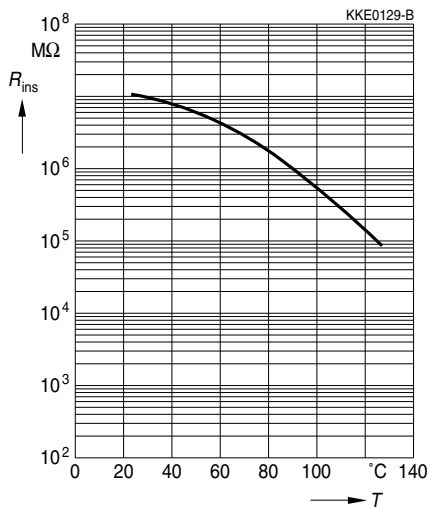
Capacitance change  $\Delta C/C_{25}$  versus temperature  $T$  (tolerance range  $\square$ )



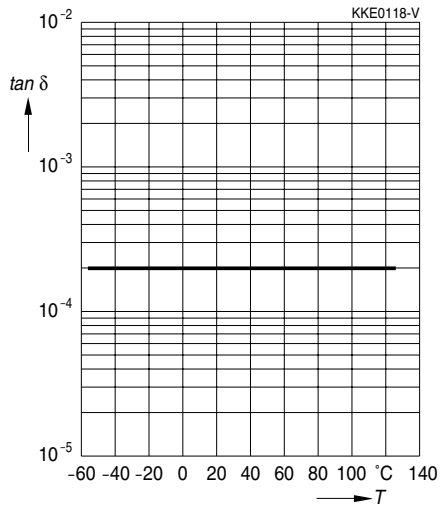
Capacitance change  $\Delta C/C_0$  versus superimposed DC voltage  $V$



Insulation resistance  $R_{ins}$  versus temperature  $T$



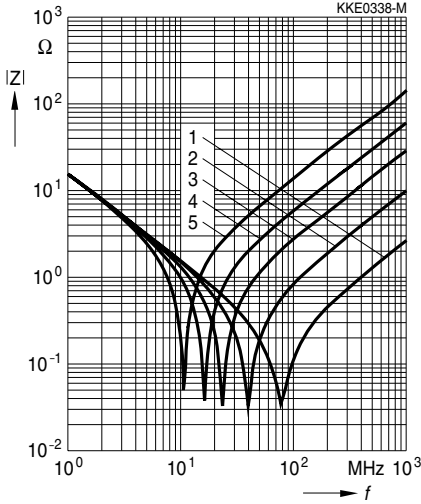
Dissipation factor  $\tan \delta$  versus temperature  $T$





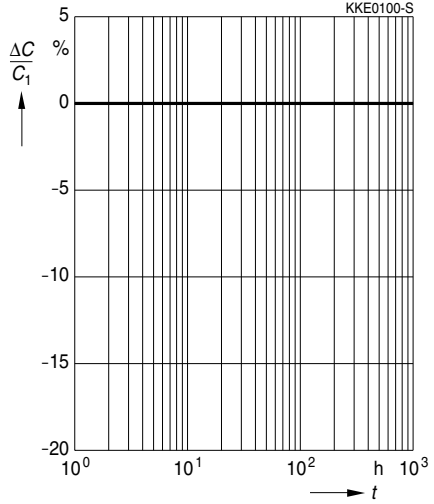
**Typical characteristics**

Impedance  $|Z|$  versus frequency  $f$



- 1: Chip
- 2: 1,5 mm lead length
- 3: 5,0 mm lead length
- 4: 10,0 mm lead length
- 5: 20,0 mm lead length

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



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