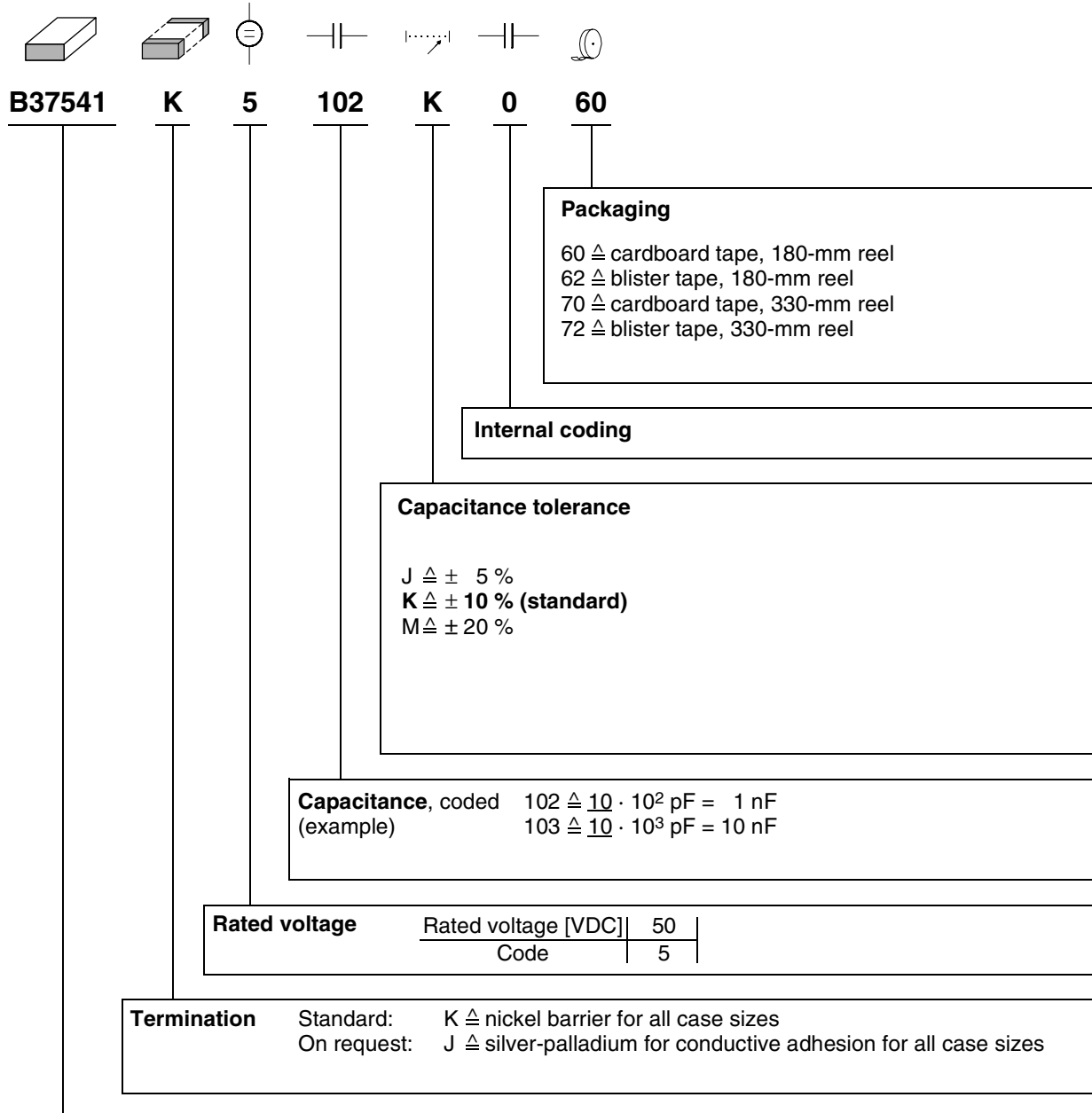


Ordering code system



Type and size	
Chip size (inch / mm)	Temperature characteristic X8R
0603 / 1608	B37531
0805 / 2012	B37541
1206 / 3216	B37472
1210 / 3225	B37550

Features

- Wide temperature range up to 150 °C
- High volumetric efficiency
- Non-linear capacitance change
- High insulation resistance
- High pulse strength

Applications

- Automotive
- Blocking
- Coupling
- Decoupling
- Interference suppression

Termination

- For soldering: Nickel-barrier terminations (Ni)

Options

- Alternative capacitance tolerances available on request

Delivery mode

- Cardboard and blister tape (blister tape for chip thickness $\geq 1,2 \pm 0,1$ mm and case size 1210) 180-mm and 330-mm reel available

Electrical data

Temperature characteristic		X8R	
Climatic category (IEC 60068-1)		55/150/56	
Standard		EIA	
Dielectric		Class 2	
Rated voltage ¹⁾	V_R	50	VDC
Test voltage	V_{test}	$2,5 \cdot V_R/5$ s	VDC
Capacitance range / E series	C_R	100 pF ... 150 nF (E6)	
Max. relative capacitance change	$\Delta C/C$	± 15	%
Dissipation factor (limit value)	$\tan \delta$	$< 25 \cdot 10^{-3}$	
Insulation resistance ²⁾ at + 25 °C	R_{ins}	$> 10^5$	MΩ
Insulation resistance ²⁾ at +125 °C	R_{ins}	$> 10^4$	MΩ
Time constant ²⁾ at + 25 °C	τ	> 1000	s
Time constant ²⁾ at +125 °C	τ	> 100	s
Operating temperature range	T_{op}	-55 ... +150	°C
Ageing ³⁾		yes	

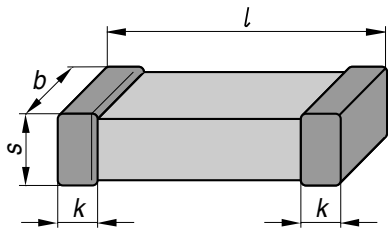
1) Note: No operation on AC line.

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

3) Refer to chapter "General Technical Information", page 197.


Capacitance tolerances

Code letter	J	K (standard)	M
Tolerance	±5%	±10%	±20%

Dimensional drawing


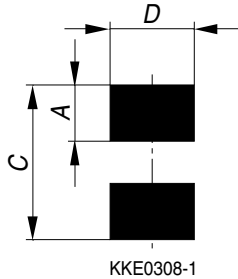
KKE0329-N

Dimensions (mm)

Case size (inch) (mm)	0603 1608	0805 2012	1206 3216	1210 3225
<i>l</i>	1,6 ± 0,15	2,0 ± 0,20	3,2 ± 0,20	3,2 ± 0,30
<i>b</i>	0,8 ± 0,10	1,25 ± 0,15	1,6 ± 0,15	2,5 ± 0,30
<i>s</i>	0,8 ± 0,10	1,30 max.	1,30 max.	1,30 max.
<i>k</i>	0,1 – 0,4	0,13 – 0,75	0,25 – 0,75	0,25 – 0,75

Tolerances to CECC 32101-801

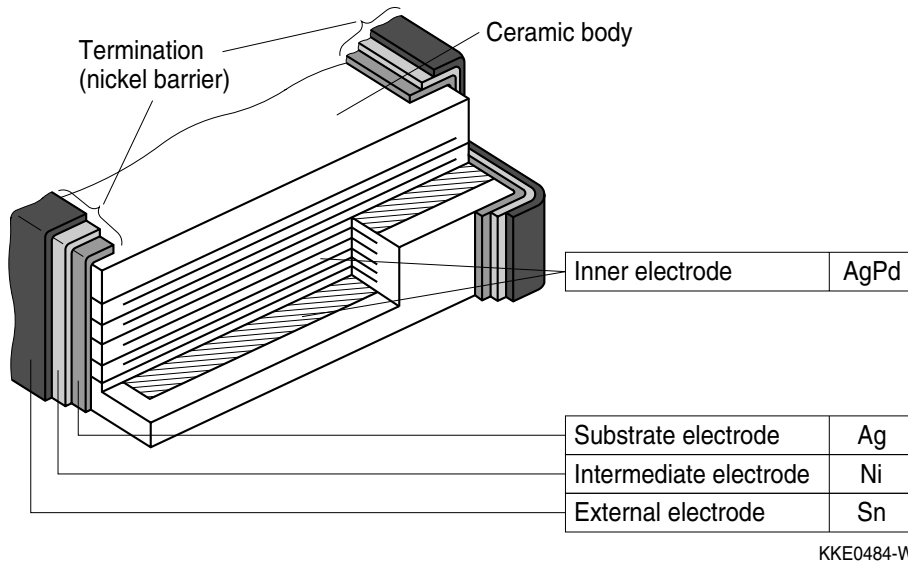
Recommended solder pad



Maximum dimensions (mm)

Case size (inch/mm)	Type	A	C	D
0603/1608	single chip	1,0	3,0	1,0
0805/2012	single chip	1,2	3,4	1,3
1206/3216	single chip	1,2	4,5	1,8
1210/3225	single chip	1,2	4,5	2,8

Termination




Product range chip capacitors

		X8R							
Size ¹⁾		0603		0805		1206		1210	
inch		1608		2012		3216		3225	
mm									
Type		B37531		B37541		B37472		B37550	
V_R (VDC)		50		50		50		50	
C_R									
100	pF								
150	pF								
220	pF								
330	pF								
470	pF								
680	pF								
1,0	nF								
1,5	nF								
2,2	nF								
3,3	nF								
4,7	nF								
6,8	nF								
10	nF								
15	nF								
22	nF								
33	nF								
47	nF								
68	nF								
100	nF								
150	nF								

1) $l \times b$ (inch) / $l \times b$ (mm)

Ordering codes and packing for X8R, 50 VDC, nickel-barrier terminations

$C_R^{1)}$	Ordering code ²⁾	Chip thickness mm	Cardboard tape, Ø 180-mm reel	Cardboard tape, Ø 330-mm reel
			** \triangleq 60	** \triangleq 70
			pcs/reel	pcs/reel

Case size 0603, 50 VDC

100 pF	B37531K5101K0**	0,8 ± 0,1	4000	16000
150 pF	B37531K5151K0**	0,8 ± 0,1	4000	16000
220 pF	B37531K5221K0**	0,8 ± 0,1	4000	16000
330 pF	B37531K5331K0**	0,8 ± 0,1	4000	16000
470 pF	B37531K5471K0**	0,8 ± 0,1	4000	16000
680 pF	B37531K5681K0**	0,8 ± 0,1	4000	16000
1,0 nF	B37531K5102K0**	0,8 ± 0,1	4000	16000
1,5 nF	B37531K5152K0**	0,8 ± 0,1	4000	16000
2,2 nF	B37531K5222K0**	0,8 ± 0,1	4000	16000
3,3 nF	B37531K5332K0**	0,8 ± 0,1	4000	16000
4,7 nF	B37531K5472K0**	0,8 ± 0,1	4000	16000

Case size 0805, 50 VDC

470 pF	B37541K5471K0**	0,6 ± 0,1	5000	20000
680 pF	B37541K5681K0**	0,6 ± 0,1	5000	20000
1,0 nF	B37541K5102K0**	0,6 ± 0,1	5000	20000
1,5 nF	B37541K5152K0**	0,6 ± 0,1	5000	20000
2,2 nF	B37541K5222K0**	0,6 ± 0,1	5000	20000
3,3 nF	B37541K5332K0**	0,6 ± 0,1	5000	20000
4,7 nF	B37541K5472K0**	0,6 ± 0,1	5000	20000
6,8 nF	B37541K5682K0**	0,6 ± 0,1	5000	20000
10 nF	B37541K5103K0**	0,6 ± 0,1	5000	20000
15 nF	B37541K5153K0**	0,6 ± 0,1	5000	20000
22 nF	B37541K5223K0**	0,6 ± 0,1	5000	20000

1) Other capacitance values on request.

2) The table contains the ordering codes for the standard capacitance tolerance.
For other available capacitance tolerances see page 72.


Ordering codes and packing for X8R, 50 VDC, nickel-barrier terminations

$C_R^{1)}$	Ordering code ²⁾	Chip thickness mm	Cardboard tape, Ø 180-mm reel	Cardboard tape, Ø 330-mm reel
			** \triangleq 60	** \triangleq 70
			pcs/reel	pcs/reel

Case size 1206, 50 VDC

1,0 nF	B37472K5102K0**	0,8 ± 0,1	4000	16000
1,5 nF	B37472K5152K0**	0,8 ± 0,1	4000	16000
2,2 nF	B37472K5222K0**	0,8 ± 0,1	4000	16000
3,3 nF	B37472K5332K0**	0,8 ± 0,1	4000	16000
4,7 nF	B37472K5472K0**	0,8 ± 0,1	4000	16000
6,8 nF	B37472K5682K0**	0,8 ± 0,1	4000	16000
10 nF	B37472K5103K0**	0,8 ± 0,1	4000	16000
15 nF	B37472K5153K0**	0,8 ± 0,1	4000	16000
22 nF	B37472K5223K0**	0,8 ± 0,1	4000	16000
33 nF	B37472K5333K0**	0,8 ± 0,1	4000	16000
47 nF	B37472K5473K0**	0,8 ± 0,1	4000	16000
68 nF	B37472K5683K0**	1,2 ± 0,1	3000 ³⁾	12000 ⁴⁾
100 nF	B37472K5104K0**	1,2 ± 0,1	3000 ³⁾	12000 ⁴⁾
			Blister tape, Ø 180-mm reel	Blister tape, Ø 330-mm reel
			** \triangleq 62	** \triangleq 72
			pcs/reel	pcs/reel

Case size 1210, 50 VDC

10 nF	B37550K5103K0**	0,8 ± 0,1	4000	16000
15 nF	B37550K5153K0**	0,8 ± 0,1	4000	16000
22 nF	B37550K5223K0**	0,8 ± 0,1	4000	16000
33 nF	B37550K5333K0**	0,8 ± 0,1	4000	16000
47 nF	B37550K5473K0**	0,8 ± 0,1	4000	16000
68 nF	B37550K5683K0**	0,8 ± 0,1	4000	16000
100 nF	B37550K5104K0**	0,8 ± 0,1	4000	16000
150 nF	B37550K5154K0**	1,2 ± 0,1	3000	12000

1) Other capacitance values on request.

2) The table contains the ordering codes for the standard capacitance tolerance.

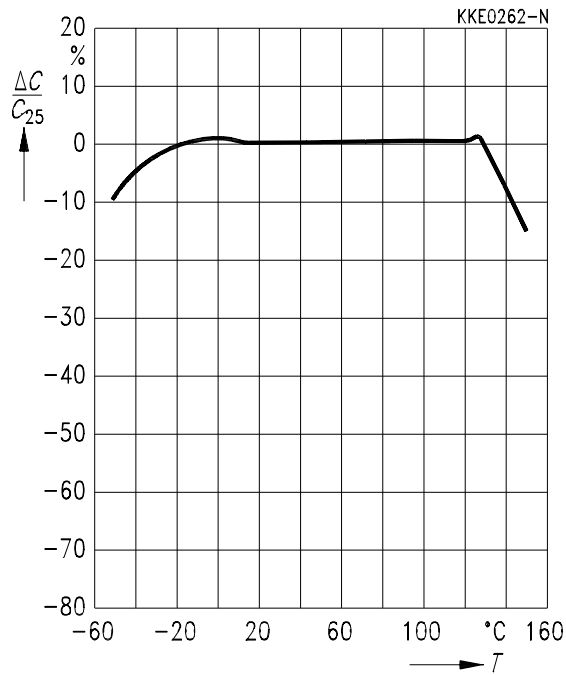
For other available capacitance tolerances see page 72.

3) Blister tape, 180-mm reel, ordering code ** \triangleq 62

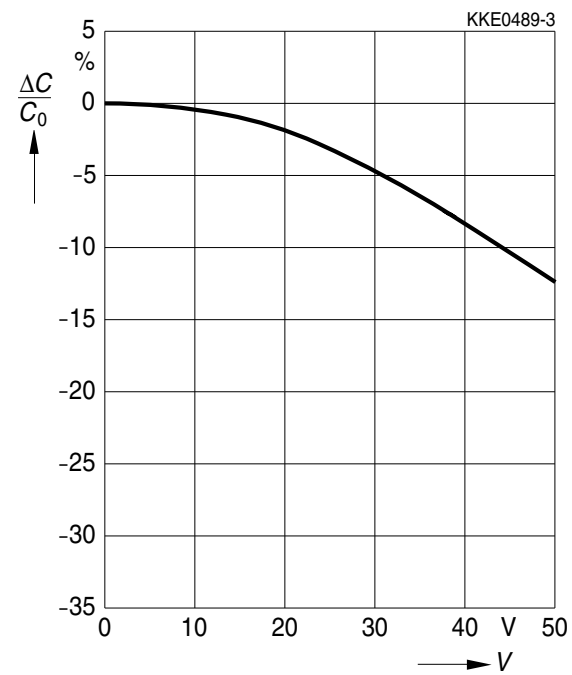
4) Blister tape, 330-mm reel, ordering code ** \triangleq 72

Typical characteristics

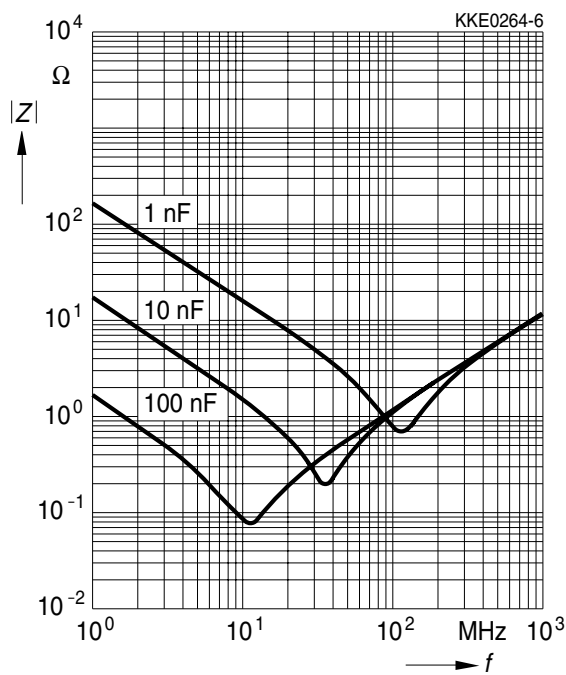
Capacitance change $\Delta C/C_{25}$ versus temperature T



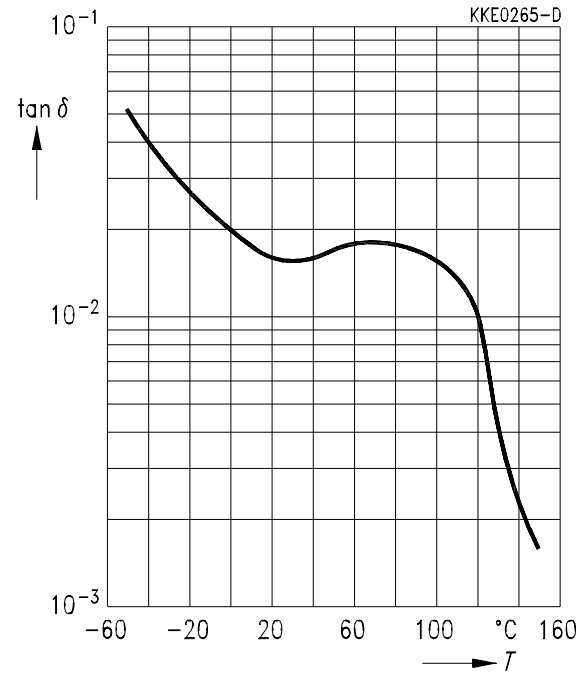
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Impedance $|Z|$ versus frequency f

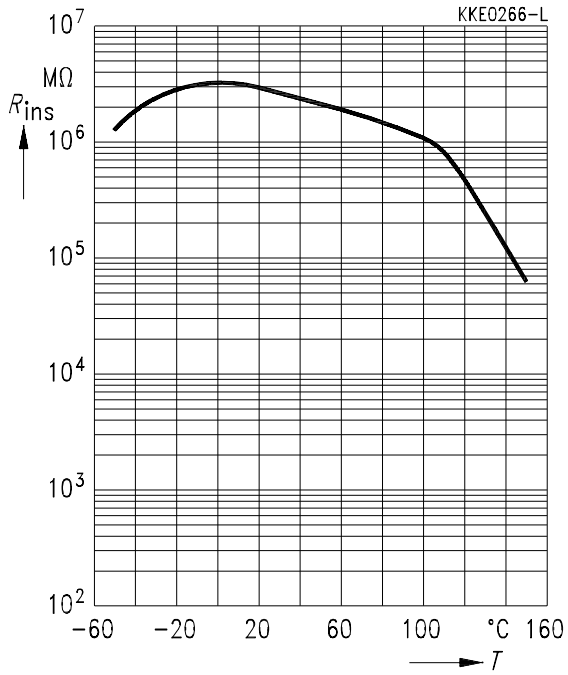


Dissipation factor $\tan \delta$ versus temperature T

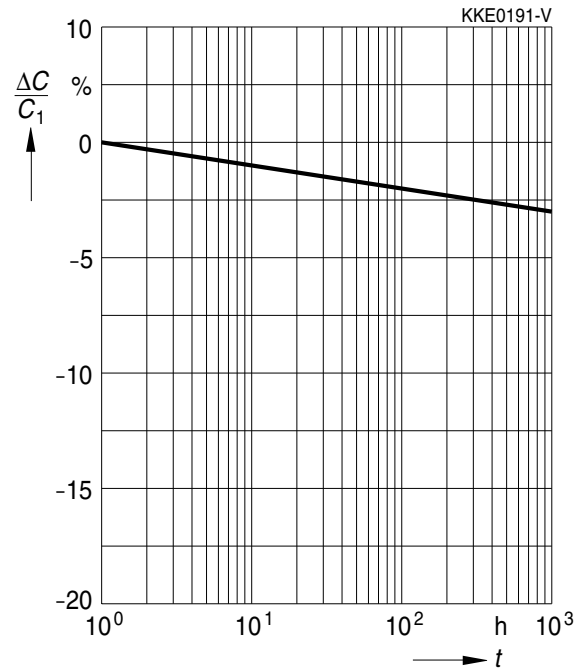


Typical characteristics

Insulation resistance R_{ins} versus temperature T



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



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