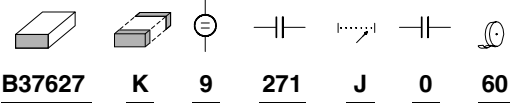


Ordering code system



Packaging
 60 \triangle cardboard tape, 180-mm reel
 70 \triangle cardboard tape, 330-mm reel

Internal coding

Capacitance tolerance
J \triangle \pm 5% (standard)
K \triangle \pm 10%

Capacitance, coded 102 \triangle 10 · 10² pF = 1 nF
 (example) 103 \triangle 10 · 10³ pF = 10 nF
 333 \triangle 33 · 10³ pF = 33 nF

Rated voltage	Rated voltage [VDC]	16
	Code	9

Termination Standard: K \triangle nickel barrier

Type and size	
Chip size (inch / mm)	Temperature characteristic HC1
0402 / 1005 0603 / 1608 0805 / 2012	B37627 B37637 B37647

HC1
Preliminary Data
Features

- COG equivalent
- Class 1 characteristic with high capacitance values (up to 33 nF for case size 0805)
- No ageing effects
- No voltage dependence
- No piezoelectric effects
- Maximum relative capacitance change versus temperature within $\pm 4\%$


Applications

- Loop filters
- Telecom (mobile phones, Bluetooth, ADSL/XDSL)
- Keyless entry systems
- Set top boxes

Termination

- For soldering: Nickel-barrier terminations (Ni)

Options

- Alternative capacitance tolerances available on request

Delivery mode

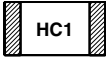
- Cardboard tape, 180-mm and 330-mm reel available

Note: Production ramp up end of 2003, all capacitance values on request

Electrical data

Temperature characteristic		HC1	
Climatic category (IEC 60068-1)		25/85/56	
Standard		EIA	
Dielectric		Class 1	
Rated voltage	V_R	16	VDC
Test voltage	V_{test}	$2,5 \cdot V_R/5 s$	VDC
Capacitance range / E series	C_R	270 pF ... 33 nF (E6)	
Max. relative capacitance change	$\Delta C/C$	± 4	%
Dissipation factor (limit value)	$\tan \delta$	$< 1,0 \cdot 10^{-3}$	
Insulation resistance ¹⁾ at +25 °C	R_{ins}	$> 10^5$	M Ω
Insulation resistance ¹⁾ at +85 °C	R_{ins}	$> 10^4$	M Ω
Time constant ¹⁾ at +25 °C	τ	> 1000	s
Time constant ¹⁾ at +85 °C	τ	> 100	s
Operating temperature range	T_{op}	-25 ... +85	°C
Ageing		none	

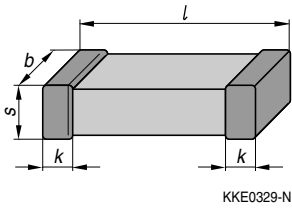
1) For $C_R > 10$ nF the time constant $\tau = C \cdot R_{ins}$ is given.



Capacitance tolerances

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

Dimensional drawing

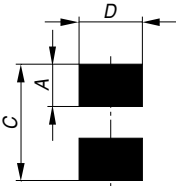


Dimensions (mm)

Case size (inch) (mm)	0402 1005	0603 1608	0805 2012
<i>l</i>	1,0 ± 0,10	1,6 ± 0,15	2,0 ± 0,20
<i>b</i>	0,5 ± 0,05	0,8 ± 0,10	1,25 ± 0,15
<i>s</i>	0,5 ± 0,05	0,8 ± 0,10	0,90 max.
<i>k</i>	0,1 – 0,4	0,1 – 0,4	0,13 – 0,75

Tolerances to CECC 32101-801

Recommended solder pad

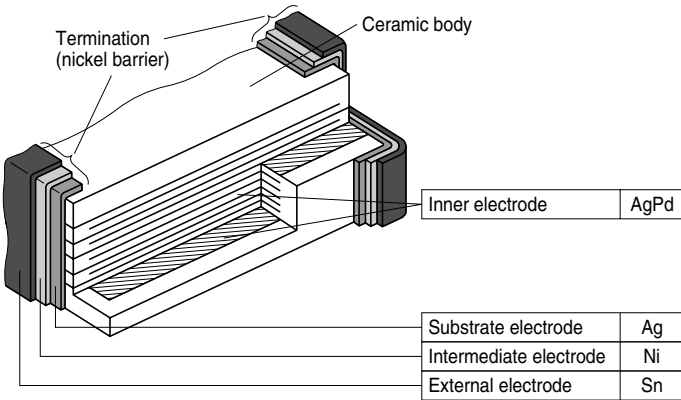


KKE0308-1

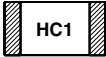
Maximum dimensions (mm)

Case size	(inch/mm)	Type	A	C	D
	0402/1005	single chip	0,6	1,7	0,6
	0603/1608	single chip	1,0	3,0	1,0
	0805/2012	single chip	1,2	3,4	1,3

Termination



KKE0484-W



Product range chip capacitors

		HC1					
Size ¹⁾		0402		0603		0805	
inch		1005		1608		2012	
mm							
Type		B37627		B37637		B37647	
V_R (VDC)		16		16		16	
C_R							
270	pF						
330	pF						
470	pF						
680	pF						
1,0	nF						
1,5	nF						
2,2	nF						
2,7	nF						
3,3	nF						
4,7	nF						
6,8	nF						
10	nF						
15	nF						
22	nF						
33	nF						

Production ramp up end of 2003, all capacitance values on request.

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

Multilayer Ceramic Capacitors
HC1; 0402, 0603, 0805 and 1206
HC1
Ordering codes and packing for HC1 capacitors, 16 VDC, nickel-barrier terminations

C_R	Ordering code ¹⁾	Chip thickness mm	Cardboard tape, ∅ 180-mm reel	Cardboard tape, ∅ 330-mm reel
			** \triangle 60	** \triangle 70
			pcs/reel	pcs/reel

Case size 0402, 16 VDC

270 pF	B37627K9271J0**	0,5 ± 0,05	10000	50000
330 pF	B37627K9331J0**	0,5 ± 0,05	10000	50000
470 pF	B37627K9471J0**	0,5 ± 0,05	10000	50000
680 pF	B37627K9681J0**	0,5 ± 0,05	10000	50000
1,0 nF	B37627K9102J0**	0,5 ± 0,05	10000	50000

Case size 0603, 16 VDC

1,0 nF	B37637K9102J0**	0,8 ± 0,1	4000	16000
1,5 nF	B37637K9152J0**	0,8 ± 0,1	4000	16000
2,2 nF	B37637K9222J0**	0,8 ± 0,1	4000	16000
2,7 nF	B37637K9272J0**	0,8 ± 0,1	4000	16000
3,3 nF	B37637K9332J0**	0,8 ± 0,1	4000	16000
4,7 nF	B37637K9472J0**	0,8 ± 0,1	4000	16000
6,8 nF	B37637K9682J0**	0,8 ± 0,1	4000	16000
10 nF	B37637K9103J0**	0,8 ± 0,1	4000	16000

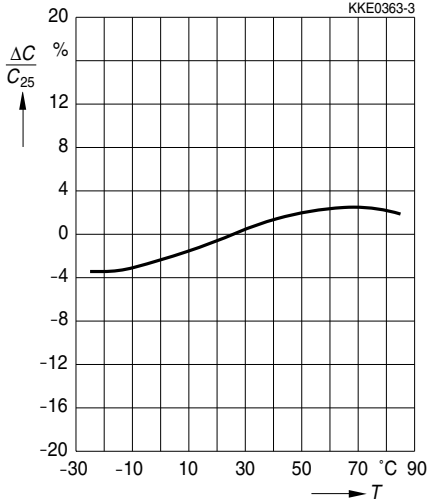
Case size 0805, 16 VDC

10 nF	B37647K9103J0**	0,8 ± 0,1	4000	16000
15 nF	B37647K9153J0**	0,8 ± 0,1	4000	16000
22 nF	B37647K9223J0**	0,8 ± 0,1	4000	16000
33 nF	B37647K9333J0**	0,8 ± 0,1	4000	16000

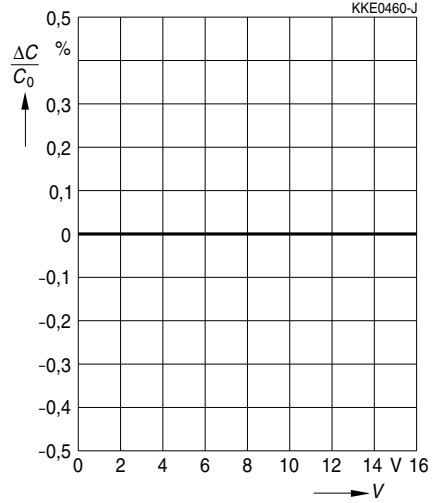
1) The table contains the ordering codes for the standard capacitance tolerance.
For other available capacitance tolerances see page 144.

Typical characteristics

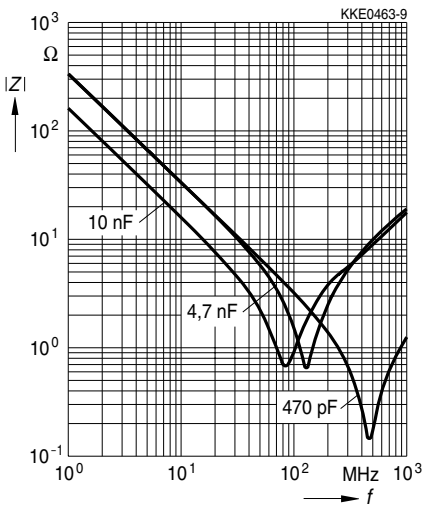
Capacitance change $\Delta C/C_{25}$ versus temperature T



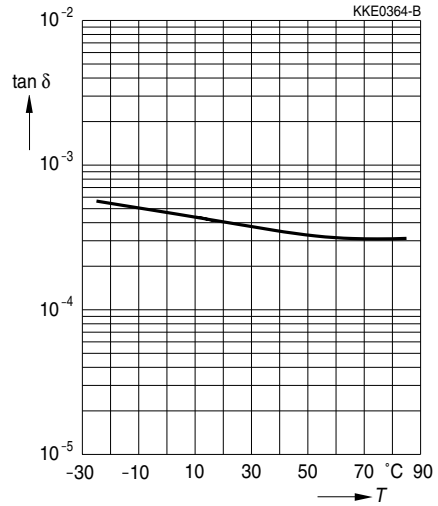
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Impedance $|Z|$ versus frequency f

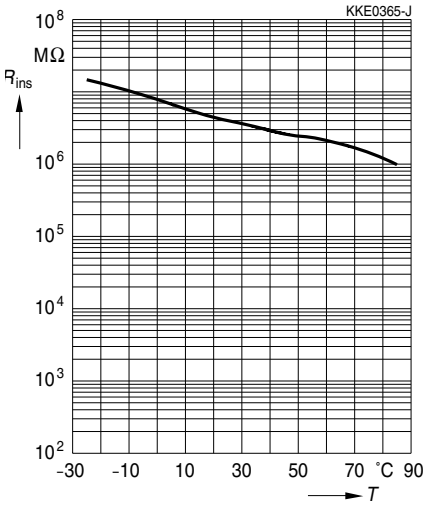


Dissipation factor $\tan \delta$ versus temperature T



Typical characteristics

Insulation resistance R_{ins} versus temperature T



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