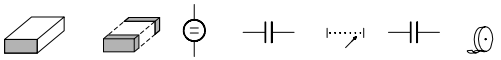
Ordering code system



B37627 K 9 271 J 0 60

Packaging

60 ≙ cardboard tape, 180-mm reel
70 ≙ cardboard tape, 330-mm reel

Internal coding

Capacitance tolerance

J ≙ ± 5 % (standard)
K ≙ ± 10 %

Capacitance, coded (example)

102 ≙ 10 · 10^2 pF = 1 nF
103 ≙ 10 · 10^3 pF = 10 nF
333 ≙ 33 · 10^3 pF = 33 nF

Rated voltage

Rated voltage [VDC]	16
Code	9

Termination Standard: K ≙ 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

- C0G 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 ±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

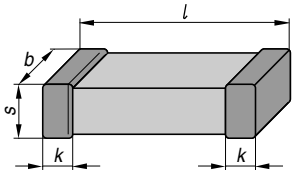
Temperature characteristic		HC1	
Climatic category (IEC 60068-1)		25/85/56	
Standard		EIA	
Dielectric		Class 1	
Rated voltage	V_R	16	VDC
Test voltage	V_{test}	2,5 · V_R/5 s	VDC
Capacitance range / E series	C_R	270 pF … 33 nF (E6)	
Max. relative capacitance change	$\Delta C/C$	±4	%
Dissipation factor (limit value)	tan δ	$< 1{,}0 \cdot 10^{-3}$	
Insulation resistance[1)] at +25 °C	R_{ins}	$> 10^5$	MΩ
Insulation resistance[1)] at +85 °C	R_{ins}	$> 10^4$	MΩ
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



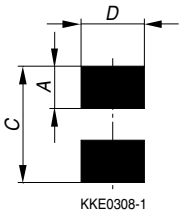
KKE0329-N

Dimensions (mm)

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

Tolerances to CECC 32101-801

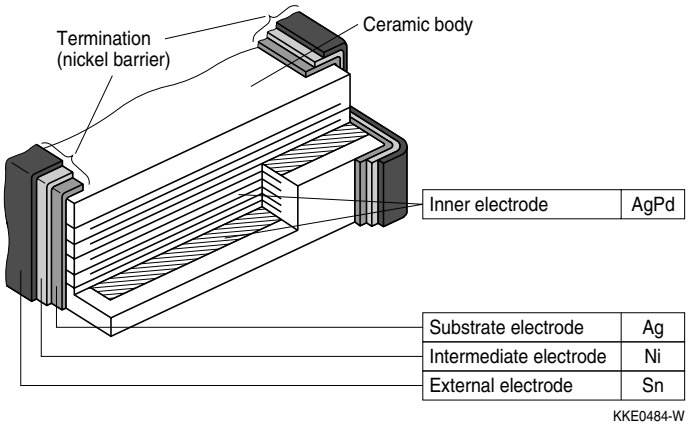
Recommended solder pad



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



Product range chip capacitors

	HC1					
Size[1)] **inch** mm	**0402** 1005		**0603** 1608		**0805** 2012	
Type	B37627		B37637		B37647	
V_R (VDC) / C_R	16		16		16	
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)

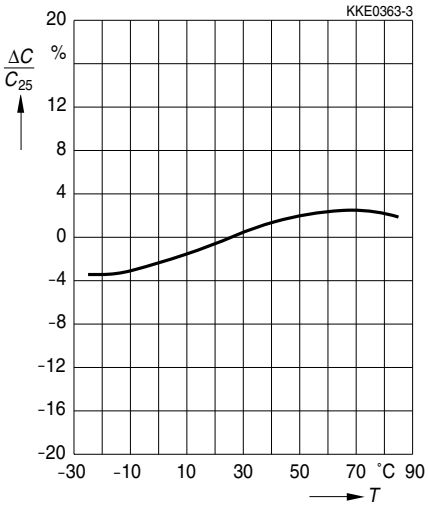
Ordering codes and packing for HC1 capacitors, 16 VDC, nickel-barrier terminations

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

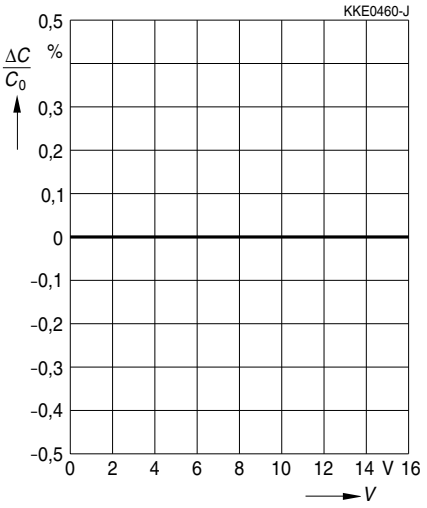
1) The table contains the ordering codes for the standard capacitance tolerance.
For other available capacitance tolerances see page 144.

Typical characteristics

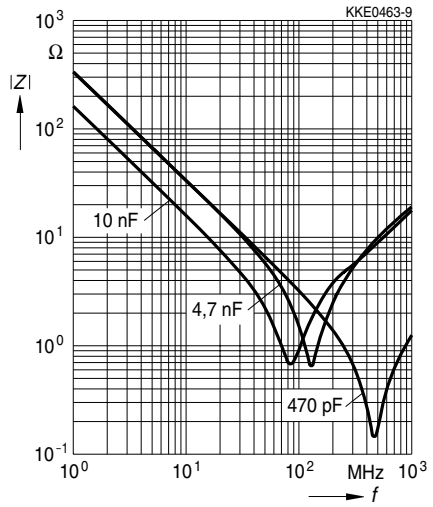
Capacitance change $\Delta C/C_{25}$ versus temperature T



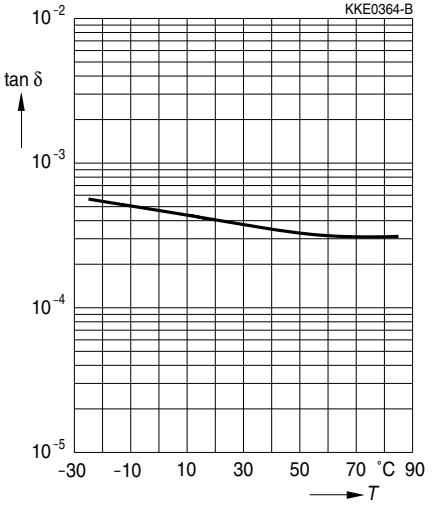
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Impedance $|Z|$ versus frequency f

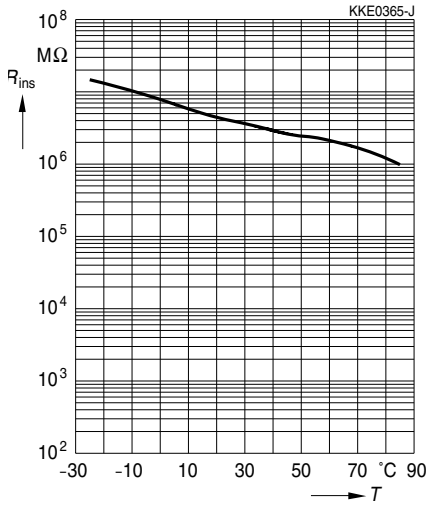


Dissipation factor tan δ versus temperature T



Typical characteristics

Insulation resistance R_{ins} versus temperature T



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