

Ordering code system



B37979N

1

100

K

0

54

Packaging

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

Internal coding

Capacitance tolerance

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

Capacitance, coded 101 $\triangle$ $10 \cdot 10^1$ pF = 100 pF
(example) 222 $\triangle$ $22 \cdot 10^2$ pF = 2,2 nF
473 $\triangle$ $47 \cdot 10^3$ 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 $\times$ 5,0 $\times$ 2,5 6,5 $\times$ 5,0 $\times$ 2,5	B37979N B37986N	B37981M B37987M	B37982N B37988N
Lead spacing 5,0 mm 5,5 $\times$ 5,0 $\times$ 2,5 6,5 $\times$ 5,0 $\times$ 2,5 9,0 $\times$ 7,5 $\times$ 2,5	B37979G B37986G —	B37981F B37987F B37984M	B37982G B37988G B37985N

Z5U (Y5U)
Features

- Extremely high volumetric efficiency
- Non-linear capacitance change
- Y5U characteristic is also fulfilled

Applications

- Blocking
- Coupling
- Decoupling
- Interference suppression


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		Z5U (Y5U) ¹⁾	
Climatic category (IEC 60068-1)		30/85/56	
Standard		EIA	
Dielectric		Class 2	
Rated voltage ²⁾	V_R	50	VDC
Test voltage	V_{test}	$2,5 \cdot V_R/5 \text{ s}$	VDC
Capacitance range / E series	C_R	10 nF ... 4,7 μ F (E6)	
Max. relative capacitance change	$\Delta C/C$	+22/-56	%
Dissipation factor (limit value)	$\tan \delta$	$< 50 \cdot 10^{-3}$	
Insulation resistance ³⁾ at +25 °C	R_{ins}	$> 10^4$	M Ω
Time constant ³⁾ at +25 °C	τ	> 500	s
Operating temperature range	T_{op}	-30 ... +85	°C
Ageing ⁴⁾		yes	

1) Y5U specification is also fulfilled.

2) Note: No operation on AC line.

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

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



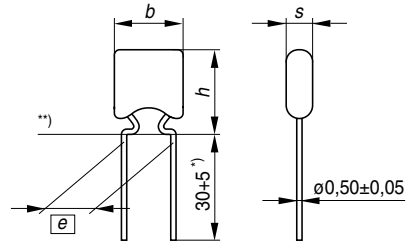
Multilayer Ceramic Capacitors

Z5U (Y5U)

Capacitance tolerances

Code letter	M
Tolerance	$\pm 20\%$

Dimensional drawing

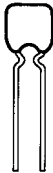


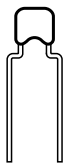
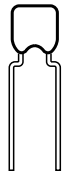
*) Lead length for bulk packaging

**) Seating plane in acc. with IEC 600717

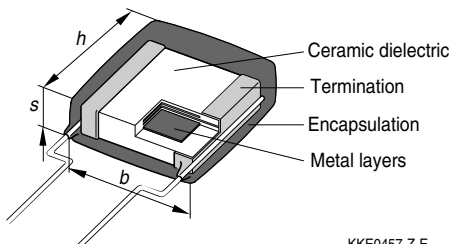
KKE0456-R-E

Dimensions (mm)

	Lead spacing $\boxed{e} = 2,5 + 0,6 / - 0,1$ mm	
Type	B37982N	B37988N
		
$h_{\max}$	5,5	6,5
$b_{\max}$	5,0	5,0
$s_{\max}$	2,5	2,5

	Lead spacing $\boxed{e} = 5,0 + 0,6 / - 0,1$ mm		
Type	B37982G	B37988G	B37985N
			
$h_{\max}$	5,5	6,5	9,0
$b_{\max}$	5,0	5,0	7,5
$s_{\max}$	2,5	2,5	2,5

Termination

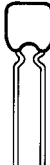
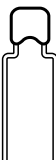
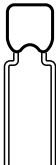


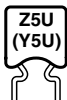
KKE0457-Z-E

Multilayer Ceramic Capacitors

Z5U (Y5U)

Product range leaded capacitors

	Z5U (Y5U)									
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		9,0 × 7,5 × 2,5	
Type	B37982N		B37988N		B37982G		B37988G		B37985N	
V_R (VDC)	50		50		50		50		50	
C_R										
10 nF										
15 nF										
22 nF										
33 nF										
47 nF										
68 nF										
100 nF										
150 nF										
220 nF										
330 nF										
470 nF										
680 nF										
1,0 µF										
1,5 µF										
2,2 µF										
3,3 µF										
4,7 µF										



Multilayer Ceramic Capacitors
Z5U (Y5U)

Ordering codes and packing for Z5U (Y5U), 50 VDC, lead spacing 2,5 mm

C _R	Ordering code ¹⁾	Ammo packing	Reel packing	Bulk
		** $\triangle$ 54	** $\triangle$ 51	** $\triangle$ 00
		pcs	pcs/reel	pcs

B37982, 50 VDC, 5,5 × 5,0 × 2,5 mm

10	nF	B37982N5103M0**	2500	2500	2000
15	nF	B37982N5153M0**	2500	2500	2000
22	nF	B37982N5223M0**	2500	2500	2000
33	nF	B37982N5333M0**	2500	2500	2000
47	nF	B37982N5473M0**	2500	2500	2000
68	nF	B37982N5683M0**	2500	2500	2000
100	nF	B37982N5104M0**	2500	2500	2000
150	nF	B37982N5154M0**	2500	2500	2000

B37988, 50 VDC, 6,5 × 5,0 × 2,5 mm

220	nF	B37988N5224M0**	2500	2500	2000
330	nF	B37988N5334M0**	2500	2500	2000
470	nF	B37988N5474M0**	2500	2500	2000
680	nF	B37988N5684M0**	2500	2500	2000
1,0	μF	B37988N5105M0**	2500	2500	2000

1) The table contains the ordering codes for the standard capacitance tolerance.
For other available capacitance tolerances see page 174.

Multilayer Ceramic Capacitors

Z5U (Y5U)

Ordering codes and packing for Z5U (Y5U), 50 VDC, lead spacing 5,0 mm

C_R	Ordering code ¹⁾	Ammo packing	Reel packing	Bulk
		** $\triangle$ 54	** $\triangle$ 51	** $\triangle$ 00
		pcs	pcs/reel	pcs

B37982, 50 VDC, 5,5 × 5,0 × 2,5 mm

10 nF	B37982G5103M0**	2500	2500	2000
15 nF	B37982G5153M0**	2500	2500	2000
22 nF	B37982G5223M0**	2500	2500	2000
33 nF	B37982G5333M0**	2500	2500	2000
47 nF	B37982G5473M0**	2500	2500	2000
68 nF	B37982G5683M0**	2500	2500	2000
100 nF	B37982G5104M0**	2500	2500	2000
150 nF	B37982G5154M0**	2500	2500	2000

B37988, 50 VDC, 6,5 × 5,0 × 2,5 mm

220 nF	B37988G5224M0**	2500	2500	2000
330 nF	B37988G5334M0**	2500	2500	2000
470 nF	B37988G5474M0**	2500	2500	2000
680 nF	B37988G5684M0**	2500	2500	2000
1,0 μ F	B37988G5105M0**	2500	2500	2000

B37985, 50 VDC, 9,0 × 7,5 × 2,5 mm

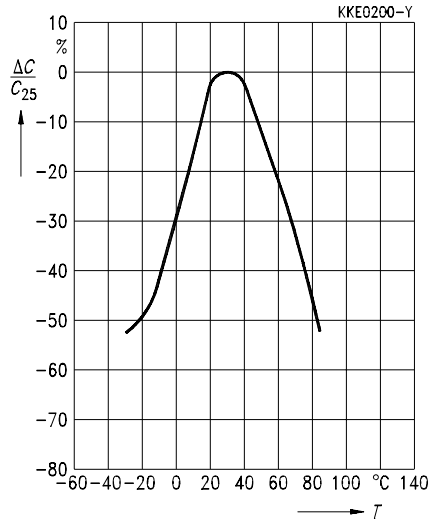
1,5 μ F	B37985N5155M0**	2000	2000	1000
2,2 μ F	B37985N5225M0**	2000	2000	1000
3,3 μ F	B37985N5335M0**	2000	2000	1000
4,7 μ F	B37985N5475M0**	2000	2000	1000

1) The table contains the ordering codes for the standard capacitance tolerance.
For other available capacitance tolerances see page 174.

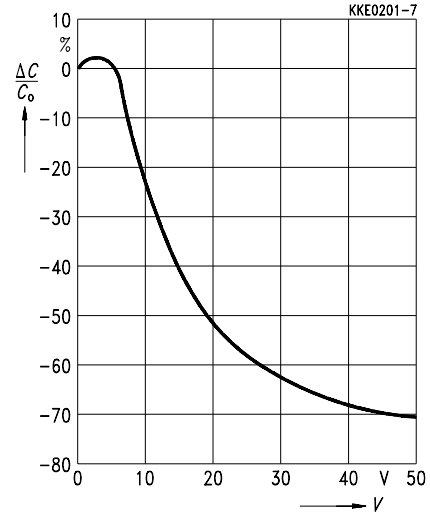


Typical characteristics

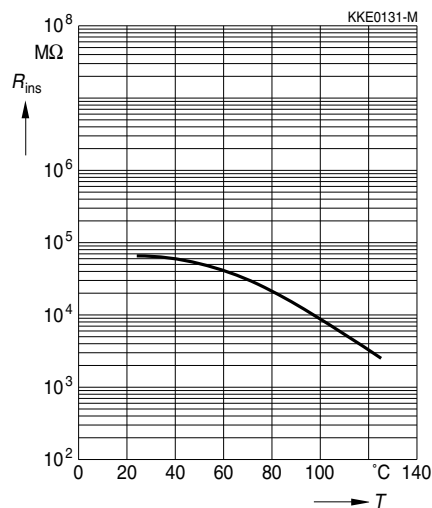
Capacitance change $\Delta C/C_{25}$ versus temperature T



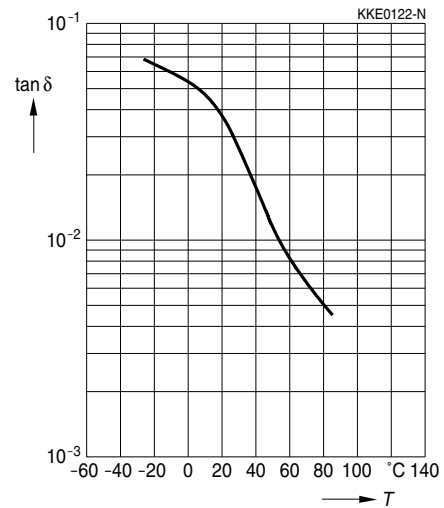
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Insulation resistance R_{ins} versus temperature T



Dissipation factor $\tan \delta$ versus temperature T

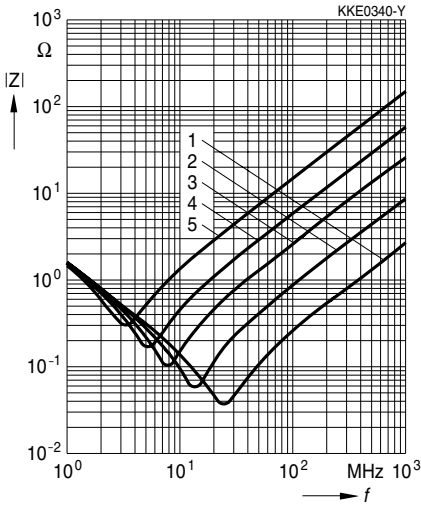


Multilayer Ceramic Capacitors

Z5U (Y5U)

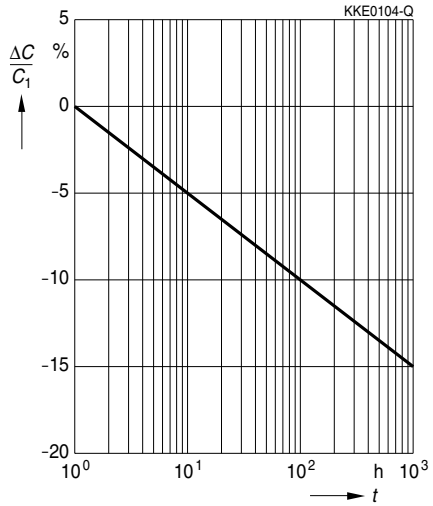
Typical characteristics

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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