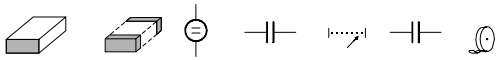
Ordering code system



B37942 K 5 104 M 0 60

Packaging

60 ≙ cardboard tape, 180-mm reel
62 ≙ blister tape, 180-mm reel
70 ≙ cardboard tape, 330-mm reel
72 ≙ blister tape, 330-mm reel
01 ≙ bulk case

Internal coding

Capacitance tolerance

M ≙ ± 20 % (standard)

Capacitance, coded (example)
104 ≙ 10 · 10^4 pF = 100 nF
105 ≙ 10 · 10^5 pF = 1 µF
224 ≙ 22 · 10^4 pF = 220 nF

Rated voltage

Rated voltage [VDC]	25	50
Code	0	5

Termination Standard: K ≙ nickel barrier for case sizes 0603, 0805, 1206, 1210
J ≙ silver palladium for case sizes 1812, 2220

Type and size	
Chip size (**inch** / mm)	Temperature characteristic Z5U (Y5U)
0603 / 1608	B37932
0805 / 2012	B37942
1206 / 3216	B37873
1210 / 3225	B37951
1812 / 4532	B37954
2220 / 5750	B37957

SMD

Features

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

Applications

- Blocking
- Coupling
- Decoupling
- Interference suppression

Termination

- For soldering: Nickel-barrier termination (Ni) for case sizes 0603 to 1210
  Silver-palladium termination (AgPd) for case sizes 1812 and 2220

Delivery mode

- Cardboard and blister tape (blister tape for chip thickness ≥ 1,2 ± 0,1 mm and case sizes ≥ 1210), 180-mm and 330-mm reel available
- Bulk case for case sizes 0603 and 0805 (≥ 68 nF)

Electrical data

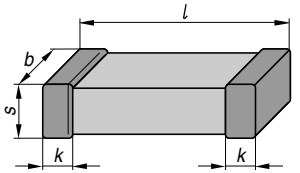
Temperature characteristic		Z5U (Y5U)[1]	
Climatic category (IEC 60068-1)		30/85/56	
Standard		EIA	
Dielectric		Class 2	
Rated voltage[2]	V_R	25, 50	VDC
Test voltage	V_{test}	2,5 · V_R/5 s	VDC
Capacitance range	C_R	10 nF … 4,7 µF	
Max. relative capacitance change	$\Delta C/C$	+22/−56	%
Dissipation factor (limit value)	tan δ	$< 50 \cdot 10^{-3}$	
Insulation resistance[3] at +25 °C	R_{ins}	$> 10^4$	MΩ
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 nF the time constant $\tau = C \cdot R_{ins}$ is given.
4) Refer to chapter “General Technical Information”, page 197.

Capacitance tolerances

Code letter	M (standard)
Tolerance	±20%

Dimensional drawing



KKE0329-N

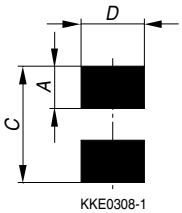
Dimensions (mm)

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

Case size (inch) (mm)	**1812** 4532	**2220** 5750
l	4,5 ± 0,30	5,7 ± 0,40
b	3,2 ± 0,30	5,0 ± 0,40
s	1,30 max.	1,30 max.
k	0,25 – 1,0	0,25 – 1,0

Tolerances to CECC 32101-801

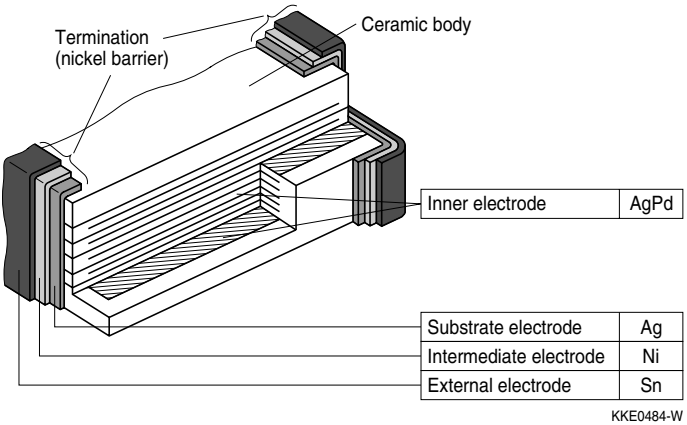
Recommended solder pad



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
	1812/4532	single chip	1,5	6,0	3,6
	2220/5750	single chip	1,5	7,2	5,5

Termination



Product range chip capacitors

	Z5U (Y5U)											
Size[1)] **inch** mm	**0603** 1608		**0805** 2012		**1206** 3216		**1210** 3225		**1812** 4532		**2220** 5750	
Type	B37932		B37942		B37873		B37951		B37954		B37957	
C_R \ V_R (VDC)	25	50	25	50	25	50		50		50		50
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												■

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

Ordering codes and packing for Z5U (Y5U), 25 VDC, nickel-barrier terminations

C_R	Ordering code	Chip thickness	Cardboard tape, ∅ 180-mm reel	Cardboard tape, ∅ 330-mm reel	Bulk case
			** ≙ 60	** ≙ 70	** ≙ 01
		mm	pcs/reel	pcs/reel	pcs
Case size 0603, 25 VDC					
100 nF	B37932K0104M0**	0,8 ± 0,1	4000	16000	15000
Case size 0805, 25 VDC					
150 nF	B37942K0154M0**	0,8 ± 0,1	4000	16000	–
220 nF	B37942K0224M0**	0,8 ± 0,1	4000	16000	–
Case size 1206, 25 VDC					
1,0 µF	B37873K0105M0**	1,2 ± 0,1	3000[1)]	12000[2)]	–

1) Blister tape, 180-mm reel, ordering code ** ≙ 62
2) Blister tape, 330-mm reel, ordering code ** ≙ 72

Ordering codes and packing for Z5U (Y5U), 50 VDC, nickel-barrier terminations

C_R	Ordering code	Chip thickness	Cardboard tape, ∅ 180-mm reel	Cardboard tape, ∅ 330-mm reel	Bulk case
			** ≙ 60	** ≙ 70	** ≙ 01
		mm	pcs/reel	pcs/reel	pcs
Case size 0603, 50 VDC					
10 nF	B37932K5103M0**	0,8 ± 0,1	4000	16000	15000
22 nF	B37932K5223M0**	0,8 ± 0,1	4000	16000	15000
47 nF	B37932K5473M0**	0,8 ± 0,1	4000	16000	15000
Case size 0805, 50 VDC					
10 nF	B37942K5103M0**	0,6 ± 0,1	5000	20000	10000
22 nF	B37942K5223M0**	0,6 ± 0,1	5000	20000	10000
47 nF	B37942K5473M0**	0,6 ± 0,1	5000	20000	10000
100 nF	B37942K5104M0**	0,8 ± 0,1	4000	16000	–
Case size 1206, 50 VDC					
100 nF	B37873K5104M0**	0,8 ± 0,1	4000	16000	–
220 nF	B37873K5224M0**	0,8 ± 0,1	4000	16000	–
470 nF	B37873K5474M0**	1,2 ± 0,1	3000[1)]	12000[2)]	–
Case size 1210, 50 VDC					
470 nF	B37951K5474M0**	0,8 ± 0,1	4000[1)]	16000[2)]	–
1,0 µF	B37951K5105M0**	1,2 ± 0,1	3000[1)]	12000[2)]	–

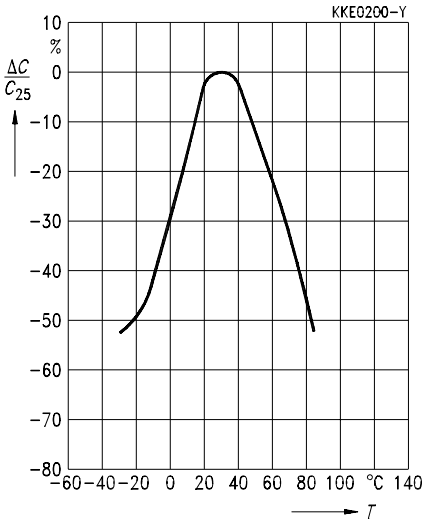
1) Blister tape, 180-mm reel, ordering code ** ≙ 62
2) Blister tape, 330-mm reel, ordering code ** ≙ 72

Ordering codes and packing for Z5U (Y5U), 50 VDC, silver-palladium terminations

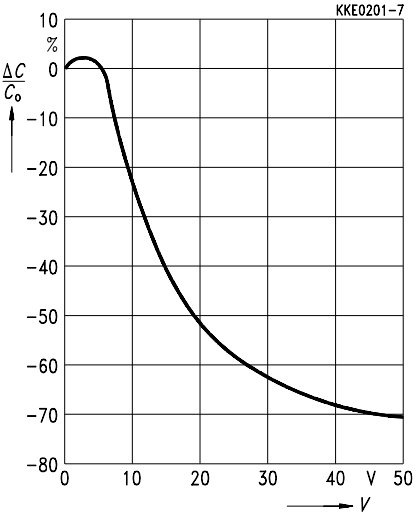
C_R	Ordering code	Chip thickness mm	Blister tape, ∅ 180-mm reel ** ≙ 62 pcs/reel	Blister tape, ∅ 330-mm reel ** ≙ 72 pcs/reel
Case size 1812, 50 VDC				
680 nF	B37954J5684M0**	1,2 ± 0,1	1500	5000
1,0 µF	B37954J5105M0**	1,2 ± 0,1	1500	5000
1,5 µF	B37954J5155M0**	1,2 ± 0,1	1500	5000
Case size 2220, 50 VDC				
1,0 µF	B37957J5105M0**	1,2 ± 0,1	1500	5000
2,2 µF	B37957J5225M0**	1,2 ± 0,1	1500	5000
4,7 µF	B37957J5475M0**	1,2 ± 0,1	1500	5000

Typical characteristics

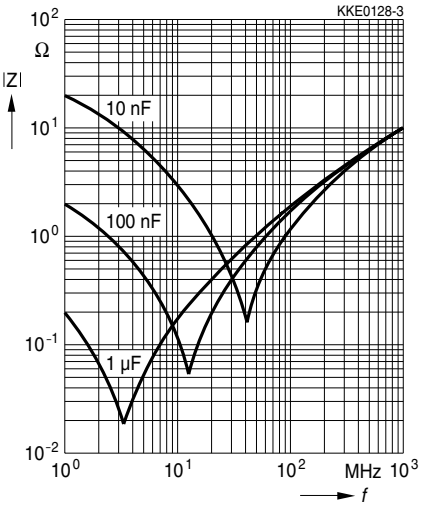
Capacitance change $\Delta C/C_{25}$ versus temperature T



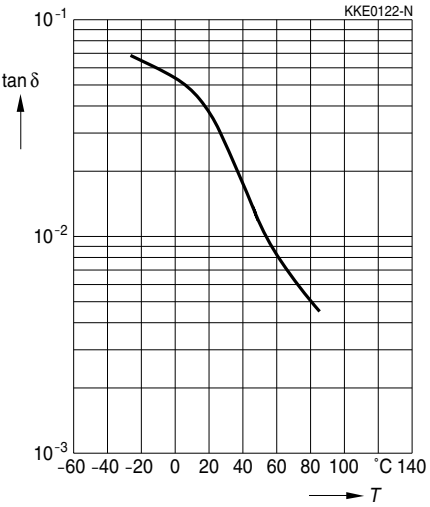
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Impedance $|Z|$ versus frequency f

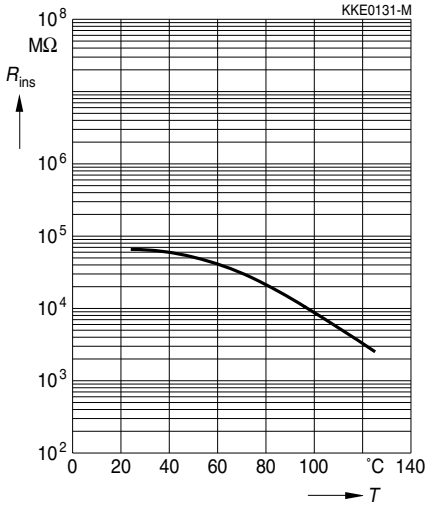


Dissipation factor tan δ versus temperature T

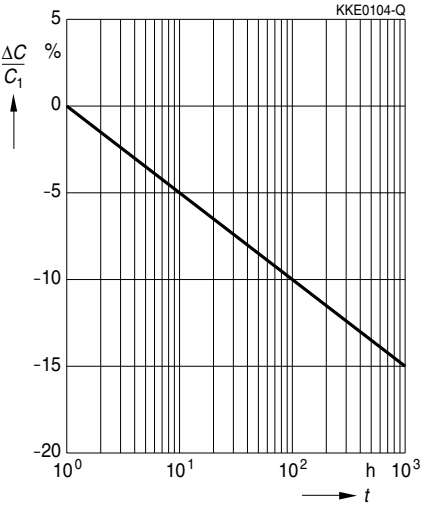


Typical characteristics

Insulation resistance R_{ins} versus temperature T



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



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