

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 $\geq 1,2 \pm 0,1$ mm and case sizes ≥ 1210), 180-mm and 330-mm reel available
- Bulk case for case sizes 0603 and 0805 (≥ 68 nF)

Electrical data

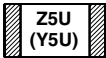
Temperature characteristic		Z5U (Y5U) ¹⁾	
Climatic category (IEC 60068-1)		30/85/56	
Standard		EIA	
Dielectric		Class 2	
Rated voltage ²⁾	V_R	25, 50	VDC
Test voltage	V_{test}	$2,5 \cdot V_R/5$ s	VDC
Capacitance range	C_R	10 nF ... 4,7 μ F	
Max. relative capacitance change	$\Delta C/C$	+22/-56	%
Dissipation 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.

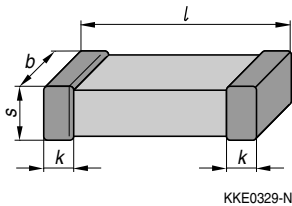
2) Note: No operation on AC line.

3) For $C_R > 10$ 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	$\pm 20\%$

Dimensional drawing

Dimensions (mm)

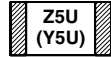
Case size (inch) (mm)	0603 1608	0805 2012	1206 3216	1210 3225
<i>l</i>	$1,6 \pm 0,15$	$2,0 \pm 0,20$	$3,2 \pm 0,20$	$3,2 \pm 0,30$
<i>b</i>	$0,8 \pm 0,10$	$1,25 \pm 0,15$	$1,6 \pm 0,15$	$2,5 \pm 0,30$
<i>s</i>	$0,8 \pm 0,10$	1,30 max.	1,30 max.	1,30 max.
<i>k</i>	0,1 – 0,4	0,13 – 0,75	0,25 – 0,75	0,25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

Case size (inch) (mm)	1812 4532	2220 5750
<i>l</i>	$4,5 \pm 0,30$	$5,7 \pm 0,40$
<i>b</i>	$3,2 \pm 0,30$	$5,0 \pm 0,40$
<i>s</i>	1,30 max.	1,30 max.
<i>k</i>	0,25 – 1,0	0,25 – 1,0

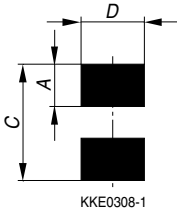
Tolerances to CECC 32101-801

Multilayer Ceramic Capacitors

Z5U (Y5U)



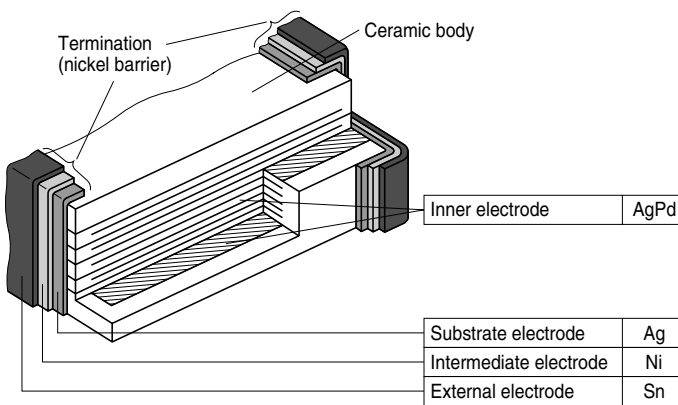
Recommended solder pad



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



KKE0484-W



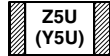
Product range chip capacitors

		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	
V_R (VDC) C_R		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)

Multilayer Ceramic Capacitors

Z5U (Y5U); 0603 to 1206



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

C_R	Ordering code	Chip thickness mm	Cardboard tape, Ø 180-mm reel	Cardboard tape, Ø 330-mm reel	Bulk case
			** $\triangleq$ 60	** $\triangleq$ 70	** $\triangleq$ 01
			pcs/reel	pcs/reel	pcs

Case size 0603, 25 VDC

100 nF	B37932K0104M0**	0,8 $\pm$ 0,1	4000	16000	15000
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Case size 0805, 25 VDC

150 nF	B37942K0154M0**	0,8 $\pm$ 0,1	4000	16000	–
220 nF	B37942K0224M0**	0,8 $\pm$ 0,1	4000	16000	–

Case size 1206, 25 VDC

1,0 μ F	B37873K0105M0**	1,2 $\pm$ 0,1	3000 ¹⁾	12000 ²⁾	–
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1) Blister tape, 180-mm reel, ordering code ** $\triangleq$ 62

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


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

C_R	Ordering code	Chip thickness mm	Cardboard tape, Ø 180-mm reel	Cardboard tape, Ø 330-mm reel	Bulk case
			** $\triangle$ 60	** $\triangle$ 70	** $\triangle$ 01
			pcs/reel	pcs/reel	pcs

Case size 0603, 50 VDC

10 nF	B37932K5103M0**	$0,8 \pm 0,1$	4000	16000	15000
22 nF	B37932K5223M0**	$0,8 \pm 0,1$	4000	16000	15000
47 nF	B37932K5473M0**	$0,8 \pm 0,1$	4000	16000	15000

Case size 0805, 50 VDC

10 nF	B37942K5103M0**	$0,6 \pm 0,1$	5000	20000	10000
22 nF	B37942K5223M0**	$0,6 \pm 0,1$	5000	20000	10000
47 nF	B37942K5473M0**	$0,6 \pm 0,1$	5000	20000	10000
100 nF	B37942K5104M0**	$0,8 \pm 0,1$	4000	16000	—

Case size 1206, 50 VDC

100 nF	B37873K5104M0**	$0,8 \pm 0,1$	4000	16000	—
220 nF	B37873K5224M0**	$0,8 \pm 0,1$	4000	16000	—
470 nF	B37873K5474M0**	$1,2 \pm 0,1$	3000 ¹⁾	12000 ²⁾	—

Case size 1210, 50 VDC

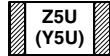
470 nF	B37951K5474M0**	$0,8 \pm 0,1$	4000 ¹⁾	16000 ²⁾	—
1,0 μ F	B37951K5105M0**	$1,2 \pm 0,1$	3000 ¹⁾	12000 ²⁾	—

1) Blister tape, 180-mm reel, ordering code ** $\triangle$ 62

2) Blister tape, 330-mm reel, ordering code ** $\triangle$ 72

Multilayer Ceramic Capacitors

Z5U (Y5U); 1812 and 2220



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

C_R	Ordering code	Chip thickness	Blister tape, Ø 180-mm reel	Blister tape, Ø 330-mm reel
		mm	** $\triangleq$ 62	** $\triangleq$ 72
			pcs/reel	pcs/reel

Case size 1812, 50 VDC

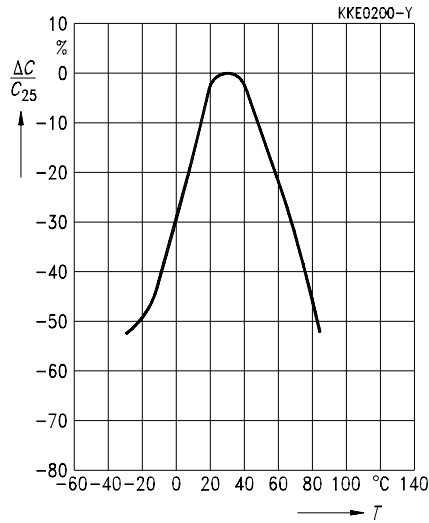
680 nF	B37954J5684M0**	1,2 $\pm$ 0,1	1500	5000
1,0 μ F	B37954J5105M0**	1,2 $\pm$ 0,1	1500	5000
1,5 μ F	B37954J5155M0**	1,2 $\pm$ 0,1	1500	5000

Case size 2220, 50 VDC

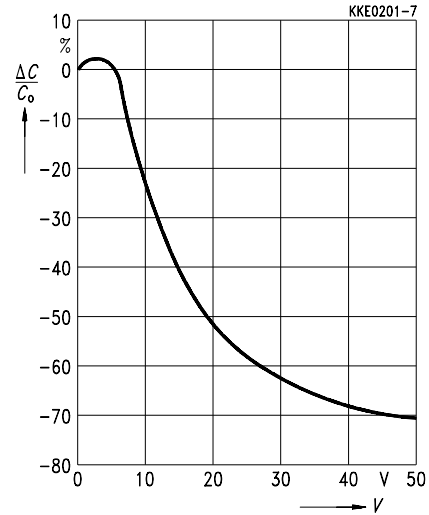
1,0 μ F	B37957J5105M0**	1,2 $\pm$ 0,1	1500	5000
2,2 μ F	B37957J5225M0**	1,2 $\pm$ 0,1	1500	5000
4,7 μ F	B37957J5475M0**	1,2 $\pm$ 0,1	1500	5000

Typical characteristics

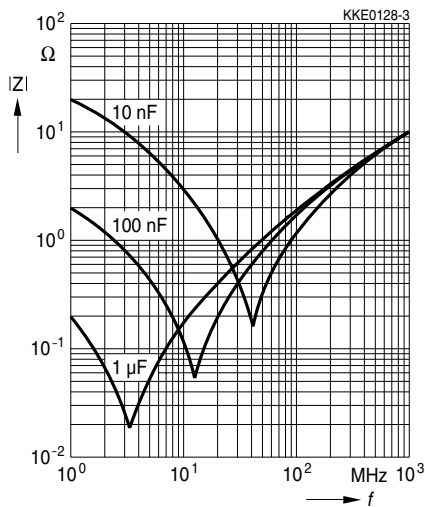
Capacitance change $\Delta C/C_{25}$ versus temperature T



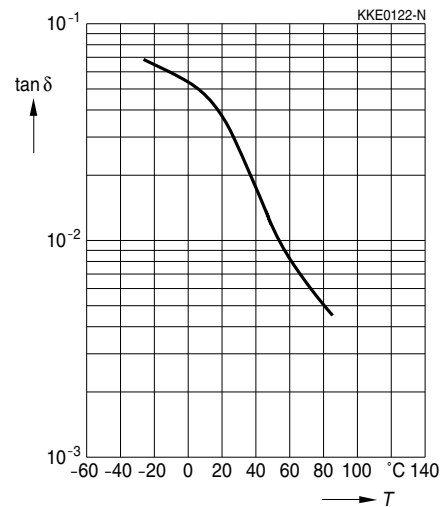
Capacitance change $\Delta C/C_0$ versus superimposed DC voltage V



Impedance $|Z|$ versus frequency f

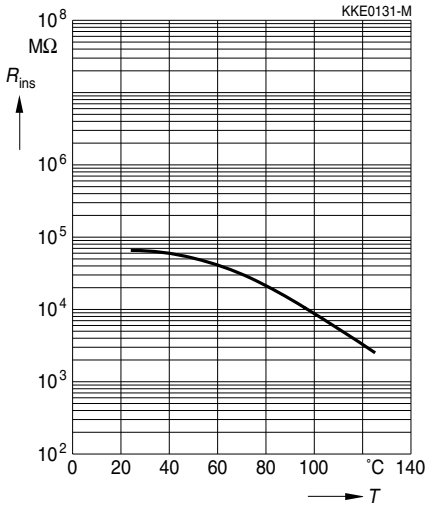


Dissipation factor $\tan \delta$ versus temperature T

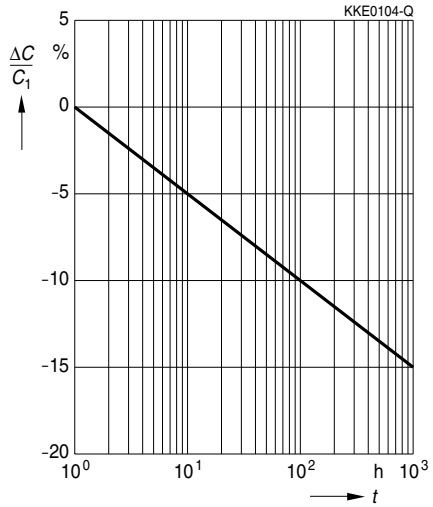


Typical characteristics

Insulation resistance R_{ins} versus temperature T



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



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