

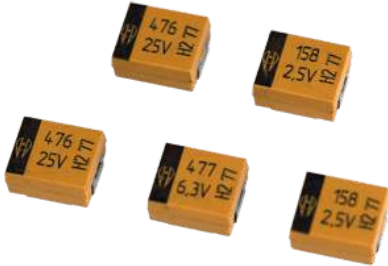
K53-77

TANTALUM SOLID-ELECTROLYTE CAPACITOR

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AZHYAR.673546.013 TU



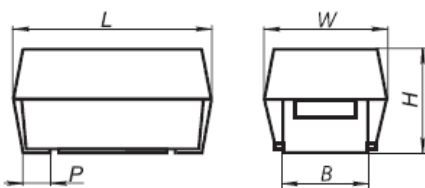
Polar fixed capacitors are suitable for application in direct current, ripple current and pulse current circuits.

Capacitors are available in unified version suitable both for manual and automatic assembly.

MAIN PARAMETERS

Name	Value
Rated voltage, V	2.5...50
Rated capacitance, µF	0.1...1 500
Capacitance tolerance (20°C, 50 Hz), %	±10; ±20
Maximum operating temperature Tenv, °C	+125
Minimal operating temperature Tenv, °C	-60

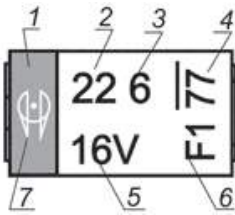
CAPACITORS OVERALL DIMENSIONS AND MASS



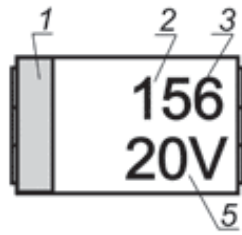
Case code	L, mm	W, mm	H, mm	P, mm	B, mm	Mass, g, max
A	3.2±0.2	1.6±0.2	1.6±0.2	0.8±0.3	1.2±0.1	0.05
B	3.5±0.2	2.8±0.2	1.9±0.2	0.8±0.3	2.2±0.1	0.06
C	6.0±0.3	3.2±0.3	2.5±0.3	1.3±0.3	2.2±0.1	0.3
D	7.3±0.3	4.3±0.3	2.9±0.3	1.3±0.3	2.4±0.1	0.5
E	7.3±0.3	4.3±0.3	4.1±0.3	1.3±0.3	2.4±0.1	0.6
X	7.3±0.3	6.1±0.3	3.45±0.3	1.4±0.3	3.1±0.1	0.8

MARKING OF CAPACITORS

"C","D","E","X" case sizes marking



"B" case size marking



- 1 – Positive terminal (color stripe)
- 2 – Rated capacitance, pF
- 3 – Capacitance multiplier code
- 4 – Product code (only "77" is marked, stripe unavailability is acceptable)
- 5 – Rated voltage, V
- 6 – Production date code
- 7 – Trade mark

There is only polarity marking (color stripe) on "A" case size capacitors.

MARKING CODES DESIGNATION

Code	Year
K	2018
L	2019
M	2020
N	2021
P	2022
R	2023
S	2024
T	2025
U	2026
V	2027
W	2028
X	2029

Code	Month	Code	Month
1	January	7	July
2	February	8	August
3	March	9	September
4	April	O	October
5	May	N	November
6	June	D	December

Capaci-tance multiplier code	Capaci-tance multiplier
4	10^4
5	10^5
6	10^6
7	10^7
8	10^8

CAPACITORS RELIABILITY

Reliability Operation modes	Minimal nonfailure operating time, t_λ , hours
Maximum-permissible mode ($0.67U_R$, $T_{env}=125^\circ\text{C}$)	25 000
Maximum-permissible mode (U_R , $T_{env}=85^\circ\text{C}$)	
Light mode ($0.6U_R$, $T_{env}=60^\circ\text{C}$)	150 000
Light mode ($0.5U_R$, $T_{env}=50^\circ\text{C}$)	200 000
Storageability Gamma-rated time of capacitor storageability T_{cy} at $y=97.5\%$, years, min	25

CAPACITORS CASE CODES

$C_R, \mu F$	2.5	4	6.3	10	16	20	25	32	40	50
	U_R, V									
0.1										A
0.15										A
0.22										A
0.33										A
0.47									A	A
0.68								A	B	B
1								A	B	B
1.5							A	B	B*	C
2.2							A	C	C	C
3.3						A	B	C	C	C
4.7					A	A	C*	C	C*	D
6.8				A	A	B	C	D	D	D
10			A	A	B	B	C	D	D	E
15		A	A	B	B	B*	C	D*	E,X	E,X
22		A	A	B*	C	C	D	E,X	X*	X*
33	A	A	B	B*	C	C*	E	E,X		
47	A	B	B*	C	C	D	E,X			
68	A	B	B*	C	D	D	E*,X			
100	B	B	C	C	D	E,X				
150	B*	C	C	D	E,X	E,X				
220	C	C	D	D	E,X					
330	C	D	D	E,X						
470	D	D*	E,X	E,X						
680	E	E	E,X							
1 000	E	E*,X	X*							
1 500	E*, X*	X*								

* Capacitors with capacitance tolerance $\pm 20\%$ only

CAPACITOR ELECTRIC PARAMETERS VALUE WHEN DELIVERED

U_R, V	$C_R, \mu F$	$tg \delta, \%, 23^\circ C, 50 Hz, max$	$I_{LEAK}, \mu A, 23^\circ C, after 60 sec., max$	$ESR, Ohm, 23^\circ C, 100kHz, max$
2.5	33	16	0.8	8
2.5	47	16	1.2	6
2.5	68	14	1.7	4.5
2.5	100	14	2.5	4.4
2.5	150	14	3.8	3.6
2.5	220	14	16	5.5
2.5	330	14	8.3	3.4
2.5	470	14	11.8	1.2
2.5	680	14	17	1
2.5	1 000	18	25	0.6
2.5	1 500	30	37.5	0.3(E); 0.4(X)
4	15	18	0.6	12
4	22	18	0.9	12
4	33	18	1.3	12
4	47	10	1.9	7
4	68	12	2.7	5
4	100	12	4	3
4	150	12	6	1.2
4	220	14	8.8	1
4	330	14	13.2	0.7
4	470	14	18.8	0.65
4	680	16	27.2	0.6
4	1 000	20	40	0.45(E); 0.5(X)
4	1 500	30	60	0.5
6.3	10	14	0.6	5
6.3	15	14	0.9	4.5
6.3	22	14	1.4	4
6.3	33	12	2.1	3.5
6.3	47	12	3	3
6.3	68	12	4.3	2.5
6.3	100	10	6.3	2
6.3	150	10	9.5	0.9
6.3	220	12	13.9	0.7
6.3	330	12	20.8	0.6

U _R , V	C _R , μF	tg δ, %, 23°C, 50 Hz, max	I _{LEAK} , μA, 23°C, after 60 sec., max	ESR, Ohm, 23°C, 100kHz, max
6.3	470	12	29.6	0.4(E); 0.5(X)
6.3	680	12	42.8	0.4(E); 0.5(X)
6.3	1 000	16	63	0.35
10	6.8	10	0.7	5.5
10	10	10	1	3.5
10	15	10	1.5	3.5
10	22	10	2.2	1.5
10	33	10	3.3	1.4
10	47	10	4.7	1.2
10	68	10	6.8	1.2
10	100	10	10	1.2
10	150	12	15	0.7
10	220	12	22	0.5
10	330	12	33	0.5(E); 0.6(X)
10	470	14	47	0.3(E); 0.4(X)
16	4.7	10	0.8	7
16	6.8	10	1.1	7
16	10	10	1.6	3.5
16	15	10	2.4	2.5
16	22	10	3.5	1.6
16	33	10	5.3	1.2
16	47	10	12	7.5
16	68	10	10.9	0.7
16	100	10	12	16
16	150	10	24	0.5(E); 0.6(X)
16	220	14	35.2	0.4(E); 0.5(X)
20	3.3	10	0.7	7
20	4.7	10	0.9	7
20	6.8	10	1.4	3.5
20	10	10	2	3
20	15	10	3	2
20	22	10	4.4	1.2
20	33	10	6.6	1.2
20	47	10	9.4	0.7
20	68	10	13.6	0.7

U _R , V	C _R , μF	tg δ, %, 23°C, 50 Hz, max	I _{LEAK} , μA, 23°C, after 60 sec., max	ESR, Ohm, 23°C, 100kHz, max
20	100	10	20	0.5(E); 0.6(X)
20	150	12	30	0.4(E); 0.45(X)
25	1.5	8	0.5	8
25	2.2	8	0.6	7.5
25	3.3	8	0.8	3.5
25	4.7	8	1.2	2.4
25	6.8	8	1.7	1.9
25	10	8	2.5	1.5
25	15	10	3.8	1.2
25	22	10	5.5	0.8
25	33	10	8.3	0.8
25	47	10	11.8	0.8(E); 0.9(X)
25	68	10	12	17
32	0.68	8	0.5	10
32	1	8	8	10
32	1.5	8	5	10
32	2.2	8	0.7	3.5
32	3.3	8	1.1	2.5
32	4.7	8	1.5	2.5
32	6.8	8	2.2	1.3
32	10	8	3.2	1
32	15	10	4.8	0.8
32	22	10	7	0.7(E); 0.8 (X)
32	33	10	10.6	0.6
40	0.47	8	0.5	12
40	0.68	8	8	12
40	1	8	8	12
40	1.5	8	0.6	6
40	2.2	8	0.9	3.5
40	3.3	8	1.3	3.5
40	4.7	8	1.9	3
40	6.8	10	2.7	2.5
40	10	10	4.0	1
40	15	8(E); 10(X)	6	0.9(E); 1(X)
40	22	10	8.8	0.8

U_R, V	$C_R, \mu F$	$tg \delta, \%, 23^\circ C, 50 Hz, max$	$I_{LEAK}, \mu A, 23^\circ C, after 60 sec., max$	$ESR, Ohm, 23^\circ C, 100kHz, max$
50	0.1	6	0.5	20
50	0.15	6	19	20
50	0.22	6	18	20
50	0.33	6	16	20
50	0.47	6	8	12
50	0.68	6	8	12
50	1	6	8	12
50	1.5	6	0.8	4.5
50	2.2	6	1.1	3.5
50	3.3	6	1.7	2.5
50	4.7	6	2.4	1.5
50	6.8	6	3.4	1.2
50	10	6	5	0.7
50	15	8(E); 10(X)	7.5	0.7(E); 0.8(X)
50	22	12	11	0.6

EXAMPLE OF REFERENCE DESIGNATION FOR ORDERING

CAPACITOR K53-77 "C" – 16V – 47 μ F \pm 10% AZHYAR.673546.013 TU

If the capacitors for automatic assembly are required it is to be stated in the delivery contract.