



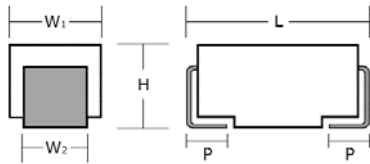
LOW PROFILE TANTALUM CHIP CAPACITORS

TYPE TCC

FEATURES

Low profile heights. Excellent for PCMCIA applications.
 Meets or exceeds EIA 535 BAAC and IECQ standards (QC300801/US0001, IS-28)
 Capacitance range from 0.1uF to 470uF
 Voltage range from 4 to 35WVDC
 Operating temperature range -55°C to +125°C, 2/3 x Vr (linear derating) above +85°C
 Surge tested for maximum robustness
 Precision molded case with flat surfaces for vacuum pick up
 Laser marking and bold videocon-readable polarity stripe
 Compliant terminations
 Glue pad on underside for bonding to circuit board prior to soldering
 Encapsulant material satisfies the UL94 VO flammability classification
 Termination finish 90% Sn/10% Pb available
 MSL (moisture sensitivity level) per IPC/Jedec J-STD-020B is level 1

DIMENSIONS



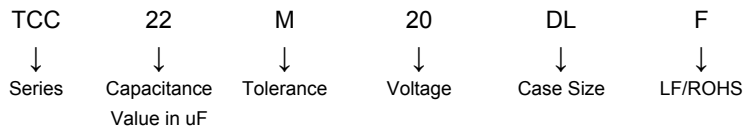
millimeters (inches)

CASE SIZE	EIA / IECQ	L ±0.2 (±0.008)	W ₁ ±0.2 (±0.008)	H (MAX)	W ₂ ±0.1 (±0.004)	P ±0.3 (±0.012)
XL	2012-12	2.05 (.080)	1.30 (.050)	1.20 (.047)	1.20 (.047)	0.50 (.020)
AL	3216-12	3.20 (.126)	1.60 (.063)	1.20 (.047)	1.20 (.047)	0.80 (.031)
BL	3528-12	3.50 (.138)	2.80 (.110)	1.20 (.047)	2.20 (.087)	0.80 (.031)
CL	6032-15	6.00 (.236)	3.20 (.126)	1.50 (.059)	2.20 (.087)	1.30 (.051)
DL	7343-20	7.30 (.287)	4.30 (.169)	2.00 (.079)	2.40 (.094)	1.30 (.051)

PACKAGING

CASE SIZE	EIA / IECQ	STANDARD PACKING 7" REEL
XL	2012-12	2500 PCS
AL	3216-12	2500 PCS
BL	3528-12	2500 PCS
CL	6032-15	1000 PCS
DL	7343-20	1000 PCS

ORDERING INFORMATION



LOW PROFILE PART NUMBERS AND ELECTRICAL SPECIFICATIONS

SMEC Part number	Capacitance (µF)	DCL (µA) max.	tan δ (%) max.	ESR @100Khz max (Ω)
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4 V DC @ 85°C

TCC2.2K4XL	2.2	0.5	6	25.0
TCC2.2K4AL	2.2	0.5	6	25.0
TCC3.3K4XL	3.3	0.5	6	20.0
TCC3.3K4AL	3.3	0.5	6	18.0
TCC4.7K4XL	4.7	0.5	6	12.0
TCC4.7K4AL	4.7	0.5	6	10.0
TCC6.8K4XL	6.8	0.5	6	5.2
TCC6.8K4AL	6.8	0.5	6	8.0
TCC6.8K4BL	6.8	0.5	6	6.0
TCC10K4XL	10	0.5	6	7.0
TCC10K4AL	10	0.5	6	6.0
TCC10K4BL	10	0.6	6	5.0
TCC15K4XL	15	0.6	8	4.0
TCC15K4AL	15	0.6	8	4.0
TCC15K4BL	15	0.6	6	2.0
TCC22K4XL	22	0.9	8	3.8
TCC22K4AL	22	0.9	8	3.5
TCC22K4BL	22	0.9	6	1.9
TCC33K4AL	33	1.3	8	1.7
TCC33K4BL	33	1.3	6	1.7
TCC33K4CL	33	1.3	6	0.6
TCC47K4BL	47	1.9	10	2.0
TCC47K4CL	47	1.9	6	0.5
TCC68K4BL	68	2.7	15	1.5
TCC68K4CL	68	2.7	6	0.4
TCC100K4BL	100	4.0	14	1.4
TCC100K4CL	100	4.0	6	1.3
TCC150K4CL	150	6.0	6	1.3
TCC150K4DL	150	6.0	6	0.4
TCC220K4CL	220	8.8	8	1.2
TCC220K4DL	220	8.8	8	0.3
TCC330K4DL	330	13.2	12	0.4
TCC470K4DL	470	18.8	14	0.9
TCC680K4DL	680	27.2	25	0.2

6.3 V DC @ 85°C

TCC1.5K6.3XL	1.5	0.5	6	25.0
TCC1.5K6.3AL	1.5	0.5	6	25.0
TCC2.2K6.3XL	2.2	0.5	6	20.0
TCC2.2K6.3AL	2.2	0.5	6	18.0
TCC3.3K6.3XL	3.3	0.5	6	12.0
TCC3.3K6.3AL	3.3	0.5	6	9.0
TCC4.7K6.3XL	4.7	0.5	6	7.0
TCC4.7K6.3AL	4.7	0.5	6	7.5
TCC4.7K6.3BL	4.7	0.5	6	6.0
TCC6.8K6.3XL	6.8	0.5	8	7.0
TCC6.8K6.3AL	6.8	0.5	6	2.6
TCC6.8K6.3BL	6.8	0.5	6	5.0
TCC10K6.3XL	10	0.6	8	6.0
TCC10K6.3AL	10	0.6	8	4.0
TCC10K6.3BL	10	0.6	6	4.0
TCC15K6.3XL	15	0.9	8	4.1
TCC15K6.3AL	15	0.9	8	4.0
TCC15K6.3BL	15	1.0	6	3.5
TCC22K6.3AL	22	1.3	10	1.8
TCC22K6.3BL	22	1.4	8	2.5
TCC22K6.3CL	22	1.3	6	0.6
TCC33K6.3BL	33	2.1	10	2.5
TCC33K6.3CL	33	2.1	6	1.8
TCC47K6.3BL	47	2.8	10	1.6
TCC47K6.3CL	47	3.0	6	1.5
TCC68K6.3CL	68	4.3	6	1.5
TCC100K6.3CL	100	6.3	6	0.9
TCC100K6.3DL	100	6.3	6	0.9
TCC150K6.3CL	150	9.0	8	0.3
TCC150K6.3DL	150	9.0	6	0.4
TCC220K6.3DL	220	13.9	10	0.9
TCC330K6.3DL	330	20.8	8	0.4
TCC470K6.3DL	470	28.2	20	0.2

M= ± 20% Tolerance

SMEC reserves the right to supply higher voltage rating, tighter tolerance and / or lower ESR in the same case size, to the same reliability standards.

SMEC Part number	Capacitance (µF)	DCL (µA) max.	tan δ (%) max.	ESR @100Khz max (Ω)
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10 V DC @ 85°C

TCC1K10XL	1.0	0.5	4	25.0
TCC1K10AL	1.0	0.5	4	25.0
TCC1.5K10XL	1.5	0.5	6	20.0
TCC1.5K10AL	1.5	0.5	6	20.0
TCC2.2K10XL	2.2	0.5	6	15.0
TCC2.2K10AL	2.2	0.5	6	12.0
TCC3.3K10XL	3.3	0.5	6	8.0
TCC3.3K10AL	3.3	0.5	6	8.0
TCC3.3K10BL	3.3	0.5	6	6.0
TCC4.7K10XL	4.7	0.5	6	9.0
TCC4.7K10AL	4.7	0.5	6	5.0
TCC4.7K10BL	4.7	0.5	6	5.0
TCC6.8K10XL	6.8	0.7	6	5.2
TCC6.8K10AL	6.8	0.7	6	4.0
TCC6.8K10BL	6.8	0.7	6	4.0
TCC10K10XL	10.0	1.0	20	6.0
TCC10K10AL	10.0	1.0	8	4.0
TCC10K10BL	10.0	1.0	6	3.0
TCC15K10AL	15.0	1.5	6	2.0
TCC15K10BL	15.0	1.5	8	2.8
TCC15K10CL	15.0	1.5	6	0.7
TCC22K10BL	22.0	2.2	8	2.2
TCC22K10CL	22.0	2.2	6	0.6
TCC33K10CL	33.0	3.3	6	1.6
TCC47K10CL	47.0	4.7	6	1.4
TCC47K10DL	47.0	4.7	6	0.5
TCC68K10CL	68.0	6.8	6	1.3
TCC68K10DL	68.0	6.8	6	0.9
TCC100K10CL	100.0	10.0	6	0.4
TCC100K10DL	100.0	10.0	6	0.9
TCC150K10DL	150.0	15.0	6	1.2
TCC220K10DL	220.0	22.0	10	0.5

16 V DC @ 85°C

TCC.68K16XL	0.68	0.5	4	25.0
TCC.68K16AL	0.68	0.5	4	25.0
TCC1K16XL	1.00	0.5	4	20.0
TCC1K16AL	1.00	0.5	4	15.0
TCC1K16BL	1.00	0.5	4	5.0
TCC1.5K16XL	1.50	0.5	6	10.0
TCC1.5K16AL	1.50	0.5	6	12.0
TCC2.2K16XL	2.20	0.5	6	6.5
TCC2.2K16AL	2.20	0.5	6	6.0
TCC2.2K16BL	2.20	0.5	6	6.5
TCC3.3K16XL	3.30	0.5	8	5.0
TCC3.3K16AL	3.30	0.5	6	5.0
TCC3.3K16BL	3.30	0.6	6	5.0
TCC4.7K16AL	4.70	0.8	8	4.5
TCC4.7K16BL	4.70	0.8	6	4.5
TCC6.8K16AL	6.80	1.1	8	2.4
TCC6.8K16BL	6.80	1.1	6	3.5
TCC10K16BL	10.00	1.6	8	2.2
TCC10K16CL	10.00	1.6	6	2.0
TCC15K16BL	15.00	2.4	6	2.0
TCC15K16CL	15.00	2.4	6	0.7
TCC22K16CL	22.00	3.5	6	1.6
TCC33K16CL	33.00	5.3	6	1.5
TCC33K16DL	33.00	5.3	6	0.9
TCC47K16CL	47.00	7.5	6	0.4
TCC47K16DL	47.00	7.5	6	0.7
TCC68K16DL	68.00	10.9	6	0.9
TCC100K16DL	100.00	16.0	8	0.9
TCC150K16DL	150.00	24.0	15	0.3

M= ± 20% Tolerance

LOW PROFILE PART NUMBERS AND ELECTRICAL SPECIFICATIONS

SMEC Part number	Capacitance (µF)	DCL (µA) max.	tan δ (%) max.	ESR @100Khz max (Ω)
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20 V DC @ 85°C

TCC.1K20XL	0.1	0.5	4	25.0
TCC.1K20AL	0.1	0.5	4	25.0
TCC.15K20XL	0.15	0.5	4	25.0
TCC.15K20AL	0.15	0.5	4	25.0
TCC.22K20XL	0.22	0.5	4	25.0
TCC.22K20AL	0.22	0.5	4	25.0
TCC.33K20XL	0.33	0.5	4	25.0
TCC.33K20AL	0.33	0.5	4	25.0
TCC.47K20XL	0.47	0.5	4	25.0
TCC.47K20AL	0.47	0.5	4	25.0
TCC.68K20XL	0.68	0.5	4	20.0
TCC.68K20AL	0.68	0.5	4	25.0
TCC.68K20BL	0.68	0.5	4	15.0
TCC1K20XL	1	0.5	4	20.0
TCC1K20AL	1	0.5	4	12.0
TCC1K20BL	1	0.5	4	9.0
TCC1.5K20XL	1.5	0.5	6	9.6
TCC1.5K20AL	1.5	0.5	6	5.4
TCC1.5K20BL	1.5	0.5	6	6.5
TCC2.2K20XL	2.2	0.5	6	6.0
TCC2.2K20AL	2.2	0.5	6	4.5
TCC2.2K20BL	2.2	0.5	6	6.0
TCC3.3K20BL	3.3	0.7	6	3.0
TCC4.7K20BL	4.7	0.9	6	3.0
TCC6.8K20BL	6.8	1.4	6	2.6
TCC10K20CL	10	2.0	6	1.9
TCC15K20CL	15	3.0	6	1.7
TCC22K20CL	22	4.4	6	1.6
TCC22K20DL	22	4.4	6	0.9
TCC33K20DL	33	6.6	6	0.6
TCC47K20DL	47	9.4	6	0.9
TCC68K20DL	68	13.6	6	0.9

25 V DC @ 85°C

TCC.15K25XL	0.15	0.5	4	24.0
TCC.22K25XL	0.22	0.5	4	21.0
TCC.33K25XL	0.33	0.5	4	17.0
TCC.47K25XL	0.47	0.5	4	15.0
TCC.47K25AL	0.47	0.5	4	14.0
TCC.68K25XL	0.68	0.5	4	13.0
TCC.68K25AL	0.68	0.5	5	10.0
TCC1K25XL	1	0.5	4	8.0
TCC1K25AL	1	0.5	4	8.0
TCC1.5K25AL	1.5	0.5	6	5.4
TCC1.5K25BL	1.5	0.5	6	5.0
TCC2.2K25BL	2.2	0.6	6	4.5
TCC3.3K25BL	3.3	0.8	6	3.5
TCC3.3K25CL	3.3	0.8	6	1.6
TCC4.7K25BL	4.7	1.2	6	3.1
TCC4.7K25CL	4.7	1.2	6	1.2
TCC6.8K25CL	6.8	1.7	6	2.0
TCC10K25CL	10	2.5	6	1.8
TCC15K25DL	15	3.8	6	1.0
TCC22K25DL	22	5.5	6	0.9
TCC33K25DL	33	8.3	6	0.5
TCC47K25DL	47	11.8	6	0.9

M= ± 20% Tolerance

SMEC reserves the right to supply higher voltage rating, tighter tolerance and / or lower ESR in the same case size, to the same reliability standards.

SMEC Part number	Capacitance (µF)	DCL (µA) max.	tan δ (%) max.	ESR @100Khz max (Ω)
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35 V DC @ 85°C

TCC.1K35XL	0.10	0.5	4	29.0
TCC.1K35AL	0.10	0.5	4	24.0
TCC.15K35XL	0.15	0.5	4	24.0
TCC.15K35AL	0.15	0.5	4	21.0
TCC.22K35XL	0.22	0.5	4	21.0
TCC.22K35AL	0.22	0.5	4	18.0
TCC.33K35XL	0.33	0.5	4	17.0
TCC.33K35AL	0.33	0.5	4	15.0
TCC.47K35XL	0.47	0.5	4	15.0
TCC.47K35AL	0.47	0.5	4	12.0
TCC.47K35BL	0.47	0.5	4	10.0
TCC.68K35AL	.68K	0.5	4	8.0
TCC.68K35BL	.68K	0.5	4	8.0
TCC1K35AL	1.00	0.5	4	7.5
TCC1K35BL	1.00	0.5	4	6.5
TCC1.5K35BL	1.50	0.5	6	5.2
TCC2.2K35BL	2.20	0.8	8	4.2
TCC3.3K35CL	3.30	1.2	6	1.6
TCC4.7K35CL	4.70	1.6	6	2.2
TCC6.8K35DL	6.80	2.3	8	0.9
TCC10K35DL	10.00	3.5	6	1.0
TCC15K35DL	15.00	5.3	8	0.6
TCC22K35DL	22.00	7.7	6	0.5

50 V DC @ 85°C

TCC.1K50AL	0.68	0.5	4	19.0
TCC.15K50AL	0.68	0.5	4	16.0
TCC.22K50AL	1.00	0.5	4	13.0
TCC.33K50AL	1.00	0.5	4	11.0
TCC.33K50BL	1.00	0.5	4	11.0
TCC.47K50AL	1.50	0.5	6	9.5
TCC.47K50BL	1.50	0.5	6	9.5
TCC1.0K50CL	2.20	0.5	6	4.4
TCC1.5K50CL	2.20	0.8	6	3.1
TCC3.3K50DL	2.20	1.7	4	1.7
TCC4.7K50DL	3.30	2.4	6	1.2
TCC6.8K50DL	3.30	3.4	6	0.9

M= ± 20% Tolerance