

# TTA

## +85°C General Purpose Axial Lead Aluminum Electrolytic Capacitors



### Features

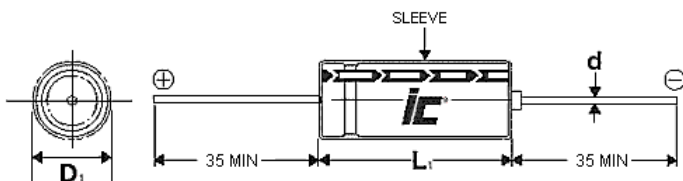
- Standard case sizes
- Multiple case sizes
- Lead free leads

### Applications

- Bypass
- Coupling
- Filtering
- De-coupling

### Specifications

<b>Operating Temperature Range</b>		<b>-40°C to +85°C (10 to 350 WVDC)</b> <b>-25°C to +85°C (450 WVDC)</b>													
<b>Capacitance Tolerance</b>		<b>+20% at 120 Hz, 20°C</b>													
<b>Surge voltage</b>	<b>WVDC</b>	10	16	25	35	50	63	100	160	200	250	350	450		
	<b>SVDC</b>	13	20	32	44	63	79	125	200	250	300	400	500		
<b>Dissipation Factor</b>	<b>WVDC</b>	10	16	25	35	50	63	100	160	200	250	350	450		
	<b>Tan δ</b>	.2	.16	.14	.12	.1	.09	.08	.2	.2	.2	.2	.24		
Add .02 for every 1000uF above 1000uF															
<b>Leakage current</b>		<b>10 to 100 WVDC</b>						<b>160 to 450 WVDC</b>							
		<b>1 Minutes</b>			<b>2 Minutes</b>			<b>1 Minute</b>			<b>1 Minute</b>				
		.03CV or 4uA, Whichever is greater			.01CV or 3uA, Whichever is greater			CV<1000 .04CV+100uA			CV>1000 .1CV+40uA				
<b>Low temperature stability Impedance ratio (120 Hz)</b>	<b>WVDC</b>	10	16	25	35	50	63	100	160	200	250	350	450		
	<b>-25°C to +20°C</b>	3	2	2	2	2	2	2	3	3	3	6	5		
<b>-40°C to +20°C</b>	8	6	4	3	3	3	3	6	6	6	6	6	-		
<b>Load Life</b>		<b>2000 hours at 85°C with rated WVDC and ripple current applied</b>													
		<b>Capacitance change</b>	≤20% of initial measured value												
		<b>Dissipation factor</b>	≤200% of maximum specified value												
		<b>Leakage current</b>	≥100% of maximum specified value												
<b>Shelf Life</b>		<b>1000 hours at 85°C with no voltage applied</b>													
		<b>Capacitance change</b>	≤20% of initial measured value												
		<b>Dissipation factor</b>	≤200% of maximum specified value												
		<b>Leakage current</b>	≥100% of maximum specified value												
<b>Ripple Current Multipliers</b>		<b>Capacitance</b>	<b>Frequency (Hz)</b>						<b>Temperature (°C)</b>						
		<b>uF</b>	50	120	400	1k	10k	50k	+85	+70	+60	+30			
		<b>C≤10</b>	.8	1.0	1.3	1.45	1.65	1.7	1.0	1.3	1.5	1.8			
		<b>10&lt;C≤100</b>	.8	1.0	1.23	1.36	1.48	1.53	1.0	1.3	1.5	1.8			
		<b>100&lt;C≤1000</b>	.8	1.0	1.16	1.25	1.35	1.38	1.0	1.3	1.5	1.8			
<b>C&gt;1000</b>	.8	1.0	1.11	1.17	1.25	1.28	1.0	1.3	1.5	1.8					



D	5	6.3	8	10	12.5	16	18	22	25
d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	0.8
B	0.5	0.5	0.5	0.5	0.8	0.5	0.5	1.0	1.0

mm

D ≤ 10mm, L<sub>1</sub> = L + 1.5mm Max.  
D > 10mm, L<sub>1</sub> = L + 2mm Max.  
D<sub>1</sub> = D + B Max.



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+85°C, Standard, general purpose 2000 hours

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxDL (mm)
0.47	100	474TTA100M	705.474	10	5x13
1	50	105TTA050M	165.786	10	5x13
1	100	105TTA100M	331.573	18	5x13
1	160	105TTA160M	331.573	14	6.3x13
1	350	105TTA350M	331.573	20	6.3x16
1	450	105TTA450M	414.466	19	8x16
2.2	50	225TTA050M	75.358	23	5x13
2.2	100	225TTA100M	100.477	27	5x13
2.2	160	225TTA160M	100.477	23	6.3x16
2.2	250	225TTA250M	100.477	30	8x16
2.2	350	225TTA350M	100.477	33	8x16
2.2	450	225TTA450M	188.394	31	10x21
3.3	100	335TTA100M	100.477	34	5x13
3.3	160	335TTA160M	100.477	33	8x16
3.3	250	335TTA250M	100.477	40	8x16
3.3	450	335TTA450M	125.596	38	8x20
4.7	50	475TTA050M	35.274	36	5x13
4.7	100	475TTA100M	70.547	40	5x13
4.7	160	475TTA160M	70.547	50	8x16
4.7	350	475TTA350M	70.547	55	8x20
4.7	450	475TTA450M	88.184	50	10x26
10	35	106TTA035M	19.894	41	5x13
10	50	106TTA050M	16.579	50	5x13
10	63	106TTA063M	16.579	55	5x13
10	100	106TTA100M	33.157	65	6.3x13
10	160	106TTA160M	33.157	80	8x20
10	250	106TTA250M	33.157	90	10x21
10	350	106TTA350M	33.157	100	13x26
10	450	106TTA450M	41.447	90	13x26
15	50	156TTA050M	11.0524	70	5x13
22	35	226TTA035M	9.043	70	5x13
22	50	226TTA050M	7.536	85	6.3x13
22	100	226TTA100M	15.072	120	8x16
22	160	226TTA160M	15.072	130	10x26
22	250	226TTA250M	15.072	160	13x26
22	350	226TTA350M	15.072	150	13x31
22	450	226TTA450M	18.839	160	16x31
22	500	226TTA500AQW	16.75	115	16x32
33	25	336TTA025M	7.536	80	5x13
33	50	336TTA050M	5.024	115	6.3x16
33	100	336TTA100M	10.048	145	8x16
33	160	336TTA160M	10.048	170	13x26
33	250	336TTA250M	10.048	190	13x31
33	350	336TTA350M	10.048	210	16x31.5
33	450	336TTA450M	12.56	230	16x41
47	16	476TTA016M	5.997	90	5x13
47	25	476TTA025M	5.291	105	6.3x13
47	50	476TTA050M	3.527	140	6.3x16
47	63	476TTA063M	3.527	165	8x16
47	100	476TTA100M	7.055	190	8x20
47	160	476TTA160M	7.055	225	13x31
47	250	476TTA250M	7.055	255	16x31
47	350	476TTA350M	7.055	290	16x41
47	450	476TTA450MRZ	7.055	300	18x41
47	500	476TTA500ARZ	7.839	290	18x40
68	16	686TTA016M	4.145	150	6.3x16
68	35	686TTA035M	2.926	200	8x16
68	63	686TTA063M	2.438	250	8x20

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxDL (mm)
100	10	107TTA010M	3.316	130	6.3x13
100	25	107TTA025M	2.487	170	6.3x13
100	35	107TTA035M	1.989	200	8x16
100	50	107TTA050M	1.658	220	8x16
100	63	107TTA063M	1.658	260	8x20
100	100	107TTA100M	3.316	310	10x26
100	160	107TTA160M	3.316	400	16x31
100	250	107TTA250M	3.316	450	16x41
100	350	107TTA350M	3.316	460	18x41
100	450	107TTA450M	4.145	370	22x51
150	25	157TTA025M	1.658	260	8x16
150	35	157TTA035M	1.326	270	8x20
150	50	157TTA050M	1.105	285	10x16
150	63	157TTA063M	1.105	310	10x21
150	100	157TTA100M	2.211	515	13x26
220	16	227TTA016M	1.281	260	8x16
220	25	227TTA025M	1.13	280	8x16
220	35	227TTA035M	0.904	340	8x20
220	50	227TTA050M	0.754	440	10x21
220	63	227TTA063M	0.754	490	10x25
220	100	227TTA100M	1.507	560	13x26
220	160	227TTA160M	1.507	660	22x41
220	250	227TTA250M	1.507	764	22x41
330	16	337TTA016M	0.854	320	8x16
330	25	337TTA025M	0.754	385	8x20
330	50	337TTA050M	0.502	565	10x26
330	63	337TTA063M	0.502	650	13x26
330	100	337TTA100M	1.005	730	13x31
470	10	477TTA010M	0.7055	350	8x16
470	16	477TTA016M	0.5997	450	8x20
470	25	477TTA025M	0.529	560	10x21
470	35	477TTA035M	0.423	640	10x26
470	50	477TTA050M	0.353	740	13x26
470	63	477TTA063M	0.353	845	13x31
470	100	477TTA100M	0.706	960	16x31
1000	10	108TTA010M	0.332	570	10x21
1000	16	108TTA016M	0.282	700	10x26
1000	25	108TTA025M	0.249	830	13x26
1000	35	108TTA035M	0.199	980	13x26
1000	50	108TTA050M	0.166	1130	16x30
1000	63	108TTA063M	0.166	1330	16x31
1000	80	108TTA080M	0.149	1500	16x41
1000	100	108TTA100M	0.332	1640	18x41
1500	25	158TTA025M	0.188	1150	13x26
1500	35	158TTA035M	0.155	1280	16x31
1500	50	158TTA050M	0.133	1480	16x41
2200	10	228TTA010M	0.181	1100	13x26
2200	16	228TTA016M	0.158	1190	13x31
2200	25	228TTA025M	0.143	1480	16x31
2200	35	228TTA035M	0.121	1580	16x31
2200	50	228TTA050M	0.106	1930	16x41
2200	63	228TTA063M	0.098	2158	18x40
2200	80	228TTA080M	0.106	2260	22x51
2200	100	228TTA100M	0.181	2560	25x51
3300	10	338TTA010M	0.131	1435	13x31
3300	16	338TTA016M	0.116	1610	16x31
3300	25	338TTA025M	0.106	1700	16x31
3300	35	338TTA035M	0.0904	1810	16x41

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purpose 2000 hours

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxL (mm)
3300	50	<b>338TTA050M</b>	0.0804	2350	22x41
3300	63	<b>338TTA063M</b>	0.0804	2370	22x51
4700	10	<b>478TTA010M</b>	0.099	1730	16x31
4700	16	<b>478TTA016M</b>	0.088	1840	16x31.5
4700	25	<b>478TTA025M</b>	0.081	2190	16x41
4700	35	<b>478TTA035M</b>	0.0635	2470	22x41
4700	50	<b>478TTA050M</b>	0.0635	2510	22x51
4700	63	<b>478TTA063M</b>	0.0635	3080	25x60
6800	16	<b>688TTA016M</b>	0.071	2310	16x41

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxL (mm)
6800	25	<b>688TTA025M</b>	0.066	2480	18x41
6800	35	<b>688TTA035M</b>	0.059	2760	22x51
10000	10	<b>109TTA010M</b>	0.0332	2350	18x41
10000	16	<b>109TTA016M</b>	0.058	2520	18x41
10000	25	<b>109TTA025M</b>	0.063	3240	22x51
10000	35	<b>109TTA035M</b>	0.0497	3500	25x51
15000	16	<b>159TTA016M</b>	0.0497	3310	22x51
15000	25	<b>159TTA025M</b>	0.0475	3700	25x51
22000	16	<b>229TTA016M</b>	0.045	3600	22x51