

# Aluminum Electrolytic Capacitor –JNK

## FEATURES

- Extended Lifetime at 105°C
- High ripple current
- High Professional Switch Mode Power Supplies
- Frequency Converters

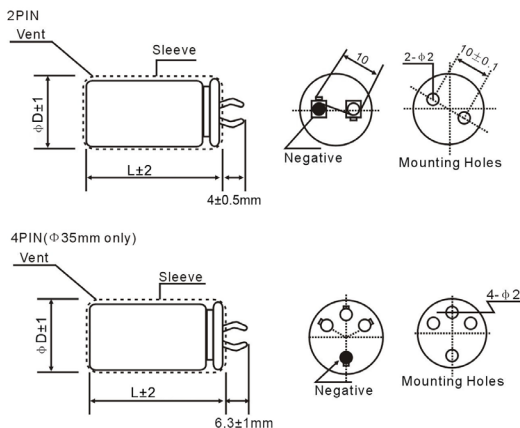


## SPECIFICATIONS

Items	Performance Characteristics											
Operating Temperature Range (°C)	-40°C ~ +105°C						-25°C ~ +105°C					
Voltage Range (V)	10 ~ 100						160 ~ 450					
Capacitance Range (µF)	68 ~ 56000											
Capacitance Tolerance (20°C, 120Hz)	±20%											
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, Whichever is smaller C: Nominal Capacitance (µF) V: Rated Voltage (V)											
Dissipation Factor (20°C, 120Hz)	Rated Voltage (V)	10	16	25	35	50	63	80	100	160~250	315~400	450
	Tan δ (max)	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.20	0.25

Items	Useful Life		Load Life	Endurance Life	Shelf Life
Lifetime	7000h	>200000h	5000h	5000h	5000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ±30% of initial value		Within ±20% of initial value	Within ±20% of initial value	Within ±20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 200% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature Failure Rate Level	U <sub>R</sub> I <sub>R</sub> 105°C ≤1% Failure Rate	U <sub>R</sub> 1.6 x I <sub>R</sub> 40°C ≤1% Failure Rate	U <sub>R</sub> I <sub>R</sub> 105°C guaranteed	U <sub>R</sub> I <sub>R</sub> = 0 105°C	U <sub>R</sub> = 0 I <sub>R</sub> = 0 105°C (After test: U <sub>R</sub> to be applied for 30min >24h before measurement )

## DIMENSIONS (mm)



## MULTIPLIER FOR RIPPLE CURRENT

### Frequency coefficient

Frequency(Hz)	50	120	500	1K	≥ 10K
Rated Voltage(V)					
10~100	0.90	1	1.05	1.15	1.15
63~100	0.80	1	1.20	1.30	1.50
315~450	0.80	1	1.20	1.50	1.40

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## STANDARD RATINGS

U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(uF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>10 (13) 1A</b>	8200	89	62	1.36	22 x 25
	10000	73	51	1.65	22 x 30
	12000	61	43	1.85	22 x 35
		61	43	1.82	25 x 25
	15000	49	34	2.12	22 x 40
		49	34	2.11	25 x 30
		49	34	2.14	30 x 25
	18000	41	28	2.4	22 x 45
		41	28	2.32	25 x 35
	22000	33	23	2.59	25 x 40
		33	23	2.73	30 x 30
	27000	27	19	3.01	25 x 45
		27	19	3.13	30 x 35
		27	19	3.05	35 x 30
	33000	22	16	3.43	25 x 50
		22	16	3.53	30 x 40
39000	22	16	3.49	35 x 35	
	19	13	3.78	30 x 45	
47000	19	13	3.96	35 x 40	
	16	11	4.58	30 x 50	
56000	16	11	4.6	35 x 45	
<b>16 (20) 1C</b>	5600	119	83	1.44	22 x 25
	6800	98	68	1.66	22 x 30
	8200	81	57	1.67	25 x 25
	10000	66	46	2.08	22 x 35
		66	46	2.07	25 x 30
	12000	55	39	2.36	22 x 40
		55	39	2.37	25 x 35
		55	39	2.33	30 x 25
	15000	44	31	2.69	22 x 45
		44	31	2.72	25 x 40
		44	31	2.54	30 x 30
	18000	37	26	3.06	25 x 45
		37	26	3.02	30 x 45
		37	26	3.09	35 x 30
	22000	30	21	3.39	25 x 50
		30	21	3.46	30 x 40
27000	25	17	3.88	30 x 45	
	25	17	3.85	35 x 35	
33000	20	14	4.33	30 x 50	
	20	14	4.33	35 x 40	
39000	17	12	4.96	35 x 45	
47000	14	10	5.49	35 x 50	
<b>25 (32) 1E</b>	3900	153	107	1.31	22 x 25
	4700	127	89	1.55	22 x 30
	5600	107	75	1.77	22 x 35
		107	75	1.76	25 x 25
	6800	88	62	2.02	22 x 40
		88	62	1.88	25 x 30

U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(uF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>25 (32) 1E</b>	8200	73	51	2.27	22 x 45
		73	51	2.18	25 x 35
		73	51	2.19	30 x 25
	10000	60	42	2.56	22 x 50
		60	42	2.53	25 x 40
		60	42	2.38	30 x 30
	12000	50	35	2.79	25 x 45
		50	35	2.7	30 x 35
		50	35	2.76	35 x 30
	15000	40	28	3.13	30 x 40
	18000	33	23	3.52	30 x 45
		33	23	3.5	35 x 35
22000	27	19	3.95	35 x 40	
	27	19	3.95	35 x 40	
27000	22	16	4.72	35 x 50	
<b>35 (44) 1V</b>	2700	197	138	1.29	22 x 25
	3300	161	113	1.54	22 x 30
	3900	136	95	1.77	22 x 35
		136	95	1.75	25 x 25
	4700	113	79	2.01	22 x 40
		113	79	1.97	25 x 30
	5600	95	66	2.25	22 x 45
		95	66	2.18	25 x 35
		95	66	2.08	30 x 25
	6800	78	55	2.49	22 x 50
		78	55	2.45	25 x 40
		78	55	2.28	30 x 30
8200	65	45	2.8	25 x 45	
	65	45	2.69	30 x 35	
10000	53	37	3.04	30 x 30	
	53	37	2.78	35 x 30	
12000	44	31	3.38	30 x 45	
	44	31	3.3	35 x 35	
15000	35	25	3.38	35 x 40	
18000	30	21	4.4	35 x 45	
<b>50 (63) 1H</b>	1500	310	217	1.21	22 x 25
	2200	211	148	1.52	22 x 30
		211	148	1.46	25 x 25
	2700	172	120	1.77	22 x 35
		172	120	1.76	25 x 30
	3300	141	99	1.92	22 x 40
		141	99	1.92	30 x 25
	3900	119	83	2.27	22 x 45
		119	83	2.2	25 x 35
		119	83	2.19	30 x 30
	4700	99	69	2.43	25 x 40
		83	58	2.72	25 x 45
5600	83	58	2.58	30 x 35	
	83	58	2.35	35 x 30	
6800	68	48	3.01	30 x 40	

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U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>50 (63) 1H</b>	6800	68	48	2.91	35 x 35
	8200	57	40	3.63	30 x 50
		57	40	3.36	35 x 40
	10000	46	33	3.79	35 x 45
	12000	39	27	4.06	35 x 50
<b>63 (79) 1J</b>	1000	398	279	1.1	22 x 25
	1500	265	186	1.41	22 x 30
		265	186	1.38	25 x 25
	1800	221	155	1.62	22 x 35
		221	155	1.63	25 x 30
	2200	181	127	1.85	22 x 40
		181	127	1.80	30 x 25
	2700	147	103	2.1	22 x 45
		147	103	2.03	25 x 35
	3300	147	103	2.01	30 x 30
		121	84	2.33	25 x 40
	3900	102	72	2.58	25 x 45
		102	72	2.46	30 x 35
		102	72	2.31	35 x 30
	4700	85	59	2.82	30 x 40
		85	59	2.77	35 x 35
5600	71	50	3.22	30 x 45	
	71	50	3.2	35 x 40	
	59	41	3.61	35 x 45	
	8200	49	34	3.94	35 x 50
<b>80 (100) 1K</b>	820	405	283	1.09	22 x 25
	1000	332	232	1.29	22 x 30
	1200	277	194	1.48	22 x 35
		277	194	1.38	25 x 25
	1500	221	155	1.7	22 x 40
		221	155	1.74	25 x 30
		221	155	1.75	30 x 25
	1800	184	129	1.91	22 x 45
		184	129	1.86	25 x 35
	2200	151	106	2.22	25 x 45
		151	106	2.02	30 x 30
	2700	123	86	2.38	30 x 35
		123	86	2.45	35 x 30
	3300	101	70	2.69	30 x 40
		101	70	2.6	35 x 35
	3900	85	60	2.94	30 x 45
85		60	3	35 x 40	
4700	71	49	3.44	35 x 45	
5600	59	42	3.72	35 x 50	

U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ DxL
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>100 (125) 2A</b>	560	474	332	1.01	22 x 25
	680	390	273	1.19	22 x 30
	820	324	227	1.33	22 x 35
		324	227	1.26	25 x 25
	1000	265	186	1.56	22 x 40
		265	186	1.52	25 x 30
	1200	265	186	1.47	30 x 25
		221	155	1.76	22 x 45
		221	155	1.76	25 x 35
	1500	221	155	1.76	30 x 30
		177	124	2	22 x 50
	1800	177	124	2.03	25 x 40
		147	103	2.29	25 x 45
	2200	147	103	2.19	30 x 35
		147	103	2.15	35 x 30
	2700	121	84	2.52	30 x 40
121		84	2.48	35 x 35	
3300	98	69	2.86	30 x 45	
	98	69	2.87	35 x 40	
3900	80	56	3.25	35 x 45	
	68	48	3.56	35 x 50	
<b>160 (200) 2C</b>	390	510	357	0.97	25 x 30
		510	357	1	30 x 25
	470	424	296	1.11	22 x 40
		424	296	1.14	25 x 35
	560	424	296	1.17	30 x 30
		355	249	1.26	22 x 45
	680	293	205	1.44	22 x 50
		293	205	1.43	25 x 40
		293	205	1.5	30 x 35
	820	243	170	1.63	25 x 45
		243	170	1.66	30 x 30
	1000	243	170	1.63	35 x 30
		199	139	1.89	30 x 45
	1200	199	139	1.89	35 x 35
		166	116	2.16	30 x 50
	1500	166	116	2.23	35 x 40
133		93	2.61	35 x 45	
1800	111	77	2.97	35 x 50	
<b>180 (225) 2K</b>	220	905	633	0.63	22 x 25
	270	737	516	0.76	22 x 30
		737	516	0.76	25 x 25
	330	603	422	0.9	22 x 35
603		422	0.9	25 x 30	

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U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ D×L
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>180 (225) 2K</b>	390	510	357	1.03	22 x 40
		510	357	1.06	25 x 35
		510	357	1.02	30 x 25
	470	424	296	1.17	22 x 45
		424	296	1.17	30 x 30
	560	355	249	1.32	22 x 50
		355	249	1.32	25 x 40
		355	249	1.33	30 x 35
	680	293	205	1.51	25 x 45
		293	205	1.49	35 x 30
	820	243	170	1.71	25 x 50
		243	170	1.74	30 x 40
		243	170	1.75	35 x 35
	1000	199	139	2.01	30 x 45
		199	139	2.07	35 x 40
	1200	166	116	2.25	30 x 50
		166	116	2.23	35 x 45
	<b>200 (250) 2D</b>	180	1106	774	0.57
905			633	0.7	22 x 30
270		737	516	0.83	22 x 35
		737	516	0.76	25 x 25
330		603	422	0.96	22 x 40
		603	422	0.9	25 x 30
390		510	357	1.06	25 x 35
		510	357	1.02	30 x 25
470		424	296	1.17	22 x 45
		424	296	1.22	25 x 40
		424	296	1.17	30 x 30
560		355	249	1.39	25 x 45
		355	249	1.38	30 x 35
680		293	205	1.58	25 x 50
		293	205	1.61	30 x 40
	293	205	1.49	35 x 30	
820	243	170	1.85	30 x 45	
	243	170	1.75	35 x 35	
1000	199	139	2.11	30 x 50	
	199	139	2.07	35 x 40	
1200	166	116	2.38	35 x 45	
	1500	133	93	2.76	35 x 50
<b>250 (300) 2E</b>	150	1327	929	0.52	22 x 25
		1106	774	0.64	22 x 30
	180	1106	774	0.62	25 x 25
		905	633	0.76	22 x 35
	220	905	633	0.76	25 x 30
737		516	0.83	22 x 35	
<b>250 (300) 2E</b>	270	737	516	0.88	22 x 40
		737	516	0.9	25 x 35
		737	516	0.85	30 x 25
	330	603	422	1.01	22 x 45
		603	422	1	30 x 30
	390	510	357	1.13	22 x 50
		510	357	1.13	25 x 40
		510	357	1.15	30 x 35
	470	424	296	1.29	25 x 45
		424	296	1.24	35 x 30
	560	355	249	1.45	25 x 50
		355	249	1.48	30 x 40
		355	249	1.49	35 x 35
	680	293	205	1.71	30 x 45
		293	205	1.74	35 x 40
	820	243	170	1.94	30 x 50
		1000	199	139	2.2
	<b>315 (365) 2F</b>	68	3903	2732	0.32
3237			2266	0.38	22 x 30
100		2654	1858	0.41	25 x 25
		2212	1548	0.48	22 x 35
120		2212	1548	0.49	25 x 30
		1769	1239	0.56	22 x 40
150		1769	1239	0.51	30 x 25
		1474	1032	0.63	22 x 45
180		1474	1032	0.62	25 x 35
		1474	1032	0.63	30 x 30
		1206	844	0.72	22 x 50
220		1206	844	0.71	25 x 40
		1260	844	0.74	30 x 35
270		983	688	0.81	25 x 45
		983	688	0.85	30 x 40
	983	688	0.82	35 x 30	
330	804	563	0.92	25 x 50	
	804	563	0.9	35 x 35	
390	681	476	1.04	30 x 45	
	681	476	1.05	35 x 40	
470	565	395	1.15	30 x 50	
	565	395	1.18	35 x 45	
560	474	332	1.34	35 x 50	
	68	3903	2732	0.34	22 x 25
<b>350 (400) 2V</b>	82	3237	2266	0.4	22 x 30
		2654	1858	0.47	25 x 25
	120	2212	1548	0.52	22 x 35
		2212	1548	0.53	25 x 30

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U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ D×L
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>350 (400) 2V</b>	120	2212	1548	0.53	30 x 25
	120	2212	1548	0.52	22 x 35
		2212	1548	0.53	25 x 30
	150	2212	1548	0.53	30 x 25
		1769	1239	0.59	22 x 40
	180	1769	1239	0.6	25 x 35
		1474	1032	0.68	22 x 45
		1474	1032	0.7	25 x 40
	220	1474	1032	0.71	30 x 30
		1206	844	0.78	22 x 50
		1206	844	0.82	25 x 45
	270	1206	844	0.82	30 x 35
		983	688	0.94	25 x 50
		983	688	0.93	30 x 40
	330	983	688	0.9	35 x 30
		804	563	1.05	30 x 45
	390	804	563	1.01	35 x 35
		681	476	1.18	30 x 50
	470	681	476	1.13	35 x 40
		565	395	1.26	35 x 45
560	474	332	1.39	35 x 50	
<b>400 (450) 2G</b>	68	3903	2732	0.38	22 x 30
	82	3237	2266	0.41	25 x 25
	100	2654	1858	0.46	22 x 35
		2654	1858	0.48	25 x 30
		2654	1858	0.48	30 x 25
	120	2212	1548	0.53	22 x 40
		2212	1548	0.55	25 x 35
		2212	1548	0.56	30 x 30
	150	1769	1239	0.63	22 x 50
		1769	1239	0.65	25 x 40
	180	1474	1032	0.72	25 x 45
		1474	1032	0.74	30 x 35
	220	1206	844	0.79	25 x 50
		1206	844	0.85	30 x 40
		1206	844	0.89	35 x 30
	270	983	688	0.98	30 x 45
		983	688	0.96	35 x 35
	330	804	563	1.12	30 x 50
		804	563	1.12	35 x 40
	390	681	476	1.27	35 x 45
470	565	395	1.33	35 x 50	

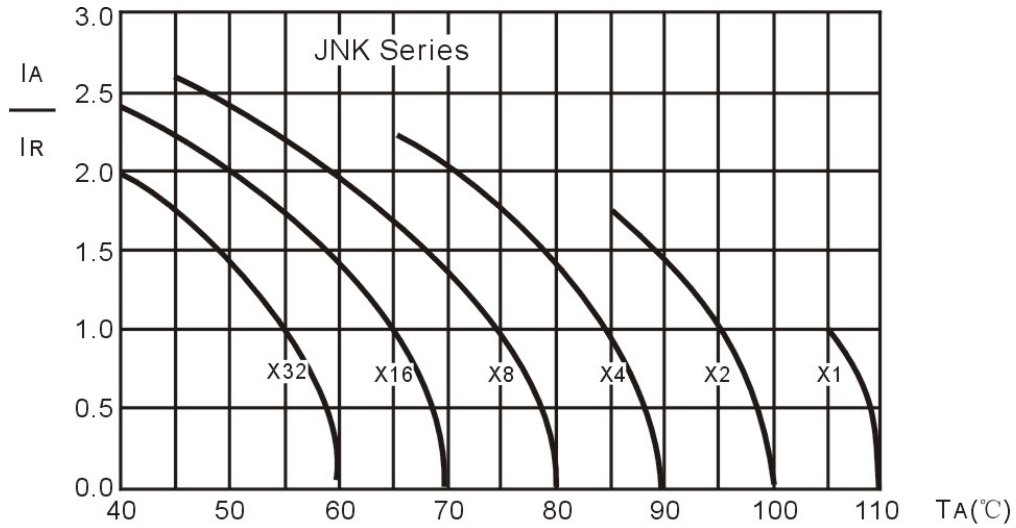
U <sub>R</sub> (Surge Voltage Code)	Rated Capacitance	Max ESR 20°C, 120HZ	Typ ESR 20°C, 120HZ	Rated Ripple Current 105°C, 120Hz	Size φ D×L
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)
<b>450 (500) 2W</b>	68	3903	2732	0.38	22 x 30
	82	3237	2266	0.44	22 x 35
		3237	2266	0.45	25 x 30
		3237	2266	0.46	30 x 25
	100	2654	1858	0.5	22 x 40
		2654	1858	0.52	25 x 35
	120	2212	1548	0.58	22 x 50
		2212	1548	0.58	25 x 40
		2212	1548	0.58	30 x 30
		1769	1239	0.66	25 x 45
	150	1769	1239	0.68	30 x 35
		1474	1032	0.74	25 x 50
		1474	1032	0.77	30 x 40
	180	1474	1032	0.77	35 x 30
		1206	844	0.88	30 x 45
		1206	844	0.88	35 x 35
220	983	688	0.99	30 x 50	
	983	688	1.01	35 x 40	
270	804	563	1.15	35 x 45	
	804	563	1.15	35 x 45	
390	681	476	1.28	35 x 50	
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Note: Special capacitance values and dimensions are available upon request.

# Aluminum Electrolytic Capacitor –JNK

## LIFETIME Diagram



$I_A$ =actual ripple current at 120Hz,  $I_R$ =rated ripple current at 120Hz, 105°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

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