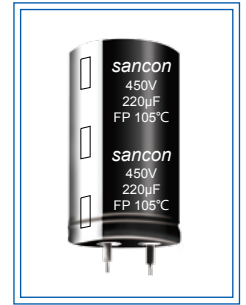


FP (CD296)

Features

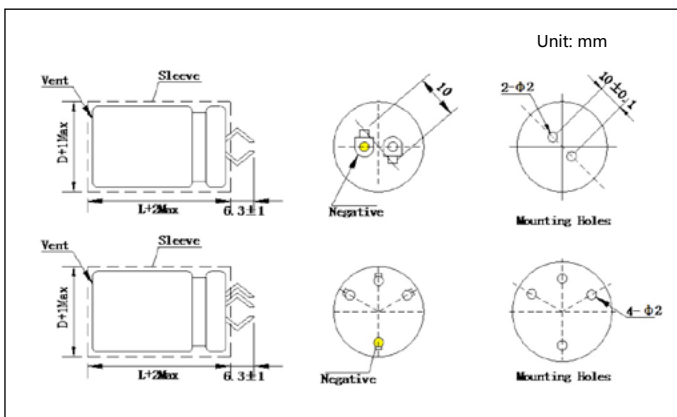
- High Ripple Current, , load life of 3000 hours at 105°C .



Specifications

Item	Performance Characteristics	
Operating Temperature Range	-40~+105°C	-25~+105°C
Rated Voltage Range	16~100V	160~450V
Nominal Capacitance Range	56~47000µF	
Capacitance Tolerance	±20%(120Hz,+20°C)	
Leakage Current	I ≤ 0.01CV or 1.5mA (at 20°C , after 5 minutes , Whichever is smaller)	
Dissipation Factor (tgδ,+20°C ,120Hz)	U _R (V)	16 25 35 50 63~100 160~400 450
	tgδ	0.50 0.40 0.35 0.30 0.20 0.15 0.20
Temperature Characteristics (Impedance ratio at 120Hz)	U _R (V)	16~100 160~200 250~450
	Z-25°C /+20°C	4 4 4
	Z-40°C /+20°C	15 - -
Load Life	After applying rated voltage with specified ripple current for 3000 hours at +105°C and then resumed 24 hours: Capacitance change : ±20% of the initial measured value Leakage current : ≤ the initial specified value Dissipation factor: ≤ 200% of the initial specified value	
Shelf Life	After storage for 1000 hours at +105°C ,U _R to be applied for 30 minutes and then resumed 24 hours: Capacitance change : ±15% of the initial measured value Leakage current : ≤ the initial specified value Dissipation factor: ≤ 200% of the initial specified value	

Diagram of Dimensions



Multiplier for Ripple Current

Frequency coefficient

U(V) \ Frequency (Hz)	50	120	1K	10K	≥ 20K
≤ 100	0.95	1.00	1.10	1.15	1.15
160~250	0.87	1.00	1.11	1.18	1.20
≥ 350	0.80	1.00	1.14	1.14	1.20

Temperature coefficient

Temperature (°C)	+40	+55	+70	+85	+105
Coefficient	2.7	2.5	2.1	1.7	1.0

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120Hz (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
16 1C	20	6800	98	68	1.6	22×25
		8200	81	57	1.8	25×25
		10000	66	46	1.99	22×30
			66	46	1.99	25×25
		12000	55	39	2.28	22×35
			55	39	2.3	25×30
		15000	55	39	2.38	30×25
			44	31	2.64	22×40
		18000	44	31	2.68	25×35
			37	26	2.98	22×45
		22000	37	26	3.04	25×40
			37	26	3	30×30
			37	26	3.1	35×25
		27000	30	21	3.4	25×45
			30	21	3.39	30×35
		33000	25	17	3.81	25×50
			25	17	3.83	30×40
		39000	25	17	3.74	35×30
			20	14	4.3	30×45
		47000	20	14	4.24	35×35
17	12		4.74	30×50		
25 1E	32	4700	113	79	1.55	22×25
		5600	95	66	1.70	25×25
		6800	78	55	1.91	22×30
			78	55	1.91	25×25
		8200	65	45	2.14	22×35
			65	45	2.16	25×30
		10000	65	45	2.25	30×25
			53	37	2.4	22×40
		12000	53	37	2.44	25×35
			44	31	2.69	22×45
		15000	44	31	2.74	25×40
			44	31	2.7	30×30
			44	31	2.8	35×25
		18000	35	25	3.15	25×45
			35	25	3.13	30×35
		22000	35	25	3.22	35×30
			30	21	3.54	25×50
		27000	30	21	3.54	30×40
			24	17	4.24	30×45
		33000	24	17	3.96	35×35
20	14		4.75	35×45		
35 1V	44	3300	141	99	5.39	35×50
		3900	119	83	1.43	22×25
		4700	99	69	1.65	22×30
		5600	83	58	1.78	25×25
			83	58	2.02	22×35
		6800	83	58	2.04	25×30
			83	58	2.12	30×25
		8200	68	48	2.28	22×40
			68	48	2.31	25×35
		10000	57	40	2.67	22×50
57	40		2.6	25×40		
57	40		2.56	30×30		
10000	57	40	2.78	35×25		
	46	33	2.92	25×45		
		46	33	2.92	30×35	

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120Hz (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
35 1V	44	12000	39	27	3.26	25×50
			39	27	3.28	30×40
		15000	39	27	3.2	35×30
			31	22	3.74	30×45
			31	22	3.69	35×35
			26	18	4.16	35×40
22000	21	15	4.92	35×50		
50 1H	63	1800	221	155	1.31	22×25
		2200	181	127	1.45	22×30
		2700	147	103	1.7	22×30
			147	103	1.7	25×25
		3300	121	84	1.98	22×35
			121	84	2	25×30
		3900	102	72	2.25	22×40
			102	72	2.28	25×35
			102	72	2.22	30×25
		4700	85	59	2.56	22×45
			85	59	2.58	30×30
			85	59	2.67	35×25
		5600	71	50	2.89	22×50
			71	50	2.81	25×40
			71	50	2.95	30×35
		6800	59	41	3.37	25×50
			59	41	3.39	30×40
			59	41	3.31	35×30
		8200	49	34	3.71	30×45
			49	34	3.66	35×35
10000	40	28	4.09	30×50		
	40	28	4.07	35×40		
12000	33	23	4.5	35×45		
63 1J	79	1200	221	155	1.25	22×25
		1500	177	124	1.39	22×25
		1800	147	103	1.52	22×30
			147	103	1.52	25×25
		2200	121	84	1.73	22×35
			121	84	1.75	25×30
		2700	98	69	1.97	22×40
			98	69	1.99	25×35
			98	69	1.93	30×25
		3300	80	56	2.32	22×50
			80	56	2.27	25×40
			80	56	2.24	30×30
			80	56	2.41	35×25
		3900	68	48	2.54	25×45
			68	48	2.55	30×35
		4700	57	40	2.88	25×50
			57	40	2.9	30×40
		5600	57	40	2.83	35×30
			47	33	3.28	30×45
		6800	47	33	3.24	35×35
39	27		3.73	30×50		
8200	39	27	3.71	35×40		
	32	23	4.16	35×45		
10000	27	19	4.69	35×50		
80 1K	100	820	324	227	1.11	22×25
		1000	265	186	1.25	22×25
		1200	221	155	1.39	22×30
			221	155	1.39	25×25
		1500	177	124	1.61	22×35
			177	124	1.62	25×30
		1800	147	103	1.83	22×40
			147	103	1.81	30×25
		2200	121	84	2.09	22×45
			121	84	2.01	25×35
121	84		2.1	30×30		
121	84		2.17	35×25		

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120Hz (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
80 1K	100	2700	98	69	2.43	25×45
			98	69	2.43	30×35
		3300	80	56	2.76	25×50
			80	56	2.78	30×40
		3900	80	56	2.71	35×30
			68	48	3.12	30×45
		4700	68	48	3.07	35×35
			57	40	3.56	30×50
		5600	57	40	3.5	35×40
			47	33	3.87	35×45
6800	39	27	4.19	35×50		
	100 2A	560	474	332	1.07	22×25
680			391	274	1.20	22×30
820		324	227	1.35	22×30	
		324	227	1.35	25×25	
1000		265	186	1.54	22×35	
		265	186	1.56	25×30	
1200		221	155	1.74	22×40	
		221	155	1.76	25×35	
		221	155	1.71	30×25	
1500		177	124	1.99	22×45	
	177	124	2.03	25×40		
	177	124	2	30×30		
	177	124	2.07	35×25		
1800	147	103	2.28	25×45		
	147	103	2.27	30×45		
2200	121	84	2.57	25×50		
	121	84	2.59	30×40		
	121	84	2.52	35×30		
2700	98	69	2.94	30×45		
	98	69	2.9	35×35		
3300	80	56	3.32	30×50		
	80	56	3.31	35×40		
3900	68	48	3.69	35×45		
	4700	57	40	4.14	35×50	
160 2C	200	330	603	422	1.16	22×25
		390	510	357	1.43	22×30
		470	424	296	1.52	22×35
			424	296	1.55	25×25
		560	355	249	1.62	22×40
			355	249	1.73	25×30
		680	293	205	1.7	22×45
			293	205	1.81	25×35
			293	205	1.82	30×25
		820	243	170	1.91	22×50
			243	170	1.98	25×40
			243	170	1.98	30×30
			243	170	1.93	35×25
		1000	199	139	2.04	25×45
			199	139	2.14	30×35
		1200	166	116	2.12	25×50
			166	116	2.22	30×40
			166	116	2.4	35×30
		1500	133	93	2.46	30×45
			133	93	2.53	35×35
1800	111	77	2.98	35×45		
2200	91	63	3.1	35×50		

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120HZ (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
180 2K	225	270	737	516	1.08	22×25
		330	603	422	1.3	22×30
		390	510	357	1.35	25×25
		470	424	296	1.5	22×35
			424	296	1.62	25×30
		560	355	249	1.62	22×40
			355	249	1.69	25×35
			355	249	1.67	30×25
		680	293	205	1.76	22×50
			293	205	1.72	25×40
			293	205	1.74	30×30
			293	205	1.92	35×25
		820	243	170	1.78	25×45
			243	170	1.85	30×35
		1000	199	139	1.91	25×50
			199	139	2.01	30×40
			199	139	2.16	35×30
		1200	166	116	2.19	30×45
166	116		2.34	35×35		
1500	133	93	2.36	30×50		
	133	93	2.56	35×40		
1800	111	77	2.67	35×45		
200 2D	250	220	905	633	1.08	22×25
		330	603	422	1.3	22×30
			603	422	1.35	25×25
		390	510	357	1.41	22×35
		470	424	296	1.5	22×40
			424	296	1.47	25×30
			424	296	1.56	30×25
		560	355	249	1.58	22×45
			355	249	1.60	25×35
		680	293	205	1.78	22×50
			293	205	1.8	25×40
			293	205	1.82	30×30
			293	205	1.86	35×25
		820	243	170	1.97	25×50
			243	170	1.99	30×35
			243	170	2.07	35×30
		1000	199	139	2.17	30×45
			199	139	2.22	35×35
1200	166	116	2.32	30×50		
	166	116	2.42	35×40		
1500	133	93	2.59	35×45		
1800	111	77	2.7	35×50		
250 2E	300	180	1106	774	0.94	22×25
		220	905	633	1.1	22×30
			905	633	1.15	25×25
		270	737	516	1.13	22×35
		330	603	422	1.2	22×40
			603	422	1.3	25×30
			603	422	1.3	30×25
		390	510	357	1.41	22×45
510	357		1.42	25×35		

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120Hz (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
250 2E	300	470	424	296	1.48	22×50
			424	296	1.47	25×40
			424	296	1.51	30×30
			424	296	1.50	35×25
		560	355	249	1.59	25×45
			355	249	1.57	30×35
			355	249	1.56	35×30
		680	293	205	1.66	25×50
			293	205	1.68	30×40
		820	243	170	1.83	30×45
			243	170	1.82	35×35
		1000	199	139	1.87	30×50
199	139		1.99	35×40		
1200	166	116	2.1	35×45		
350 2V	400	68	2927	1610	0.56	22×25
		100	1990	1095	0.7	22×30
			1990	1095	0.7	25×25
		120	1659	912	0.73	22×35
		150	1327	730	0.79	22×40
			1327	730	0.82	25×30
			1327	730	0.82	30×25
		180	1106	608	0.81	22×45
			1106	608	0.89	25×35
			1106	608	0.9	30×30
		220	905	498	0.93	22×50
			905	498	0.97	25×40
			905	498	0.98	35×25
		270	737	406	1.01	25×50
			737	406	1.05	30×35
			737	406	1.01	35×30
		330	603	332	1.16	30×45
			603	332	1.16	35×35
390	510	281	1.26	30×50		
	510	281	1.26	35×40		
470	424	233	1.35	35×45		
560	355	196	1.51	35×50		
400 2G	450	68	2927	1522	0.47	22×25
		82	2427	1262	0.56	22×30
			2427	1262	0.56	25×25
		100	1990	1035	0.62	22×30
		120	1659	863	0.66	22×35
			1659	863	0.68	25×30
			1659	863	0.70	30×25
		150	1327	690	0.73	22×40
			1327	690	0.73	25×35
		180	1106	575	0.78	22×50
			1106	575	0.82	25×40
			1106	575	0.83	30×30
			1106	575	0.86	35×25
		220	905	471	0.87	25×45
			905	471	0.96	30×35
		270	737	383	0.94	25×50
			737	383	0.95	30×40
			737	383	0.91	35×30

Standard Size

Rated Voltage (V _{dc})	Surge Voltage (V _{dc})	Rated Capacitance (μF)	Max ESR 20°C 120Hz (mΩ)	Type ESR 20°C 120HZ (mΩ)	Rated ripple current 105°C 120Hz (Arms)	Size ΦD×L (mm)
400 2G	450	330	603	314	1.11	30×45
			603	314	1.13	35×35
		390	510	265	1.15	30×50
			510	265	1.26	35×40
		470	424	220	1.31	35×45
560	355	185	1.5	35×50		
450 2W	500	56	4739	2370	0.47	22×25
		68	3903	1951	0.56	22×30
			3903	1951	0.56	25×25
		82	3237	1618	0.64	22×35
		100	2654	1327	0.7	22×40
			2654	1327	0.7	25×30
			2654	1327	0.7	30×25
		120	2212	1106	0.73	22×45
			2212	1106	0.73	25×35
		150	1769	885	0.8	22×50
			1769	885	0.82	25×40
			1769	885	0.83	30×30
			1769	885	0.86	35×25
		180	1474	737	0.87	25×45
			1474	737	0.86	30×35
		220	1206	603	0.94	25×50
			1206	603	0.95	30×40
			1206	603	0.91	35×30
		270	983	492	1.11	30×45
			983	492	1.13	35×35
		330	804	402	1.15	30×50
804	402		1.26	35×40		
390	681	340	1.31	35×45		
470	565	282	1.5	35×50		