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Keltron Capacitor

SA Series

STANDARD RATING TABLE

Case code / Allowable Ripple current (mA) r.m.s (120Hz/ +85°C)

WV(V) SV cap(μF)	100 115	160 184	200 230	250 285	315 350	350 385	400 440	450 500
0.10	HS 3							
0.22	HS 5							
0.33	HS 7							
0.47	HS 12	HS 12	AS 13	AS 13	BB 14	BB 16	BB 17	BB 17
1.0	HS 17	HS 17	AS 18	BB 18	BB 18	BB 22	BD 24	BD 24
2.2	HS 28	AS 29	BB 30	BB 31	CB 36	CB 36	CD 37	CD 37
3.3	HS 30	BS 39	BB 40	CB 43	CB 43	CD 44	CG 45	CG 48
4.7	HS 44	BB 48	CB 50	CB 51	CD 53	CD 53	CD 53	CG 60
10	AS 75	CD 80	CD 82	CG 85	DG 90	DG 96	DK 96	DK 97
22	BB 125	CG 130	CG 135	DK 139	EK 144	EK 148	EK 150	ER 162
33	CB 175	DG 178	DK 181	EK 188	ER 210	EU 240	EU 240	TH 270
47	CD 213	DK 246	EK 249	ER 252	SH 257	SJ 286	TH 292	TJ 296
68	CG 264	EK 275	ER 290	EU 302	SJ 310	TH 326		
100	DG 310	ER 380	SH 395	SJ 415	TH 510			
150	DK 425	SH 486	SJ 512	TH 548	TJ 580			
220	EK 540	SJ 606	TH 700	TJ 725	TM 765			
330	ER 690	TJ 740	TJ 765	TM 773				
470	EU 1067	TM 1226	TM 1298					
680	SH 1438							
1000	TJ 1987							
1500	TM 2707							

RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Freq.(Hz) Cap(μF)	50(60)	120	300	1K	10K~
6.3~160	0.1 ~ 68	0.75	1	1.35	1.57	2.00
	100 ~ 680	0.80	1	1.23	1.34	1.50
	1000 ~ 22000	0.85	1	1.10	1.13	1.13
160 ~450	0.47 ~ 220	0.80	1	1.25	1.40	1.40
	330 ~ 470	0.90	1	1.10	1.13	1.13

Temperature Multipliers

Temp (°C)	40	60	70	85
Factor	1.3	1.28	1.15	1

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(case code / Allowable Ripple current (mA) r.m.s (120Hz/ +85°C)

WV (V) cap(μF)	6.3		10		16		25		35		40		50		63	
	8		12		19		30		40		46		58		73	
0.1													47 HS	1 1.5	47 HS	1.5 2
0.22													47 HS	2 3	47 HS	2 3.5
0.33													47 HS	3 4	47 HS	3 5
0.47													47 HS	9 11	47 HS	9 11
1.0													47 HS	13 15	47 HS	13 16
2.2													47 HS	19 26	47 HS	20 27
3.3												47 HS	19 27	47 HS	47 HS	25 34
4.7					47 HS	18 19	47 HS	20 28	47 HS	22 31	47 HS	23 32	47 HS	28 40	47 HS	28 44
10			47	32	47 HS	26 40	47 HS	36 50	47 HS	38 54	57 HS	42 60	57 HS	43 65	67 HS	53 70
22	47	43	47 HS	46 65	47 HS	48 70	57 HS	54 80	67 HS	75 90	HS	95	AS	110	AS	115
33	47 HS	53 74	57 HS	58 79	57 HS	60 90	67 HS	80 95	HS	105	AS	115	AS	125	BS	142
47	57 HS	65 88	57 HS	68 93	57 HS	73 110	67 HS	101 120	AS	133	AS	137	AS	138	BB	150
68	57 HS	68 95	67 HS	95 135	HS	141	AS	160	AS	180	BS	185	BS	205	CB	215
100	67 HS	110 120	67 HS	131 155	HS	162	AS	173	BS	222	BS	230	BB	239	CB	270
150	67 AS	127 160	AS	168	AS	215	BS	245	BB	275	CB	308	CD	330	CD	395
220	67 AS	178 211	AS	233	AS	240	BB	300	CB	340	CB	352	CD	404	CG	450
330	BS	285	BS	316	BB	340	CB	423	CD	527	CD	545	CG	619	DG	621
470	BB	366	BB	405	CB	455	CD	516	CG	563	CG	583	DG	685	DK	750
680	CB	472	CB	476	CD	605	CG	685	DG	873	DG	904	DK	1099	EK	1143
1000	CB	572	CD	662	CD	694	CG	849	DK	1146	DK	1186	EK	1339	ER	1523
1500	CD	779	CG	894	DG	1075	DK	1288	EK	1627	EK	1684	EU	1725	SH	1749
2200	DG	1100	DG	1216	DK	1279	DK	1376	ER	1853	ER	1910	SH SR	2108 2101	TH	2196
3300	DG	1302	DK	1441	DK	1500	ER	1763	EU	2007	SH	2213	TH	2415	TJ	2635
4700	EK	1751	EK	1872	ER	1901	EU	2097	SJ	2509	TJ	2873	TJ	2886	TM	3368
6800	EK	1986	ER	2056	SH	2379	TH	2761	TJ	3037	TM	3448	TM	3522		
10000	EU	2272	SH	2560	TH	2902	TJ	3201	TM	3565						
15000	SH	2698	TJ	3302	TJ	3370	TM	3960								
22000	TJ	3429	TM	3931	TM	3994										

Case Code ↑ ↑ Ripple Current

(Other sizes are available on request)

As part of continuous Development Design and specifications are subject to change without notice.

SA**Series**

Miniaturised Radial type Lead
For General purpose
 3000 hours, +85°C (2000 Hrs for $\varnothing \leq 8\text{mm}$)

Item	Performance Characteristics																																							
Reference Standards	IS : 4317 / IEC 384 – 4																																							
Operating temperature range	- 40°C to +85°C for WV ≤ 160 Vdc & -25°C to + 85°C for WV > 160 Vdc																																							
Working Voltage (WV) range	6.3 Vdc to 450 Vdc																																							
Capacitance Range	0.10 to 22000μF (at+27° C,120 Hz)																																							
Capacitance Tolerance	±20%, (±10% on request)																																							
Leakage Current (IL) in μ A	After 3 minutes application of rated voltage through 1000 Ω series resistor IL ≤ 0.01 CV or 4 μA, whichever is greater for WV6.3 to 100 V, ≤ 0.02 CV+ 10μA for WV 160 to 450 V[C= Capacitance (μF), V= Working Voltage]																																							
Dissipation factor (Tan δ) Max	<table><tr><td colspan="13">Measured at + 27°C, 120 Hz</td></tr><tr><td>WV (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>40</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250 ~450</td></tr><tr><td>Tan δ %</td><td>26</td><td>22</td><td>20</td><td>17</td><td>15</td><td>14</td><td>13</td><td>12</td><td>10</td><td>15</td><td>18</td><td>20</td></tr></table> For Capacitance more than 1000 μF add 2% for every 1000μF increase	Measured at + 27°C, 120 Hz													WV (V)	6.3	10	16	25	35	40	50	63	100	160	200	250 ~450	Tan δ %	26	22	20	17	15	14	13	12	10	15	18	20
Measured at + 27°C, 120 Hz																																								
WV (V)	6.3	10	16	25	35	40	50	63	100	160	200	250 ~450																												
Tan δ %	26	22	20	17	15	14	13	12	10	15	18	20																												
Stability at low temperature	<table><tr><td> WV (V) Max Impedance ratio </td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>40~100</td><td>160~250</td><td>315 ~350</td><td>400~450</td></tr><tr><td>Zat-25°C/Z at 27°C</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>2</td><td>3</td><td>6</td><td>7</td></tr><tr><td>Zat-40°C/Z at 27° C</td><td>12</td><td>10</td><td>8</td><td>6</td><td>4</td><td>3</td><td>For 160V 3</td><td>-</td><td>-</td></tr></table> Add 0.5 per 1000 μF for Cap> 1000 μFfor ratio Z- 25° C Add 1.0 per 1000 μF for Cap> 1000 μFfor ratio Z- 40° C	WV (V) Max Impedance ratio	6.3	10	16	25	35	40~100	160~250	315 ~350	400~450	Zat-25°C/Z at 27°C	6	4	4	3	3	2	3	6	7	Zat-40°C/Z at 27° C	12	10	8	6	4	3	For 160V 3	-	-									
WV (V) Max Impedance ratio	6.3	10	16	25	35	40~100	160~250	315 ~350	400~450																															
Zat-25°C/Z at 27°C	6	4	4	3	3	2	3	6	7																															
Zat-40°C/Z at 27° C	12	10	8	6	4	3	For 160V 3	-	-																															

Life Tests

Tests Test Condition	LOAD LIFE (Endurance test)	SHELF LIFE (Storage test):
	After 3000 hours application of rated Voltage at +85°C and measurements after recovery at + 27°C (For Ø ≤ 8mm only 2000 hours)The capacitance shall meet the following requirements	Capacitors stored at +85° C without any voltage application for 1000 hours and measurements after recovery at +27° C
i) ΔCapacitance	within ± 30% for 6.3 to 16 V within ± 25% for 25 to 100 V within ± 20% for 160 to 450V	within ± 25% of Initial measured Value
ii) Tan δ	within 200% of Initial limits for WV 6.3 ~16 V within 150% of Initial limits for WV 25 ~ 450 V	within 150% of initial limit
iii) Leakage Current	within initial limit	within 150% of initial limit for WV ≤100V within 300% of initial limit for WV 160~450V
iv) Δ Impedance (at 20 KHz)	within i) 400%of initial value for WV 6.3 ~ 16V ii) 300% of initial value for WV >16V	
v)Solderability		Solder coating on lead wire meets above 85% surface area.
vi) Visual	No seepage of electrolyte through seal of vent and no damage of sleeve.	

Product Quick Guide				
SERIES	FEATURES	OPERATING TEMPERATURE RANGE	WORKING VOLTAGE (VDC) CAPACITANCE (μ F) RANGE	BODY COLOUR
SA 	Radial lead Standard +85°C	-40°C to +85°C for WV $\leq$ 160V -25°C to +85°C for WV > 160V	6.3 ~ 450 V 0.1 ~ 22000 μ F	Orange
SH 	Radial lead type Horizontal Correction +85°C (Nonpolar)	- 40°C to +85°C	25 ~ 50 V 1 ~ 18 μ F	Orange
SE 	Radial lead +105 °C	- 40°C to +105°C for wv $\leq$ 160v-25° c to+105° c for wv>160v	6.3 ~ 450 V 0.1 ~ 10000 μ F	Orange
SN 	Radial lead Bi-polar +85°C (Nonpolar)	- 40°C to +85°C	6.3 ~ 100 V 0.1 ~ 2200 μ F	Orange
SZ 	Radial lead low E.S.R +85°C	- 40°C to +85°C	6.3 ~ 160 V 1 ~ 4700 μ F	Orange
DB 	Axial lead Standard + 85° C	-40°C to +85°C for WV $\leq$ 160V -25°C to +85° C for WV > 160V	6.3 ~ 450 V 0.1 ~ 22000 μ F	Orange
MS/MD MD 	AC Motor Start Capacitor Single Can (MS)& Double Can (MD)	-30°C to +70°C 	115 ~ 330VAC 20 ~ 250 μ F	Green Aluminium
MB 	Snap-in +85°C	-40°C to +85°C for WV $\leq$ 160V -25°C to+85°C for WV > 160V	10 ~ 450V 47 ~ 47000 μ F	Orange
ML 	Lug Terminal +85°C	-40°C to +85° C for WV $\leq$ 160V -25°C to+85°C for WV > 160V	16 ~ 400 V 150 ~ 100000 μ F	Green
MP 	Screw Terminal +85° C	-40°C to +85°C for WV $\leq$ 160V -25°C to+85°C for WV > 160V	16 ~ 450 V 220 ~ 100000 μ F	Green



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