

RX Series 85°C

Features

Extremely Long useful life

Applications

- ◆ High reliability
- ◆ Professional power supplies
- ◆ Frequency converters
- ◆ Uninterruptible power supplies

Features

- ◆ Long useful life
- ◆ High reliability
- ◆ High reliability current capability
- ◆ Version with low-inductance design available
- ◆ All-welded construction ensures reliable electrical contact
- ◆ Self-extinguishing electrolyte
- ◆ RoHS-compatible

Construction

- ◆ Charge-discharge proof, polar
- ◆ Aluminum case with insulating sleeve
- ◆ Poles with screw terminal connections
- ◆ Mounting with ring clips, clamps or threaded stud



Specifications

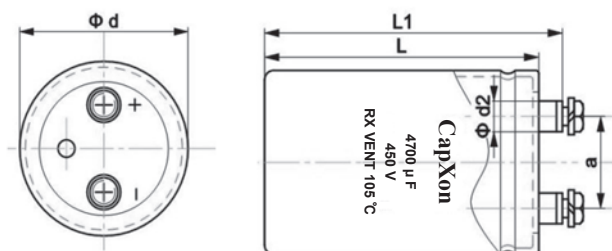
Item	Performance Characteristics			
Operating Temperature Range	-40 to +85℃		-25 to +85℃	
Rated voltage V _R	160 to 450 V DC		500 to 650 V DC	
Surge voltage V _S	V _R ≤315V 1.15 V _R		V _R > 315V 1.10 V _R	
Rated capacitance C _R	200 to 100000 μF		10000 to 15000 μF	
Capacitance tolerance	±20%(120Hz,+20℃)			
Leakage Current I _{leak} (+20℃.max.)	I _{leak} =0.018x(CxV) ^{0.85} + 4 or 5mA, whichever is smaller (after 5 minutes) Where, I _{leak} : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			
Dissipation Factor (tan δ ,at 20℃,120Hz)	Less than the value under table(%)			
	Working Voltage(VDC)	160~450	500~550	≥600
	D.F. (%)max.	15	20	25
Self-inductance ESL	d = 51 mm: approx. 17 nH			
	d ≥ 63.5 mm: approx. 20 nH			
	Capacitors with low-inductance design:			
	d ≥ 63.5 mm: approx. 15 nH			
Useful life 85℃; V _R ,I _{AC,R}	>2000 h	Requirements:		
		ΔC/C	≤±15% of initial value	
		tan δ	≤1.75 times initial specified limit	
Voltage Endurance test 85℃; V _R	2000 h	I _{leak}		
		≤ initial specified limit		
		Post test requirements:		
		ΔC/C	≤±10% of initial value	
Vibration Resistance test		tan δ	≤1.3 times initial specified limit	
		I _{leak}	≤ initial specified limit	
		To IEC 60068-2-6, test Fc:		
		Displacement amplitude 0.75 mm, frequency range 10 ... 55 Hz, acceleration max. 10 g, duration 3x2 h. Capacitor mounted by its body which is rigidly clamped to the work surface.		
Characteristics at low temperature		Max. impedance ratio at 120 Hz		
		V _R (V)	160-450	≥500
		Z _{-25℃} / Z _{20℃}	4	4
		Z _{-40℃} / Z _{20℃}	10	-
Sectional specification	IEC 60384-4 and JIS-C-5101			

Multiplier for Ripple Current vs. Frequency

Frequency(Hz)	50	120	300	1K	$\geq 3K$
Multiplier	0.8	1	1.2	1.3	1.4

Dimensional drawings

Ring clip/clamp mounting:



M5: Min.reach of screw = 8mm
M6: Min.reach of screw = 12mm
M8: Min.reach of screw = 16mm

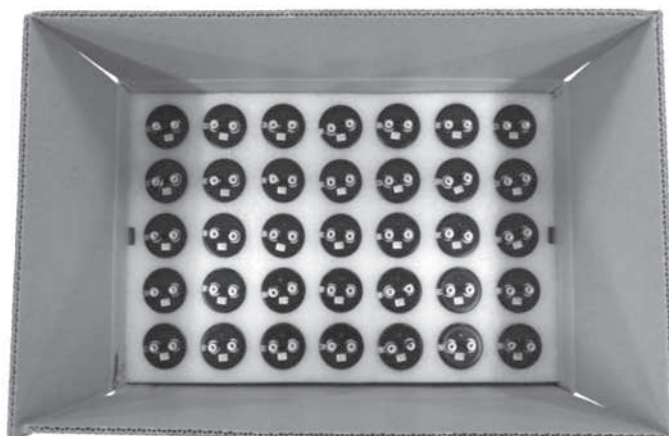
Dimensions

Terminal	Dimensions(mm) with insulating sleeve				
	$d \pm 2$	$L \pm 3$	$L_1 \pm 3$	$d_2 \text{ max.}$	$a \pm 0.5$
M5	35	50~120	56.5~126.5	10.3	12.7
M5	51	80~140	86.5~146.5	10.3	22
M5	63.5	80~140	86.5~146.5	10.3	28.6
M5	76.2/89	100~240	106.4~246.5	10.3	31.8
M6	76.2/89	100~240	106.4~246.5	17.5	31.8
M8	100	100~240	110~250	17.5	41.5

Packing

Capacitor diameter d(mm)	length l(mm)	Packing units (pcs.)
35	$\leq 70\text{mm}$	120
	$> 70\text{mm}$	60
42	$\leq 70\text{mm}$	120
	$> 70\text{mm}$	60
51	$\leq 70\text{mm}$	70
	$> 70\text{mm}$	35
63.5	all	24
76.2	all	15
89	all	12
100	all	6

Packing of screw



Accessories

The following items are included in the delivery package, but are not fastened to the capacitors.

	Thread	Maximum torque
For terminals	M5	2 Nm
	M6	2.5 Nm
	M8	5.0 Nm

Case Size

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
160	1000	35x60	2.5	110	200
160	1500	35x80	3.3	68	130
160	2200	35x80	3.5	48	90
160	2200	35x100	3.5	48	90
160	3300	35x120	4.7	32	60
160	3300	51x80	4.8	32	60
160	4700	51x80	5.1	22	42
160	4700	51x100	6.0	22	42
160	6800	51x100	6.4	15	29
160	6800	51x140	7.0	15	29
160	6800	63.5x100	7.0	15	29
160	10000	63.5x100	9.1	10	20
160	10000	63.5x120	10.0	10	20
160	15000	76.2x100	12.1	7	13
160	15000	76.2x120	13.0	7	13
160	22000	76.2x140	17.0	6.0	11
160	22000	89x130	18.0	6.0	11
160	33000	89x140	19.3	5.0	9
160	47000	89x170	20.7	4.0	7
160	47000	89x220	23.0	4.0	7
160	68000	89x220	23.2	3.5	6
160	100000	100x250	24.5	3.0	5
200	680	35x50	1.9	150	290
200	1000	35x60	2.6	110	200
200	1500	35x80	3.4	68	130
200	2200	35x100	3.6	48	90
200	2200	35x120	4.0	48	90
200	2200	51x80	4.0	48	90
200	3300	51x80	4.8	32	60
200	3300	51x100	5.0	32	60
200	4700	51x140	6.5	22	42
200	4700	63.5x100	6.5	22	42
200	6800	51x140	7.4	15	29
200	6800	63.5x120	8.0	15	29
200	10000	63.5x120	10.3	10	20
200	10000	76.2x120	13.1	10	20
200	15000	76.2x120	13.4	7	13
200	15000	76.2x140	15.0	7	13
200	15000	76.2x160	16.1	7	13
200	22000	76.2x160	17.4	6	9
200	22000	89x140	17.8	6	9
200	33000	89x170	19.6	4	7
200	47000	89x220	21.0	3	5.8
200	68000	100x250	22.7	3	5
250	470	35x60	2.7	220	420
250	680	35x80	2.8	150	290
250	1000	35x80	3.0	110	200
250	1000	35x100	3.3	110	200
250	1500	35x100	3.6	68	130
250	1500	51x80	3.7	68	130
250	2200	51x80	4.1	48	90
250	2200	51x100	5.5	48	90
250	3300	51x100	5.5	32	60
250	3300	51x140	6.0	32	60
250	3300	63.5x100	6.0	32	60
250	4700	63.5x100	7.4	22	42
250	4700	63.5x120	8.0	22	42
250	6800	63.5x120	9.0	15	29

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
250	6800	76.2x120	10.0	15	29
250	10000	76.2x120	13.3	10	20
250	10000	76.2x160	14.0	10	20
250	10000	89x140	14.0	10	20
250	15000	89x140	16.5	7	13
250	15000	89x170	18.0	7	13
250	22000	89x170	18.3	5	9
250	22000	89x220	22.4	5	9
250	33000	89x220	22.5	3	6
250	47000	100x250	28.5	3	5
350	330	35x60	2.1	320	600
350	470	35x80	3.0	220	420
350	680	35x100	3.8	150	290
350	820	35x80	4.1	130	240
350	1000	35x100	4.5	110	200
350	1000	51x60	4.0	110	200
350	1000	51x80	5.7	110	200
350	1200	51x60	5.0	89	170
350	1200	51x83	5.8	89	170
350	1500	51x75	6.0	68	130
350	1500	51x100	7.0	68	130
350	1800	51x75	6.8	58	110
350	1800	51x90	7.4	58	110
350	1800	63.5x96	8.5	58	110
350	2200	51x105	8.5	48	90
350	2200	51x120	9.0	48	90
350	2700	51x105	9.4	39	74
350	2700	51x115	10.6	39	74
350	2700	63.5x80	9.8	39	74
350	2700	63.5x85	10.1	39	74
350	3300	51x115	10.8	32	60
350	3300	51x130	12.5	32	60
350	3300	63.5x90	12.0	32	60
350	3300	63.5x100	12.5	32	60
350	3900	63.5x100	13.0	27	51
350	3900	63.5x115	13.9	27	51
350	3900	76.2x80	13.0	27	51
350	4700	63.5x105	14.0	22	42
350	4700	63.5x115	14.5	22	42
350	4700	76.2x90	14.0	22	42
350	4700	76.2x120	16.0	22	42
350	5600	63.5x130	17.4	19	36
350	5600	63.5x150	19.0	19	36
350	5600	76.2x100	16.8	19	36
350	5600	76.2x115	18.0	19	36
350	6800	63.5x140	19.0	15	29
350	6800	63.5x155	19.6	15	29
350	6800	76.2x105	19.0	15	29
350	6800	76.2x115	20.0	15	29
350	6800	89x100	20.0	15	29
350	8200	63.5x170	20.7	13	24
350	8200	63.5x190	22.0	13	24
350	8200	76.2x120	20.0	13	24
350	8200	76.2x143	21.0	13	24
350	8200	76.2x155	22.5	13	24
350	8200	89x105	20.0	13	24
350	8200	89x120	22.0	13	24
350	10000	76.2x140	24.0	10	20

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
350	10000	76.2x155	25.0	10	20
350	10000	89x130	27.0	10	20
350	10000	89x155	29.0	10	20
350	12000	76.2x170	27.6	9	17
350	12000	89x130	27.5	9	17
350	12000	89x155	29.5	9	17
350	12000	89x170	31.0	9	17
350	15000	76.2x220	35.4	7	13
350	15000	89x155	33.8	7	13
350	15000	89x170	35.1	7	13
350	15000	89x190	36.0	7	13
350	18000	89x180	43.8	6	11
350	18000	89x220	44.6	6	11
350	18000	100x190	48.0	6	11
350	22000	89x220	46.7	5	9
350	22000	100x250	48.0	5	9
400	220	35x50	1.9	470	900
400	330	35x60	2.3	320	600
400	470	35x80	4.4	220	420
400	680	35x80	4.5	150	290
400	680	35x120	5.0	150	290
400	680	51x80	6.0	150	290
400	820	35x100	4.7	130	240
400	1000	51x60	4.8	110	200
400	1000	51x80	6.2	110	200
400	1200	51x70	5.0	89	170
400	1200	51x83	6.5	89	170
400	1500	51x80	6.4	68	130
400	1500	51x95	7.0	68	130
400	1500	63.5x95	8.0	68	130
400	1800	51x85	7.0	58	110
400	1800	51x95	7.4	58	110
400	2200	51x105	8.8	48	90
400	2200	51x115	10.0	48	90
400	2200	63.5x85	10.1	48	90
400	2200	63.5x100	11.5	48	90
400	2200	76.2x105	12.5	48	90
400	2700	51x115	10.8	39	74
400	2700	51x130	11.0	39	74
400	2700	63.5x90	11.0	39	74
400	2700	63.5x105	12.0	39	74
400	2700	76.2x75	11.6	39	74
400	3300	51x130	12.8	32	60
400	3300	51x150	14.0	32	60
400	3300	63.5x95	13.0	32	60
400	3300	63.5x115	14.0	32	60
400	3300	76.2x90	14.0	32	60
400	3300	76.2x105	14.3	32	60
400	3300	76.2x120	15.0	32	60
400	3900	63.5x100	14.2	27	51
400	3900	63.5x115	15.2	27	51
400	3900	76.2x90	15.1	27	51
400	3900	76.2x120	16.5	27	51
400	4700	63.5x120	16.0	22	42
400	4700	63.5x155	17.5	22	42
400	4700	76.2x105	15.5	22	42
400	5600	63.5x145	18.0	19	36
400	5600	63.5x155	18.2	19	36
400	5600	63.5x170	19.0	19	36
400	5600	76.2x105	17.0	19	36

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
400	5600	76.2x130	19.0	19	36
400	5600	89x92	18.0	19	36
400	6800	63.5x160	23.5	15	29
400	6800	63.5x190	24.2	15	29
400	6800	76.2x130	19.2	15	29
400	6800	76.2x150	21.5	15	29
400	6800	89x105	21.2	15	29
400	6800	89x120	22.3	15	29
400	8200	76.2x135	24.0	13	24
400	8200	76.2x155	25.0	13	24
400	8200	76.2x170	26.2	13	24
400	8200	89x120	25.0	13	24
400	8200	89x140	26.0	13	24
400	10000	76.2x160	31.6	10	20
400	10000	76.2x180	33.0	10	20
400	10000	89x130	31.0	10	20
400	10000	89x155	34.0	10	20
400	12000	76.2x220	34.0	9	17
400	12000	89x155	30.0	9	17
400	12000	89x170	31.3	9	17
400	15000	89x180	39.9	7	13
400	15000	89x200	40.7	7	13
400	18000	89x210	43.0	6	11
400	18000	89x240	45.0	6	11
400	22000	100x240	47.0	5	9
420	820	51x60	3.8	130	240
420	1000	51x70	5.1	110	200
420	1200	51x80	6.6	89	170
420	1800	51x95	7.6	58	110
420	1800	51x105	8.0	58	110
420	2200	51x115	10.1	48	90
420	2700	51x120	11.0	39	74
420	2700	63.5x90	11.0	39	74
420	3300	51x130	13.0	32	60
420	3300	63.5x105	13.5	32	60
420	3300	76.2x105	14.6	32	60
420	3900	63.5x115	15.8	27	51
420	3900	63.5x130	16.4	27	51
420	3900	76.2x90	15.5	27	51
420	4700	63.5x143	17.0	22	42
420	4700	63.5x155	17.8	22	42
420	4700	76.2x105	15.7	22	42
420	4700	76.2x143	17.5	22	42
420	5600	63.5x170	19.2	19	36
420	5600	76.2x115	17.5	19	36
420	5600	76.2x130	19.2	19	36
420	5600	89x90	18.1	19	36
420	6800	76.2x143	21.1	15	29
420	6800	76.2x155	22.0	15	29
420	6800	89x105	19.9	15	29
420	6800	89x115	20.5	15	29
420	8200	76.2x170	27.1	13	24
420	8200	89x115	25.0	13	24
420	8200	89x130	26.2	13	24
420	10000	76.2x180	34.0	10	20
420	10000	76.2x220	37.0	10	20
420	10000	89x143	33.0	10	20
420	10000	89x155	35.0	10	20
420	12000	76.2x220	35.0	9	17
420	12000	89x155	31.1	9	17

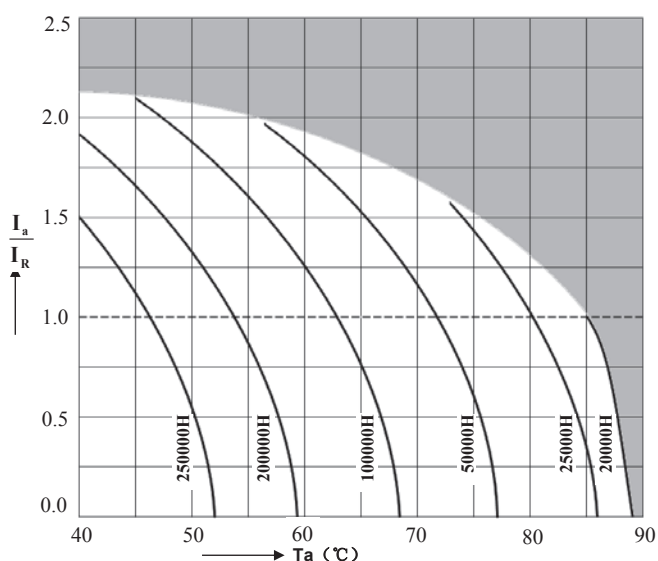
WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
420	12000	89x170	31.7	9	17
420	15000	89x190	40.1	7	13
420	18000	89x220	43.3	6	11
450	220	35x50	2.0	470	900
450	330	35x60	2.5	320	600
450	470	35x80	4.5	220	420
450	470	51x75	4.5	220	420
450	680	35x100	4.6	150	290
450	680	35x120	5.2	150	290
450	680	51x80	6.2	150	290
450	820	35x110	6.4	130	240
450	820	51x60	6.0	130	240
450	1000	51x70	6.3	110	200
450	1000	51x80	6.5	110	200
450	1200	51x80	7.0	89	170
450	1200	51x95	7.3	89	170
450	1200	63.5x95	8.3	89	170
450	1500	51x95	7.5	68	130
450	1500	51x115	7.8	68	130
450	1800	51x105	8.2	58	110
450	1800	51x115	8.4	58	110
450	1800	63.5x80	8.0	58	110
450	1800	63.5x105	8.5	58	110
450	2200	51x115	10.2	48	90
450	2200	51x130	11.0	48	90
450	2200	63.5x90	10.0	48	90
450	2200	63.5x120	12.1	48	90
450	2200	76.2x85	11.0	48	90
450	2700	51x115	11.2	39	74
450	2700	51x130	12.0	39	74
450	2700	63.5x95	12.0	39	74
450	2700	63.5x115	13.0	39	74
450	2700	76.2x80	12.0	39	74
450	2700	76.2x130	14.8	39	74
450	3300	63.5x105	13.6	32	60
450	3300	63.5x115	14.0	32	60
450	3300	76.2x100	15.0	32	60
450	3300	76.2x120	16.0	32	60
450	3900	63.5x125	16.0	27	51
450	3900	63.5x150	16.6	27	51
450	3900	76.2x90	15.0	27	51
450	3900	76.2x115	17.0	27	51
450	3900	89x90	17.0	27	51
450	4700	63.5x145	18.7	22	42
450	4700	63.5x170	20.0	22	42
450	4700	76.2x105	18.0	22	42
450	4700	76.2x130	20.0	22	42
450	4700	89x110	20.0	22	42
450	5600	63.5x165	21.7	19	36
450	5600	63.5x190	23.2	19	36
450	5600	76.2x115	20.5	19	36
450	5600	76.2x130	21.6	19	36
450	5600	89x90	20.2	19	36
450	5600	89x120	22.8	19	36
450	6800	89x105	22.8	15	29
450	6800	89x130	25.0	15	29
450	8200	76.2x165	27.0	13	24
450	8200	76.2x180	30.0	13	24
450	8200	89x130	29.0	13	24
450	8200	89x155	31.0	13	24

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
450	10000	76.2x220	37.5	10	20
450	10000	89x155	36.1	10	20
450	10000	89x170	37.6	10	20
450	12000	76.2x220	39.1	9	17
450	12000	89x155	36.4	9	17
450	12000	89x190	39.9	9	17
450	12000	100x190	42.5	9	17
450	15000	89x220	43.5	7	13
450	15000	89x240	45.3	7	13
450	15000	100x195	43.9	7	13
450	18000	100x237	48.0	6	11
450	22000	89x236	48.0	5	9
500	1000	51x95	5.6	140	270
500	1000	51x110	6.0	140	270
500	1000	63.5x80	6.0	140	270
500	1200	51x95	7.1	120	220
500	1200	51x115	8.0	120	220
500	1200	63.5x85	8.1	120	220
500	1500	51x100	7.2	95	180
500	1500	51x115	7.5	95	180
500	1500	63.5x90	7.5	95	180
500	1500	63.5x105	7.8	95	180
500	1800	51x130	8.3	79	150
500	1800	63.5x90	8.2	79	150
500	1800	63.5x115	8.6	79	150
500	2200	51x143	12.1	63	120
500	2200	51x150	12.5	63	120
500	2200	63.5x105	11.5	63	120
500	2200	63.5x115	12.2	63	120
500	2700	63.5x115	13.2	52	98
500	2700	63.5x143	13.8	52	98
500	2700	76.2x90	12.2	52	98
500	2700	76.2x110	13.1	52	98
500	3300	63.5x130	14.3	42	80
500	3300	63.5x150	15.1	42	80
500	3300	76.2x105	15.1	42	80
500	3300	76.2x115	16.0	42	80
500	3900	63.5x170	17.2	36	68
500	3900	76.2x115	17.5	36	68
500	3900	76.2x130	18.2	36	68
500	3900	89x90	17.8	36	68
500	3900	89x120	19.5	36	68
500	4700	76.2x135	20.5	30	56
500	4700	76.2x150	21.8	30	56
500	4700	89x105	20.0	30	56
500	4700	89x130	22.0	30	56
500	5600	76.2x143	20.0	25	47
500	5600	76.2x170	20.8	25	47
500	5600	89x115	18.2	25	47
500	5600	89x130	19.5	25	47
500	6800	76.2x180	31.0	21	39
500	6800	76.2x190	31.5	21	39
500	6800	89x143	30.6	21	39
500	6800	89x170	31.8	21	39
500	8200	76.2x220	31.8	17	32
500	8200	89x155	32.0	17	32
500	8200	89x175	33.0	17	32
500	8200	100x175	34.1	17	32
500	10000	89x190	38.3	14	27
500	10000	89x220	39.5	14	27

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
500	10000	100x190	41.5	14	27
500	12000	89x220	39.1	12	22
500	12000	89x240	40.5	12	22
500	12000	100x210	41.6	12	22
500	12000	100x240	42.4	12	22
500	15000	100x250	43.5	9	18
550	1200	51x110	6.4	120	220
550	1200	63.5x110	8.0	120	220
550	1500	51x130	7.7	95	180
550	1500	63.5x130	9.0	95	180
550	1800	63.5x105	8.7	79	150
550	1800	63.5x120	9.0	79	150
550	1800	76.2x110	10.0	79	150
550	2200	63.5x120	10.3	63	120
550	2200	76.2x130	13.0	63	120
550	2700	63.5x150	12.5	52	98
550	2700	76.2x105	12.3	52	98
550	2700	76.2x155	16.0	52	98
550	3300	63.5x170	15.2	42	80
550	3300	76.2x130	15.6	42	80
550	3300	76.2x155	17.0	42	80
550	3900	76.2x140	18.4	36	68
550	3900	89x150	21.0	36	68
550	4700	76.2x170	22.2	30	56
550	4700	89x130	23.2	30	56
550	4700	89x170	25.0	30	56
550	5600	76.2x190	25.0	25	47
550	5600	89x150	24.5	25	47
550	5600	89x190	27.2	25	47
550	6800	89x170	27.5	21	39

WV (Vdc)	Cap (uF)	Size (mm)	Rated Ripple current (Arms/85°C /120Hz)	Typ. ESR 20°C 120Hz (mΩ)	MAX ESR 20°C 120Hz (mΩ)
550	6800	89x190	28.9	21	39
550	8200	89x220	36.5	17	32
550	8200	100x170	35.0	17	32
550	8200	100x220	40.0	17	32
550	10000	89x240	42.5	14	27
550	10000	100x200	42.4	14	27
550	10000	100x250	43.0	14	27
600	1200	63.5x95	7.0	150	280
600	1500	63.5x110	8.4	120	220
600	1800	63.5x125	9.7	95	180
600	1800	76.2x95	9.5	95	180
600	2200	63.5x145	11.4	79	150
600	2200	76.2x110	11.2	79	150
600	2700	63.5x170	13.5	63	120
600	2700	76.2x125	13.2	63	120
600	3300	76.2x145	15.5	53	100
600	3900	76.2x170	21.1	45	85
600	3900	89x130	19.8	45	85
600	4700	76.2x190	22.5	37	71
600	4700	89x150	24.0	37	71
600	5600	89x170	26.0	31	59
650	1000	63.5x100	7.2	170	330
650	1200	63.5x110	8.0	150	280
650	1500	63.5x130	9.2	120	220
650	1800	63.5x150	10.5	95	180
650	2200	63.5x170	12.3	79	150
650	2700	76.2x150	14.5	63	120
650	3300	76.2x170	16.8	53	100
650	3900	89x155	22.0	45	85
650	4700	89x190	28.0	37	71

Useful life



depending on ambient temperature T_a versus under ripple current operating conditions