RX Series 85℃

Features

Extremely Long useful life

Applications

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

Construction

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

Features

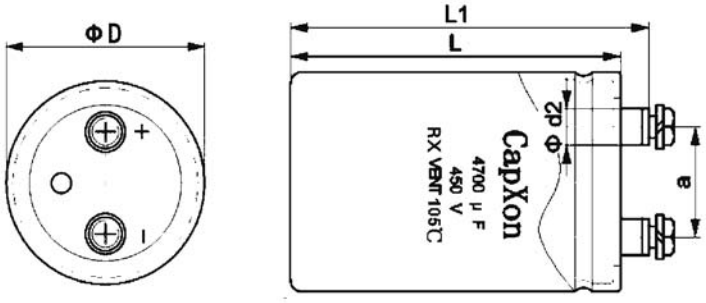
- ◆ Long useful life
- ◆ High reliability
- ◆ High ripple current capability
- ◆ All-welded construction ensures reliable electrical contact
- ◆ Version with low-inductance design available
- ◆ Self-extinguishing electrolyte
- ◆ RoHS-compatible

Specifications

<table>
<tr><th>Item</th><th colspan="2">Performance Characteristics</th></tr>
<tr><td>Rated voltage V_R</td><td colspan="2">160... 450 V DC</td></tr>
<tr><td>Surge voltage V_S</td><td colspan="2">1.15 VR（for VR ≤ 315 V） or 1.10 VR（for VR ＞ 315 V）</td></tr>
<tr><td>Rated capacitance C_R</td><td colspan="2">220 ⋯47000 μF</td></tr>
<tr><td>Capacitance tolerance</td><td colspan="2">±20%</td></tr>
<tr><td>tan δ (at 20℃，120Hz)</td><td colspan="2">Less than the value under table(%)
<table>
<tr><td>ΦD / WV</td><td>35</td><td>51</td><td>63.5</td><td>76.2</td><td>89</td></tr>
<tr><td>160~450</td><td>20</td><td>20</td><td>25</td><td>25</td><td>25</td></tr>
</table></td></tr>
<tr><td>Leakage Current I_{leak} (20 ℃, 5 min)</td><td colspan="2">$I_{leak} \leq 0.3\mu A * (C*V)^{0.7} + 4\mu A$</td></tr>
<tr><td rowspan="4">Self-inductance ESL</td><td colspan="2">d = 51 mm: approx. 17 nH</td></tr>
<tr><td colspan="2">d ≥ 63.5 mm: approx. 20 nH</td></tr>
<tr><td colspan="2">Capacitors with low-inductance design:</td></tr>
<tr><td colspan="2">d ≥ 63.5 mm: approx. 15 nH</td></tr>
<tr><td>Useful life 85 ℃; V_R,I_{AC},$_R$</td><td>> 20000 h</td><td>Requirements:
Δ C/C ≤ ±50% of initial value
ESR ≤ 5 times initial specified limit
Ileak ≤ initial specified limit
Outlier Percenttage:0 %</td></tr>
<tr><td>Voltage Endurance test 85 ℃; V_R</td><td>5000 h</td><td>Post test requirements:
Δ C/C ≤ ±20% of initial value
ESR ≤ 2 times initial specified limit
Ileak ≤ initial specified limit
Outlier Percenttage:0 %</td></tr>
<tr><td rowspan="2">Vibration Resistance test</td><td colspan="2">To IEC 60068-2-6, test Fc:</td></tr>
<tr><td colspan="2">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.</td></tr>
<tr><td>Characteristics at low temperature</td><td colspan="2">Max. impedance ratio at 120 Hz
<table>
<tr><td>V_R</td><td>≤ 400 V</td><td>≥ 450 V</td></tr>
<tr><td>$Z_{-25℃}$ / $Z_{20℃}$</td><td>4</td><td>4</td></tr>
<tr><td>$Z_{-40℃}$ / $Z_{20℃}$</td><td>10</td><td>12</td></tr>
</table></td></tr>
<tr><td>Sectional specification</td><td colspan="2">IEC 60384-4 and JIS-C-5101</td></tr>
</table>

Dimensional drawings

Ring clip/clamp mounting:



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

Dimensions

Terminal	Dimensions(mm) with insulating sleeve				
	D±2	L±3	L_1±3	$d_2$max.	a±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

Packing

Capacitor diameter d(mm)	length L(mm)	Packing units (pcs.)
35	≤70mm >70mm	120 60
42	≤70mm >70mm	120 60
51	≤70mm >70mm	70 35
63.5	all	24
76.2	all	15
89	all	12

Accessories

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

	Thread	Maximum torque
For terminal	M5	2 Nm
	M6	2.5 Nm

Case Size

φ DxL(mm)

WV(V) / Cap(μF)	160		200		250	
	Size	Ripple	Size	Ripple	Size	Ripple
470					35×60	2.0
680			35×50	2.5	35×80	3.0
1000	35×60	3.3	35×60	3.5	35×100	4.4
1500	35×80	4.4	35×80	4.4	51×80	5.0
2200	35×100	5.8	35×120	6.3	51×100	7.0
			51×80	6.3		
3300	35×120	7.9	51×80	8.0	51×140	9.3
	51×80	7.9	51×100	8.4	63.5×100	8.8
4700	51×100	9.5	51×140	11.2	63.5×120	11.6
			63.5×100	10.9		
6800	51×140	13.5	63.5×120	13.5	76.2×120	14.5
	63.5×100	13.0				
10000	63.5×120	15.5	76.2×120	17.5	76.2×160	19.3
					89×140	20.0
15000	76.2×120	19.0	76.2×140	20.0	89×170	25.4
			76.2×160	21.5		
22000	76.2×140	24.2	76.2×160	27.0	89×220	29.8
	89×130	25.4	89×140	28.9		
33000	89×140	27.0				
47000	89×220	33.6				

Ripple Current(A,rms) at 85℃ 120Hz

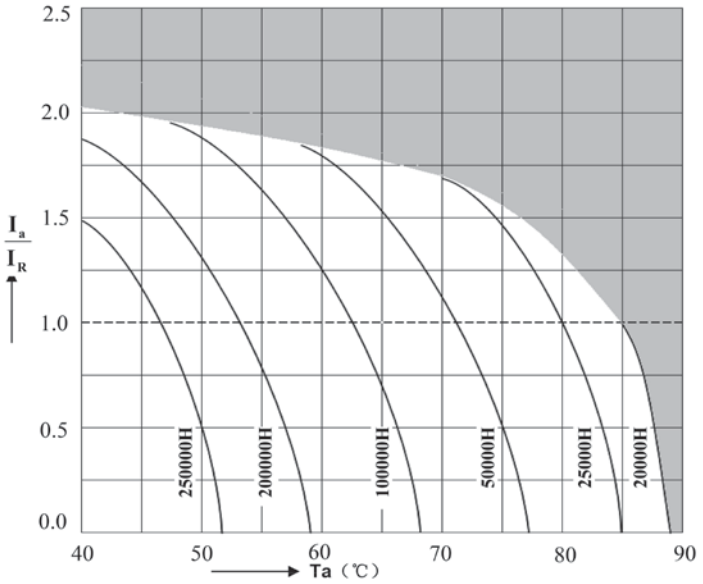
φ DxL(mm)

WV(V) / Cap(μF)	350		400		450	
	Size	Ripple	Size	Ripple	Size	Ripple
220			35×50	2.5	35×50	2.5
330	35×60	2.8	35×60	3.0	35×60	3.0
470	35×80	4.0	35×80	5.8	35×80	6.0
680	35×100	5.8	35×120	6.8	35×120	7.4
			51×80	7.2	51×80	9.6
1000	35×120	7.7	51×80	8.2	51×80	8.4
	51×80	8.0			51×105	9.6
1500	51×80	10.0	51×105	11.2	51×120	12.4
	51×100	12.0	51×120	12.3		
2200	51×105	13.5	51×130	15.9	63.5×100	14.7
	51×120	14.5	63.5×100	14.5	63.5×120	16.1
	51×140	15.5				
2700	63.5×80	15.2	63.5×105	17.5	63.5×130	19.8
3300	63.5×100	17.5	63.5×130	20.1	63.5×145	23.1
	63.5×120	19.0	76.2×105	20.5	76.2×120	22.2
			76.2×120	21.4		
3900	63.5×120	20.0	76.2×120	22.8	76.2×145	26.3
4700	63.5×145	22.0	76.2×120	25.4	76.2×120	26.3
	76.2×105	22.0	76.2×130	26.3	76.2×160	29.8
	76.2×120	22.8				
5600	76.2×130	25.9	76.2×145	29.8	76.2×160	31.2
					89×145	35.0
6800	76.2×140	5.8	76.2×160	33.8	76.2×160	35.0
			89×145	35.0	76.2×220	38.5
					89×170	40.3
8200	76.2×160	35.0	89×160	38.5	89×180	42.0
	89×145	37.6				
10000	76.2×160	37.6	89×160	5.8	89×200	42.0
	76.2×190	40.3				
	89×140	40.3				
12000	76.2×220	48.0	89×180	49.0		
	89×170	50.0				
15000	89×190	52.5	89×200	54.3		
18000	89×220	59.5				

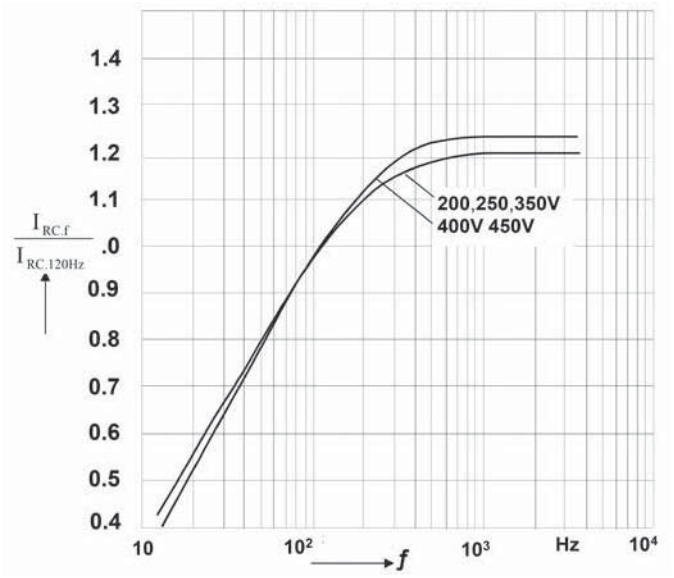
Ripple Current(A,rms) at 85℃ 120Hz

Useful life

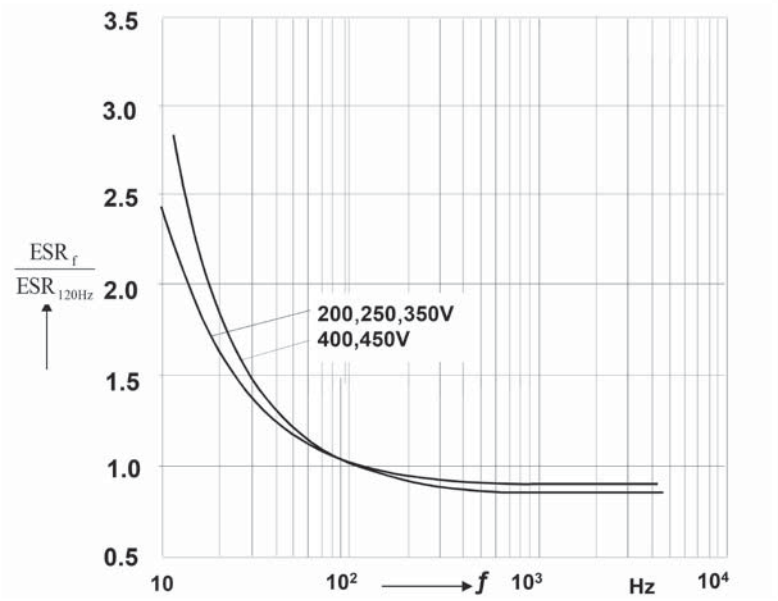
depending on ambient temperature T_a versus under ripple current operating conditions



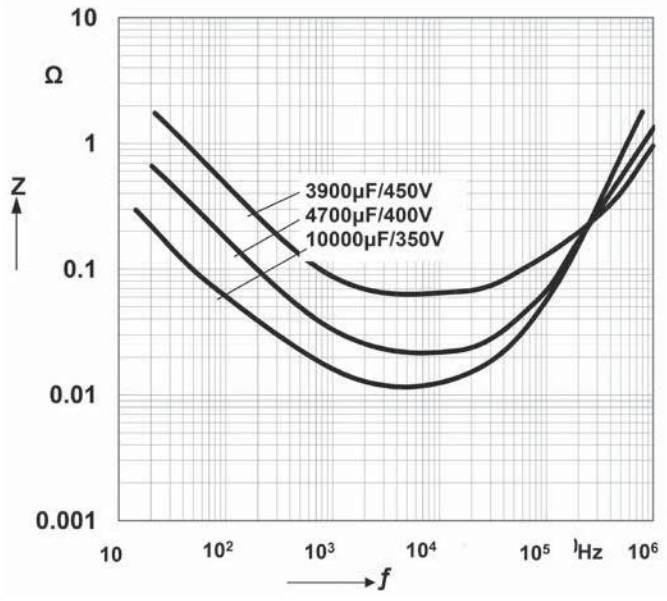
Frequency factor of permissible ripple current I_{RC} versus frequency f



Frequency characteristics of ESR Typical behavior



Impedance Z versus frequency f



Screw Terminal