

RQ Series 105°C

Features

Long useful life

Applications

- ◆ Frequency converters
- ◆ Professional power supplies
- ◆ Hybrid electric vehicles(HEV)
- ◆ Traction

Construction

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



Features

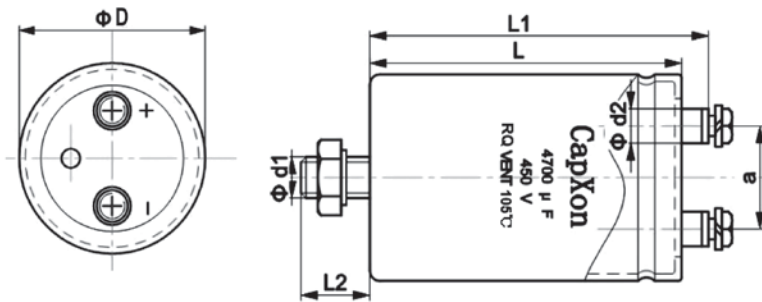
- ◆ High reliability
- ◆ Long useful life
- ◆ Extremely high ripple current capability
- ◆ Wide temperature range
- ◆ All-welded construction ensures reliable electrical contact
- ◆ Low-inductance design
- ◆ Self-extinguishing electrolyte
- ◆ RoHS-compatible

Specifications

Item	Performance Characteristics					
Rated voltage V_R	160... 450 V DC					
Surge voltage V_S	1.15 V_R (for $V_R \leq 315$ V) or 1.10 V_R (for $V_R > 315$ V)					
Rated capacitance C_R	2200 ... 47000 μ F					
Capacitance tolerance	$\pm 20\%$					
tan δ (at 20°C · 120Hz)	Less than the value under table(%)					
	ΦD	35	51	63.5	76.2	89
	WV	15	15	20	20	20
	160~250	15	15	20	20	20
	350~450	20	20	25	25	25
Leakage Current I_{leak} (20 °C, 5 min)	$I_{leak} \leq 0.3\mu A * (C*V)^{0.7} + 4\mu A$					
Self-inductance ESL	d = 51 mm: approx. 16 nH					
	d \geq 63.5 mm: approx. 18 nH					
	Capacitors with low-inductance design:					
	d \geq 63.5 mm: approx. 14 nH					
Useful life 105 °C; V_R, I_{AC^*R}	> 6000 h	Requirements: $\Delta C/C \leq \pm 40\%$ of initial value ESR \leq 4 times initial specified limit $I_{leak} \leq$ initial specified limit				
Voltage Endurance test 105 °C; V_R	2000 h	Post test requirements: $\Delta C/C \leq \pm 20\%$ of initial value ESR \leq 2 times initial specified limit $I_{leak} \leq$ initial specified limit				
Vibration Resistance test	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.					
Low Temperature Characteristics	Max. impedance ratio at 120 Hz					
	V_R	≤ 400 V	≥ 450 V			
	$Z_{-25^\circ C} / Z_{20^\circ C}$	4	4			
	$Z_{-40^\circ C} / Z_{20^\circ C}$	10	10			
Sectional specification	IEC 60384-4 and JIS-C-5101					

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						
	$D \pm 2$	$L \pm 3$	$L_1 \pm 3$	$L_2 \pm 1$	d_1	$d_2 \text{ max.}$	$a \pm 0.5$
M5	63.5	80~140	86.5~146.5	16	M12	10.3	28.6
M5	76.2/89	100~240	106.4~246.5	16	M12	10.3	31.8
M6	76.2/89	100~240	106.4~246.5	16	M12	17.5	31.8

Packing

Diameter D(mm)	Length L(mm)	Packing (pcs.)
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
3300					63.5×100	7.5
4700			63.5×100	8.8	63.5×120	9.5
6800	63.5×100	11.0	63.5×120	12.0	76.2×120	13.0
10000	63.5×120	12.5	76.2×120	13.5	76.2×160	15.0
					89×140	16.0
15000	76.2×120	15.5	76.2×140	16.0	89×170	20.0
			76.2×160	17.0		
22000	76.2×140	20.0	76.2×160	22.0	89×220	24.5
	89×130	21.0	89×140	24.0		
33000	89×140	22.0				
47000	89×220	28.0				

Ripple Current(A,rms) at 105°C 120Hz

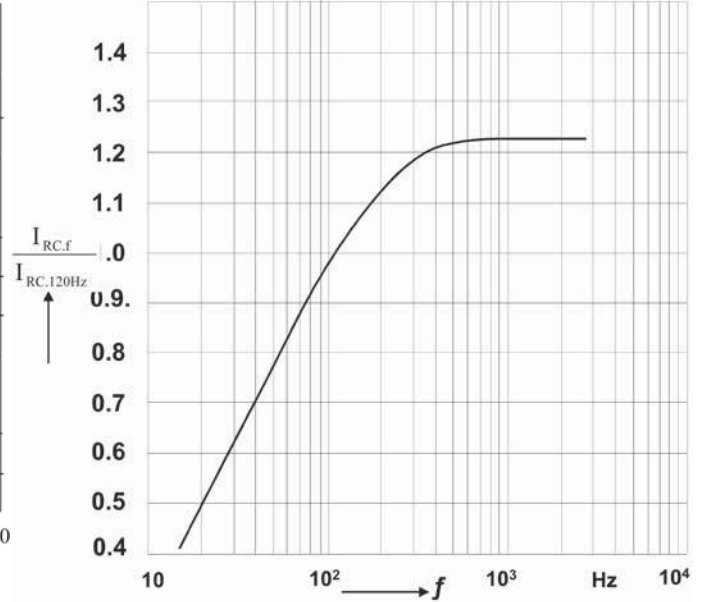
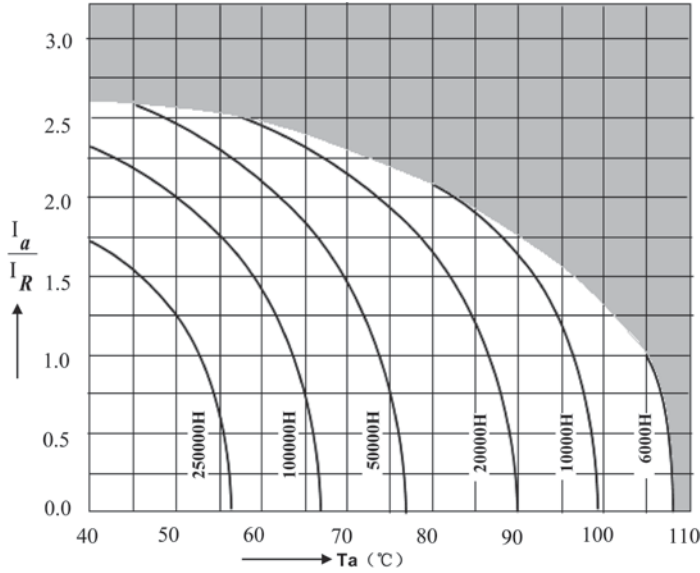
WV(V) Cap(μF)	350		400		450	
	Size	Ripple	Size	Ripple	Size	Ripple
2200			63.5×100	13.5	63.5×100	13.0
					63.5×120	14.0
2700	63.5×80	16.0	63.5×105	16.5	63.5×130	16.0
3300	63.5×100	16.5	63.5×130	17.5	63.5×145	18.5
	63.5×120	17.5	76.2×105	20.2	76.2×120	19.0
3900			76.2×120	21.0		
	63.5×120	17.7	76.2×120	22.2	76.2×145	22.0
4700	63.5×145	18.6	76.2×120	23.5	76.2×120	21.0
	76.2×105	22.4	76.2×130	24.5	76.2×160	23.0
	76.2×120	23.0				
5600	76.2×130	24.0	76.2×145	27.0	76.2×160	23.5
					89×145	30.5
6800	76.2×140	26.0	76.2×160	28.6	76.2×160	26.5
			89×145	33.0	76.2×220	30.5
					89×170	39.0
8200	76.2×160	30.0	89×160	35.0	89×180	42.0
	89×145	34.5				
10000	76.2×160	30.5	89×160	39.0	89×200	45.0
	76.2×190	33.0				
	89×140	38.4				
12000	76.2×220	35.0	89×180	40.0		
	89×170	37.0				
15000	89×190	38.0	89×200	42.0		
18000	89×220	49.0				

Ripple Current(A,rms) at 105°C 120Hz

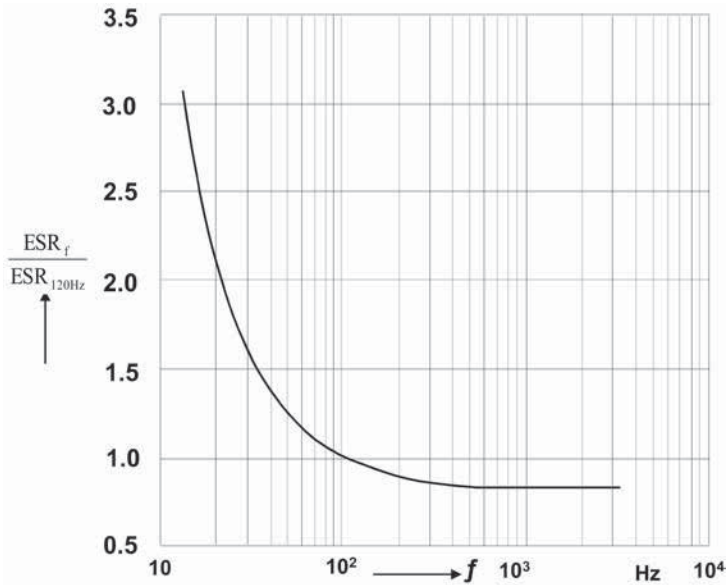
Useful life

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

