UH SERIES ▪ ULTRA LONG LIFE, AUTOMOTIVE 105°C TYPE

KEY FEATURES

ULTRA LONG LIFE · HIGH VOLTAGE · AEC-Q 200

- **ALUMINUM ELECTROLYTIC CAPACITOR** ▪ Snap-In type
- Endurance: 105°C ▪ 10 000 hours, Useful Life: 105°C ▪ 12 000 hours
- AEC-Q200 version available
- Especially for applications with demanding operating environment
- **Extremely stable dissipation factor and leakage current**

HF Halogen Free · RoHS & REACH COMPLIANT

SPECIFICATIONS

Items		Performance Characteristics		
Operating Temperature Range		-40 ~ +105°C		
Rated Voltage Range	V_R	200 ~ 450V DC		
Surge Voltage	V_S	($V_R \le 315V$) ▪ $V_S = 1.15 \cdot V_R$	($V_R > 315V$) ▪ $V_S = 1.10 \cdot V_R$	
Capacitance Range	C_R	39 ~ 1500µF		
Cap. Tolerance	ΔC	±20% (120Hz ▪ 20°C)		
Leakage Current (20°C ▪ V_R applied)	I_{LEAK}	$\le 3 \cdot \sqrt{C_R \cdot V_R}$ ▪ After 5 minutes [I_{LEAK} (µA) ; C_R (µF) ; V_R (V)]		
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	V_R (V DC)	200 ~ 400	450
		tanδ	15	20
Self-Resistance (20°C ▪ 120Hz)	ESR	Not to exceed the values shown in standard ratings		
Low Temperature Characteristics at 120Hz	Z ratio max.	V_R (V DC)	200 ~ 250	400 ~ 450
		Z-25°C/Z+20°C	3	8
		Z-40°C/Z+20°C	8	10

Lifetime Test		
Useful Life 105°C (V_R & I_R applied)	Test	**12000 hours**
	△C/C_R	≤ ±20% of initial measured value
	tanδ	≤ 200% of initial specified value
	I_{Leak}	≤ the initial specified value
	Deviation Rate at Useful Life: 100 FIT = 0.01%/1000h with 60% confidence level ▪ parts show higher drift as test criteria	
Endurance 105°C (V_R & I_R applied)	Test	**10000 hours**
	△C/C_R	≤ ±15% of initial measured value
	tanδ	≤ 175% of initial specified value
	I_{Leak}	≤ the initial specified value
Shelf Life 105°C (V_R = 0)	Test	**1000 hours**
	△C/C_R	≤ ±15% of initial measured value
	tanδ	≤ 175% of initial specified value
	I_{Leak}	≤ the initial specified value
	Before measurement: Restore capacitor to20°C, apply V_R for 30 min according JIS-C-5101-4	
Vibration Resistance Test	Max. 10g force, f_{RANGE} 10Hz … 55Hz, amplitude 0.75mm; X/Y/Z-axis each 2h; capacitor rigidly clamped by body to surface ▪ IEC 60068-2-6	

For further information please contact sales@capxon.org

STANDARD RATINGS

V_R (V)	C_R (µF)	ø D (mm)	L (mm)	Typ. ESR +20°C ▪ 120Hz (mΩ)	Max. ESR +20°C ▪ 120Hz (mΩ)	I_R ▪ Max. Ripple Current +105°C ▪ 120Hz (mA rms)	CapXon Part Number
200	220	22	25	380	720	1000	UH221M200M250A□□□
	270	22	30	310	590	1100	UH271M200M300A□□□
	270	25	25	310	590	1100	UH271M200N250A□□□
	330	22	30	250	480	1200	UH331M200M300A□□□
	330	25	25	250	480	1200	UH331M200N250A□□□
	390	22	35	220	410	1300	UH391M200M350A□□□
	390	25	30	220	410	1300	UH391M200N300A□□□
	390	30	25	220	410	1300	UH391M200O250A□□□
	470	22	40	180	340	1400	UH471M200M400A□□□
	470	25	35	180	340	1400	UH471M200N350A□□□
	470	30	30	180	340	1400	UH471M200O300A□□□
	560	22	45	150	280	1500	UH561M200M450A□□□
	560	25	35	150	280	1500	UH561M200N350A□□□
	560	30	30	150	280	1500	UH561M200O300A□□□
	680	25	40	120	230	1700	UH681M200N400A□□□
	680	30	35	120	230	1700	UH681M200O350A□□□
	820	25	50	100	190	2000	UH821M200N500A□□□
	820	30	40	100	190	2000	UH821M200O400A□□□
	820	35	30	100	190	2000	UH821M200P300A□□□
	1000	30	45	84	160	2200	UH102M200O450A□□□
	1000	35	35	84	160	2200	UH102M200P350A□□□
	1200	30	50	68	130	2300	UH122M200O500A□□□
	1200	35	40	68	130	2300	UH122M200P400A□□□
	1500	35	50	58	110	2500	UH152M200P500A□□□
250	180	22	30	460	880	900	UH181M250M300A□□□
	180	25	25	460	880	900	UH181M250N250A□□□
	220	22	30	380	720	1000	UH221M250M300A□□□
	220	25	25	380	720	1000	UH221M250N250A□□□
	270	22	35	310	590	1100	UH271M250M350A□□□
	270	25	30	310	590	1100	UH271M250N300A□□□
	270	30	25	310	590	1100	UH271M250O250A□□□
	330	22	40	250	480	1200	UH331M250M400A□□□
	330	25	35	250	480	1200	UH331M250N350A□□□
	330	30	25	250	480	1200	UH331M250O250A□□□
	390	22	45	220	410	1300	UH391M250M450A□□□
	390	25	35	220	410	1300	UH391M250N350A□□□
	390	30	30	220	410	1030	UH391M250O300A□□□
	470	25	45	180	340	1400	UH471M250N450A□□□
	470	30	35	180	340	1400	UH471M250O350A□□□
	470	35	30	180	340	1400	UH471M250P300A□□□
	560	25	50	150	280	1500	UH561M250N500A□□□
	560	30	35	150	280	1500	UH561M250O350A□□□

□□□ **see description at end of standard ratings**

STANDARD RATINGS

V_R (V)	C_R (µF)	ø D (mm)	L (mm)	Typ. ESR +20°C ▪ 120Hz (mΩ)	Max. ESR +20°C ▪ 120Hz (mΩ)	I_R ▪ Max. Ripple Current +105°C ▪ 120Hz (mA rms)	CapXon Part Number
250	560	35	30	190	280	1500	UH561M250P300A□□□
	680	30	45	150	230	1700	UH681M250O450A□□□
	680	35	35	150	230	1700	UH681M250P350A□□□
	820	30	50	130	190	2000	UH821M250O500A□□□
	820	35	40	130	190	2000	UH821M250P400A□□□
	1000	35	45	110	160	2200	UH102M250P450A□□□
	1200	35	50	87	130	2300	UH122M250P500A□□□
400	56	22	25	1890	2840	510	UH560M400M250A□□□
	68	22	30	1560	2340	560	UH680M400M300A□□□
	68	25	25	1560	2340	560	UH680M400N250A□□□
	82	22	35	1290	1940	640	UH820M400M350A□□□
	82	25	25	1290	1940	640	UH820M400N250A□□□
	100	22	35	1060	1590	690	UH101M400M350A□□□
	100	25	30	1060	1590	690	UH101M400N300A□□□
	120	22	40	890	1330	750	UH121M400M400A□□□
	120	25	35	890	1330	750	UH121M400N350A□□□
	120	30	25	890	1330	750	UH121M400O250A□□□
	150	22	50	710	1060	820	UH151M400M500A□□□
	150	25	40	710	1060	820	UH151M400N400A□□□
	150	30	30	710	1060	820	UH151M400O300A□□□
	180	25	45	590	880	900	UH181M400N450A□□□
	180	30	35	590	880	900	UH181M400O350A□□□
	180	35	25	590	880	900	UH181M400P250A□□□
	220	25	50	480	720	1000	UH221M400N500A□□□
	220	30	40	480	720	1000	UH221M400O400A□□□
	220	35	30	480	720	1000	UH221M400P300A□□□
	270	30	45	390	590	1100	UH271M400O450A□□□
	270	35	35	390	590	1100	UH271M400P350A□□□
	330	30	50	320	480	1200	UH331M400O500A□□□
	330	35	40	320	480	1200	UH331M400P400A□□□
	390	35	45	270	410	1300	UH391M400P450A□□□
	470	35	50	230	340	1400	UH471M400P500A□□□
450	39	22	25	3400	5100	370	UH390M450M250A□□□
	47	22	30	2820	4230	400	UH470M450M300A□□□
	56	22	35	2370	3550	470	UH560M450M350A□□□
	56	25	25	2370	3550	470	UH560M450N250A□□□
	68	22	40	1950	2930	530	UH680M450M400A□□□
	68	25	30	1950	2930	530	UH680M450N300A□□□
	82	22	45	1620	2430	560	UH820M450M450A□□□
	82	25	35	1620	2430	560	UH820M450N350A□□□
	82	30	25	1620	2430	560	UH820M450O250A□□□
	100	22	50	1330	1990	640	UH101M450M500A□□□
	100	25	40	1330	1990	640	UH101M450N400A□□□
	100	30	30	1330	1990	640	UH101M450O300A□□□
	120	25	45	1110	1660	720	UH121M450N450A□□□

□□□ **see description at end of standard ratings**

STANDARD RATINGS

V_R (V)	C_R (µF)	ø D (mm)	L (mm)	Typ. ESR +20°C ▪ 120Hz (mΩ)	Max. ESR +20°C ▪ 120Hz (mΩ)	I_R ▪ Max. Ripple Current +105°C ▪ 120Hz (mA rms)	CapXon Part Number
450	120	30	30	870	1660	720	UH121M450O300A□□□
	150	25	50	700	1330	790	UH151M450N500A□□□
	150	30	40	700	1330	790	UH151M450O400A□□□
	150	35	30	700	1330	790	UH151M450P300A□□□
	180	30	45	580	1110	870	UH181M450O450A□□□
	180	35	35	580	1110	870	UH181M450P350A□□□
	220	30	50	470	900	1000	UH221M450O500A□□□
	220	35	40	470	900	1000	UH221M450P400A□□□
	270	35	45	390	740	1190	UH271M450P450A□□□
	330	35	50	320	600	1380	UH331M450P500A□□□

□□□: Enter **P6** for standard type ▪ 6mm pin length
□□□: Enter **P6X** for standard type ▪ 6mm pin length ▪ AEC-Q200

□□□: Enter **Z6** for 3-pin type ▪ 6mm pin length
□□□: Enter **Z6X** for 3-pin type ▪ 6mm pin length ▪ AEC-Q200

□□□: Enter **Y6** for multi-pin type ▪ 6mm pin length
□□□: Enter **Y6X** for multi-pin type ▪ 6mm pin length ▪ AEC-Q200

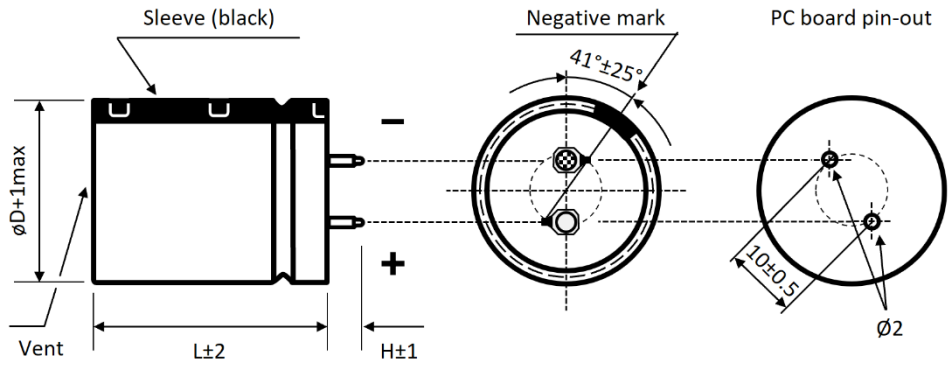
□□□: Enter **P4** for standard type ▪ 4mm pin length
□□□: Enter **P4X** for standard type ▪ 4mm pin length ▪ AEC-Q200

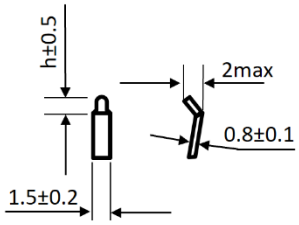
□□□: Enter **Z4** for 3-pin type ▪ 4mm pin length
□□□: Enter **Z4X** for 3-pin type ▪ 4mm pin length ▪ AEC-Q200

□□□: Enter **Y4** for multi-pin type ▪ 4mm pin length
□□□: Enter **Y4X** for multi-pin type ▪ 4mm pin length ▪ AEC-Q200

DIMENSIONS ▪ All dimensions in mm

2-pin version ▪ Standard type



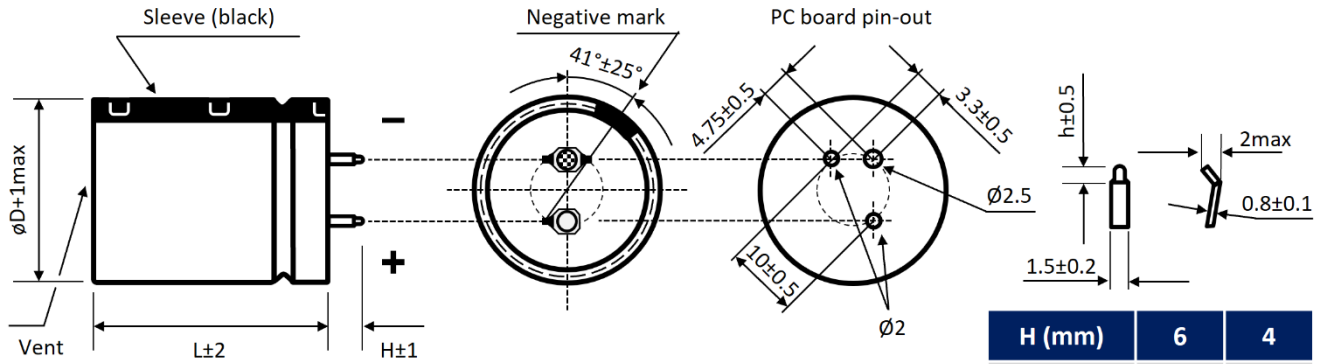


H (mm)	6	4
h (mm)	2.5	1.5

Standard: H = 6 ± 1mm. Also available H = 4 ± 1mm.

DIMENSIONS ▪ All dimensions in mm

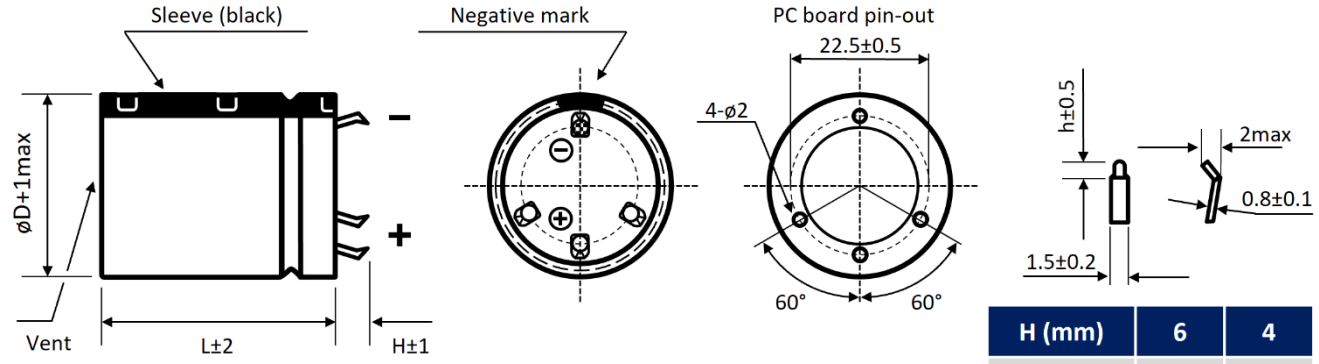
3-pin version ▪ Polarity protection



H (mm)	6	4
h (mm)	2.5	1.5

Standard: H = 6 ± 1mm. Also available H = 4 ± 1mm.

Multipin version ▪ Diameter ø D ≥ 30 mm



H (mm)	6	4
h (mm)	2.5	1.5

Standard: H = 6 ± 1mm. Also available H = 4 ± 1mm.

Further possible terminal styles can be found in our packaging information liquid snap-in.

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

V_R (V) / Frequency (Hz)	50	60	120	300	1k	10k	50k - 100k
$200 \le V_R \le 250$	0.81	0.82	1	1.17	1.32	1.45	1.5
$400 \le V_R \le 450$	0.77	0.82	1	1.16	1.3	1.41	1.43

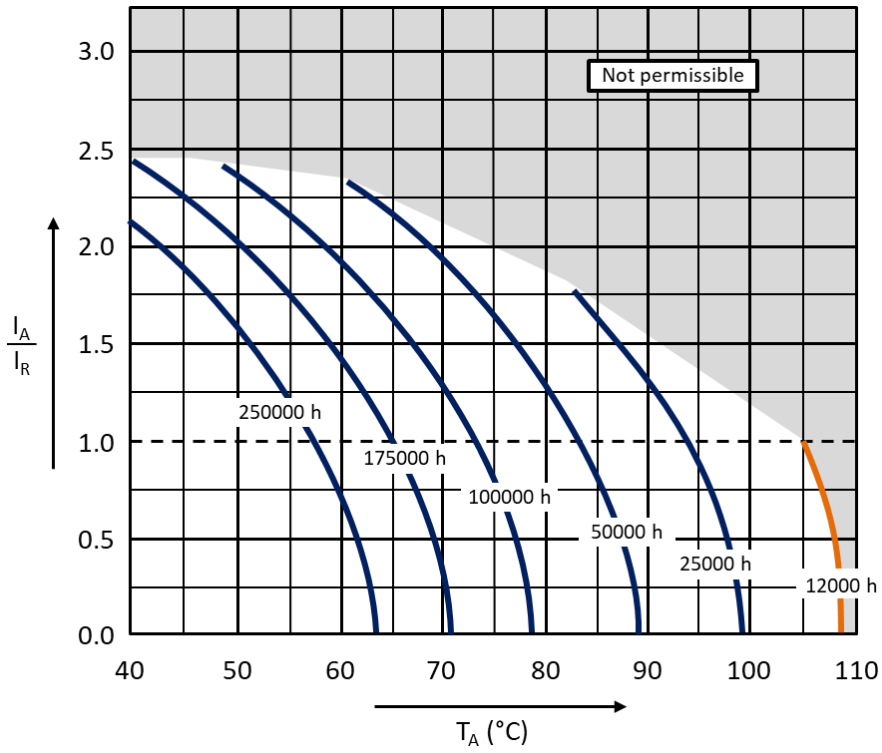
PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

General Precautions & Guidelines	Packaging Information	Vibration Test Profiles	3D Models	Reliability Tests

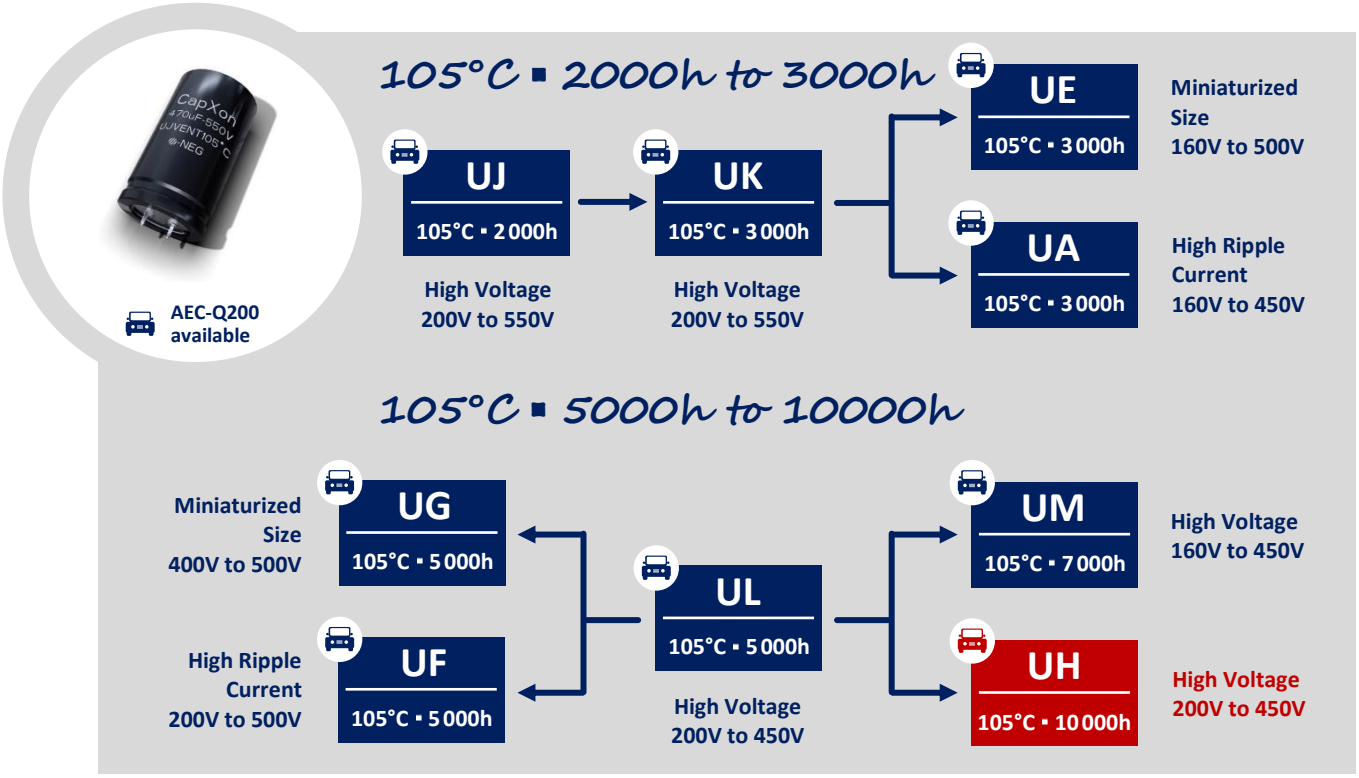
For further information please contact sales@capxon.org

USEFUL LIFE



With: I_A: Application current
I_R: Rated ripple current (A RMS)
T_A: Application temperature of the capacitor

GROUP CHART



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DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

For further information, please visit our website www.capxongroup.com or contact CapXon.