

UA SERIES ▪ HIGH RIPPLE CURRENT, AUTOMOTIVE 105°C TYPE

KEY FEATURES



- **ALUMINUM ELECTROLYTIC CAPACITOR ▪ Snap-In type**
- Endurance: 105°C ▪ 3 000 hours, Useful life: 105°C ▪ 8 000 hours
- AEC-Q200 version available
- Especially for applications with demanding operating environment
- **Extremely stable dissipation factor and leakage current**



SPECIFICATIONS

Items		Performance Characteristics		
Operating Temperature Range		-40 ~ +105°C		
Rated Voltage Range	V _R	160 ~ 450V DC		
Surge Voltage	V _S	(V _R ≤ 315V) ▪ V _S = 1.15·V _R (V _R > 315V) ▪ V _S = 1.10·V _R		
Capacitance Range	C _R	56 ~ 3300μF		
Cap. Tolerance	ΔC	±20% (120Hz ▪ 20°C)		
Leakage Current (20°C ▪ V _R applied)	I _{LEAK}	≤ 3 · √C _R · V _R ▪ After 5 minutes [I _{LEAK} (μA) ; C _R (μF) ; V _R (V)]		
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	V _R (V DC)	160 ~ 450	
		tanδ	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)	160 ~ 250	400 ~ 450
		Z-25°C/Z+20°C	4	8
		Z-40°C/Z+20°C	7	10
Lifetime Test				
Useful Life 105°C (V _R & I _R applied)	Test	8000 hours		
	ΔC/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	3000 hours		
	ΔC/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		
	ΔC/C _R	≤ ±15% of initial measured value		
	tanδ	≤ 175% of initial specified value		
	I _{Leak}	≤ the initial specified value		
		Before measurement: Restore capacitor to 20°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		

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
160	680	30	25	190	290	3180	UA681M160O250A□□□
	820	30	30	160	240	3680	UA821M160O300A□□□
	1000	30	35	130	200	4200	UA102M160O350A□□□
	1000	35	25	130	200	3720	UA102M160P250A□□□
	1200	30	35	110	170	4470	UA122M160O350A□□□
	1200	35	30	110	170	4340	UA122M160P300A□□□
	1500	30	45	87	130	5350	UA152M160O450A□□□
	1500	35	35	87	130	4990	UA152M160P350A□□□
	1800	30	50	73	110	5930	UA182M160O500A□□□
	1800	35	40	73	110	5590	UA182M160P400A□□□
	2200	30	55	60	90	6580	UA222M160O550A□□□
	2200	35	45	60	90	6230	UA222M160P450A□□□
	2700	35	50	49	74	6890	UA272M160P500A□□□
	3300	35	60	40	60	7920	UA332M160P600A□□□
180	560	30	25	240	360	2990	UA561M180O250A□□□
	680	30	30	190	290	3450	UA681M180O300A□□□
	820	30	30	160	240	3700	UA821M180O300A□□□
	820	35	25	160	240	3560	UA821M180P250A□□□
	1000	30	35	130	200	4220	UA102M180O350A□□□
	1000	35	30	130	200	4140	UA102M180P300A□□□
	1200	30	40	110	170	4750	UA122M180O400A□□□
	1200	35	30	110	170	4330	UA122M180P300A□□□
	1500	30	45	87	130	5370	UA152M180O450A□□□
	1500	35	35	87	130	4970	UA152M180P350A□□□
	1800	30	50	73	110	5950	UA182M180O500A□□□
	1800	35	40	73	110	5580	UA182M180P400A□□□
	2200	30	60	60	90	6850	UA222M180O600A□□□
	2200	35	50	60	90	6570	UA222M180P500A□□□
	2700	35	55	49	74	7230	UA272M180P550A□□□
200	560	30	25	240	360	3010	UA561M200O250A□□□
	680	30	30	190	290	3480	UA681M200O300A□□□
	820	30	35	160	240	3950	UA821M200O350A□□□
	820	35	25	160	240	3540	UA821M200P250A□□□
	1000	30	35	130	200	4240	UA102M200O350A□□□
	1000	35	30	130	200	4130	UA102M200P300A□□□
	1200	30	40	110	170	4760	UA122M200O400A□□□
	1200	35	35	110	170	4700	UA122M200P350A□□□
	1500	30	50	87	130	5620	UA152M200O500A□□□
	1500	35	40	87	130	5330	UA152M200P400A□□□
	1800	30	60	73	110	6430	UA182M200O600A□□□
	1800	35	45	73	110	5920	UA182M200P450A□□□
	2200	35	55	60	90	6870	UA222M200P550A□□□
	2700	35	60	49	74	7530	UA272M200P600A□□□

□□□ 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
220	560	30	25	240	360	2840	UA561M220O250A□□□
	680	30	30	190	290	3260	UA681M220O300A□□□
	820	30	30	160	240	3500	UA821M220O300A□□□
	820	35	25	160	240	3370	UA821M220P250A□□□
	1000	30	35	130	200	3980	UA102M220O350A□□□
	1000	35	30	130	200	3910	UA102M220P300A□□□
	1200	30	40	110	170	4500	UA122M220O400A□□□
	1200	35	35	110	170	4460	UA122M220P350A□□□
	1500	30	50	87	130	5230	UA152M220O500A□□□
	1500	35	40	87	130	5000	UA152M220P400A□□□
	1800	30	55	73	110	5870	UA182M220O550A□□□
	1800	35	45	73	110	5620	UA182M220P450A□□□
	2200	35	50	60	90	6210	UA222M220P500A□□□
	2700	35	60	49	74	7130	UA272M220P600A□□□
250	390	30	25	340	510	2670	UA391M250O250A□□□
	470	30	30	280	420	3060	UA471M250O300A□□□
	560	30	30	240	360	3280	UA561M250O300A□□□
	560	35	25	240	360	3180	UA561M250P250A□□□
	680	30	35	190	290	3730	UA681M250O350A□□□
	680	35	30	190	290	3690	UA681M250P300A□□□
	820	30	40	160	240	4190	UA821M250O400A□□□
	820	35	35	160	240	4190	UA821M250P350A□□□
	1000	30	45	130	200	4710	UA102M250O450A□□□
	1000	35	35	130	200	4460	UA102M250P350A□□□
	1200	30	50	110	170	5230	UA122M250O500A□□□
	1200	35	40	110	170	5000	UA122M250P400A□□□
	1500	30	60	87	130	6070	UA152M250O600A□□□
	1500	35	45	87	130	5620	UA152M250P450A□□□
	1800	35	55	73	110	6480	UA182M250P550A□□□
	2200	35	60	60	90	7130	UA222M250P600A□□□
400	68	20	25	1950	2930	940	UA680M400L250A□□□
	82	20	25	1620	2430	1010	UA820M400L250A□□□
	82	22	25	1620	2430	1070	UA820M400M250A□□□
	100	20	30	1330	1990	1180	UA101M400L300A□□□
	100	22	25	1330	1990	1150	UA101M400M250A□□□
	120	20	35	1110	1660	1350	UA121M400L350A□□□
	120	22	30	1110	1660	1340	UA121M400M300A□□□
	120	25	25	1110	1660	1310	UA121M400N250A□□□
	150	20	40	890	1330	1560	UA151M400L400A□□□
	150	22	35	890	1330	1550	UA151M400M350A□□□
	150	25	25	890	1330	1430	UA151M400N250A□□□
	180	20	45	740	1110	1760	UA181M400L450A□□□
	180	22	40	740	1110	1760	UA181M400M400A□□□
	180	25	30	740	1110	1650	UA181M400N300A□□□
	180	30	25	740	1110	1680	UA181M400O250A□□□

□□□ 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
400	220	22	45	600	900	1990	UA221M400M450A□□□
	220	25	35	600	900	1900	UA221M400N350A□□□
	220	30	30	600	900	1880	UA221M400O300A□□□
	270	22	50	490	740	2240	UA271M400M500A□□□
	270	25	40	490	740	2160	UA271M400N400A□□□
	270	30	30	490	740	2010	UA271M400O300A□□□
	270	35	25	490	740	2120	UA271M400P250A□□□
	330	25	50	400	600	2550	UA331M400N500A□□□
	330	30	35	400	600	2310	UA331M400O350A□□□
	330	35	30	400	600	2330	UA331M400P300A□□□
	390	30	40	340	510	2590	UA391M400O400A□□□
	390	35	35	340	510	2520	UA391M400P350A□□□
	470	30	50	280	420	3040	UA471M400O500A□□□
	470	35	40	280	420	2850	UA471M400P400A□□□
	560	35	45	240	360	3180	UA561M400P450A□□□
	680	35	50	190	290	3470	UA681M400P500A□□□
420	68	20	25	1950	2930	920	UA680M420L250A□□□
	82	20	30	1620	2430	1070	UA820M420L300A□□□
	82	22	25	1620	2430	1050	UA820M420M250A□□□
	100	20	35	1330	1990	1230	UA101M420L350A□□□
	100	22	30	1330	1990	1220	UA101M420M300A□□□
	100	25	25	1330	1990	1200	UA101M420N250A□□□
	120	20	40	1110	1660	1400	UA121M420L400A□□□
	120	22	30	1110	1660	1310	UA121M420M300A□□□
	120	25	25	1110	1660	1290	UA121M420N250A□□□
	150	20	45	890	1330	1600	UA151M420L450A□□□
	150	22	35	890	1330	1520	UA151M420M350A□□□
	150	25	30	890	1330	1510	UA151M420N300A□□□
	150	30	25	890	1330	1490	UA151M420O250A□□□
	180	20	50	740	1110	1790	UA181M420L500A□□□
	180	22	40	740	1110	1720	UA181M420M400A□□□
	180	25	35	740	1110	1730	UA181M420N350A□□□
	180	30	25	740	1110	1590	UA181M420O250A□□□
	220	22	50	600	900	2030	UA221M420M500A□□□
	220	25	40	600	900	1970	UA221M420N400A□□□
	220	30	30	600	900	1850	UA221M420O300A□□□
	220	35	25	600	900	1740	UA221M420P250A□□□
	270	25	45	490	740	2220	UA271M420N450A□□□
	270	30	35	490	740	2120	UA271M420O350A□□□
	270	35	30	490	740	2040	UA271M420P300A□□□
	330	30	40	400	600	2410	UA331M420O400A□□□
	330	35	30	400	600	2160	UA331M420P300A□□□
	390	30	45	340	510	2680	UA391M420O450A□□□
	390	35	35	340	510	2450	UA391M420P350A□□□
	470	30	50	280	420	2980	UA471M420O500A□□□

□□□ see description at end of standard ratings

STANDARD RATINGS

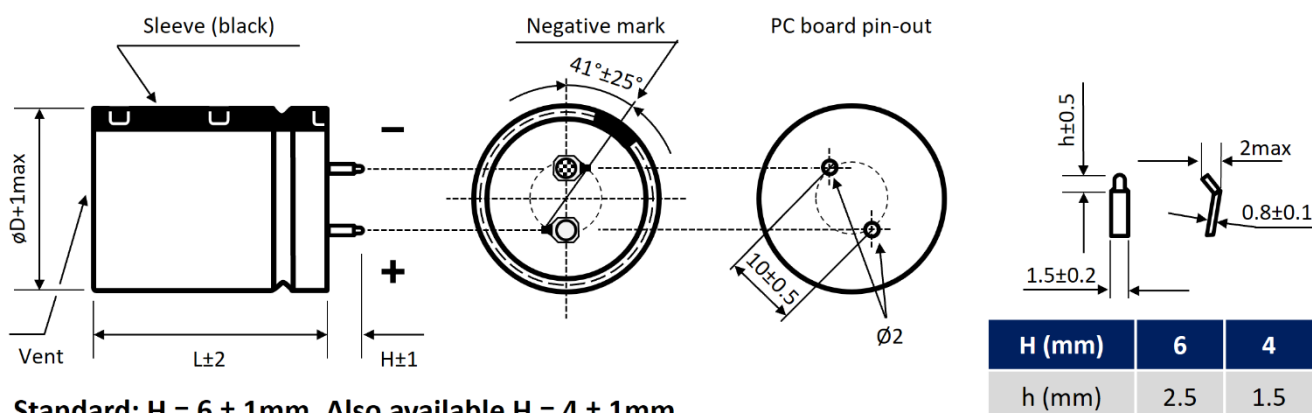
V _R (V)	C _R (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I _R • Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
420	470	35	45	280	420	2920	UA471M420P450A□□□
	560	35	50	240	360	3230	UA561M420P500A□□□
450	56	20	25	2370	3550	850	UA560M450L250A□□□
	68	20	25	1950	2930	920	UA680M450L250A□□□
	68	22	25	1950	2930	970	UA680M450M250A□□□
	82	20	30	1620	2430	1070	UA820M450L300A□□□
	82	22	25	1620	2430	1050	UA820M450M250A□□□
	100	20	35	1330	1990	1230	UA101M450L350A□□□
	100	22	30	1330	1990	1220	UA101M450M300A□□□
	100	25	25	1330	1990	1200	UA101M450N250A□□□
	120	20	40	1110	1660	1400	UA121M450L400A□□□
	120	22	35	1110	1660	1390	UA121M450M350A□□□
	120	25	25	1110	1660	1290	UA121M450N250A□□□
	150	20	50	890	1330	1660	UA151M450L500A□□□
	150	22	40	890	1330	1600	UA151M450M400A□□□
	150	25	30	890	1330	1510	UA151M450N300A□□□
	150	30	25	890	1330	1490	UA151M450O250A□□□
	180	22	45	740	1110	1800	UA181M450M450A□□□
	180	25	35	740	1110	1730	UA181M450N350A□□□
	180	30	30	740	1110	1720	UA181M450O300A□□□
	220	25	40	600	900	1970	UA221M450N400A□□□
	220	30	30	600	900	1850	UA221M450O300A□□□
	220	35	25	600	900	1740	UA221M450P250A□□□
	270	25	50	490	740	2320	UA271M450N500A□□□
	270	30	35	490	740	2120	UA271M450O350A□□□
	270	35	30	490	740	2040	UA271M450P300A□□□
	330	30	45	400	600	2530	UA331M450O450A□□□
	330	35	35	400	600	2330	UA331M450P350A□□□
	390	30	50	340	510	2800	UA391M450O500A□□□
	390	35	40	340	510	2610	UA391M450P400A□□□
	470	35	45	280	420	2920	UA471M450P450A□□□
	560	35	50	240	360	3230	UA561M450P500A□□□

□□□: 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

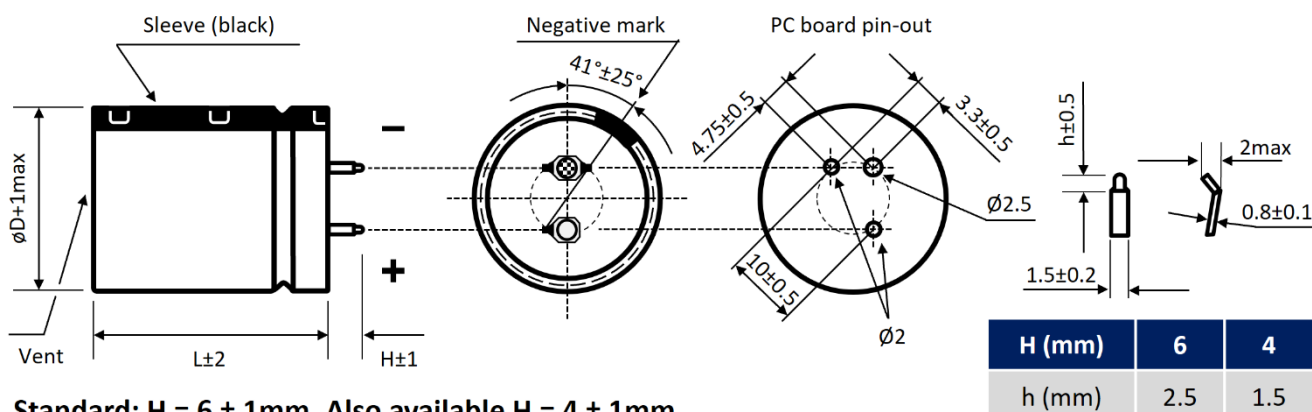
DIMENSIONS ▪ All dimensions in mm

2-pin version ▪ Standard type



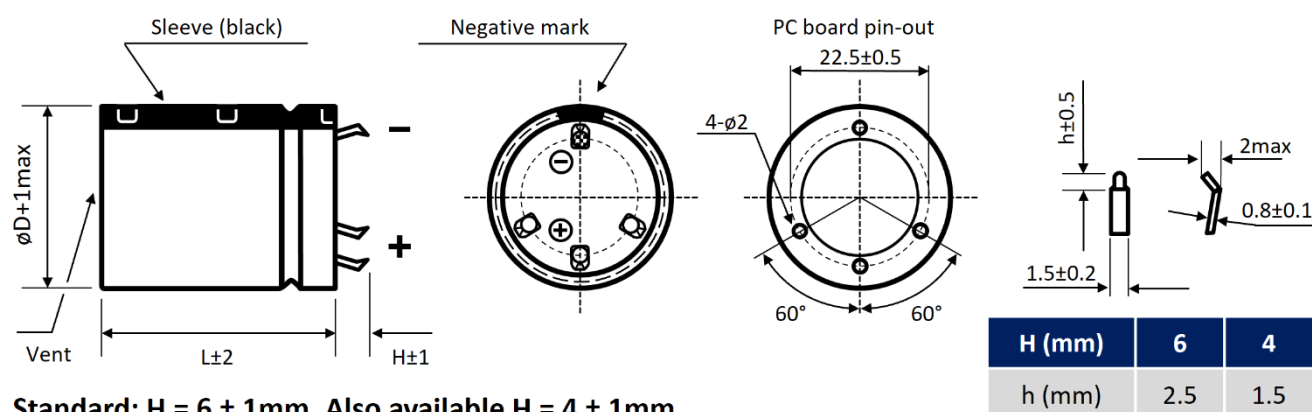
Standard: $H = 6 \pm 1$ mm. Also available $H = 4 \pm 1$ mm.

3-pin version ▪ Polarity protection



Standard: $H = 6 \pm 1$ mm. Also available $H = 4 \pm 1$ mm.

Multipin version ▪ Diameter $\phi D \geq 30$ mm



Standard: $H = 6 \pm 1$ mm. Also available $H = 4 \pm 1$ mm.




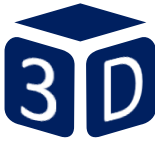

Further possible terminal styles can be found in our packaging information liquid snap-in.

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

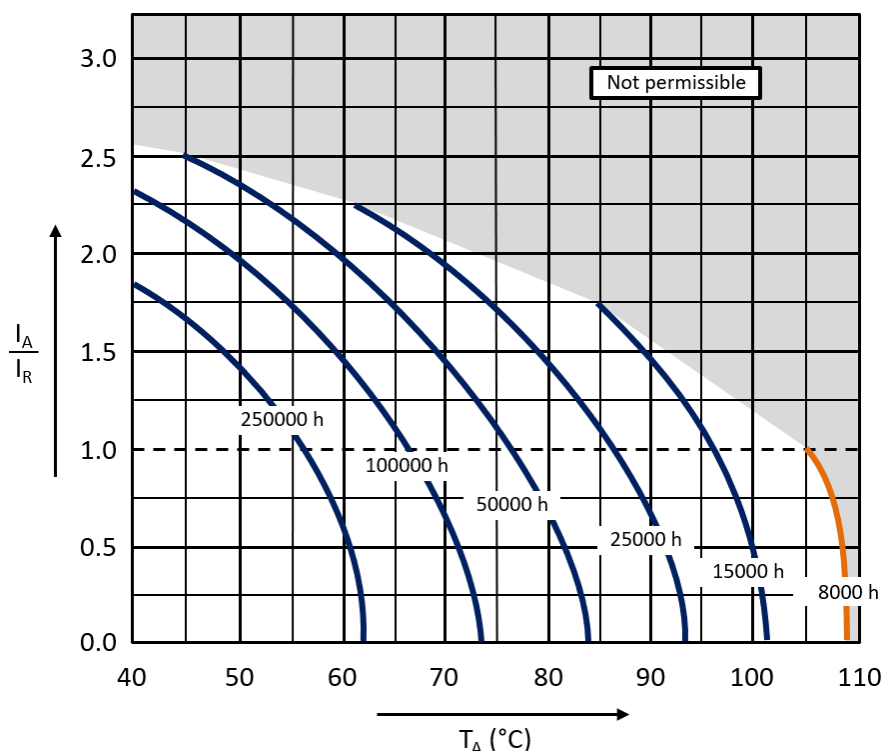
V_R (V) / Frequency (Hz)	50/60	100/120	300	500	1k	10K \leq
$160 \leq V_R \leq 250$	0.80	1.00	1.15	1.20	1.30	1.50
$400 \leq V_R \leq 450$	0.80	1.00	1.15	1.20	1.25	1.40

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

USEFUL LIFE

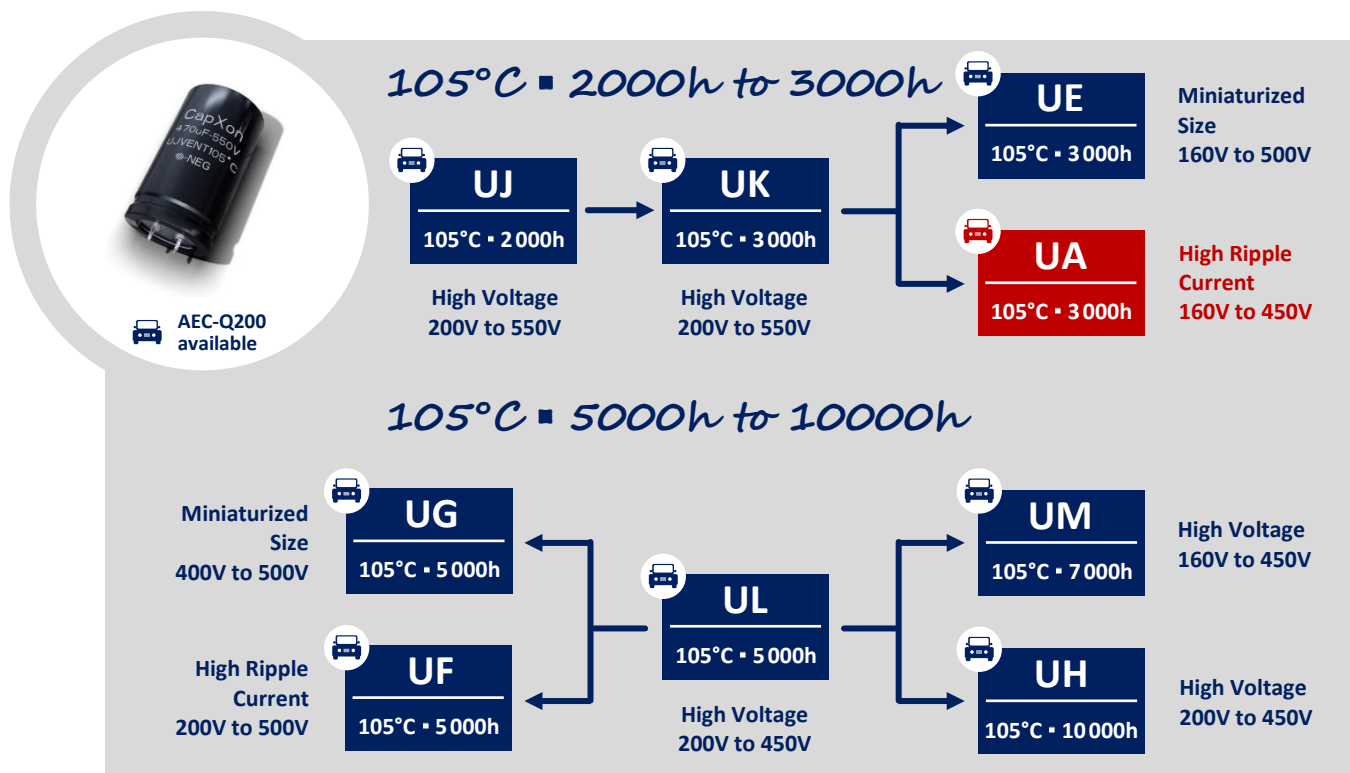


With: I_A : Application current

I_R : Rated ripple current (A RMS)

T_A : Application temperature of the capacitor

GROUP CHART



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 directly.