

UG SERIES ■ MINIATURIZED SIZE, AUTOMOTIVE 105°C TYPE

KEY FEATURES



- **ALUMINUM ELECTROLYTIC CAPACITOR** ■ Snap-In type
- Endurance: 105°C ■ 5 000 hours, Useful life: 105°C ■ 10 000 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		-25 ~ +105°C
Rated Voltage Range	V_R	400 ~ 450V DC		475 ~ 500V DC
Surge Voltage	V_S	$V_S = 1.10 \cdot V_R$		
Capacitance Range	C_R	120 ~ 1200μF		68 ~ 820μF
Cap. Tolerance	ΔC	±20% (120Hz ■ 20°C)		
Leakage Current (20°C ■ V_R applied)	I_{LEAK}	$\leq 3 \cdot \sqrt{C_R \cdot V_R}$ After 5 minutes [I_{LEAK} (μA) ; C_R (μF) ; V_R (V)]		
Dissipation Factor % (20°C ■ 120Hz)	$\tan\delta$	V_R (V DC)	400 ~ 450	475 ~ 500
		$\tan\delta$	20	25
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)	400 ~ 450	475 ~ 500
		Z-25°C/Z+20°C	8	8
		Z-40°C/Z+20°C	10	-

Lifetime Test		
Useful Life 105°C (V_R & I_R applied)	Test	10000 hours
	$\Delta C/C_R$	$\leq \pm 20\%$ of initial measured value
	$\tan\delta$	$\leq 200\%$ of initial specified value
	I_{Leak}	\leq 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	5000 hours
	$\Delta C/C_R$	$\leq \pm 15\%$ of initial measured value
	$\tan\delta$	$\leq 175\%$ of initial specified value
	I_{Leak}	\leq the initial specified value
Shelf Life 105°C ($V_R = 0$)	Test	1000 hours
	$\Delta C/C_R$	$\leq \pm 15\%$ of initial measured value
	$\tan\delta$	$\leq 175\%$ of initial specified value
	I_{Leak}	\leq 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
400	150	22	25	890	1330	1010	UG151M400M250A□□□
	180	22	30	740	1110	1170	UG181M400M300A□□□
	180	25	25	740	1110	1130	UG181M400N250A□□□
	220	22	35	600	900	1330	UG221M400M350A□□□
	220	25	30	600	900	1310	UG221M400N300A□□□
	270	22	40	490	740	1520	UG271M400M400A□□□
	270	25	30	490	740	1400	UG271M400N300A□□□
	270	25	35	490	740	1500	UG271M400N350A□□□
	270	30	25	490	740	1300	UG271M400O250A□□□
	330	22	45	400	600	1710	UG331M400M450A□□□
	330	22	50	400	600	1780	UG331M400M500A□□□
	330	25	35	400	600	1610	UG331M400N350A□□□
	330	25	40	400	600	1700	UG331M400N400A□□□
	330	30	30	400	600	1550	UG331M400O300A□□□
	390	22	50	340	510	1900	UG391M400M500A□□□
	390	22	55	340	510	1970	UG391M400M550A□□□
	390	25	40	340	510	1800	UG391M400N400A□□□
	390	25	45	340	510	1890	UG391M400N450A□□□
	390	30	30	340	510	1600	UG391M400O300A□□□
	390	35	25	340	510	1430	UG391M400P250A□□□
	470	22	60	280	420	2180	UG471M400M600A□□□
	470	25	50	280	420	2100	UG471M400N500A□□□
	470	30	35	280	420	1820	UG471M400O350A□□□
	470	35	30	280	420	1680	UG471M400P300A□□□
	560	25	55	240	360	2310	UG561M400N550A□□□
	560	30	40	240	360	2040	UG561M400O400A□□□
	560	35	35	240	360	1920	UG561M400P350A□□□
	680	30	45	190	290	2310	UG681M400O450A□□□
	680	30	50	190	290	2420	UG681M400O500A□□□
	680	35	35	190	290	2000	UG681M400P350A□□□
	680	35	40	190	290	2150	UG681M400P400A□□□
	820	30	55	160	240	2640	UG821M400O550A□□□
	820	35	45	160	240	2370	UG821M400P450A□□□
	1000	35	50	130	200	2580	UG102M400P500A□□□
	1200	35	60	110	170	2950	UG122M400P600A□□□
420	120	22	25	1110	1660	920	UG121M420M250A□□□
	150	22	30	890	1330	1080	UG151M420M300A□□□
	180	22	30	740	1110	1160	UG181M420M300A□□□
	180	22	35	740	1110	1230	UG181M420M350A□□□
	180	25	25	740	1110	1120	UG181M420N250A□□□
	220	22	35	600	900	1330	UG221M420M350A□□□
	220	22	40	600	900	1400	UG221M420M400A□□□
	220	25	30	600	900	1300	UG221M420N300A□□□
	270	22	40	490	740	1510	UG271M420M400A□□□

□□□ 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	270	22	45	490	740	1580	UG271M420M450A□□□
	270	25	35	490	740	1490	UG271M420N350A□□□
	270	30	25	490	740	1320	UG271M420O250A□□□
	330	22	50	400	600	1780	UG331M420M500A□□□
	330	25	40	400	600	1690	UG331M420N400A□□□
	330	30	30	400	600	1540	UG331M420O300A□□□
	330	35	25	400	600	1400	UG331M420P250A□□□
	390	22	55	340	510	1960	UG391M420M550A□□□
	390	22	60	340	510	2020	UG391M420M600A□□□
	390	25	45	340	510	1880	UG391M420N450A□□□
	390	30	35	340	510	1750	UG391M420O350A□□□
	390	35	30	340	510	1640	UG391M420P300A□□□
	470	25	50	280	420	2100	UG471M420N500A□□□
	470	25	55	280	420	2170	UG471M420N550A□□□
	470	30	40	280	420	1960	UG471M420O400A□□□
	470	35	30	280	420	1700	UG471M420P300A□□□
	470	35	35	280	420	1850	UG471M420P350A□□□
	560	25	60	240	360	2400	UG561M420N600A□□□
	560	30	45	240	360	2200	UG561M420O450A□□□
	560	30	50	240	360	2290	UG561M420O500A□□□
	560	35	35	240	360	1940	UG561M420P350A□□□
	560	35	40	240	360	2070	UG561M420P400A□□□
	680	30	50	190	290	2430	UG681M420O500A□□□
	680	30	55	190	290	2510	UG681M420O550A□□□
	680	35	40	190	290	2170	UG681M420P400A□□□
	680	35	45	190	290	2290	UG681M420P450A□□□
	820	35	45	160	240	2410	UG821M420P450A□□□
	820	35	50	160	240	2500	UG821M420P500A□□□
	1000	35	60	130	200	2890	UG102M420P600A□□□
450	120	22	25	1110	1660	930	UG121M450M250A□□□
	150	22	30	890	1330	1090	UG151M450M300A□□□
	150	25	25	890	1330	1060	UG151M450N250A□□□
	180	22	35	740	1110	1240	UG181M450M350A□□□
	180	25	30	740	1110	1220	UG181M450N300A□□□
	220	22	40	600	900	1410	UG221M450M400A□□□
	220	25	30	600	900	1310	UG221M450N300A□□□
	220	25	35	600	900	1390	UG221M450N350A□□□
	220	30	25	600	900	1260	UG221M450O250A□□□
	270	22	45	490	740	1590	UG271M450M450A□□□
	270	22	50	490	740	1650	UG271M450M500A□□□
	270	25	35	490	740	1500	UG271M450N350A□□□
	270	25	40	490	740	1580	UG271M450N400A□□□
	270	30	30	490	740	1460	UG271M450O300A□□□
	270	35	25	490	740	1350	UG271M450P250A□□□

□□□ 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	330	22	55	400	600	1850	UG331M450M550A□□□
	330	25	45	400	600	1780	UG331M450N450A□□□
	330	30	30	400	600	1550	UG331M450O300A□□□
	330	30	35	400	600	1670	UG331M450O350A□□□
	330	35	25	400	600	1410	UG331M450P250A□□□
	330	35	30	400	600	1580	UG331M450P300A□□□
	390	22	60	340	510	2030	UG391M450M600A□□□
	390	25	50	340	510	1970	UG391M450N500A□□□
	390	30	35	340	510	1750	UG391M450O350A□□□
	390	30	40	340	510	1870	UG391M450O400A□□□
	390	35	30	340	510	1610	UG391M450P300A□□□
	470	25	55	280	420	2180	UG471M450N550A□□□
	470	25	60	280	420	2260	UG471M450N600A□□□
	470	30	40	280	420	1970	UG471M450O400A□□□
	470	30	45	280	420	2080	UG471M450O450A□□□
	470	35	35	280	420	1840	UG471M450P350A□□□
	560	30	50	240	360	2290	UG561M450O500A□□□
	560	35	40	240	360	2060	UG561M450P400A□□□
	680	30	55	190	290	2540	UG681M450O550A□□□
	680	30	60	190	290	2630	UG681M450O600A□□□
	680	35	45	190	290	2280	UG681M450P450A□□□
	820	35	50	160	240	2550	UG821M450P500A□□□
	820	35	55	160	240	2660	UG821M450P550A□□□
	1000	35	60	130	200	2930	UG102M450P600A□□□
475	82	22	25	2150	3230	740	UG820M475M250A□□□
	100	22	30	1770	2650	840	UG101M475M300A□□□
	100	25	25	1770	2650	850	UG101M475N250A□□□
	120	22	30	1470	2210	810	UG121M475M300A□□□
	120	25	30	1470	2210	950	UG121M475N300A□□□
	150	22	35	1180	1770	1050	UG151M475M350A□□□
	150	25	30	1180	1770	1040	UG151M475N300A□□□
	150	30	25	1180	1770	1050	UG151M475O250A□□□
	180	22	40	980	1470	1190	UG181M475M400A□□□
	180	25	35	980	1470	1190	UG181M475N350A□□□
	180	30	30	980	1470	1190	UG181M475O300A□□□
	220	22	45	810	1210	1340	UG221M475M450A□□□
	220	25	40	810	1210	1350	UG221M475N400A□□□
	220	30	30	810	1210	1280	UG221M475O300A□□□
	220	35	25	810	1210	1220	UG221M475P250A□□□
	270	22	55	650	980	1560	UG271M475M550A□□□
	270	25	45	650	980	1520	UG271M475N450A□□□
	270	30	35	650	980	1470	UG271M475O350A□□□
	270	35	30	650	980	1430	UG271M475P300A□□□
	330	25	50	530	800	1710	UG331M475N500A□□□

□□□ see description at end of standard ratings

STANDARD RATINGS

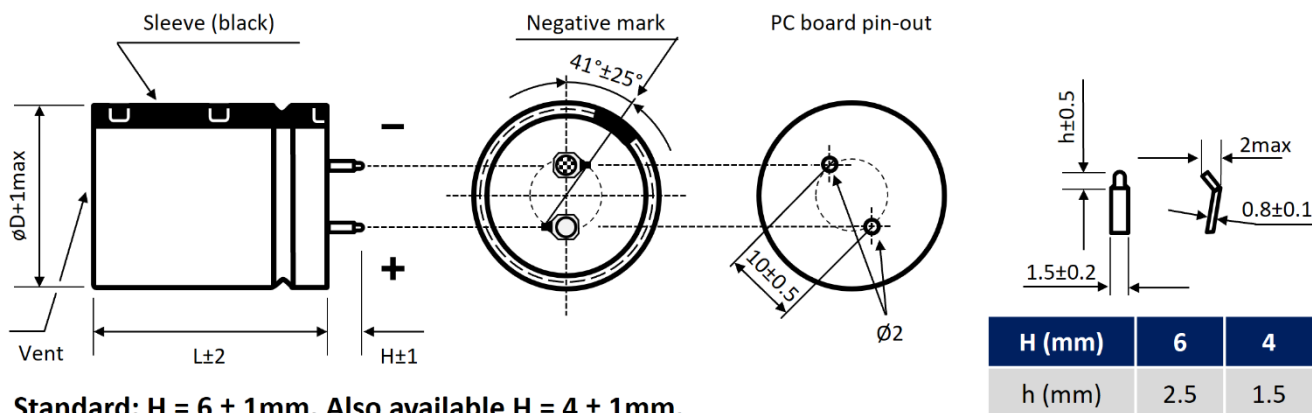
V _R (V)	C _R (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I _R • Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
475	330	30	40	530	800	1660	UG331M475O400A□□□
	330	35	30	530	800	1500	UG331M475P300A□□□
	390	25	60	450	680	1950	UG391M475N600A□□□
	390	30	40	450	680	1750	UG391M475O400A□□□
	390	35	35	450	680	1700	UG391M475P350A□□□
	470	30	50	370	560	2040	UG471M475O500A□□□
	470	35	40	370	560	1900	UG471M475P400A□□□
	560	30	60	310	470	2330	UG561M475O600A□□□
	560	35	45	310	470	2110	UG561M475P450A□□□
	820	35	55	210	320	2450	UG821M475P550A□□□
500	68	22	25	2600	3900	690	UG680M500M250A□□□
	82	22	30	2150	3230	770	UG820M500M300A□□□
	100	22	30	1770	2650	850	UG101M500M300A□□□
	120	22	35	1470	2210	960	UG121M500M350A□□□
	120	25	30	1470	2210	960	UG121M500N300A□□□
	150	22	40	1180	1770	1110	UG151M500M400A□□□
	150	25	30	1180	1770	1060	UG151M500N300A□□□
	180	22	45	980	1470	1250	UG181M500M450A□□□
	180	25	35	980	1470	1200	UG181M500N350A□□□
	180	30	30	980	1470	1200	UG181M500O300A□□□
	180	35	25	980	1470	1160	UG181M500P250A□□□
	220	22	50	810	1210	1400	UG221M500M500A□□□
	220	25	40	810	1210	1360	UG221M500N400A□□□
	220	30	30	810	1210	1290	UG221M500O300A□□□
	220	35	30	810	1210	1350	UG221M500P300A□□□
	270	22	60	650	980	1620	UG271M500M600A□□□
	270	25	50	650	980	1600	UG271M500N500A□□□
	270	30	35	650	980	1480	UG271M500O350A□□□
	270	35	30	650	980	1430	UG271M500P300A□□□
	330	25	55	530	800	1780	UG331M500N550A□□□
	330	30	40	530	800	1670	UG331M500O400A□□□
	330	35	35	530	800	1630	UG331M500P350A□□□
	390	30	45	450	680	1850	UG391M500O450A□□□
	390	35	40	450	680	1820	UG391M500P400A□□□
	470	30	55	370	560	2140	UG471M500O550A□□□
	470	35	45	370	560	2020	UG471M500P450A□□□
	560	30	60	310	470	2340	UG561M500O600A□□□
	560	35	50	310	470	2230	UG561M500P500A□□□
	680	35	55	260	390	2440	UG681M500P550A□□□

□□□: 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

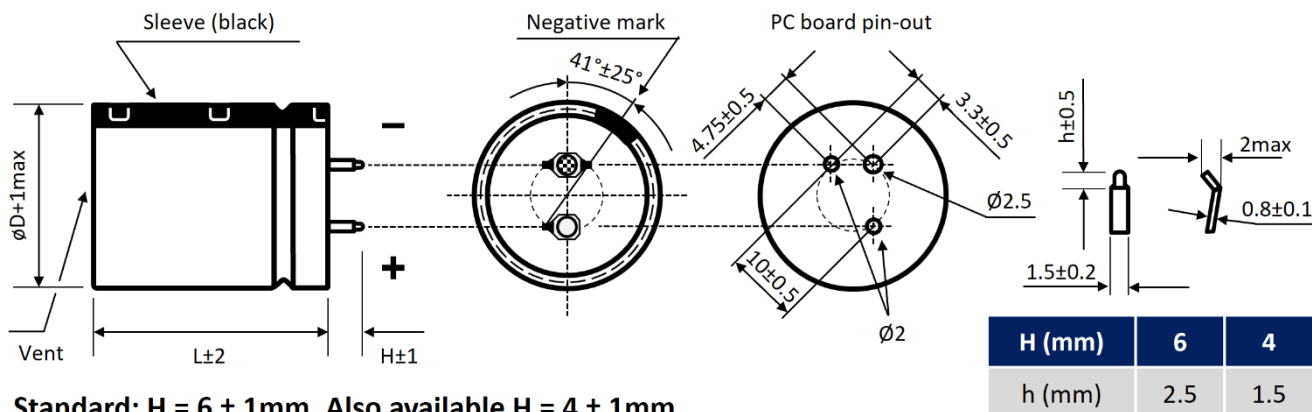
DIMENSIONS ▪ All dimensions in mm

2-pin version ▪ Standard type



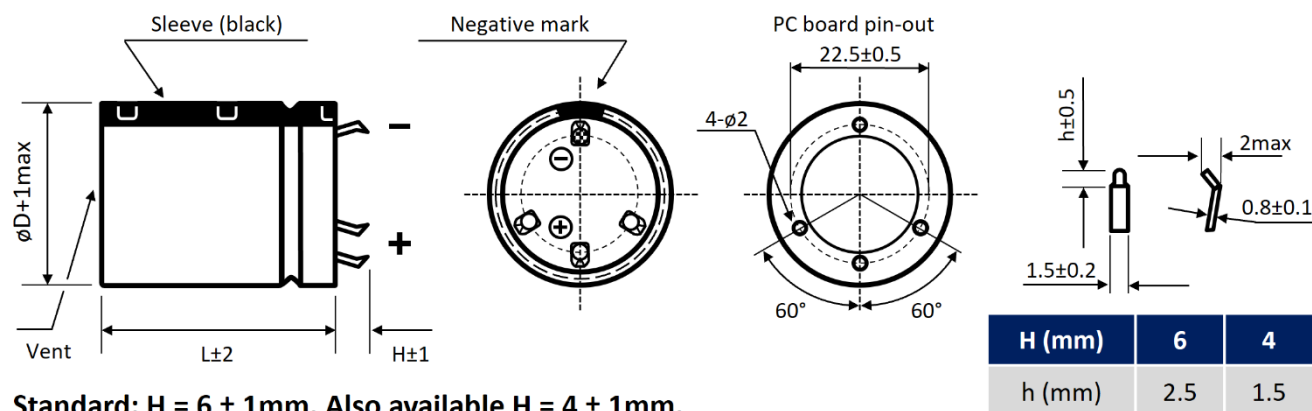
Standard: $H = 6 \pm 1\text{mm}$. Also available $H = 4 \pm 1\text{mm}$.

3-pin version ▪ Polarity protection



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

Multipin version ▪ Diameter $\phi D \geq 30\text{ mm}$



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






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

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

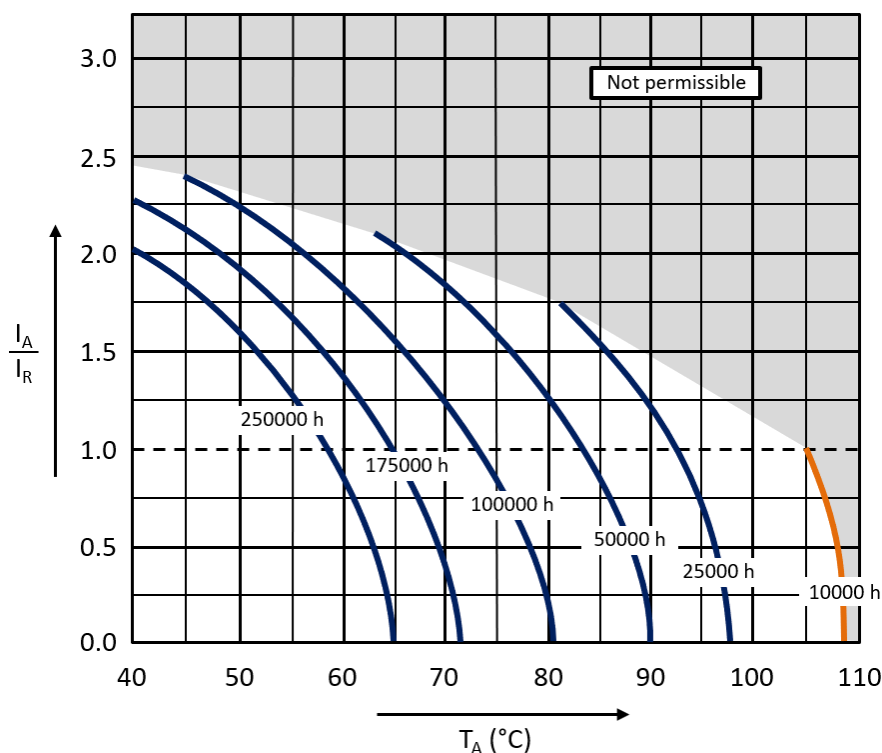
V_R (V) / Frequency (Hz)	50/60	100/120	300	500	1k	$\geq 10k$
Multiplier	0.80	1.00	1.15	1.20	1.25	1.40

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.

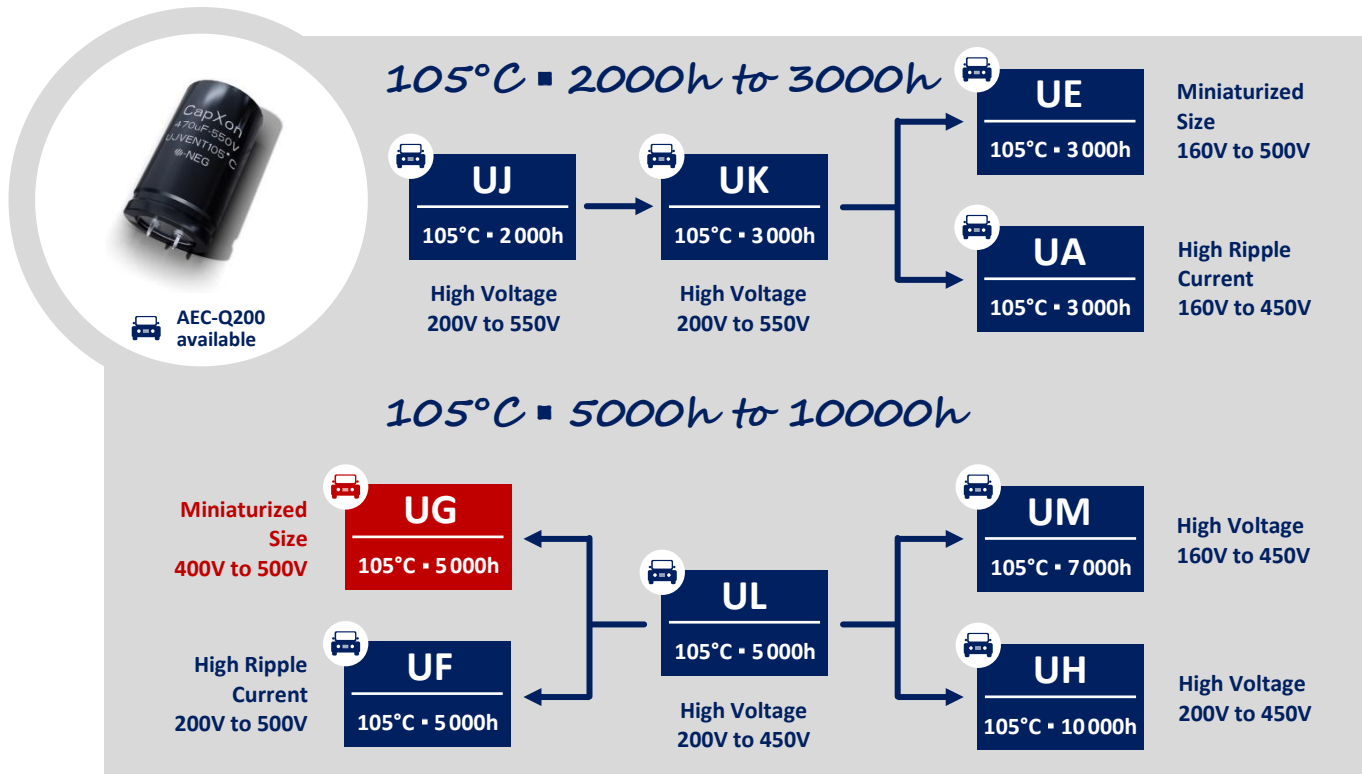
				
General Precautions & Guidelines	Packaging Information	Vibration Test Profiles	3D Models	Reliability Tests

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.