

### UM 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 ▪ 7 000 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		
Rated Voltage Range	$V_R$	160 ~ 450V DC		
Surge Voltage	$V_S$	$(V_R \leq 315V) \cdot V_S = 1.15 \cdot V_R$ $(V_R > 315V) \cdot V_S = 1.10 \cdot V_R$		
Capacitance Range	$C_R$	47 ~ 2200µF		
Cap. Tolerance	$\Delta C$	±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)	160 ~ 420	450
		$\tan \delta$	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)	160 ~ 250	315 ~ 450
		Z-25°C/Z+20°C	4	8
		Z-40°C/Z+20°C	7	10

Lifetime Test			
Useful Life 105°C (V <sub>R</sub> & I <sub>R</sub> applied)	Test	10000 hours	
	ΔC/C <sub>R</sub>	≤ ±20% of initial measured value	
	tanδ	≤ 200% of initial specified value	
	I <sub>Leak</sub>	≤ 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 <sub>R</sub> & I <sub>R</sub> applied)	Test	7000 hours	
	ΔC/C <sub>R</sub>	≤ ±15% of initial measured value	
	tanδ	≤ 175% of initial specified value	
	I <sub>Leak</sub>	≤ the initial specified value	
Shelf Life 105°C (V <sub>R</sub> = 0)	Test	1000 hours	
	ΔC/C <sub>R</sub>	≤ ±15% of initial measured value	
	tanδ	≤ 175% of initial specified value	
	I <sub>Leak</sub>	≤ the initial specified value	
		Before measurement: Restore capacitor to 20°C, apply V <sub>R</sub> for 30 min according JIS-C-5101-4	
Vibration Resistance Test	Max. 10g force, f <sub>RANGE</sub> 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 <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> = Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
160	330	22	25	270	480	1110	UM331M160M250A□□□
	390	22	30	230	410	1260	UM391M160M300A□□□
	470	22	30	190	340	1390	UM471M160M300A□□□
	470	25	25	190	340	1380	UM471M160N250A□□□
	560	22	35	160	280	1550	UM561M160M350A□□□
	560	25	30	160	280	1550	UM561M160N300A□□□
	680	22	40	130	230	1750	UM681M160M400A□□□
	680	25	35	130	230	1780	UM681M160N350A□□□
	680	30	25	130	230	1740	UM681M160O250A□□□
	820	22	50	110	190	1970	UM821M160M500A□□□
	820	25	40	110	190	2010	UM821M160N400A□□□
	820	30	30	110	190	1960	UM821M160O300A□□□
	1000	25	45	89	160	2270	UM102M160N450A□□□
	1000	30	35	89	160	2260	UM102M160O350A□□□
	1200	25	50	72	130	2540	UM122M160N500A□□□
	1200	30	40	72	130	2580	UM122M160O400A□□□
	1200	35	30	72	130	2520	UM122M160P300A□□□
	1500	30	45	61	110	2960	UM152M160O450A□□□
	1500	35	35	61	110	2890	UM152M160P350A□□□
	1800	30	50	49	88	3320	UM182M160O500A□□□
	1800	35	40	49	88	3300	UM182M160P400A□□□
180	2200	35	50	40	72	3870	UM222M160P500A□□□
	270	22	25	330	590	1000	UM271M180M250A□□□
	330	22	30	270	480	1160	UM331M180M300A□□□
	390	22	30	230	410	1260	UM391M180M300A□□□
	390	25	25	230	410	1260	UM391M180N250A□□□
	470	22	35	190	340	1420	UM471M180M350A□□□
	470	25	30	190	340	1420	UM471M180N300A□□□
	560	22	40	160	280	1590	UM561M180M400A□□□
	560	25	30	160	280	1550	UM561M180N300A□□□
	560	30	25	160	280	1580	UM561M180O250A□□□
	680	22	45	130	230	1790	UM681M180M450A□□□
	680	25	35	130	230	1780	UM681M180N350A□□□
	680	30	30	130	230	1790	UM681M180O300A□□□
	820	25	40	110	190	2010	UM821M180N400A□□□
	820	30	35	110	190	2040	UM821M180O350A□□□
	1000	25	50	89	160	2320	UM102M180N500A□□□
	1000	30	35	89	160	2260	UM102M180O350A□□□
	1000	35	30	89	160	2300	UM102M180P300A□□□
	1200	30	45	72	130	2650	UM122M180O450A□□□
	1200	35	35	72	130	2580	UM122M180P350A□□□
	1500	30	50	61	110	3030	UM152M180O500A□□□
	1500	35	40	61	110	3010	UM152M180P400A□□□
	1800	35	45	49	88	3410	UM182M180P450A□□□
	2200	35	50	40	72	3870	UM222M180P500A□□□

□□□ see description at end of standard ratings

## STANDARD RATINGS

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
200	220	22	25	480	720	900	UM221M200M250A□□□
	270	22	30	390	590	1050	UM271M200M300A□□□
	330	22	30	320	480	1160	UM331M200M300A□□□
	330	25	25	320	480	1160	UM331M200N250A□□□
	390	22	35	270	410	1290	UM391M200M350A□□□
	390	25	30	270	410	1290	UM391M200N300A□□□
	470	22	40	230	340	1460	UM471M200M400A□□□
	470	25	30	230	340	1420	UM471M200N300A□□□
	470	30	25	230	340	1450	UM471M200O250A□□□
	560	22	45	190	280	1630	UM561M200M450A□□□
	560	25	35	190	280	1620	UM561M200N350A□□□
	560	30	30	190	280	1620	UM561M200O300A□□□
	680	25	40	150	230	1830	UM681M200N400A□□□
	680	30	30	150	230	1790	UM681M200O300A□□□
	820	25	45	130	190	2060	UM821M200N450A□□□
	820	30	35	130	190	2040	UM821M200O350A□□□
	1000	30	45	110	160	2420	UM102M200O450A□□□
	1000	35	30	110	160	2300	UM102M200P300A□□□
	1200	30	50	87	130	2710	UM122M200O500A□□□
	1200	35	40	87	130	2700	UM122M200P400A□□□
	1500	35	45	73	110	3110	UM152M200P450A□□□
	1800	35	50	59	88	3500	UM182M200P500A□□□
220	220	22	25	480	720	900	UM221M220M250A□□□
	270	22	30	390	590	1050	UM271M220M300A□□□
	330	22	35	320	480	1190	UM331M220M350A□□□
	330	25	25	320	480	1160	UM331M220N250A□□□
	390	22	40	270	410	1330	UM391M220M400A□□□
	390	25	25	270	410	1290	UM391M220N250A□□□
	470	22	45	230	340	1490	UM471M220M450A□□□
	470	25	35	230	340	1480	UM471M220N350A□□□
	470	30	25	230	340	1450	UM471M220O250A□□□
	560	22	50	190	280	1630	UM561M220M500A□□□
	560	25	40	190	280	1710	UM561M220N400A□□□
	560	30	30	190	280	1620	UM561M220O300A□□□
	680	25	45	150	230	1870	UM681M220N450A□□□
	680	30	35	150	230	1860	UM681M220O350A□□□
	820	25	50	130	190	2100	UM821M220N500A□□□
	820	30	40	130	190	2120	UM821M220O400A□□□
	820	35	30	130	190	2080	UM821M220P300A□□□
	1000	30	50	110	160	2480	UM102M220O500A□□□
	1000	35	40	110	160	2460	UM102M220P400A□□□
	1200	35	45	87	130	2780	UM122M220P450A□□□
	1500	30	50	73	110	3200	UM152M220O500A□□□
250	180	22	25	590	880	820	UM181M250M250A□□□
	220	22	30	480	720	950	UM221M250M300A□□□

□□□ see description at end of standard ratings

## STANDARD RATINGS

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
250	270	22	35	330	590	1080	UM271M250M350A□□□
	270	25	25	330	590	1050	UM271M250N250A□□□
	330	22	40	270	480	1220	UM331M250M400A□□□
	330	25	30	270	480	1190	UM331M250N300A□□□
	390	22	45	230	410	1360	UM391M250M450A□□□
	390	25	35	230	410	1350	UM391M250N350A□□□
	390	30	25	230	410	1320	UM391M250O250A□□□
	470	22	50	190	340	1490	UM471M250M500A□□□
	470	25	40	190	340	1520	UM471M250N400A□□□
	470	30	30	190	340	1490	UM471M250O300A□□□
	560	25	45	160	280	1700	UM561M250N450A□□□
	560	30	35	160	280	1690	UM561M250O350A□□□
	680	25	50	130	230	1910	UM681M250N500A□□□
	680	30	40	130	230	1930	UM681M250O400A□□□
	680	35	30	130	230	1900	UM681M250P300A□□□
	820	30	45	110	190	2190	UM821M250O450A□□□
	820	35	35	110	190	2130	UM821M250P350A□□□
	1000	35	40	89	160	2460	UM102M250P400A□□□
315	1200	35	50	72	130	2860	UM122M250P500A□□□
	100	22	25	880	1590	670	UM101M315M250A□□□
	120	22	30	740	1330	770	UM121M315M300A□□□
	150	22	30	590	1060	860	UM151M315M300A□□□
	150	25	25	590	1060	850	UM151M315N250A□□□
	180	22	35	490	880	960	UM181M315M350A□□□
	180	25	30	490	880	960	UM181M315N300A□□□
	220	22	40	400	720	1090	UM221M315M400A□□□
	220	25	30	400	720	1060	UM221M315N300A□□□
	220	30	25	400	720	1080	UM221M315O250A□□□
	270	22	45	330	590	1240	UM271M315M450A□□□
	270	25	35	330	590	1230	UM271M315N350A□□□
	270	30	30	330	590	1230	UM271M315O300A□□□
	330	25	40	270	480	1400	UM331M315N400A□□□
	330	30	35	270	480	1420	UM331M315O350A□□□
	330	35	30	270	480	1450	UM331M315P300A□□□
	390	25	50	230	410	1590	UM391M315N500A□□□
	390	30	35	230	410	1540	UM391M315O350A□□□
	390	35	30	230	410	1570	UM391M315P300A□□□
	470	30	45	190	340	1810	UM471M315O450A□□□
	470	35	35	190	340	1770	UM471M315P350A□□□
	560	30	50	160	280	2030	UM561M315O500A□□□
	560	35	40	160	280	2020	UM561M315P400A□□□
	680	35	45	130	230	2290	UM681M315P450A□□□
	820	35	50	110	190	2590	UM821M315P500A□□□
350	100	22	25	880	1590	670	UM101M350M250A□□□
	120	22	30	740	1330	770	UM121M350M300A□□□

□□□ see description at end of standard ratings

## STANDARD RATINGS

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
350	120	25	25	890	1330	760	UM121M350N250A□□□
	150	22	35	710	1060	880	UM151M350M350A□□□
	150	25	30	710	1060	880	UM151M350N300A□□□
	180	22	40	590	880	990	UM181M350M400A□□□
	180	25	30	590	880	960	UM181M350N300A□□□
	180	30	25	590	880	980	UM181M350O250A□□□
	220	22	45	480	720	1120	UM221M350M450A□□□
	220	25	35	480	720	1110	UM221M350N350A□□□
	220	30	30	480	720	1110	UM221M350O300A□□□
	270	25	40	390	590	1260	UM271M350N400A□□□
	270	30	35	390	590	1280	UM271M350O350A□□□
	330	25	45	320	480	1400	UM331M350N450A□□□
	330	30	35	320	480	1420	UM331M350O350A□□□
	330	35	30	320	480	1450	UM331M350P300A□□□
	390	30	40	270	410	1600	UM391M350O400A□□□
	390	35	35	270	410	1610	UM391M350P350A□□□
	470	30	50	230	340	1860	UM471M350O500A□□□
	470	35	40	230	340	1850	UM471M350P400A□□□
	560	35	40	190	280	2020	UM561M350P400A□□□
	680	35	50	150	230	2360	UM681M350P500A□□□
400	68	22	25	1560	2340	550	UM680M400M250A□□□
	82	22	30	1290	1940	630	UM820M400M300A□□□
	100	22	30	1060	1590	700	UM101M400M300A□□□
	100	25	25	1060	1590	700	UM101M400N250A□□□
	120	22	35	890	1330	790	UM121M400M350A□□□
	120	25	30	890	1330	790	UM121M400N300A□□□
	150	22	40	710	1060	900	UM151M400M400A□□□
	150	25	30	710	1060	880	UM151M400N300A□□□
	150	30	25	710	1060	900	UM151M400O250A□□□
	180	22	45	590	880	990	UM181M400M450A□□□
	180	25	35	590	880	1010	UM181M400N350A□□□
	180	30	30	590	880	1010	UM181M400O300A□□□
	220	25	40	480	720	1140	UM221M400N400A□□□
	220	30	35	480	720	1160	UM221M400O350A□□□
	270	25	50	390	590	1320	UM271M400N500A□□□
	270	30	40	390	590	1330	UM271M400O400A□□□
	270	35	30	390	590	1310	UM271M400P300A□□□
	330	30	45	320	480	1520	UM331M400O450A□□□
	330	35	35	320	480	1480	UM331M400P350A□□□
	390	30	50	270	410	1690	UM391M400O500A□□□
	390	35	40	270	410	1680	UM391M400P400A□□□
	470	35	45	230	340	1910	UM471M400P450A□□□
	560	35	50	190	280	2140	UM561M400P500A□□□
420	56	22	25	1890	2840	500	UM560M420M250A□□□
	68	22	30	1560	2340	580	UM680M420M300A□□□

□□□ see description at end of standard ratings

## STANDARD RATINGS

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> = Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
420	82	22	30	1080	1940	630	UM820M420M300A□□□
	82	25	25	1080	1940	630	UM820M420N250A□□□
	100	22	35	880	1590	720	UM101M420M350A□□□
	100	25	30	880	1590	720	UM101M420N300A□□□
	120	22	40	740	1330	810	UM121M420M400A□□□
	120	25	30	740	1330	790	UM121M420N300A□□□
	120	30	25	740	1330	800	UM121M420O250A□□□
	150	22	45	590	1060	920	UM151M420M450A□□□
	150	25	35	590	1060	920	UM151M420N350A□□□
	150	30	30	590	1060	920	UM151M420O300A□□□
	180	25	40	490	880	1030	UM181M420N400A□□□
	180	30	35	490	880	1050	UM181M420O350A□□□
	220	25	50	400	720	1190	UM221M420N500A□□□
	220	30	35	400	720	1160	UM221M420O350A□□□
	220	35	30	400	720	1180	UM221M420P300A□□□
	270	30	45	330	590	1380	UM271M420O450A□□□
	270	35	35	330	590	1340	UM271M420P350A□□□
	330	30	50	270	480	1560	UM331M420O500A□□□
	330	35	40	270	480	1550	UM331M420P400A□□□
	390	35	45	230	410	1740	UM391M420P450A□□□
	470	35	50	190	340	1960	UM471M420P500A□□□
450	47	22	25	2350	4230	460	UM470M450M250A□□□
	56	22	30	1970	3550	520	UM560M450M300A□□□
	68	22	30	1630	2930	580	UM680M450M300A□□□
	68	25	25	1630	2930	580	UM680M450N250A□□□
	82	22	35	1350	2430	650	UM820M450M350A□□□
	82	25	30	1350	2430	650	UM820M450N300A□□□
	100	22	40	1110	1990	740	UM101M450M400A□□□
	100	25	30	1110	1990	720	UM101M450N300A□□□
	100	30	25	1110	1990	730	UM101M450O250A□□□
	120	22	45	920	1660	830	UM121M450M450A□□□
	120	25	35	920	1660	820	UM121M450N350A□□□
	120	30	30	920	1660	820	UM121M450O300A□□□
	150	25	40	740	1330	940	UM151M450N400A□□□
	150	30	35	740	1330	960	UM151M450O350A□□□
	180	25	45	620	1110	1060	UM181M450N450A□□□
	180	30	35	620	1110	1050	UM181M450O350A□□□
	180	35	30	620	1110	1070	UM181M450P300A□□□
	220	30	40	500	900	1200	UM221M450O400A□□□
	220	35	35	500	900	1210	UM221M450P350A□□□
	270	30	50	410	740	1410	UM271M450O500A□□□
	270	35	40	410	740	1400	UM271M450P400A□□□
	330	35	45	330	600	1600	UM331M450P450A□□□
	390	35	50	280	510	1790	UM391M450P500A□□□

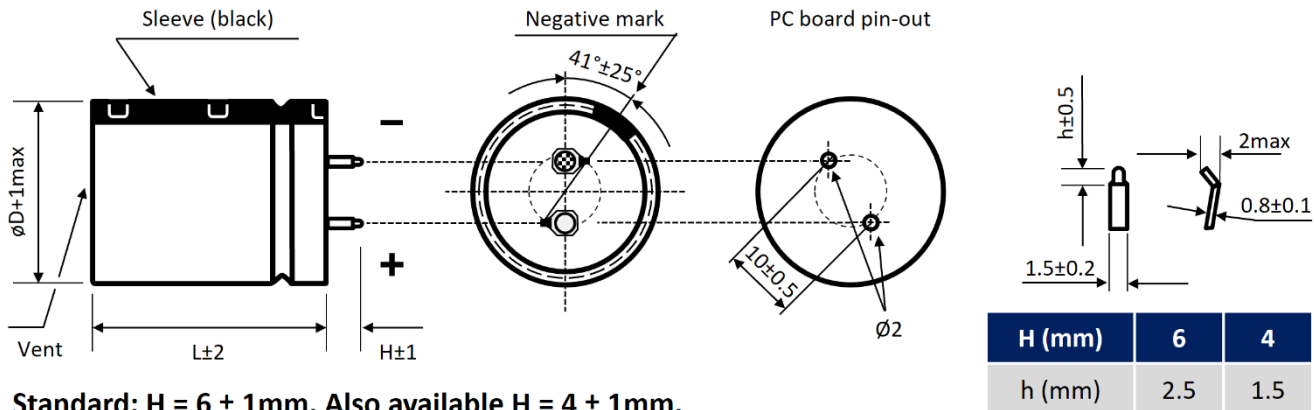
□□□ see description at end of standard ratings

□□□: 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

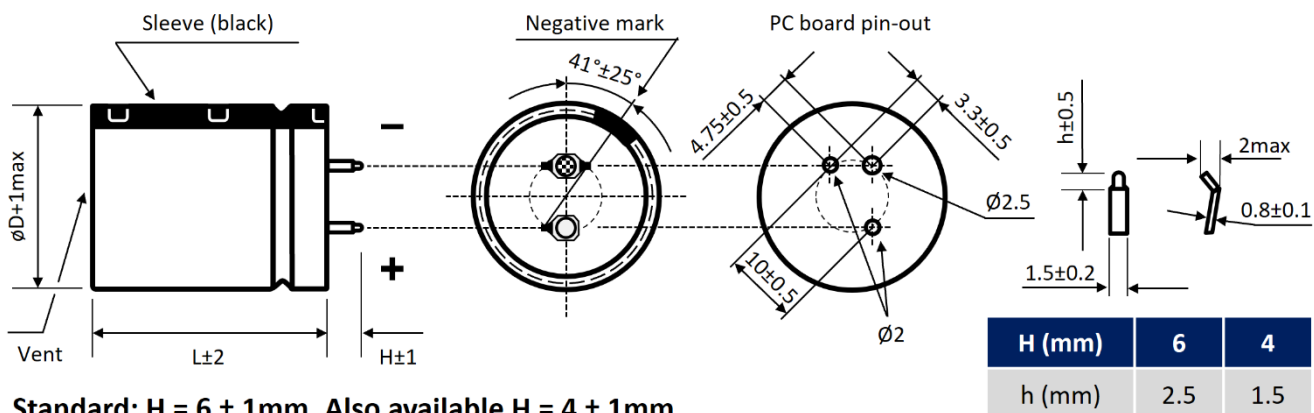
### DIMENSIONS ▪ All dimensions in mm

#### 2-pin version ▪ Standard type



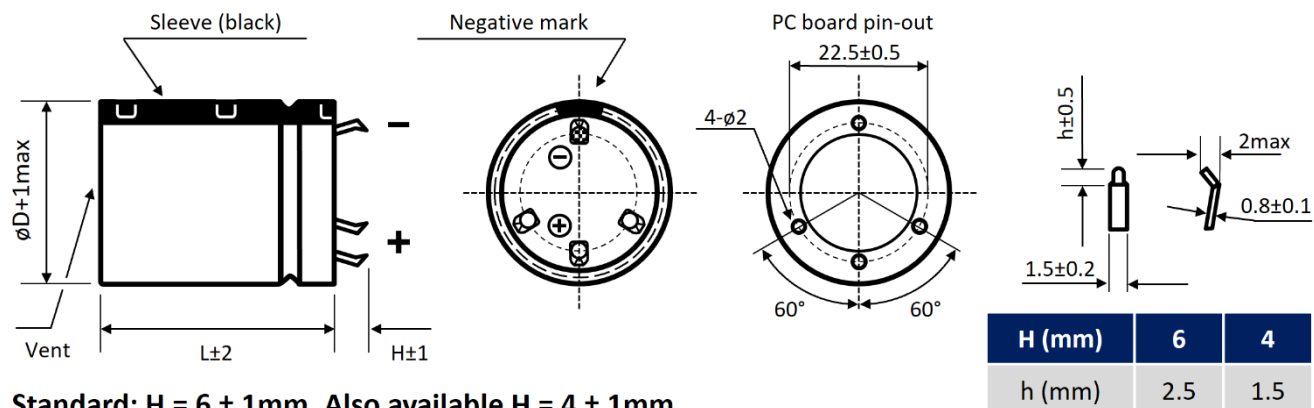
Standard:  $H = 6 \pm 1 \text{ mm}$ . Also available  $H = 4 \pm 1 \text{ mm}$ .

#### 3-pin version ▪ Polarity protection



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

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



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

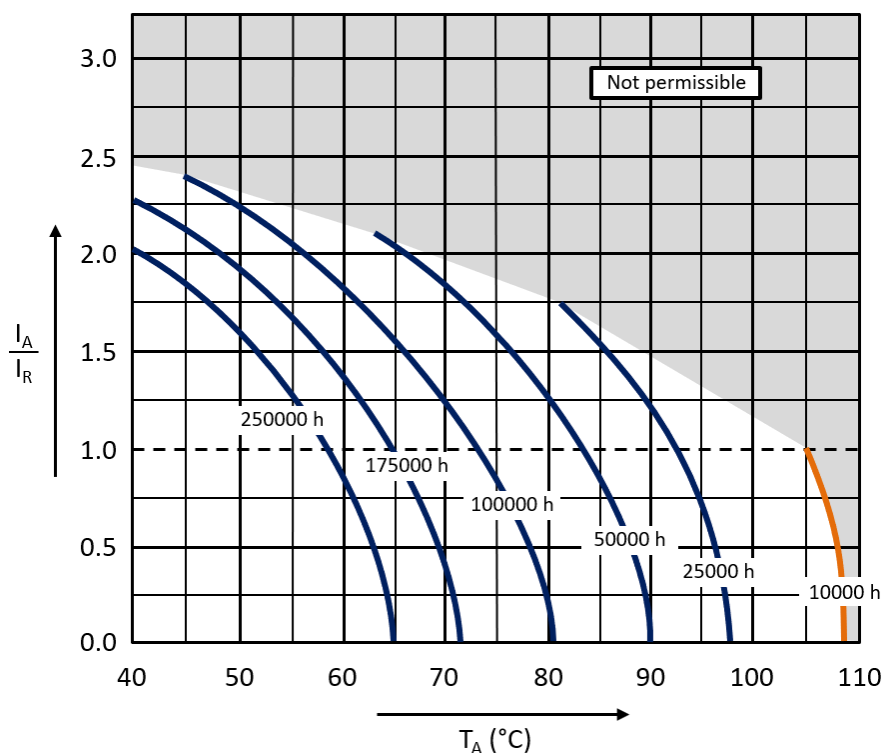
$V_R$ (V) / Frequency (Hz)	50/60	100/120	300	1k	10k	50k - 100k
$160 \leq V_R \leq 250$	0.81	1	1.17	1.32	1.45	1.5
$315 \leq V_R \leq 450$	0.77	1	1.16	1.3	1.41	1.43

### 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.

<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">Vibration Test Profiles</a>	<a href="#">3D Models</a>	<a href="#">Reliability Tests</a>

### USEFUL LIFE

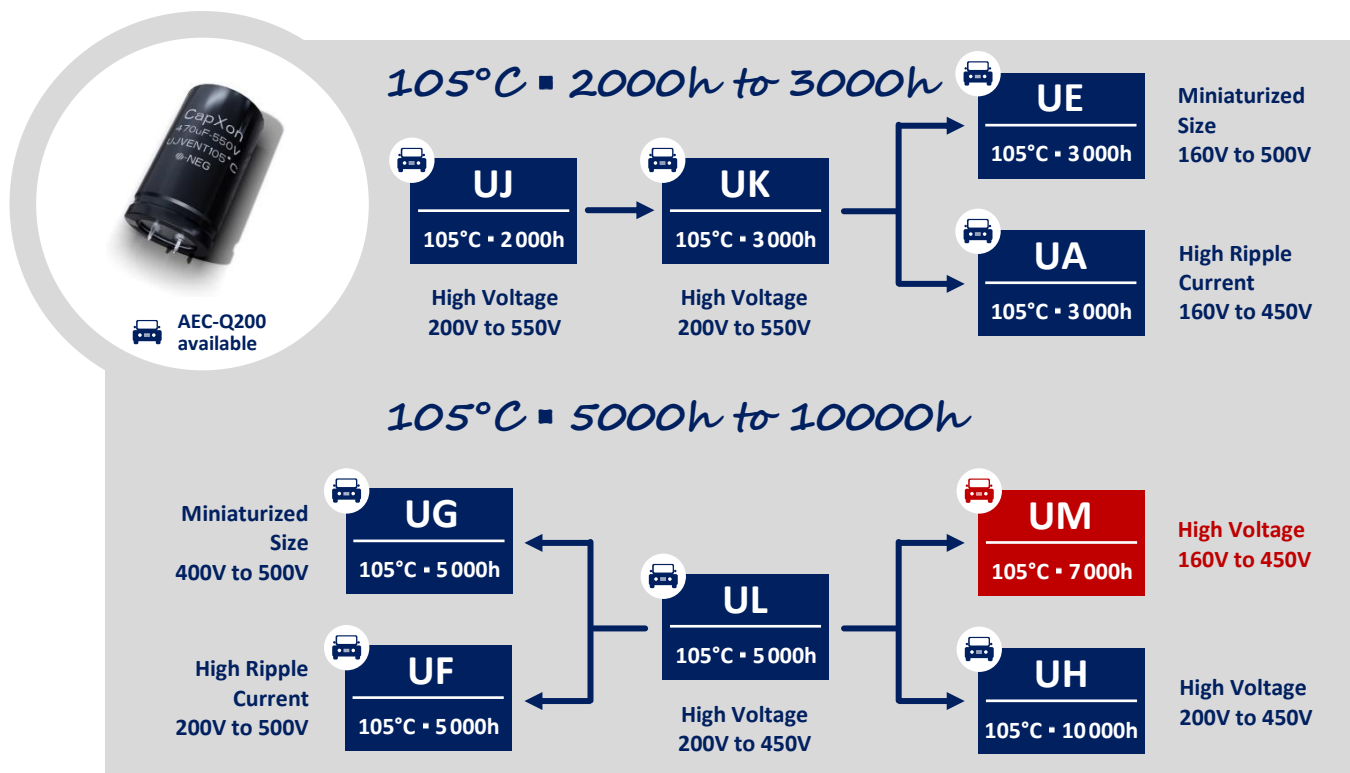


With:  $I_A$ : Application current

$I_R$ : 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.

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