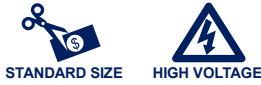


### HP SERIES ▪ ECONOMY, STANDARD SIZE 105°C TYPE

#### KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR ▪ Snap-In type
- Endurance: 105°C ▪ 2 000 hours, Useful life: 105°C ▪ ≥ 3 000 hours
- Wide capacitance range
- Small dimensions
- For general applications and not 24h continuous operation



#### SPECIFICATIONS

Items		Performance Characteristics												
Operating Temperature Range		-40 ~ +105°C					-25 ~ +105°C							
Rated Voltage Range	V <sub>R</sub>	6.3 ~ 350V DC					400 ~ 550V DC							
Surge Voltage	V <sub>S</sub>	(V <sub>R</sub> ≤ 315V): V <sub>S</sub> = 1.15·V <sub>R</sub>					(V <sub>R</sub> > 315V): V <sub>S</sub> = 1.10·V <sub>R</sub>							
Capacitance Range	C <sub>R</sub>	68 ~ 100000μF					47 ~ 1200μF							
Cap. Tolerance	ΔC	±20% (120Hz ▪ 20°C)												
Leakage Current (20°C ▪ V <sub>R</sub> applied)	I <sub>LEAK</sub>	$\leq 3 \cdot \sqrt{C_R \cdot V_R}$ ▪ After 5 minutes [ I <sub>LEAK</sub> (μA) ; C <sub>R</sub> (μF) ; V <sub>R</sub> (V) ]												
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	μF / V DC	6.3	10	16	25	35	50	63	80	100	160 ~ 420	450 ~ 550	
		≤ 8200	-	35	35	30	25	20	20	15	15	15	20	
		10000 ~ 22000	55	40	40	35	30	30	25	20	-	-	-	
		≥ 27000	60	50	40	35	35	30	25	-	-	-	-	
Low Temperature Characteristics at 120Hz	Z ratio max.	V <sub>R</sub> (V DC)	6.3 ~ 16		25	35	50 ~ 100		160 ~ 250		315 ~ 450		500	550
		Z-25°C/Z+20°C	4		3	3	3		4		8		8	10
		Z-40°C/Z+20°C	10		10	8	6		7		10		-	-
Lifetime Test			V <sub>R</sub> ≤ 100V					V <sub>R</sub> > 100V						
Useful Life 105°C (V <sub>R</sub> & I <sub>R</sub> applied)		Test	<b>3 000 hours</b>					<b>5 000 hours</b>						
		ΔC/C <sub>R</sub>	≤ ±30% of initial measured value					≤ ±20% of initial measured value						
		tanδ	≤ 300% of initial specified value					≤ 200% of initial specified value						
		I <sub>Leak</sub>	≤ the initial specified value					≤ 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	<b>2 000 hours</b>											
		ΔC/C <sub>R</sub>	≤ ±20% of initial measured value					≤ ±15% of initial measured value						
		tanδ	≤ 200% of initial specified value					≤ 175% of initial specified value						
		I <sub>Leak</sub>	≤ the initial specified value					≤ the initial specified value						
Shelf Life 105°C (V <sub>R</sub> = 0)		Test	<b>1 000 hours</b>											
		ΔC/C <sub>R</sub>	≤ ±20% of initial measured value					≤ ±15% of initial measured value						
		tanδ	≤ 200% of initial specified value					≤ 175% of initial specified value						
		I <sub>Leak</sub>	≤ the initial specified value					≤ 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**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number	
<b>6.3</b>	12000	22	25	47	61	1540	HP123M6R3M250A	
	15000	22	25	37	49	1720	HP153M6R3M250A	
	18000	22	30	31	41	1950	HP183M6R3M300A	
	18000	25	25	31	41	1960	HP183M6R3N250A	
	22000	22	35	26	33	2230	HP223M6R3M350A	
	22000	25	30	26	33	2250	HP223M6R3N300A	
	22000	30	25	26	33	2280	HP223M6R3O250A	
	27000	22	40	23	29	2540	HP273M6R3M400A	
	27000	25	35	23	29	2570	HP273M6R3N350A	
	27000	30	25	23	29	2590	HP273M6R3O250A	
	33000	22	45	19	24	2880	HP333M6R3M450A	
	33000	25	40	19	24	2930	HP333M6R3N400A	
	33000	30	30	19	24	2890	HP333M6R3O300A	
	33000	35	25	19	24	2930	HP333M6R3P250A	
	39000	25	40	16	20	3180	HP393M6R3N400A	
	39000	30	35	16	20	3260	HP393M6R3O350A	
	39000	35	30	16	20	3400	HP393M6R3P300A	
	47000	25	50	13	17	3690	HP473M6R3N500A	
	47000	30	40	13	17	3690	HP473M6R3O400A	
	47000	35	30	13	17	3730	HP473M6R3P300A	
	56000	30	45	11	14	4160	HP563M6R3O450A	
	56000	35	35	11	14	4170	HP563M6R3P350A	
	68000	30	50	9	12	4710	HP683M6R3O500A	
	68000	35	40	9	12	4710	HP683M6R3P400A	
	82000	35	45	8	10	5320	HP823M6R3P450A	
	<b>10</b>	4700	22	25	76	99	1240	HP472M010M250A
		6800	22	25	53	68	1400	HP682M010M250A
		8200	22	25	44	57	1650	HP822M010M250A
10000		22	25	36	46	1900	HP103M010M250A	
12000		22	30	34	44	2480	HP123M010M300A	
12000		25	25	34	44	2480	HP123M010N250A	
15000		22	35	27	35	2710	HP153M010M350A	
15000		25	25	27	35	2600	HP153M010N250A	
18000		22	35	23	29	2890	HP183M010M350A	
18000		25	30	23	29	2940	HP183M010N300A	
18000		30	25	23	29	2940	HP183M010O250A	
22000		22	40	19	24	2960	HP223M010M400A	
22000		25	30	19	24	2960	HP223M010N300A	
22000		30	25	19	24	3080	HP223M010O250A	
27000		22	50	19	25	3120	HP273M010M500A	
27000		25	40	19	25	3120	HP273M010N400A	
27000		30	30	19	25	3130	HP273M010O300A	
27000		35	25	19	25	3210	HP273M010P250A	
33000		25	45	15	20	3320	HP333M010N450A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (m $\Omega$ )	Max. ESR +20°C • 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
10	33000	35	30	15	20	3850	HP333M010P300A
	39000	30	40	13	17	3850	HP393M010O400A
	47000	30	45	11	14	3980	HP473M010O450A
	47000	35	35	11	14	4050	HP473M010P350A
	56000	30	50	9	12	4210	HP563M010O500A
	56000	35	40	9	12	4320	HP563M010P400A
	68000	35	45	8	10	5120	HP683M010P450A
	100000	35	50	5	7	6140	HP104M010P500A
16	4700	22	25	76	99	1550	HP472M016M250A
	6800	22	25	53	68	1780	HP682M016M250A
	8200	22	25	44	57	2140	HP822M016M250A
	10000	22	30	36	46	2480	HP103M016M300A
	10000	25	25	36	46	2560	HP103M016N250A
	12000	22	35	34	44	2800	HP123M016M350A
	12000	25	30	34	44	2900	HP123M016N300A
	12000	30	25	34	44	2970	HP123M016O250A
	15000	22	40	27	35	3170	HP153M016M400A
	15000	25	35	27	35	3290	HP153M016N350A
	15000	30	30	27	35	3380	HP153M016O300A
	18000	22	45	23	29	3500	HP183M016M450A
	18000	25	40	23	29	3650	HP183M016N400A
	18000	30	30	23	29	3650	HP183M016O300A
	22000	22	45	19	24	3650	HP223M016M450A
	22000	25	40	19	24	3710	HP223M016N400A
	22000	30	35	19	24	3830	HP223M016O350A
	27000	25	40	15	20	3950	HP273M016N400A
	27000	30	35	15	20	3960	HP273M016O350A
	33000	25	45	12	16	4320	HP333M016N450A
	33000	30	35	12	16	4410	HP333M016O350A
	33000	35	30	12	16	4430	HP333M016P300A
	39000	30	40	10	14	4900	HP393M016O400A
	39000	35	35	10	14	5100	HP393M016P350A
	47000	30	45	9	11	5300	HP473M016O450A
	47000	35	40	9	11	5520	HP473M016P400A
	56000	30	50	7	10	6000	HP563M016O500A
	56000	35	40	7	10	6050	HP563M016P400A
	68000	35	50	6	8	6400	HP683M016P500A
	25	2200	22	25	140	180	1030
3300		22	25	92	120	1480	HP332M025M250A
4700		22	25	65	85	1730	HP472M025M250A
5600		22	25	55	71	1850	HP562M025M250A
6800		22	30	45	59	2050	HP682M025M300A
6800		25	25	45	59	2100	HP682M025N250A
8200		22	30	37	49	2310	HP822M025M300A

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
<b>25</b>	8200	25	25	37	49	2310	HP822M025N250A
	10000	22	35	31	40	2650	HP103M025M350A
	10000	25	30	31	40	2680	HP103M025N300A
	12000	22	40	30	39	2920	HP123M025M400A
	12000	25	30	30	39	2910	HP123M025N300A
	12000	30	25	30	39	2930	HP123M025O250A
	15000	22	45	24	31	3180	HP153M025M450A
	15000	25	35	24	31	3100	HP153M025N350A
	15000	30	30	24	31	3320	HP153M025O300A
	18000	22	45	20	26	3510	HP183M025M450A
	18000	25	40	20	26	3600	HP183M025N400A
	18000	30	30	20	26	3800	HP183M025O300A
	22000	25	45	16	21	4040	HP223M025N450A
	22000	30	35	16	21	4040	HP223M025O350A
	22000	35	30	16	21	4040	HP223M025P300A
	27000	30	40	13	17	4740	HP273M025O400A
	27000	35	35	13	17	4760	HP273M025P350A
	33000	30	45	11	14	5500	HP333M025O450A
	33000	35	40	11	14	5700	HP333M025P400A
	39000	35	45	9	12	5800	HP393M025P450A
47000	35	50	8	10	6300	HP473M025P500A	
<b>35</b>	1500	22	25	170	220	1260	HP152M035M250A
	2200	22	25	120	150	1350	HP222M035M250A
	2700	22	25	92	120	1360	HP272M035M250A
	3300	22	25	77	100	1490	HP332M035M250A
	3900	22	30	65	85	1820	HP392M035M300A
	4700	22	30	54	71	2020	HP472M035M300A
	4700	25	25	54	71	2120	HP472M035N250A
	5600	22	30	46	59	2250	HP562M035M300A
	5600	25	25	46	59	2350	HP562M035N250A
	6800	22	35	38	49	2360	HP682M035M350A
	6800	25	30	38	49	2410	HP682M035N300A
	6800	30	25	38	49	2500	HP682M035O250A
	8200	22	40	31	40	2550	HP822M035M400A
	8200	25	35	31	40	2610	HP822M035N350A
	8200	30	25	31	40	2650	HP822M035O250A
	10000	22	40	26	33	3000	HP103M035M400A
	10000	25	35	26	33	3150	HP103M035N350A
	10000	30	30	26	33	3350	HP103M035O300A
	12000	22	45	26	33	3470	HP123M035M450A
	12000	25	40	26	33	3500	HP123M035N400A
12000	30	35	26	33	3520	HP123M035O350A	
12000	35	30	26	33	3580	HP123M035P300A	
15000	25	45	20	27	3650	HP153M035N450A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (m $\Omega$ )	Max. ESR +20°C • 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
35	15000	30	40	20	27	3690	HP153M035O400A □□
	15000	35	35	20	27	3750	HP153M035P350A □□
	18000	25	50	17	22	3820	HP183M035N500A □□
	18000	30	40	17	22	3950	HP183M035O400A □□
	18000	35	35	17	22	4120	HP183M035P350A □□
	22000	30	45	14	18	4380	HP223M035O450A □□
	22000	35	40	14	18	4780	HP223M035P400A □□
	27000	30	50	13	17	4860	HP273M035O500A □□
	27000	35	45	13	17	5120	HP273M035P450A □□
	33000	35	50	11	14	5900	HP333M035P500A □□
50	1000	22	25	210	270	840	HP102M050M250A □□
	1500	22	25	140	180	1270	HP152M050M250A □□
	1800	22	25	120	150	1350	HP182M050M250A □□
	2200	22	25	92	120	1480	HP222M050M250A □□
	2700	22	25	76	98	1680	HP272M050M250A □□
	3300	22	30	62	80	1750	HP332M050M300A □□
	3300	25	25	62	80	1870	HP332M050N250A □□
	3900	22	30	52	68	2120	HP392M050M300A □□
	3900	25	25	52	68	2210	HP392M050N250A □□
	4700	22	35	43	56	2250	HP472M050M350A □□
	4700	25	30	43	56	2310	HP472M050N300A □□
	4700	30	25	43	56	2330	HP472M050O250A □□
	5600	22	40	36	47	2490	HP562M050M400A □□
	5600	25	35	36	47	2760	HP562M050N350A □□
	5600	30	30	36	47	2850	HP562M050O300A □□
	6800	22	50	30	39	3100	HP682M050M500A □□
	6800	25	40	30	39	3050	HP682M050N400A □□
	6800	30	35	30	39	3340	HP682M050O350A □□
	6800	35	30	30	39	3420	HP682M050P300A □□
	8200	25	45	25	32	3480	HP822M050N450A □□
	8200	30	35	25	32	3510	HP822M050O350A □□
	8200	35	30	25	32	3600	HP822M050P300A □□
	10000	25	50	20	27	3910	HP103M050N500A □□
	10000	30	40	20	27	3980	HP103M050O400A □□
	10000	35	30	20	27	4050	HP103M050P300A □□
	12000	30	45	26	33	4310	HP123M050O450A □□
	12000	35	35	26	33	4380	HP123M050P350A □□
	15000	35	50	20	27	4800	HP153M050P500A □□
18000	35	50	17	22	5300	HP183M050P500A □□	
22000	35	60	14	18	5500	HP223M050P600A □□	
63	680	22	25	300	390	700	HP681M063M250A □□
	1000	22	25	210	270	1000	HP102M063M250A □□
	1200	22	25	170	220	1210	HP122M063M250A □□
	1500	22	25	140	180	1360	HP152M063M250A □□

□□: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
63	1800	22	30	120	150	1410	HP182M063M300A
	1800	25	25	120	150	1460	HP182M063N250A
	2200	22	30	92	120	1540	HP222M063M300A
	2200	25	25	92	120	1610	HP222M063N250A
	2700	22	35	76	98	2020	HP272M063M350A
	2700	25	30	76	98	2050	HP272M063N300A
	2700	30	25	76	98	2100	HP272M063O250A
	3300	22	40	62	80	2120	HP332M063M400A
	3300	25	35	62	80	2200	HP332M063N350A
	3300	30	25	62	80	2250	HP332M063O250A
	3300	35	25	62	80	2320	HP332M063P250A
	3900	22	40	52	68	2340	HP392M063M400A
	3900	25	35	52	68	2420	HP392M063N350A
	3900	30	25	52	68	2430	HP392M063O250A
	4700	22	45	43	56	2590	HP472M063M450A
	4700	25	40	43	56	2650	HP472M063N400A
	4700	30	30	43	56	2710	HP472M063O300A
	5600	25	45	36	47	2930	HP562M063N450A
	5600	30	35	36	47	3050	HP562M063O350A
	5600	35	30	36	47	3090	HP562M063P300A
	6800	30	40	30	39	3720	HP682M063O400A
	6800	35	35	30	39	3780	HP682M063P350A
	8200	30	40	25	32	3820	HP822M063O400A
8200	35	35	25	32	3920	HP822M063P350A	
10000	30	45	20	27	4050	HP103M063O450A	
10000	35	40	20	27	4100	HP103M063P400A	
12000	35	45	21	28	4760	HP123M063P450A	
15000	35	50	17	22	5400	HP153M063P500A	
80	680	22	25	220	290	750	HP681M080M250A
	820	22	25	180	240	1110	HP821M080M250A
	1000	22	25	150	200	1220	HP102M080M250A
	1200	22	30	130	170	1320	HP122M080M300A
	1200	25	25	130	170	1390	HP122M080N250A
	1500	22	30	100	130	1590	HP152M080M300A
	1500	25	25	100	130	1600	HP152M080N250A
	1800	22	35	85	110	1710	HP182M080M350A
	1800	25	30	85	110	1750	HP182M080N300A
	1800	30	25	85	110	1950	HP182M080O250A
	2200	22	40	70	90	2120	HP222M080M400A
	2200	25	30	70	90	2050	HP222M080N300A
	2700	22	45	57	74	2410	HP272M080M450A
	2700	25	40	57	74	2450	HP272M080N400A
	2700	30	30	57	74	2490	HP272M080O300A
	3300	25	45	46	60	2600	HP332M080N450A

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
80	3300	30	35	46	60	2640	HP332M080O350A
	3300	35	25	46	60	2620	HP332M080P250A
	3900	30	35	39	51	2950	HP392M080O350A
	3900	35	30	39	51	3050	HP392M080P300A
	4700	30	45	33	42	3210	HP472M080O450A
	4700	35	30	33	42	3450	HP472M080P300A
	4700	35	35	33	42	3510	HP472M080P350A
	5600	30	45	27	36	3550	HP562M080O450A
	5600	35	35	27	36	3650	HP562M080P350A
	6800	30	50	23	29	3720	HP682M080O500A
	6800	35	45	23	29	3900	HP682M080P450A
	8200	35	50	19	24	4300	HP822M080P500A
10000	35	50	22	27	4400	HP103M080P500A	
100	330	22	25	460	600	550	HP331M100M250A
	470	22	25	320	420	790	HP471M100M250A
	560	22	25	280	360	1060	HP561M100M250A
	680	22	25	220	290	1160	HP681M100M250A
	680	22	30	220	290	1180	HP681M100M300A
	680	25	25	220	290	1200	HP681M100N250A
	680	30	25	220	290	1250	HP681M100O250A
	820	22	25	180	240	1410	HP821M100M250A
	820	22	30	180	240	1460	HP821M100M300A
	820	25	25	180	240	1510	HP821M100N250A
	820	30	25	180	240	1550	HP821M100O250A
	1000	22	30	150	200	1710	HP102M100M300A
	1000	25	30	150	200	1770	HP102M100N300A
	1000	25	35	150	200	1800	HP102M100N350A
	1000	30	25	150	200	1810	HP102M100O250A
	1200	22	30	130	170	1830	HP122M100M300A
	1200	25	25	130	170	1850	HP122M100N250A
	1200	25	35	130	170	1940	HP122M100N350A
	1200	30	25	130	170	1950	HP122M100O250A
	1500	22	35	100	130	2110	HP152M100M350A
	1500	25	30	100	130	2150	HP152M100N300A
	1500	25	35	100	130	2190	HP152M100N350A
	1500	30	25	100	130	2200	HP152M100O250A
	1500	35	25	100	130	2260	HP152M100P250A
	1800	22	40	85	110	2310	HP182M100M400A
	1800	25	35	85	110	2320	HP182M100N350A
	1800	25	40	85	110	2380	HP182M100N400A
	1800	30	25	85	110	2330	HP182M100O250A
1800	30	30	85	110	2360	HP182M100O300A	
1800	35	25	85	110	2400	HP182M100P250A	
2200	22	45	70	90	2620	HP222M100M450A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
100	2200	25	40	70	90	2650	HP222M100N400A
	2200	30	35	70	90	2750	HP222M100O350A
	2200	35	25	70	90	2700	HP222M100P250A
	2700	25	45	57	74	2910	HP272M100N450A
	2700	30	35	57	74	2930	HP272M100O350A
	2700	35	35	57	74	3250	HP272M100P350A
	3300	25	50	46	60	3310	HP332M100N500A
	3300	30	40	46	60	3370	HP332M100O400A
	3300	35	35	46	60	3450	HP332M100P350A
	3300	35	40	46	60	3560	HP332M100P400A
	3900	30	45	39	51	3680	HP392M100O450A
	3900	35	35	39	51	3700	HP392M100P350A
	4700	30	50	33	42	3820	HP472M100O500A
	4700	35	40	33	42	3840	HP472M100P400A
	4700	35	50	33	42	3970	HP472M100P500A
	5600	35	45	27	36	4110	HP562M100P450A
	6800	35	50	23	29	4510	HP682M100P500A
8200	40	60	19	24	4950	HP822M100Q600A	
10000	40	60	15	20	5240	HP103M100Q600A	
160	220	22	25	500	900	420	HP221M160M250A
	270	22	25	410	740	950	HP271M160M250A
	330	22	25	330	600	1110	HP331M160M250A
	330	22	30	330	600	1120	HP331M160M300A
	330	25	25	330	600	1130	HP331M160N250A
	390	22	25	280	510	1150	HP391M160M250A
	390	22	30	280	510	1220	HP391M160M300A
	390	25	25	280	510	1250	HP391M160N250A
	470	22	25	230	420	1410	HP471M160M250A
	470	22	30	230	420	1450	HP471M160M300A
	470	25	25	230	420	1500	HP471M160N250A
	560	22	25	200	360	1620	HP561M160M250A
	560	25	30	200	360	1750	HP561M160N300A
	680	22	30	160	290	1840	HP681M160M300A
	680	25	25	160	290	1860	HP681M160N250A
	680	30	25	160	290	2010	HP681M160O250A
	820	22	35	130	240	2000	HP821M160M350A
	820	25	30	130	240	2010	HP821M160N300A
	820	25	45	130	240	2200	HP821M160N450A
	820	30	25	130	240	2050	HP821M160O250A
	820	30	30	130	240	2100	HP821M160O300A
1000	22	40	110	200	2340	HP102M160M400A	
1000	22	50	110	200	2410	HP102M160M500A	
1000	25	35	110	200	2360	HP102M160N350A	
1000	25	45	110	200	2470	HP102M160N450A	

: See description at end of standard ratings



**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (m $\Omega$ )	Max. ESR +20°C • 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
160	1000	30	25	110	200	2060	HP102M160O250A
	1000	30	35	110	200	2470	HP102M160O350A
	1200	22	45	94	170	2620	HP122M160M450A
	1200	25	35	94	170	2610	HP122M160N350A
	1200	30	30	94	170	2660	HP122M160O300A
	1200	35	25	94	170	2700	HP122M160P250A
	1500	25	40	72	130	2830	HP152M160N400A
	1500	30	35	72	130	2890	HP152M160O350A
	1500	35	25	72	130	2880	HP152M160P250A
	1500	35	30	72	130	2960	HP152M160P300A
	1800	25	50	61	110	3250	HP182M160N500A
	1800	30	35	61	110	3200	HP182M160O350A
	1800	35	30	61	110	3250	HP182M160P300A
	2200	30	45	50	90	3260	HP222M160O450A
	2200	35	35	50	90	3320	HP222M160P350A
	2700	30	50	41	74	3670	HP272M160O500A
	2700	35	40	41	74	3680	HP272M160P400A
3300	35	45	33	60	3710	HP332M160P450A	
180	270	22	25	410	740	980	HP271M180M250A
	330	22	25	330	600	1140	HP331M180M250A
	390	22	25	280	510	1310	HP391M180M250A
	470	22	25	230	420	1460	HP471M180M250A
	470	22	30	230	420	1500	HP471M180M300A
	560	22	30	200	360	1670	HP561M180M300A
	560	25	25	200	360	1690	HP561M180N250A
	680	22	35	160	290	1880	HP681M180M350A
	680	25	30	160	290	1900	HP681M180N300A
	820	22	40	130	240	2120	HP821M180M400A
	820	25	30	130	240	2120	HP821M180N300A
	820	30	25	130	240	2150	HP821M180O250A
	1000	22	45	110	200	2390	HP102M180M450A
	1000	25	35	110	200	2390	HP102M180N350A
	1000	30	25	110	200	2360	HP102M180O250A
	1000	35	25	110	200	2470	HP102M180P250A
	1200	22	50	94	170	2700	HP122M180M500A
	1200	25	40	94	170	2700	HP122M180N400A
	1200	30	35	94	170	2750	HP122M180O350A
	1500	25	50	72	130	3000	HP152M180N500A
	1500	30	40	72	130	3050	HP152M180O400A
	1500	35	30	72	130	3070	HP152M180P300A
1800	30	45	61	110	3200	HP182M180O450A	
1800	35	35	61	110	3250	HP182M180P350A	
2200	30	50	50	90	3330	HP222M180O500A	
2200	35	40	50	90	3350	HP222M180P400A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
180	2700	35	45	41	74	3690	HP272M180P450A
	3300	35	50	33	60	3720	HP332M180P500A
200	100	22	20	1110	1990	520	HP101M200M200A
	120	22	20	920	1660	530	HP121M200M200A
	150	22	20	740	1330	700	HP151M200M200A
	150	22	25	740	1330	720	HP151M200M250A
	150	25	20	740	1330	720	HP151M200N200A
	150	25	25	740	1330	730	HP151M200N250A
	180	22	25	620	1110	840	HP181M200M250A
	180	25	20	620	1110	850	HP181M200N200A
	180	30	20	620	1110	870	HP181M200O200A
	220	22	25	500	900	960	HP221M200M250A
	220	25	20	500	900	960	HP221M200N200A
	220	25	25	500	900	1140	HP221M200N250A
	220	30	20	500	900	1140	HP221M200O200A
	270	22	25	410	740	1100	HP271M200M250A
	270	22	30	410	740	1200	HP271M200M300A
	270	25	25	410	740	1200	HP271M200N250A
	270	30	20	410	740	1200	HP271M200O200A
	270	30	25	410	740	1250	HP271M200O250A
	330	22	25	330	600	1150	HP331M200M250A
	330	22	30	330	600	1220	HP331M200M300A
	330	25	25	330	600	1230	HP331M200N250A
	330	25	30	330	600	1300	HP331M200N300A
	330	30	25	330	600	1300	HP331M200O250A
	330	35	20	330	600	1270	HP331M200P200A
	390	22	25	280	510	1310	HP391M200M250A
	390	22	30	280	510	1370	HP391M200M300A
	390	25	25	280	510	1370	HP391M200N250A
	390	25	30	280	510	1450	HP391M200N300A
	390	30	25	280	510	1450	HP391M200O250A
	470	22	30	230	420	1510	HP471M200M300A
	470	22	35	230	420	1600	HP471M200M350A
	470	25	30	230	420	1600	HP471M200N300A
470	25	35	230	420	1650	HP471M200N350A	
470	30	25	230	420	1650	HP471M200O250A	
560	22	30	200	360	1670	HP561M200M300A	
560	22	35	200	360	1710	HP561M200M350A	
560	25	30	200	360	1710	HP561M200N300A	
560	25	35	200	360	1800	HP561M200N350A	
560	30	25	200	360	1750	HP561M200O250A	
560	30	30	200	360	1800	HP561M200O300A	
560	35	25	200	360	1760	HP561M200P250A	
680	22	35	160	160	290	HP681M200M350A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
200	680	22	40	160	290	2000	HP681M200M400A
	680	25	30	160	290	2000	HP681M200N300A
	680	25	35	160	290	2150	HP681M200N350A
	680	30	30	160	290	2150	HP681M200O300A
	680	35	25	160	290	2150	HP681M200P250A
	820	22	40	130	240	2130	HP821M200M400A
	820	22	45	130	240	2250	HP821M200M450A
	820	25	35	130	240	2250	HP821M200N350A
	820	25	40	130	240	2400	HP821M200N400A
	820	30	30	130	240	2400	HP821M200O300A
	820	35	25	130	240	2400	HP821M200P250A
	820	35	30	130	240	2490	HP821M200P300A
	1000	22	50	110	200	2450	HP102M200M500A
	1000	25	40	110	200	2430	HP102M200N400A
	1000	25	45	110	200	2560	HP102M200N450A
	1000	30	30	110	200	2450	HP102M200O300A
	1000	30	35	110	200	2580	HP102M200O350A
	1000	35	25	110	200	2470	HP102M200P250A
	1000	35	30	110	200	2580	HP102M200P300A
	1200	25	45	94	170	2660	HP122M200N450A
	1200	25	50	94	170	2780	HP122M200N500A
	1200	30	35	94	170	2660	HP122M200O350A
	1200	30	40	94	170	2800	HP122M200O400A
	1200	35	25	94	170	2700	HP122M200P250A
	1200	35	30	94	170	2830	HP122M200P300A
	1500	25	50	72	130	2970	HP152M200N500A
	1500	30	40	72	130	3060	HP152M200O400A
	1500	35	30	72	130	3080	HP152M200P300A
	1500	35	45	72	130	3200	HP152M200P450A
	1800	30	45	61	110	3260	HP182M200O450A
	1800	35	35	61	110	3260	HP182M200P350A
	1800	35	40	61	110	3370	HP182M200P400A
2200	30	50	50	90	3510	HP222M200O500A	
2200	35	40	50	90	3510	HP222M200P400A	
2200	35	45	50	90	3630	HP222M200P450A	
2700	35	45	41	74	3700	HP272M200P450A	
2700	35	50	41	74	3830	HP272M200P500A	
220	150	22	25	740	1330	730	HP151M220M250A
	180	22	25	620	1110	850	HP181M220M250A
	180	25	25	620	1110	900	HP181M220N250A
	220	22	25	500	900	970	HP221M220M250A
	220	25	25	500	900	1050	HP221M220N250A
	220	30	20	500	900	1140	HP221M220O200A
270	22	25	410	740	1110	HP271M220M250A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
220	270	25	25	410	740	1230	HP271M220N250A
	330	22	35	330	600	1360	HP331M220M350A
	330	25	25	330	600	1360	HP331M220N250A
	330	30	25	330	600	1470	HP331M220O250A
	390	22	35	280	510	1480	HP391M220M350A
	390	25	30	280	510	1480	HP391M220N300A
	390	30	25	280	510	1450	HP391M220O250A
	470	22	35	230	420	1530	HP471M220M350A
	470	25	30	230	420	1540	HP471M220N300A
	470	30	25	230	420	1560	HP471M220O250A
	560	22	40	200	360	1690	HP561M220M400A
	560	25	35	200	360	1730	HP561M220N350A
	560	30	30	200	360	1730	HP561M220O300A
	560	35	25	200	360	1730	HP561M220P250A
	680	22	45	160	290	1910	HP681M220M450A
	680	25	40	160	290	1930	HP681M220N400A
	680	30	35	160	290	2050	HP681M220O350A
	680	35	30	160	290	2060	HP681M220P300A
	820	22	50	130	240	2170	HP821M220M500A
	820	25	40	130	240	2170	HP821M220N400A
	820	30	35	130	240	2180	HP821M220O350A
	820	35	30	130	240	2200	HP821M220P300A
	1000	25	45	110	200	2460	HP102M220N450A
	1000	30	35	110	200	2490	HP102M220O350A
	1000	35	30	110	200	2510	HP102M220P300A
	1200	25	50	94	170	2790	HP122M220N500A
	1200	30	40	94	170	2800	HP122M220O400A
	1200	35	35	94	170	2840	HP122M220P350A
	1500	30	45	72	130	3070	HP152M220O450A
	1500	35	40	72	130	3090	HP152M220P400A
1800	30	50	61	110	3270	HP182M220O500A	
1800	35	45	61	110	3270	HP182M220P450A	
2200	35	50	50	90	3540	HP222M220P500A	
250	68	22	25	1630	2930	380	HP680M250M250A
	82	22	25	1350	2430	480	HP820M250M250A
	100	22	25	1110	1990	530	HP101M250M250A
	100	25	25	1110	1990	650	HP101M250N250A
	120	22	25	920	1660	750	HP121M250M250A
	150	22	25	740	1330	780	HP151M250M250A
	150	25	25	740	1330	850	HP151M250N250A
	150	30	25	740	1330	890	HP151M250O250A
	180	22	25	620	1110	890	HP181M250M250A
	180	30	25	620	1110	950	HP181M250O250A
	220	22	25	500	900	1010	HP221M250M250A

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
250	220	22	30	500	900	1070	HP221M250M300A
	220	25	25	500	900	1070	HP221M250N250A
	220	30	25	500	900	1150	HP221M250O250A
	270	22	25	410	740	1150	HP271M250M250A
	270	22	30	410	740	1200	HP271M250M300A
	270	25	25	410	740	1200	HP271M250N250A
	270	25	30	410	740	1250	HP271M250N300A
	270	30	25	410	740	1250	HP271M250O250A
	270	30	30	410	740	1320	HP271M250O300A
	330	22	35	330	600	1260	HP331M250M350A
	330	25	25	330	600	1270	HP331M250N250A
	330	25	30	330	600	1380	HP331M250N300A
	330	30	25	330	600	1380	HP331M250O250A
	330	35	25	330	600	1450	HP331M250P250A
	390	22	35	280	510	1420	HP391M250M350A
	390	25	30	280	510	1450	HP391M250N300A
	390	30	25	280	510	1450	HP391M250O250A
	390	30	30	280	510	1540	HP391M250O300A
	390	35	25	280	510	1560	HP391M250P250A
	470	22	35	230	420	1570	HP471M250M350A
	470	22	40	230	420	1700	HP471M250M400A
	470	25	30	230	420	1670	HP471M250N300A
	470	25	35	230	420	1720	HP471M250N350A
	470	30	25	230	420	1720	HP471M250O250A
	470	30	30	230	420	1790	HP471M250O300A
	470	35	25	230	420	1790	HP471M250P250A
	560	22	40	200	360	1870	HP561M250M400A
	560	22	45	200	360	1970	HP561M250M450A
	560	25	35	200	360	1880	HP561M250N350A
	560	25	40	200	360	1970	HP561M250N400A
	560	30	25	200	360	1880	HP561M250O250A
	560	30	30	200	360	1970	HP561M250O300A
	560	35	25	200	360	1980	HP561M250P250A
	560	35	30	200	360	2100	HP561M250P300A
	680	22	45	160	290	2150	HP681M250M450A
	680	25	40	160	290	2200	HP681M250N400A
	680	30	35	160	290	2240	HP681M250O350A
	680	35	30	160	290	2250	HP681M250P300A
	820	25	45	130	240	2560	HP821M250N450A
	820	30	35	130	240	2560	HP821M250O350A
820	35	30	130	240	2570	HP821M250P300A	
1000	25	50	110	200	2850	HP102M250N500A	
1000	30	40	110	200	2850	HP102M250O400A	
1000	35	30	110	200	2860	HP102M250P300A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
250	1200	30	45	94	170	3200	HP122M250O450A
	1200	35	35	94	170	2250	HP122M250P350A
	1500	30	50	72	130	3830	HP152M250O500A
	1500	35	40	72	130	3910	HP152M250P400A
	1800	35	45	61	110	4300	HP182M250P450A
	1800	35	50	61	110	4560	HP182M250P500A
	1800	35	55	61	110	4880	HP182M250P550A
	2200	35	50	50	90	5000	HP222M250P500A
	2200	35	55	50	90	5190	HP222M250P550A
315	120	22	25	920	1660	760	HP121M315M250A
	150	22	25	740	1330	830	HP151M315M250A
	180	22	30	620	1110	920	HP181M315M300A
	220	22	30	500	900	1070	HP221M315M300A
	270	22	35	410	740	1210	HP271M315M350A
	270	25	30	410	740	1250	HP271M315N300A
	330	22	45	330	600	1280	HP331M315M450A
	330	25	35	330	600	1310	HP331M315N350A
	330	30	25	330	600	1280	HP331M315O250A
	390	22	45	280	510	1530	HP391M315M450A
	390	25	40	280	510	1550	HP391M315N400A
	390	30	30	280	510	1560	HP391M315O300A
	390	35	25	280	510	1570	HP391M315P250A
	470	25	45	230	420	1730	HP471M315N450A
	470	30	35	230	420	1800	HP471M315O350A
	470	35	25	230	420	1830	HP471M315P250A
	560	25	50	200	360	1940	HP561M315N500A
	560	30	40	200	360	1950	HP561M315O400A
	560	35	30	200	360	2030	HP561M315P300A
	680	30	45	160	290	2250	HP681M315O450A
	680	35	35	160	290	2260	HP681M315P350A
	820	30	50	130	240	2580	HP821M315O500A
	820	35	40	130	240	2580	HP821M315P400A
	1000	35	45	110	200	2870	HP102M315P450A
1000	35	50	110	200	2880	HP102M315P500A	
1200	35	45	94	170	2920	HP122M315P450A	
1200	35	50	94	170	2950	HP122M315P500A	
350	82	22	25	1350	2430	520	HP820M350M250A
	100	22	25	1110	1990	550	HP101M350M250A
	120	22	30	920	1660	770	HP121M350M300A
	150	22	30	740	1330	820	HP151M350M300A
	180	22	30	620	1110	900	HP181M350M300A
	180	25	30	620	1110	970	HP181M350N300A
	220	22	35	500	900	1080	HP221M350M350A
	220	25	30	500	900	1090	HP221M350N300A

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
350	270	22	40	410	740	1220	HP271M350M400A
	270	25	35	410	740	1260	HP271M350N350A
	270	30	30	410	740	1270	HP271M350O300A
	330	22	45	330	600	1290	HP331M350M450A
	330	25	40	330	600	1320	HP331M350N400A
	330	30	30	330	600	1320	HP331M350O300A
	390	25	45	280	510	1560	HP391M350N450A
	390	30	35	280	510	1570	HP391M350O350A
	390	35	30	280	510	1560	HP391M350P300A
	470	25	45	230	420	1740	HP471M350N450A
	470	30	40	230	420	1810	HP471M350O400A
	470	35	35	230	420	1840	HP471M350P350A
	560	30	45	200	360	1960	HP561M350O450A
	560	35	40	200	360	2040	HP561M350P400A
	680	30	45	160	290	2260	HP681M350O450A
	680	35	40	160	290	2270	HP681M350P400A
	680	40	35	160	290	2280	HP681M350Q350A
	820	30	50	130	240	2270	HP821M350O500A
	820	35	45	130	240	2590	HP821M350P450A
	1000	35	50	110	200	2890	HP102M350P500A
1000	40	45	110	200	2900	HP102M350Q450A	
1200	35	50	94	170	2870	HP122M350P500A	
1200	40	45	94	170	2870	HP122M350Q450A	
400	56	22	20	1970	3550	460	HP560M400M200A
	68	22	20	1630	2930	510	HP680M400M200A
	82	22	25	1350	2430	640	HP820M400M250A
	82	25	25	1350	2430	690	HP820M400N250A
	100	22	25	1110	1990	690	HP101M400M250A
	100	25	25	1110	1990	750	HP101M400N250A
	120	22	25	920	1660	780	HP121M400M250A
	120	22	30	920	1660	830	HP121M400M300A
	120	25	25	920	1660	830	HP121M400N250A
	150	22	30	740	1330	860	HP151M400M300A
	150	25	25	740	1330	860	HP151M400N250A
	150	25	30	740	1330	900	HP151M400N300A
	150	30	25	740	1330	890	HP151M400O250A
	180	22	35	620	1110	1000	HP181M400M350A
	180	25	30	620	1110	1050	HP181M400N300A
	180	30	25	620	1110	1070	HP181M400O250A
	220	22	40	500	900	1090	HP221M400M400A
	220	25	30	500	900	1100	HP221M400N300A
	220	30	25	500	900	1100	HP221M400O250A
	220	30	30	500	900	1160	HP221M400O300A
270	25	35	410	740	1260	HP271M400N350A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
400	270	30	30	410	740	1280	HP271M400O300A
	330	22	45	330	600	1460	HP331M400M450A
	330	25	40	330	600	1480	HP331M400N400A
	330	30	35	330	600	1520	HP331M400O350A
	330	35	30	330	600	1520	HP331M400P300A
	390	25	45	280	510	1690	HP391M400N450A
	390	30	40	280	510	1720	HP391M400O400A
	390	35	35	280	510	1740	HP391M400P350A
	470	25	50	230	420	1840	HP471M400N500A
	470	30	40	230	420	1920	HP471M400O400A
	470	35	35	230	420	1950	HP471M400P350A
	560	30	45	200	360	2320	HP561M400O450A
	560	35	40	200	360	2330	HP561M400P400A
	680	30	50	160	290	2680	HP681M400O500A
	680	35	45	160	290	2750	HP681M400P450A
	820	35	45	130	240	2920	HP821M400P450A
	820	35	50	130	240	2970	HP821M400P500A
	1000	35	50	110	200	3150	HP102M400P500A
1200	35	60	94	170	3290	HP122M400P600A	
1200	40	50	94	170	3290	HP122M400Q500A	
420	68	22	25	2170	3900	530	HP680M420M250A
	82	22	25	1790	3230	650	HP820M420M250A
	82	25	25	1790	3230	700	HP820M420N250A
	100	22	25	1470	2650	710	HP101M420M250A
	100	22	30	1470	2650	750	HP101M420M300A
	100	25	25	1470	2650	750	HP101M420N250A
	120	22	25	1230	2210	790	HP121M420M250A
	120	22	30	1230	2210	830	HP121M420M300A
	120	25	25	1230	2210	840	HP121M420N250A
	120	25	30	1230	2210	890	HP121M420N300A
	150	22	30	980	1770	870	HP151M420M300A
	150	22	35	980	1770	930	HP151M420M350A
	150	25	30	980	1770	930	HP151M420N300A
	150	30	25	980	1770	930	HP151M420O250A
	180	22	35	820	1470	960	HP181M420M350A
	180	22	40	820	1470	1020	HP181M420M400A
	180	25	30	820	1470	1020	HP181M420N300A
	180	30	25	820	1470	1000	HP181M420O250A
	220	22	40	670	1210	1130	HP221M420M400A
	220	22	45	670	1210	1190	HP221M420M450A
220	25	35	670	1210	1150	HP221M420N350A	
220	30	25	670	1210	1160	HP221M420O250A	
220	30	30	670	1210	1210	HP221M420O300A	
220	35	25	670	1210	1230	HP221M420P250A	

: See description at end of standard ratings



**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
420	270	22	50	540	980	1270	HP271M420M500A
	270	25	40	540	980	1260	HP271M420N400A
	270	30	30	540	980	1280	HP271M420O300A
	270	35	25	540	980	1300	HP271M420P250A
	330	22	50	440	800	1410	HP331M420M500A
	330	25	45	440	800	1490	HP331M420N450A
	330	30	35	440	800	1490	HP331M420O350A
	330	30	40	440	800	1540	HP331M420O400A
	330	35	30	440	800	1540	HP331M420P300A
	330	35	35	440	800	1670	HP331M420P350A
	390	22	55	380	680	1620	HP391M420M550A
	390	25	50	380	680	1700	HP391M420N500A
	390	30	40	380	680	1720	HP391M420O400A
	390	35	35	380	680	1750	HP391M420P350A
	470	25	50	310	560	1850	HP471M420N500A
	470	30	45	310	560	1900	HP471M420O450A
	470	35	35	310	560	1900	HP471M420P350A
	470	35	40	310	560	1970	HP471M420P400A
	560	30	50	260	470	2230	HP561M420O500A
	560	35	40	260	470	2240	HP561M420P400A
560	35	45	260	470	2320	HP561M420P450A	
680	35	45	220	390	2760	HP681M420P450A	
680	35	50	220	390	2770	HP681M420P500A	
820	35	55	180	320	2980	HP821M420P550A	
1000	35	60	150	270	3150	HP102M420P600A	
1000	40	50	150	270	3250	HP102M420Q500A	
450	68	22	25	2170	3900	530	HP680M450M250A
	82	22	25	1790	3230	660	HP820M450M250A
	82	22	30	1790	3230	710	HP820M450M300A
	82	25	25	1790	3230	710	HP820M450N250A
	100	22	25	1470	2650	720	HP101M450M250A
	100	22	30	1470	2650	750	HP101M450M300A
	100	25	25	1470	2650	750	HP101M450N250A
	100	25	30	1470	2650	820	HP101M450N300A
	100	30	25	1470	2650	830	HP101M450O250A
	120	22	30	1230	2210	820	HP121M450M300A
	120	22	35	1230	2210	860	HP121M450M350A
	120	25	25	1230	2210	820	HP121M450N250A
	120	25	30	1230	2210	860	HP121M450N300A
	120	30	25	1230	2210	860	HP121M450O250A
	120	35	25	1230	2210	950	HP121M450P250A
	150	22	30	980	1770	910	HP151M450M300A
150	22	35	980	1770	930	HP151M450M350A	
150	22	40	980	1770	950	HP151M450M400A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
450	150	25	30	980	1770	940	HP151M450N300A
	150	25	35	980	1770	970	HP151M450N350A
	150	30	25	980	1770	980	HP151M450O250A
	150	30	30	980	1770	1060	HP151M450O300A
	150	35	25	980	1770	1080	HP151M450P250A
	180	22	35	820	1470	1020	HP181M450M350A
	180	22	40	820	1470	1050	HP181M450M400A
	180	25	30	820	1470	1050	HP181M450N300A
	180	25	35	820	1470	1100	HP181M450N350A
	180	30	25	820	1470	1100	HP181M450O250A
	180	30	30	820	1470	1190	HP181M450O300A
	180	35	25	820	1470	1200	HP181M450P250A
	180	35	30	820	1470	1280	HP181M450P300A
	220	22	40	670	1210	1120	HP221M450M400A
	220	22	45	670	1210	1200	HP221M450M450A
	220	25	35	670	1210	1200	HP221M450N350A
	220	25	40	670	1210	1250	HP221M450N400A
	220	30	25	670	1210	1170	HP221M450O250A
	220	30	30	670	1210	1250	HP221M450O300A
	220	35	25	670	1210	1240	HP221M450P250A
	220	35	30	670	1210	1330	HP221M450P300A
	270	22	50	540	980	1300	HP271M450M500A
	270	25	40	540	980	1300	HP271M450N400A
	270	30	30	540	980	1290	HP271M450O300A
	270	30	35	540	980	1420	HP271M450O350A
	270	35	25	540	980	1350	HP271M450P250A
	270	35	30	540	980	1420	HP271M450P300A
	330	25	50	440	800	1680	HP331M450N500A
	330	30	35	440	800	1540	HP331M450O350A
	330	30	40	440	800	1690	HP331M450O400A
	330	35	30	440	800	1700	HP331M450P300A
	330	35	35	440	800	1870	HP331M450P350A
	390	25	50	380	680	1710	HP391M450N500A
	390	30	40	380	680	1690	HP391M450O400A
	390	30	45	380	680	1900	HP391M450O450A
	390	35	35	380	680	1910	HP391M450P350A
	390	35	40	380	680	2070	HP391M450P400A
	470	30	45	310	560	1940	HP471M450O450A
	470	30	50	310	560	2230	HP471M450O500A
	470	35	35	310	560	1970	HP471M450P350A
470	35	40	310	560	2100	HP471M450P400A	
470	35	45	310	560	2500	HP471M450P450A	
560	30	50	260	470	2440	HP561M450O500A	
560	35	40	260	470	2400	HP561M450P400A	

: See description at end of standard ratings

**STANDARD RATINGS**

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m $\Omega$ )	Max. ESR +20°C - 120Hz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
450	560	35	45	260	470	2500	HP561M450P450A
	560	35	50	260	470	2790	HP561M450P500A
	680	35	45	220	390	2770	HP681M450P450A
	680	35	50	220	390	2900	HP681M450P500A
	820	35	55	180	320	3080	HP821M450P550A
	820	35	60	180	320	3220	HP821M450P600A
	1000	35	65	150	270	3310	HP102M450P650A
	1000	40	60	150	270	3400	HP102M450Q600A
	1200	35	80	120	220	3620	HP122M450P800A
	1200	40	70	120	220	3670	HP122M450Q700A
500	47	22	25	3130	5640	420	HP470M500M250A
	56	22	30	2630	4740	500	HP560M500M300A
	56	25	25	2630	4740	510	HP560M500N250A
	68	22	30	2170	3900	550	HP680M500M300A
	68	25	25	2170	3900	550	HP680M500N250A
	82	22	35	1790	3230	730	HP820M500M350A
	82	25	30	1790	3230	750	HP820M500N300A
	82	30	25	1790	3230	760	HP820M500O250A
	100	22	40	1470	2650	900	HP101M500M400A
	100	22	45	1470	2650	940	HP101M500M450A
	100	25	35	1470	2650	920	HP101M500N350A
	100	30	25	1470	2650	930	HP101M500O250A
	100	30	30	1470	2650	960	HP101M500O300A
	120	22	50	1230	2210	940	HP121M500M500A
	120	25	35	1230	2210	930	HP121M500N350A
	120	25	40	1230	2210	940	HP121M500N400A
	120	30	30	1230	2210	940	HP121M500O300A
	120	35	25	1230	2210	940	HP121M500P250A
	150	22	50	980	1770	1100	HP151M500M500A
	150	25	40	980	1770	1100	HP151M500N400A
	150	30	35	980	1770	1130	HP151M500O350A
	150	35	25	980	1770	1000	HP151M500P250A
	150	35	30	980	1770	1140	HP151M500P300A
	180	25	50	820	1470	1390	HP181M500N500A
	180	30	35	820	1470	1310	HP181M500O350A
	180	30	40	820	1470	1400	HP181M500O400A
	180	35	30	820	1470	1410	HP181M500P300A
	220	25	55	670	1210	1620	HP221M500N550A
	220	30	40	670	1210	1590	HP221M500O400A
	220	30	45	670	1210	1630	HP221M500O450A
220	35	35	670	1210	1650	HP221M500P350A	
270	30	50	540	980	1750	HP271M500O500A	
270	35	40	540	980	1760	HP271M500P400A	
330	30	55	440	800	2030	HP331M500O550A	

: See description at end of standard ratings

**STANDARD RATINGS**

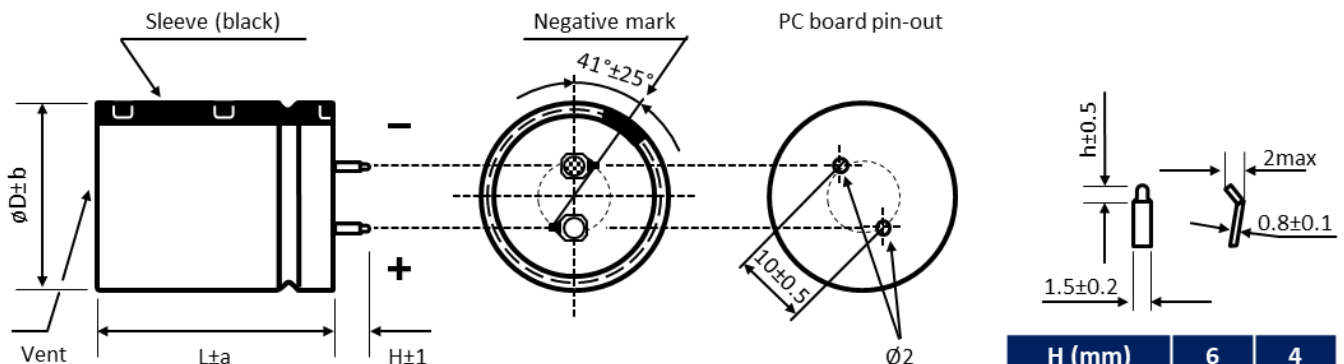
$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi D$ (mm)	L (mm)	Typ. ESR +20°C • 120Hz (m $\Omega$ )	Max. ESR +20°C • 120Hz (m $\Omega$ )	$I_R$ = Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
500	330	35	45	440	800	2050	HP331M500P450A □□
	390	35	50	380	680	2470	HP391M500P500A □□
	470	35	55	310	560	2630	HP471M500P550A □□
	680	35	65	220	390	3190	HP681M500P650A □□
	820	35	75	180	320	3850	HP821M500P750A □□
	820	40	65	180	320	3850	HP821M500Q650A □□
	1000	40	80	150	270	4700	HP102M500Q800A □□
550	47	25	25	3130	5640	480	HP470M550N250A □□
	56	25	30	2630	4740	550	HP560M550N300A □□
	68	25	35	2170	3900	630	HP680M550N350A □□
	68	30	25	2170	3900	650	HP680M550Q250A □□
	82	25	35	1790	3230	760	HP820M550N350A □□
	82	30	30	1790	3230	770	HP820M550Q300A □□
	100	25	40	1470	2650	930	HP101M550N400A □□
	100	30	35	1470	2650	940	HP101M550Q350A □□
	100	35	25	1470	2650	930	HP101M550P250A □□
	120	25	50	1230	2210	960	HP121M550N500A □□
	120	30	35	1230	2210	980	HP121M550Q350A □□
	120	35	30	1230	2210	1060	HP121M550P300A □□
	150	25	55	980	1770	1130	HP151M550N550A □□
	150	30	45	980	1770	1180	HP151M550Q450A □□
	150	35	35	980	1770	1220	HP151M550P350A □□
	180	30	50	820	1470	1350	HP181M550Q500A □□
	180	35	40	820	1470	1380	HP181M550P400A □□
	220	30	55	670	1210	1560	HP221M550Q550A □□
	220	35	45	670	1210	1580	HP221M550P450A □□
	270	35	50	540	980	1800	HP271M550P500A □□

□□: Enter **P6** for standard type ▪ 6mm pin length  
 □□: Enter **Z6** for 3-pin type ▪ 6mm pin length  
 □□: Enter **Y6** for multipin-type ▪ 6mm pin length

□□: Enter **P4** for standard type ▪ 4mm pin length  
 □□: Enter **Z4** for 3-pin type ▪ 4mm pin length  
 □□: Enter **Y4** for multipin type ▪ 4mm pin length

**DIMENSIONS ▪ All dimensions in mm**

2-pin version ▪ Standard type

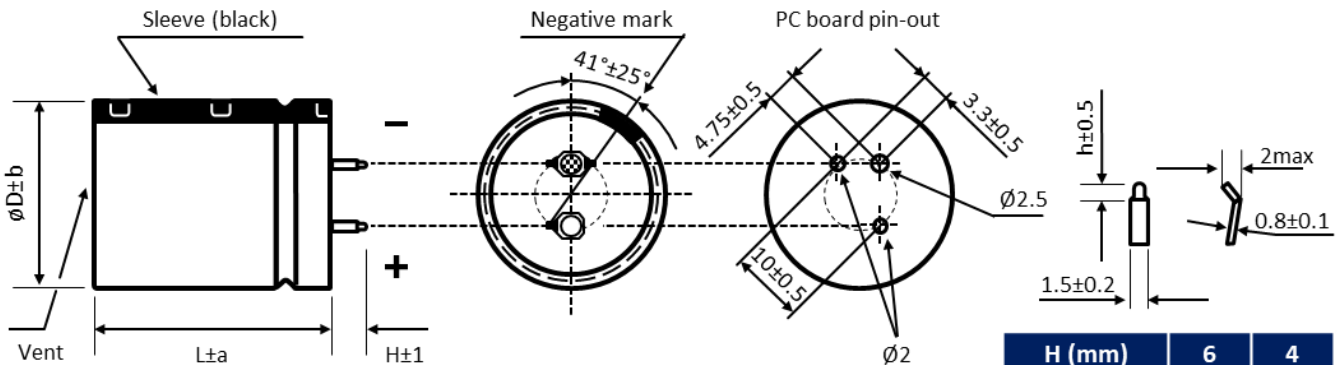


<b>H (mm)</b>	<b>6</b>	<b>4</b>
<b>h (mm)</b>	2.5	1.5

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

**DIMENSIONS** ▪ All dimensions in mm

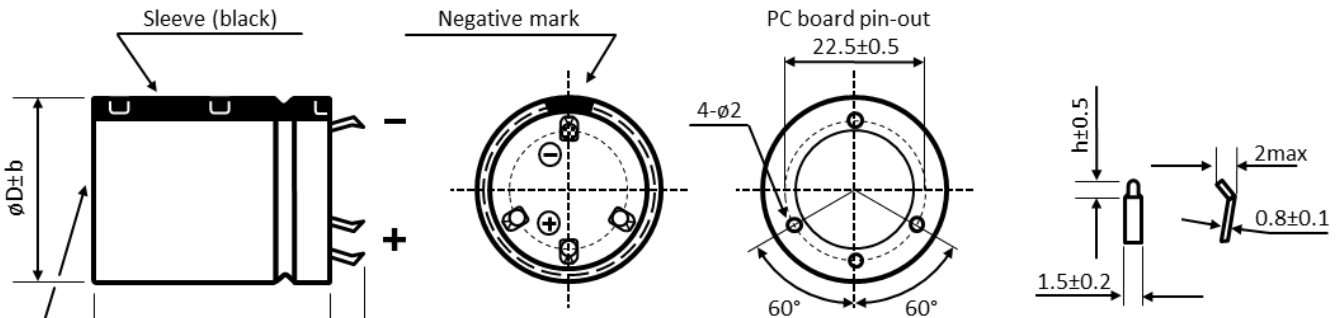
3-pin version ▪ Polarity protection



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

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

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



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

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	1k	10k	50k - 100k
$6.3 \leq V_R \leq 100$	0.88	1	1.07	1.15	1.15	1.15
$160 \leq V_R \leq 250$	0.81	1	1.17	1.32	1.45	1.5
$315 \leq V_R \leq 550$	0.77	1	1.16	1.3	1.41	1.43

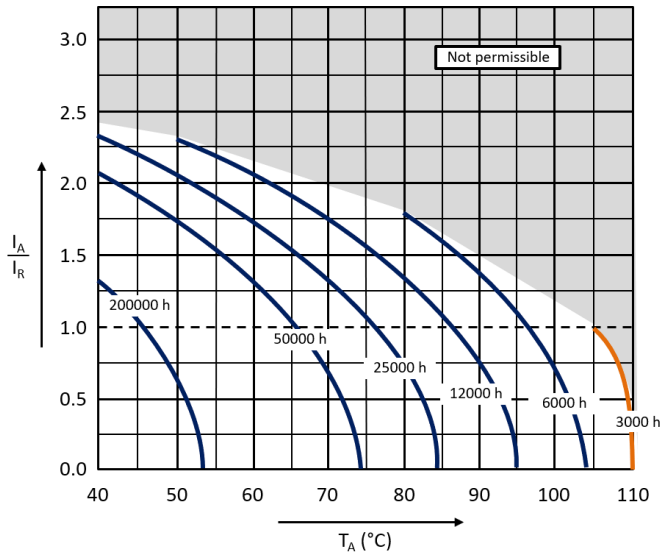
**PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION**

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.

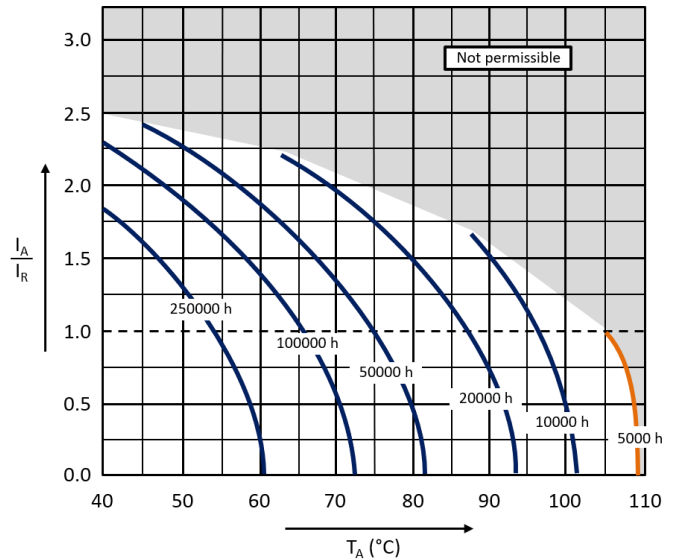
<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">Vibration Test Profiles</a>	<a href="#">3D Models</a>	<a href="#">Reliability Tests</a>

## USEFUL LIFE

$V_R \leq 100V$



$V_R \geq 160V$



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

### 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.

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