

HT SERIES ▀ LONG LIFE, MULTI-PIN 105°C TYPE

KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR ▀ Snap-In (Multi-Pin) type
- Useful life: 105°C ▀ 5 000 hours
- Miniature dimensions
- High reliability
- Polarity-protected assembly



NOT FOR NEW DESIGNS



SPECIFICATIONS

Recommendation HP series

Items		Performance Characteristics			
Operating Temperature Range		-40 ~ +105°C		-25 ~ +105°C	
Rated Voltage Range	V _R	160 ~ 350V DC		400 ~ 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	180 ~ 2700µF		82 ~ 1800µF	
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 DC	160 ~ 400	450	
		tanδ	15	20	
Low Temperature Characteristics at 120Hz	Z ratio max.	V _R (V DC)	160 ~ 250	315 ~ 350	400 ~ 450
		Z-25°C/Z+20°C	4	8	8
		Z-40°C/Z+20°C	8	12	-

Lifetime Test			
Useful Life 105°C (V _R & I _R applied)	Test	5 000 hours	
	ΔC/C _R	≤ ±20% of initial measured value	
	tanδ	≤ 200% of initial specified value	
	I _{Leak}	≤ the initial specified value	
	Deviation Rate @ Useful Life: 10 000 FIT = 1%/1000h with 60% confidence level ▀ parts show higher drift as test criteria		
Endurance 105°C (V _R & I _R applied)	Test	2 000 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	1 000 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
NOT FOR NEW DESIGNS

V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (m Ω)	Max. ESR +20°C • 120Hz (m Ω)	I_R - Max. Ripple Current +105°C • 120Hz (mA rms)	CapXon Part Number
160	330	30	25	310	600	1390	HT331M160O250A
	390	30	25	260	510	1470	HT391M160O250A
	470	30	30	220	420	1640	HT471M160O300A
	560	30	30	180	360	1760	HT561M160O300A
	680	30	35	150	290	1980	HT681M160O350A
	680	35	30	150	290	1980	HT681M160P300A
	820	30	40	120	240	2360	HT821M160O400A
	820	35	30	120	240	2360	HT821M160P300A
	1000	30	55	100	200	2800	HT102M160O550A
	1000	35	35	100	200	2600	HT102M160P350A
1200	30	55	87	170	3230	HT122M160O550A	
200	220	30	25	460	900	1150	HT221M200O250A
	270	30	25	380	740	1220	HT271M200O250A
	330	30	30	310	600	1530	HT331M200O300A
	390	30	30	260	510	1570	HT391M200O300A
	390	35	25	260	510	1570	HT391M200P250A
	470	30	35	220	420	1740	HT471M200O350A
	470	35	30	220	420	1740	HT471M200P300A
	560	30	40	180	360	1890	HT561M200O400A
	560	35	30	180	360	1890	HT561M200P300A
	680	30	45	150	290	2300	HT681M200O450A
	680	35	35	150	290	2300	HT681M200P350A
	820	30	50	120	240	2740	HT821M200O500A
	820	35	40	120	240	2740	HT821M200P400A
250	180	30	25	570	1110	980	HT181M250O250A
	220	30	30	460	900	1170	HT221M250O300A
	270	30	30	380	740	1320	HT271M250O300A
	330	30	35	310	600	1660	HT331M250O350A
	330	35	30	310	600	1660	HT331M250P300A
	390	30	40	260	510	1770	HT391M250O400A
	390	35	30	260	510	1770	HT391M250P300A
	470	30	40	220	420	1880	HT471M250O400A
	470	35	35	220	420	1880	HT471M250P350A
	560	30	50	180	360	2060	HT561M250O500A
	560	35	40	180	360	2060	HT561M250P400A
	390	35	40	260	510	1970	HT391M350P400A
470	35	45	220	420	2220	HT471M350P450A	
560	35	45	180	360	2460	HT561M350P450A	
560	40	40	180	360	2510	HT561M350Q400A	
680	35	55	150	290	2840	HT681M350P550A	
680	40	45	150	290	2840	HT681M350Q450A	
820	35	65	120	240	3260	HT821M350P650A	
820	40	50	120	240	3200	HT821M350Q500A	
820	45	40	120	240	3160	HT821M350V400A	

: See description at end of standard ratings

STANDARD RATINGS
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V_R (V)	C_R (μ F)	ϕ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (m Ω)	Max. ESR +20°C - 120Hz (m Ω)	I_R - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
350	1000	35	75	100	200	3760	HT102M350P750A
	1000	40	60	100	200	3680	HT102M350Q600A
	1000	45	45	100	200	3570	HT102M350V450A
	1200	35	85	87	170	4310	HT122M350P850A
	1200	40	65	87	170	4150	HT122M350Q650A
	1200	45	50	87	170	4000	HT122M350V500A
	1500	40	80	67	130	4960	HT152M350Q800A
	1500	45	65	67	130	4800	HT152M350V650A
	1800	40	95	56	110	5720	HT182M350Q950A
	1800	45	75	56	110	5450	HT182M350V750A
	2200	45	90	46	90	6320	HT222M350V900A
2700	45	100	38	74	7300	HT272M350VA00A	
400	82	30	25	1250	2430	730	HT820M400Q250A
	100	30	30	1020	1990	820	HT101M400Q300A
	120	30	35	850	1660	870	HT121M400Q350A
	120	35	25	850	1660	870	HT121M400P250A
	150	30	40	680	1330	1000	HT151M400Q400A
	150	35	30	680	1330	1000	HT151M400P300A
	180	30	45	570	1110	1160	HT181M400Q450A
	180	35	35	570	1110	1140	HT181M400P350A
	220	30	50	460	900	1280	HT221M400Q500A
	220	35	40	460	900	1280	HT221M400P400A
	330	35	40	310	600	1830	HT331M400P400A
	390	35	45	260	510	2050	HT391M400P450A
	470	35	45	220	420	2320	HT471M400P450A
	470	40	40	220	420	2330	HT471M400Q400A
	560	35	55	180	360	2600	HT561M400P550A
	560	40	45	180	360	2610	HT561M400Q450A
	560	45	40	180	360	2600	HT561M400V400A
	680	35	65	150	290	2990	HT681M400P650A
	680	40	50	150	290	2950	HT681M400Q500A
	680	45	40	150	290	2930	HT681M400V400A
	820	35	75	120	240	3430	HT821M400P750A
	820	40	60	120	240	3370	HT821M400Q600A
	820	45	45	120	240	3300	HT821M400V450A
	1000	35	85	100	200	3980	HT102M400P850A
	1000	40	65	100	200	3840	HT102M400Q650A
	1000	45	50	100	200	3730	HT102M400V500A
	1200	35	100	87	170	4590	HT122M400PA00A
1200	40	75	87	170	4380	HT122M400Q750A	
1200	45	60	87	170	4260	HT122M400V600A	
1500	40	95	67	130	5300	HT152M400Q950A	
1500	45	70	67	130	5050	HT152M400V700A	
1800	45	90	56	110	5820	HT182M400V900A	

: See description at end of standard ratings

STANDARD RATINGS

NOT FOR NEW DESIGNS

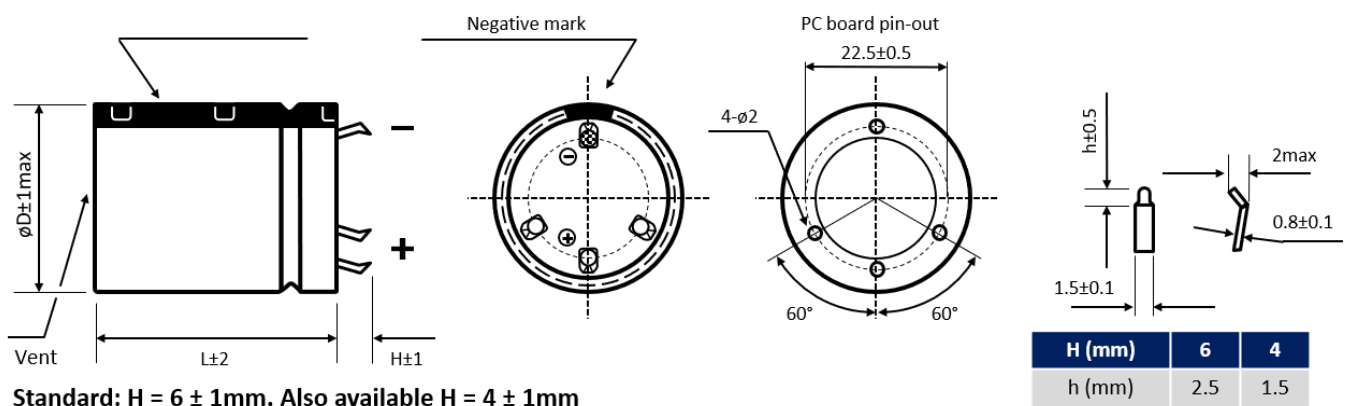
V _R (V)	C _R (μF)	∅ D (mm)	L (mm)	Typ. ESR +20°C - 120Hz (mΩ)	Max. ESR +20°C - 120Hz (mΩ)	I _R - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number
450	270	35	40	500	980	1620	HT271M450P400A □□
	330	35	45	410	800	1850	HT331M450P450A □□
	390	35	50	350	680	2070	HT391M450P500A □□
	390	40	40	350	680	2080	HT391M450Q400A □□
	470	35	55	290	560	2350	HT471M450P550A □□
	470	40	45	290	560	2350	HT471M450Q450A □□
	470	45	40	290	560	2360	HT471M450V400A □□
	560	35	65	240	470	2660	HT561M450P650A □□
	560	40	50	240	470	2640	HT561M450Q500A □□
	560	45	40	240	470	2630	HT561M450V400A □□
	680	35	75	200	390	3070	HT681M450P750A □□
	680	40	60	200	390	3020	HT681M450Q600A □□
	680	45	45	200	390	2970	HT681M450V450A □□
	820	35	85	160	320	3540	HT821M450P850A □□
	820	40	65	160	320	3430	HT821M450Q650A □□
	820	45	50	160	320	3300	HT821M450V500A □□
	1000	35	100	140	270	4130	HT102M450PA00A □□
	1000	40	70	140	270	3750	HT102M450Q700A □□
	1000	40	80	140	270	3980	HT102M450Q800A □□
	1000	45	60	140	270	3860	HT102M450V600A □□
1200	40	95	110	220	4660	HT122M450Q950A □□	
1200	45	75	110	220	4500	HT122M450V750A □□	
1500	45	90	92	180	5300	HT152M450V900A □□	

□□: Enter **Y6** for multipin-type ▪ 6mm pin length

□□: Enter **Y4** for multipin type ▪ 4mm pin length

DIMENSIONS ▪ All dimensions in mm

Multi-pin version ▪ Standard type



MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

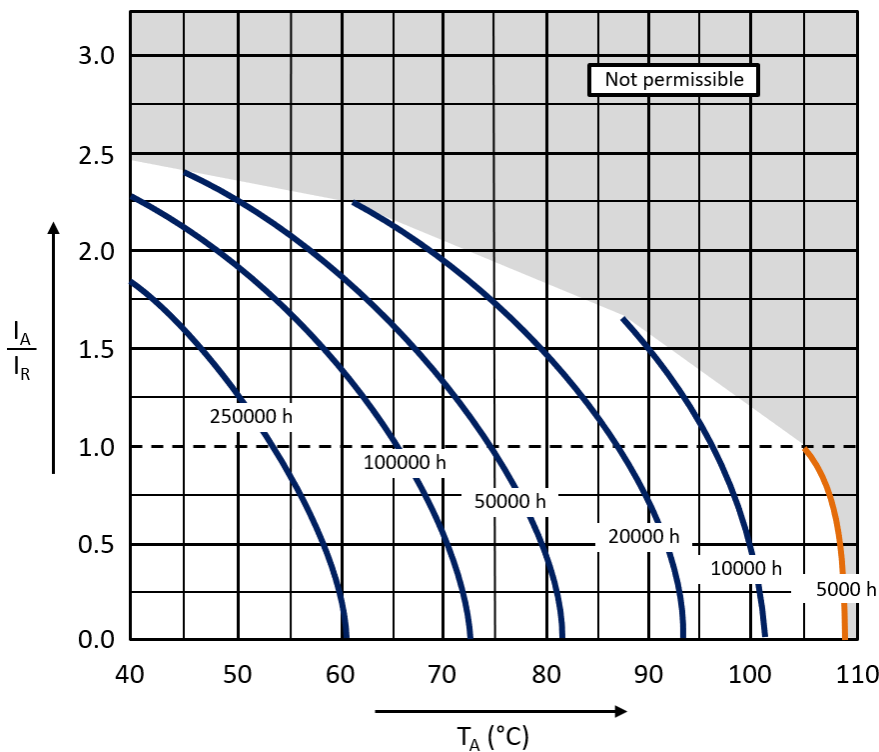
V_R (V) / Frequency (Hz)	50/60	100/120	300	1k	10k	50k - 100k
$160 \leq V_R \leq 250$	0.81	1	1.17	1.32	1.45	1.5
$350 \leq V_R \leq 450$	0.77	1	1.16	1.3	1.41	1.43

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.

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

USEFUL LIFE



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.

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.

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