

特性/ Features

- Wide temperature, Standard
- Load Life 2000 hours at 105°C
- Suitable for Frequency converters, Professional power supplies and Electric welding machine
- Compliant to the RoHS directive
- 宽温通用品
- 105°C 2000小时
- 适用于变频器、专业电源和电焊机等
- RoHS指令对策品



螺钉型Screw

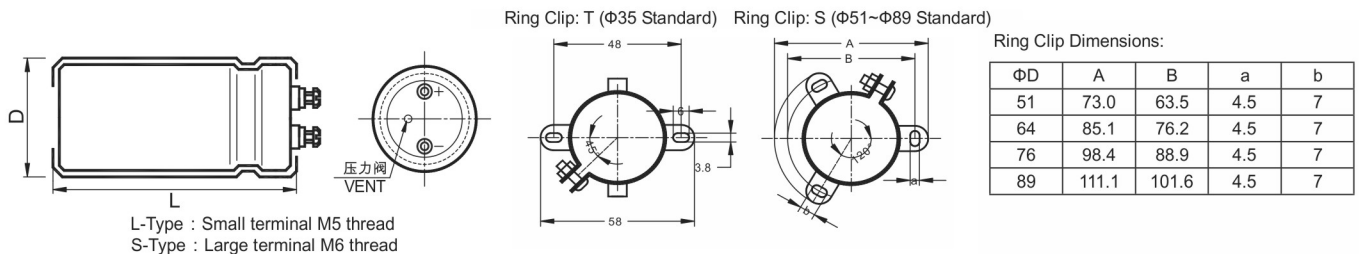
规格表 SPECIFICATIONS

项目 Items	特性 Characteristics										
工作温度范围 Operating Temperature Range	- 40 ~ +105°C						- 25 ~ +105°C				
额定工作电压范围 Rated Working Voltage Range	25 ~ 100V						160 ~ 600V				
静电容量范围 Capacitance Range	220 ~ 330000µ F										
静电容量允许偏差 Capacitance Tolerance	±20% (20 °C, 120Hz)										
损耗角正切值 Dissipation Factor (MAX) 20°C , 120Hz	U _R (V)	25-100	160	200	250	350	400	450	500	550	600
	tanδ	见规格表	0.15							0.20	
漏电流 Leakage Current (MAX)	I = 0.01C _R U _R 或 5mA 取小者 (20 °C , 施加额定电压5分钟后) I = 0.01C _R U _R or 5mA whichever is minimum. (at 20°C , After 5 minutes application of rated voltage) I = 漏电流 (µA) U _R = 额定电压 (V) C _R = 静电容量 (µF) Leakage Current Rated Voltage Rated Capacitance										

	使用寿命 Useful Life		负荷寿命 Load Life	耐久性特性 Endurance Test	高温无负荷特性 Shelf Life	
产品寿命 Life Time	4000h	>200000h	2000h	2000h	1000h U _R ≤ 500V	500h U _R ≥ 550V
漏电流 Leakage Current	≤ 规定值 ≤ Specified value		≤ 规定值 ≤ Specified value	≤ 规定值 ≤ Specified value	≤ 规定值 ≤ Specified value	
损耗角正切值变化率 tanδ Change	≤ 规定值的300% ≤ 300% of specified value		≤ 规定值的175% ≤ 175% of specified value	≤ 规定值的130% ≤ 130% of specified value	≤ 规定值的150% ≤ 150% of specified value	
静电容量变化率 Capacitance Change	初始值± 30%以内 Within ± 30% of initial value		初始值±15%以内 Within ± 15% of initial value	初始值±10%以内 Within ± 10% of initial value	初始值±15%以内 Within ± 15% of initial value	
施加条件 Condition 施加电压 Applied Voltage 施加纹波电流 Applied Ripple Current 环境温度 Applied Temperature 失效等级 Failure Rate Level	U _R I _R 105°C ≤ 1% Failure Rate	U _R 1.2 × I _R 40°C ≤ 1% Failure Rate	U _R I _R 105°C 0%	U _R I _R =0 105°C 0%	U _R =0 I _R =0 105°C 0% Back up to 20 °C and placed more than 24 hours. U _R to be applied for 60 min before measurement.	

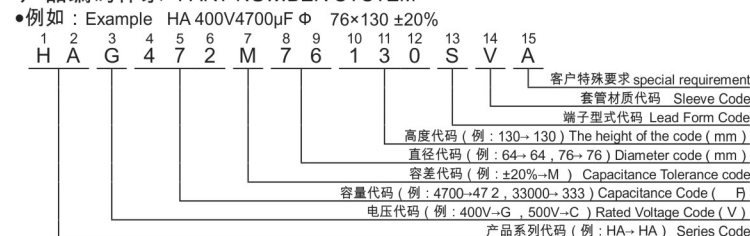
尺寸图 Dimensions

- 常用端子型式代码 : Terminal Code



- 记载以外的端子形状，请另行咨询。Please consult to us for the terminal type not displayed in content.

产品编码体系 PART NUMBER SYSTEM



纹波电流修正系数 Rated Ripple Current Multiplies

● 频率修正系数 Frequency coefficient

频率 Frequency (Hz)	50(60)	100(120)	300	1k	≥10k
系数 Coefficient	0.80	1.00	1.18	1.30	1.40

● 温度修正系数 Temperature coefficient

温度 Temperature (°C)	+40	+55	+70	+85	+105
系数 Coefficient	3.30	2.85	2.40	2.00	1.00

◆ 产品一览表 Standard Ratings

WV _{DC} (Surge Voltage) (V)	Cap (μ F)	Size D \times L (mm)	tan δ 20°C/120Hz	Ripple Current 105°C/120H (Arms)	Catalog Part Number
25 (32)	10000	35 \times 60	0.35	3.2	HAU103M35060□VA
	15000	35 \times 80	0.35	4.8	HAU153M35080□VA
	22000	35 \times 80	0.35	5.8	HAU223M35080□VA
	33000	35 \times 100	0.40	7.2	HAU333M35100□VA
	47000	51 \times 80	0.40	9.3	HAU473M51080□VA
	68000	51 \times 115	0.50	11.5	HAU683M51115□VA
	100000	64 \times 95	0.60	13.0	HAU104M64095□VA
	150000	64 \times 115	0.80	17.9	HAU154M64115□VA
	220000	76 \times 115	1.00	21.3	HAU224M76115□VA
330000	89 \times 130	1.00	23.4	HAU334M89130□VA	
35 (44)	6800	35 \times 60	0.30	2.8	HAT682M35060□VA
	10000	35 \times 80	0.30	4.1	HAT103M35080□VA
	15000	35 \times 80	0.30	5.2	HAT153M35080□VA
	22000	35 \times 100	0.35	6.3	HAT223M35100□VA
	33000	51 \times 80	0.40	8.7	HAT333M51080□VA
	47000	51 \times 95	0.45	11.2	HAT473M51095□VA
	68000	51 \times 150	0.50	14.3	HAT683M51150□VA
	100000	64 \times 115	0.60	17.2	HAT104M64115□VA
	150000	76 \times 115	0.70	20.7	HAT154M76115□VA
220000	89 \times 130	0.70	23.4	HAT224M89130□VA	
50 (63)	3300	35 \times 60	0.20	2.5	HAR332M35060□VA
	4700	35 \times 60	0.25	3.7	HAR472M35060□VA
	6800	35 \times 80	0.25	3.9	HAR682M35080□VA
	10000	35 \times 80	0.25	4.7	HAR103M35080□VA
	15000	35 \times 100	0.30	5.7	HAR153M35100□VA
	22000	51 \times 80	0.35	8.1	HAR223M51080□VA
	33000	51 \times 115	0.40	11.1	HAR333M51115□VA
	47000	64 \times 95	0.40	13.9	HAR473M64095□VA
	68000	64 \times 115	0.45	16.6	HAR683M64115□VA
100000	76 \times 115	0.50	19.5	HAR104M76115□VA	
150000	76 \times 115	0.50	23.9	HAR154M76115□VA	
63 (79)	2200	35 \times 60	0.15	2.5	HAQ222M35060□VA
	3300	35 \times 60	0.20	2.7	HAQ332M35060□VA
	4700	35 \times 80	0.20	3.8	HAQ472M35080□VA
	6800	35 \times 80	0.20	4.4	HAQ682M35080□VA
	10000	35 \times 100	0.25	5.3	HAQ103M35100□VA
	15000	51 \times 80	0.25	6.8	HAQ153M51080□VA
	22000	51 \times 95	0.30	9.0	HAQ223M51095□VA
	33000	64 \times 95	0.30	12.0	HAQ333M64095□VA
	47000	64 \times 115	0.35	14.5	HAQ473M64115□VA
68000	76 \times 115	0.40	18.4	HAQ683M76115□VA	
100000	89 \times 130	0.40	20.0	HAQ104M89130□VA	
80 (100)	2200	35 \times 60	0.15	2.8	HAP222M35060□VA
	3300	35 \times 80	0.15	3.6	HAP332M35080□VA
	4700	35 \times 80	0.15	4.3	HAP472M35080□VA
	6800	35 \times 100	0.20	4.9	HAP682M35100□VA
	10000	51 \times 80	0.20	6.4	HAP103M51080□VA
	15000	51 \times 95	0.25	7.4	HAP153M51095□VA
	22000	64 \times 95	0.25	11.0	HAP223M64095□VA
	33000	76 \times 95	0.30	13.9	HAP333M76095□VA
	47000	76 \times 115	0.30	16.5	HAP473M76115□VA
68000	89 \times 130	0.30	19.7	HAP683M89130□VA	
100 (125)	1000	35 \times 60	0.15	1.6	HAO102M35060□VA
	1500	35 \times 60	0.15	2.0	HAO152M35060□VA
	2200	35 \times 80	0.15	3.0	HAO222M35080□VA
	3300	35 \times 80	0.15	4.2	HAO332M35080□VA
	4700	35 \times 100	0.15	5.0	HAO472M35100□VA
	6800	51 \times 80	0.15	5.8	HAO682M51080□VA

WV _{DC} (Surge Voltage) (V)	Cap (μ F)	Size D \times L (mm)	tan δ 20°C/120Hz	Ripple Current 105°C/120H (Arms)	Catalog Part Number
100 (125)	10000	51 \times 95	0.15	7.8	HAO103M51095□VA
	15000	64 \times 95	0.20	10.4	HAO153M64095□VA
	22000	76 \times 95	0.20	12.5	HAO223M76095□VA
	33000	76 \times 130	0.25	15.2	HAO333M76130□VA
	47000	89 \times 130	0.25	19.3	HAO473M89130□VA
160 (200)	470	35 \times 60	0.15	1.2	HAN471M35060□VA
	680	35 \times 60	0.15	1.3	HAN681M35060□VA
	1000	35 \times 80	0.15	1.9	HAN102M35080□VA
	1500	35 \times 80	0.15	2.4	HAN152M35080□VA
	2200	35 \times 100	0.15	3.2	HAN222M35100□VA
	3300	51 \times 80	0.15	4.2	HAN332M51080□VA
	4700	51 \times 95	0.15	5.5	HAN472M51095□VA
	6800	64 \times 95	0.15	7.1	HAN682M64095□VA
	10000	76 \times 95	0.15	9.1	HAN103M76095□VA
15000	76 \times 130	0.15	11.8	HAN153M76130□VA	
22000	89 \times 130	0.15	15.2	HAN223M89130□VA	
200 (250)	330	35 \times 60	0.15	0.9	HAL331M35060□VA
	470	35 \times 60	0.15	1.2	HAL471M35060□VA
	680	35 \times 80	0.15	1.4	HAL681M35080□VA
	1000	35 \times 100	0.15	2.0	HAL102M35100□VA
	1500	35 \times 80	0.15	2.5	HAL152M35080□VA
	2200	51 \times 95	0.15	3.2	HAL222M51095□VA
	3300	51 \times 95	0.15	4.3	HAL332M51095□VA
	4700	64 \times 95	0.15	5.2	HAL472M64095□VA
	6800	64 \times 115	0.15	7.3	HAL682M64115□VA
10000	76 \times 155	0.15	9.3	HAL103M76155□VA	
15000	89 \times 157	0.15	12.5	HAL153M89157□VA	
250 (300)	330	35 \times 60	0.15	0.9	HAJ331M35060□VA
	470	35 \times 60	0.15	1.1	HAJ471M35060□VA
	680	35 \times 80	0.15	1.5	HAJ681M35080□VA
	1000	35 \times 100	0.15	2.1	HAJ102M35100□VA
	1500	51 \times 80	0.15	2.6	HAJ152M51080□VA
	2200	51 \times 95	0.15	3.4	HAJ222M51095□VA
	3300	64 \times 95	0.15	4.6	HAJ332M64095□VA
	4700	64 \times 115	0.15	6.0	HAJ472M64115□VA
	6800	76 \times 115	0.15	7.9	HAJ682M76115□VA
10000	76 \times 155	0.15	10.2	HAJ103M76155□VA	
15000	89 \times 157	0.15	13.5	HAJ153M89157□VA	
350 (400)	470	35 \times 60	0.15	1.4	HAH471M35060□VA
	680	35 \times 80	0.15	1.9	HAH681M35080□VA
	1000	35 \times 120	0.15	2.8	HAH103M35120□VA
	1500	51 \times 80	0.15	3.5	HAH152M51080□VA
	2200	51 \times 115	0.15	4.8	HAH222M51115□VA
	3300	64 \times 95	0.15	6.1	HAH332M64095□VA
	4700	76 \times 115	0.15	8.3	HAH472M76115□VA
	6800	76 \times 155	0.15	11.0	HAH682M76155□VA
	10000	89 \times 157	0.15	14.6	HAH103M89157□VA
15000	89 \times 195	0.15	19.1	HAH153M89195□VA	
400 (450)	1000	51 \times 80	0.15	2.7	HAG102M51080□VA
	1200	51 \times 95	0.15	3.2	HAG122M51095□VA
	1500	51 \times 115	0.15	3.9	HAG152M51115□VA
	1800	51 \times 130	0.15	4.4	HAG182M51130□VA
	2200	64 \times 95	0.15	4.9	HAG222M64095□VA
	2700	64 \times 115	0.15	5.7	HAG272M64115□VA
	3300	64 \times 130	0.15	6.6	HAG332M64130□VA
	3900	76 \times 115	0.15	7.5	HAG392M76115□VA
	4700	76 \times 130	0.15	8.7	HAG472M76130□VA
5600	76 \times 155	0.15	10.3	HAG562M76155□VA	

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 *□ Enter the appropriate terminal code

◆ 产品一览表 Standard Ratings

WV _{DC} (Surge Voltage) (V)	Cap (μF)	Size D × L (mm)	tanδ 20°C/120Hz	Ripple Current 105°C/120Hz Z (Arms)	Catalog Part Number
400 (450)	6800	89×157	0.15	12.1	HAG682M89157□VA
	8200	89×157	0.15	13.2	HAG822M89157□VA
	10000	89×195	0.15	15.6	HAG103M89195□VA
	12000	89×195	0.15	17.1	HAG123M89195□VA
	15000	89×235	0.15	20.8	HAG153M89235□VA
450 (500)	220	35×60	0.15	1.1	HAE221M35060□VA
	330	35×100	0.15	1.5	HAE331M35100□VA
	470	51×80	0.15	2.1	HAE471M51080□VA
	680	51×95	0.15	2.7	HAE681M51095□VA
	1000	51×105	0.15	4.2	HAE102M51105□VA
	1500	51×130	0.15	5.7	HAE152M51130□VA
	2200	64×115	0.15	7.3	HAE222M64115□VA
	2700	64×130	0.15	8.3	HAE272M64130□VA
	3300	76×130	0.15	10.1	HAE332M76130□VA
	4700	76×155	0.15	12.6	HAE472M76155□VA
	5600	89×157	0.15	15.8	HAE562M89157□VA
	6800	89×157	0.15	18.0	HAE682M89157□VA
	8200	89×195	0.15	19.8	HAE822M89195□VA
	10000	89×195	0.15	22.0	HAE103M89195□VA
	12000	89×235	0.15	26.0	HAE123M89235□VA
15000	89×250	0.15	29.0	HAE153M89250□VA	
500 (550)	330	51×80	0.15	1.5	HAC331M51080□VA
	470	51×80	0.15	1.8	HAC471M51080□VA
	680	51×105	0.15	2.5	HAC681M51105□VA
	1000	51×115	0.15	3.1	HAC102M51115□VA
	1500	64×115	0.15	4.4	HAC152M64115□VA
	2200	64×130	0.15	5.6	HAC222M64130□VA
	3300	76×155	0.15	8.1	HAC332M76155□VA
	4700	89×157	0.15	10.6	HAC472M89157□VA

WV _{DC} (Surge Voltage) (V)	Cap (μF)	Size D × L (mm)	tanδ 20°C/120Hz	Ripple Current 105°C/120Hz Z (Arms)	Catalog Part Number
500 (500)	5600	89×157	0.15	11.6	HAC562M89157□VA
	6800	89×170	0.15	13.3	HAC682M89170□VA
	8200	89×235	0.15	16.9	HAC822M89235□VA
	10000	89×250	0.15	18.1	HAC103M89250□VA
550 (600)	820	51×115	0.20	3.2	HAZ821M51115□VA
	1000	51×130	0.20	3.7	HAZ102M51130□VA
	1200	64×95	0.20	4.1	HAZ122M64095□VA
	1500	64×115	0.20	4.9	HAZ152M64115□VA
	1800	64×130	0.20	5.7	HAZ182M64130□VA
	2200	76×115	0.20	6.6	HAZ222M76115□VA
	2700	76×130	0.20	7.4	HAZ272M76130□VA
	3300	76×155	0.20	8.6	HAZ332M76155□VA
	3900	76×170	0.20	9.8	HAZ392M76170□VA
	4700	89×157	0.20	11.0	HAZ472M89157□VA
	5600	89×195	0.20	12.9	HAZ562M89195□VA
	6800	89×220	0.20	14.0	HAZ682M89220□VA
	8200	89×250	0.20	14.9	HAZ822M89250□VA
	600 (650)	820	51×130	0.20	3.0
1000		64×95	0.20	3.5	HAB102M64095□VA
1200		64×115	0.20	4.2	HAB122M64115□VA
1500		64×130	0.20	5.0	HAB152M64130□VA
1800		76×115	0.20	5.7	HAB182M76115□VA
2200		76×130	0.20	6.6	HAB222M76130□VA
2700		76×155	0.20	7.6	HAB272M76155□VA
3300		76×170	0.20	8.4	HAB332M76170□VA
3900		89×157	0.20	9.7	HAB392M89157□VA
4700		89×195	0.20	11.4	HAB472M89195□VA
5600		89×220	0.20	12.3	HAB562M89220□VA
6800		89×250	0.20	14.0	HAB682M89250□VA

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*□ Enter the appropriate terminal code

*记载之外的体积，请另行咨询。

*Please ask for advice for other sizes.

*铝电解电容器由于承受纹波电流而发热，随着温升而发生性能劣化。请在使用中降低产品承受的纹波电流。

*Aluminum electrolytic capacitor will emit heat when ripple current is applied, the performance will deteriorate when temp. rises. Please reduce the ripple current when using capacitor.

Note: All design and specification are for reference only and is subject to change without prior notice. If any doubt about safety for your application, please contact KNSCHA immediately for technical assistance before purchase.

备注：以上所提供的设计及特性参数仅供参考，任何修改不作预先通知。如果在使用上有疑问，请再购买前与科尼盛联系，以便我们提供技术上的服务和协助。