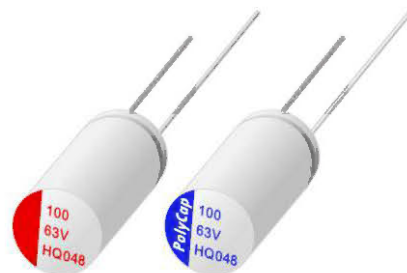


HQ series 125 °C Hybrid (16V~63V)

- Conductive Polymer Hybrid Aluminum Electrolytic Capacitor
- Load life of 2000 hours at 125°C
- Compliant to the RoHS2.0 directive
- Suitable for High reliability requirement of Electronic Equipment.

混合型铝电容器, 最高工作温度125°C, 产品满足 RoHS2.0 指令, 适合用于提高电子设备的可靠度。



✧ Specifications

Items	Characteristics	
Operating Temp. Range	-55°C ~ +125°C	
Capacitance Range	6.8 ~ 2200μF	
Capacitance Tolerance	M : ±20%	
Rated Voltage Range	16V ~ 63V DC	
Dissipation Factor	Not to exceed the value specified	
Leakage Current	Not to exceed the value specified (after 2 minutes)	
ESR (100K~300KHz)	Not to exceed the value specified	
Endurance 125°C · 2000h · at rated voltage	Capacitance Change	Within ±20% of the value before test
	Dissipation Factor	Not to exceed 150% of the value specified
	ESR	Not to exceed 150% of the value specified
	Leakage current	Not to exceed the value specified
Moisture Resistance Stored at 85°C · RH85% · 1000h	Capacitance Change	Within ±20% of the value before test
	Dissipation Factor	Not to exceed 150% of the value specified
	ESR	Not to exceed 150% of the value specified
	Leakage Current	Not to exceed the value specified

✧ Dimensions (Unit:mm)

Φ6.3mm
Plastic coating Aluminum. Case

The diagram shows a side view of a cylindrical capacitor with a plastic coating. The main body has a diameter of ΦD and a length of $L + \alpha \text{Max}$. A lead wire is attached to the end, with a length of 15Min from the case end and 4Min from the wire end. The wire has a diameter of Φd and is marked with a (+) sign. The distance from the case end to the wire end is F .

Φ8mm~Φ12.5mm
Plastic coating Aluminum. Case

The diagram shows a side view of a cylindrical capacitor with a plastic coating. The main body has a diameter of ΦD and a length of $L + \alpha \text{Max}$. A lead wire is attached to the end, with a length of 15Min from the case end and 4Min from the wire end. The wire has a diameter of Φd and is marked with a (+) sign. The distance from the case end to the wire end is F . A stand-off is indicated between the case and the wire.

$\Phi D + 0.5 \text{max.}$	6.3				8					10					12.5								
L	5	8	11	14	8	11.5	13	16	20	10	12.5	13	16	20	17	21	26						
α	1.0				1.0		1.5			1.0		1.5			1.5								
$F \pm 0.5$	2.5				3.5					5.0					5.0								
$\Phi d \pm 0.05$	0.5				0.6					0.6					0.6								



✧ Capacitance List

W.V (S.V) SIZE	16 (18)	25 (29)	35 (40)	50 (58)	63 (72)
6.3×5			33 ~ 68μF	15 ~ 27μF	10 ~ 18μF
6.3×8			56 ~ 120μF	27 ~ 47μF	18 ~ 27μF
6.3×11			82 ~ 180μF	39 ~ 68μF	27 ~ 39μF
6.3×14			150 ~ 270μF	68 ~ 100μF	47 ~ 56μF
8×8			82 ~ 220μF	39 ~ 68μF	27 ~ 47μF
8×11.5			100 ~ 270μF	56 ~ 82μF	39 ~ 68μF
8×13			150 ~ 330μF	68 ~ 120μF	56 ~ 82μF
8×16	680 ~ 1200μF	220 ~ 680μF	180 ~ 390μF	82 ~ 150μF	68 ~ 100μF
8×20	820 ~ 1500μF	330 ~ 820μF	220 ~ 560μF	100 ~ 220μF	82 ~ 120μF
10×10			120 ~ 330μF	68 ~ 120μF	47 ~ 82μF
10×12.5	680 ~ 1200μF	220 ~ 680μF	180 ~ 470μF	82 ~ 180μF	68 ~ 120μF
10×13	820 ~ 1500μF	330 ~ 820μF	220 ~ 560μF	120 ~ 220μF	82 ~ 150μF
10×16	1000 ~ 1800μF	390 ~ 1000μF	330 ~ 680μF	120 ~ 270μF	82 ~ 180μF
10×20	1200 ~ 2700μF	470 ~ 1500μF	470 ~ 1000μF	150 ~ 390μF	100 ~ 220μF
12.5×17	1500 ~ 3300μF	560 ~ 1800μF	560 ~ 1200μF	220 ~ 470μF	150 ~ 270μF
12.5×21	1800 ~ 4700μF	820 ~ 2700μF	820 ~ 1500μF	270 ~ 560μF	220 ~ 330μF
12.5×26	2700 ~ 5600μF	1000 ~ 3300μF	1000 ~ 1800μF	330 ~ 820μF	270 ~ 470μF

✧ Characteristics List

W.V. (V)	Capacitance (μF)	L.C. (μA,2min)	tgδ (120Hz,20℃)	ESR (mΩ,100kHz)	Rated Ripple Current(mA,r.m.s)		Size ΦD×L(mm)	Part Number
					105℃<T _x ≤125℃	T _x ≤105℃		
16	1000	300	0.12	12	2060	6400	8×16	PHQ102M016F16□□□□□□
	1500	300	0.12	12	2260	7000	8×20	PHQ152M016F20□□□□□□
	1000	300	0.12	12	1600	5000	10×12.5	PHQ102M016G1B□□□□□□
	1500	300	0.12	12	1840	5700	10×13	PHQ152M016G13□□□□□□
	1800	300	0.12	10	2320	7200	10×16	PHQ182M016G16□□□□□□
	2700	300	0.15	10	2450	7600	10×20	PHQ272M016G20□□□□□□
	3300	300	0.15	10	2530	7600	12.5×17	PHQ332M016H17□□□□□□
	4700	300	0.18	10	2830	8500	12.5×21	PHQ472M016H21□□□□□□
	5600	300	0.18	10	3200	9500	12.5×26	PHQ562M016H26□□□□□□
25	680	300	0.12	15	2030	6300	8×16	PHQ681M025F16□□□□□□
	820	300	0.12	15	2190	6800	8×20	PHQ821M025F20□□□□□□
	680	300	0.12	15	1540	4800	10×12.5	PHQ681M025G1B□□□□□□
	820	300	0.12	12	1800	5600	10×14	PHQ821M025G14□□□□□□
	1000	300	0.12	12	2330	7000	10×16	PHQ102M025G16□□□□□□
	1500	300	0.12	12	2400	7200	10×20	PHQ152M025G20□□□□□□
	1800	300	0.12	12	2480	7200	12.5×17	PHQ182M025H17□□□□□□
	2200	300	0.15	10	2700	8000	12.5×21	PHQ222M025H21□□□□□□
	3300	300	0.15	10	3000	8700	12.5×26	PHQ332M025H26□□□□□□
35	56	100	0.12	40	620	1800	6.3×5	PHQ560M035E05□□□□□□
	100	175	0.12	35	720	2100	6.3×8	PHQ101M035E08□□□□□□
	150	262.5	0.12	26	820	2400	6.3×11	PHQ151M035E11□□□□□□
	220	300	0.12	22	930	2800	6.3×14	PHQ221M035E14□□□□□□
	100	175	0.12	25	890	2600	8×8	PHQ101M035F08□□□□□□
	220	300	0.12	22	930	2800	8×11.5	PHQ221M035F1A□□□□□□

W.V. (V)	Capacitance (μF)	L.C. (μA, 2min)	tgδ (120Hz, 20℃)	ESR (mΩ, 100kHz)	Rated Ripple Current(mA, r.m.s)		Size ΦD×L(mm)	Part Number
					105℃ < T _x ≤ 125℃	T _x ≤ 105℃		
35	330	300	0.12	22	1030	3100	8×13	PHQ331M035F13□□□□□
	470	300	0.12	18	1060	3300	8×16	PHQ471M035F16□□□□□
	560	300	0.12	18	1160	3600	8×20	PHQ561M035F20□□□□□
	330	300	0.12	25	940	2900	10×10	PHQ331M035G10□□□□□
	470	300	0.12	22	1060	3200	10×12.5	PHQ471M035G1B□□□□□
	560	300	0.12	20	1160	3500	10×14	PHQ561M035G14□□□□□
	680	300	0.12	20	1230	3700	10×16	PHQ681M035G16□□□□□
	1000	300	0.12	18	1360	4100	10×20	PHQ102M035G20□□□□□
	560	300	0.12	15	1400	4200	12.5×17	PHQ561M035H17□□□□□
	680	300	0.12	12	1730	5200	12.5×21	PHQ681M035H21□□□□□
50	1000	300	0.12	12	2100	6100	12.5×26	PHQ102M035H26□□□□□
	22	100	0.12	45	580	1700	6.3×5	PHQ220M050E05□□□□□
	47	117.5	0.12	35	690	2000	6.3×8	PHQ470M050E08□□□□□
	56	140	0.12	25	760	2200	6.3×11	PHQ560M050E11□□□□□
	100	250	0.12	22	1200	3500	6.3×14	PHQ101M050E14□□□□□
	56	140	0.12	25	820	2400	8×8	PHQ560M050F08□□□□□
	68	170	0.12	22	890	2600	8×11.5	PHQ680M050F1A□□□□□
	100	250	0.12	20	960	2800	8×13	PHQ101M050F13□□□□□
	150	300	0.12	20	1060	3100	8×16	PHQ151M050F16□□□□□
	220	300	0.12	18	1172	3400	8×20	PHQ221M050F20□□□□□
	100	250	0.12	22	890	2600	10×10	PHQ101M050G10□□□□□
	150	300	0.12	22	960	2800	10×12.5	PHQ151M050G1B□□□□□
	220	300	0.12	20	1060	3100	10×14	PHQ221M050G14□□□□□
	270	300	0.12	20	1170	3400	10×16	PHQ271M050G16□□□□□
	330	300	0.12	18	1310	3800	10×20	PHQ331M050G20□□□□□
	470	300	0.12	18	1350	3800	12.5×17	PHQ471M050H17□□□□□
	560	300	0.15	15	1500	4200	12.5×21	PHQ561M050H21□□□□□
	820	300	0.15	15	1640	4600	12.5×26	PHQ821M050H26□□□□□
63	10	100	0.12	45	580	1700	6.3×5	PHQ100M063E05□□□□□
	22	100	0.12	35	690	2000	6.3×8	PHQ220M063E08□□□□□
	33	104	0.12	25	760	2200	6.3×11	PHQ330M063E11□□□□□
	47	148	0.12	22	1200	3500	6.3×14	PHQ470M063E14□□□□□
	47	148	0.12	25	820	2400	8×8	PHQ470M063F08□□□□□
	56	176	0.12	22	890	2600	8×11.5	PHQ560M063F1A□□□□□
	68	214	0.12	20	960	2800	8×13	PHQ680M063F13□□□□□
	82	258	0.12	20	1060	3100	8×16	PHQ820M063F16□□□□□
	100	300	0.12	18	1172	3400	8×20	PHQ101M063F20□□□□□
	56	176	0.12	22	890	2600	10×10	PHQ560M063G10□□□□□
	100	300	0.12	22	960	2800	10×12.5	PHQ101M063G1B□□□□□
	120	300	0.12	20	1060	3100	10×14	PHQ121M063G14□□□□□
	180	300	0.12	20	1170	3400	10×16	PHQ181M063G16□□□□□
	220	300	0.12	18	1310	3800	10×20	PHQ221M063G20□□□□□
	270	300	0.12	18	1350	3800	12.5×17	PHQ271M063H17□□□□□
	330	300	0.15	15	1500	4200	12.5×21	PHQ331M063H21□□□□□
	470	300	0.15	15	1640	4600	12.5×26	PHQ471M063H26□□□□□

* For the last 6 digits of the part number, please refer to the part number system on page 125.

✧ Frequency Coefficient for Ripple Current

Frequency	120Hz≤freq.<1KHz	1KHz≤freq.<10KHz	10KHz≤freq.<50KHz	50KHz≤freq.<100KHz	100KHz≤freq.<300KHz
Coefficient (C≤1000μF)	0.05	0.3	0.7	0.85	1
Coefficient (3000μF≥C>1000μF)	0.1	0.33	0.85	1	1
Coefficient (C>3000μF)	0.12	0.35	1	1	1