

锂碳电容器
 Lithium Carbon Capacitors

■ 产品一览表
 Series Table

系列 Series	特性 Features	温度范围 Temp. Range		容量 Capacitance	最大工作电压 Max. Operating Voltage	套管颜色 Sleeve Color	印字颜色 Letter Color
		Min.	Max.				
ZCC	高能量 High Energy 低自放电Low Self-discharge	-30℃	+65℃	7~5000F	3.8 V.DC	黄色 Yellow	黑色 Black
ZFC	高倍率 High Rate 低自放电Low Self-discharge	-30℃	+65℃	5500F	3.8 V.DC	无 NO	黑色 Black
ZFC	高能量 High Energy 低自放电Low Self-discharge	-30℃	+65℃	7200~10000F	4.2 V.DC	无 NO	黑色 Black

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锂碳电容器
 Lithium Carbon Capacitors

■ 特性
 Features

- 可用作充电电池及后备电源。
 Can be used as a rechargeable battery and ideal for backing up purpose.
- 具备数万万次充电/放电循环次数，免却废物处理。
 Capable of fifty of thousands of charge/discharge cycles; free from throwaway disposal.
- 不含有毒材料，如镍及镉。
 Does not contain toxic materials such as nickel and cadmium.

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系列 Series	特性 Features	温度范围 Temp. Range		容量 Capacitance	最大工作电压 Max. Operating Voltage	套管颜色 Sleeve Color	印字颜色 Letter Color	产品图片 Product Photo	页面 Page
		Min.	Max.						
ZCC	高能量密度 Higher Energy Density 低自放电 Low Self-discharge	-30℃	+65℃	7~5000F	3.8 V.DC	黄色 Yellow	黑色 Black	图片	P.**
ZFC	高倍率 High Rate 低自放电 Low Self-discharge	-30℃	+65℃	5500F	3.8 V.DC	无 NO	黑色 Black	图片	P.**
ZFC	高能量 High Energy 低自放电 Low Self-discharge	-30℃	+65℃	7200~10000F	4.2 V.DC	无 NO	黑色 Black	图片	P.**

■产品编码
 Part Number System

※第一部分
 Part 1

1 2 3			4 5 6			7		8 9		10		11 12		13 14			
□□□			□□□			□		□□		□		□□		□□			
ZCC			106			M		0Y		F		16		RR			
系列 Series			容量 Capacitance			公差 Tolerance		电压 Voltage		铝壳直径 Case Dia.		铝壳长度 Case Length				成型类型 Type	
系列 Series	容量 Cap. (F)	代码 Code	公差 Tol. (%)	代码 Code	电压 Vol. (V)	代码 Code	直径 Dia. (mm)	代码 Code	长度 Len. (mm)	代码 Code	特征 Feature	代码 Code					
ZCC	7	705	±20	M	3.8	0Y	6.3	E	11	11	导针型散装 Radial Bulk	RR					
	10	106	-20~+50	S	4.2	0M	8.0	F	16	16	自立型 Snap-in	W4					
	30	306	-10~+20	V			10.0	G	16	25	软包型 Laminate	L3					
	70	706	-10~+75	U			10.0	G	25	25							
	120	127					12.5	I	25	25							
	180	187					12.5	I	35	35							
	220	227					16.0	K	25	25							
	500	507					18.0	L	40	40							
	1000	108					18.0	L	60	60							
	5000	508					35.0	Q	70	70							

锂碳电容器
 Lithium Carbon Capacitors

■产品编码
 Part Number System

※第二部分
 Part 2

1 2 3			4 5 6			7	8 9		10	11 12		13 14	
□□□			□□□			□	□□		□	□□		□□	
ZCC			106			M	0Y		F	16		RR	
系列 Series	容量 Capacitance		公差 Tolerance		电压 Voltage		铝壳直径 Case Dia.		铝壳长度 Case Length		成型类型 Type		
系列 Series	容量 Cap. (F)	代码 Code	公差 Tol. (%)	代码 Code	电压 Vol. (V)	代码 Code	厚度 Dia. (mm)	代码 Code	长度 * 宽度 Length×Width (mm)	代码 Code	特征 Feature	代码 Code	
ZFC	5500	558	-20~+50	S	3.8	0Y	10.0	10	140 ×65	D	软包散装 Laminate Bulk	L3	
ZFC	7200	728	-20~+50	S	4.2	0M	10.0	10	140 ×65	D	软包散装 Laminate Bulk	L3	
ZFC	10000	109	-20~+50	S	4.2	0M	10.0	10	140 ×65	D	软包散装 Laminate Bulk	L3	

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锂碳电容器
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ZCC、ZFC 系列
 Series

特性
 Features

● 高能量密度 (10倍于2.5V/2.7V 超级电容器)

Higher Energy Density (2 times of 2.5V/2.7V EDLC)

● 极低的自放电 (3个月电压降小于5%)

Extremely low self-discharge (3 months voltage drop is less than 5%)

● 快速充电/放电

Quick Charge & Discharge

● 符合RoHS无铅要求

RoHS Directive Compliant

推荐应用领域
 Recommended Applications

● 消费类电器
 Consumer Electronics

● 工业与汽车
 Industrial and Automation

● 短期UPS (不间断电源)
 Short Term UPS(Uninterruptible Power Supply)

● 新能源储能系统
 Renewable Energy Storage Systems

● 便携式电源工具
 Portable Power Tools

● 智能仪表 (电表/水表/气表)
 Smart Meter

● 传感器网络
 Sensor Network

规格
 Specifications

项目 Item	性能 Performance Characteristics	
温度 Temperature		
工作温度范围 Operating Temperature Range	-30℃ to +65℃	
容量 Capacitance		
容量范围 Nominal Capacitance Range	7F to 5500F	
容量公差 Capacitance Tolerance	±20% or -20%~+50%等	
电压 Voltage		
额定电压 Rated Voltage	3.8 V.DC	
浪涌电压 Surge Voltage	4.2 V.DC	
最大工作电压 Maximum Operating Voltage	3.8 V.DC	
最小工作电压 Minimum Operating Voltage	2.2 V.DC	
阻抗 Resistance		
直流等值阻抗 ESR, DC	参见附件电性能列表 (表1) Please see the attached characteristics list (Table 1)	
交流等值阻抗 ESR, AC	参见附件电性能列表 (1kHz/20℃) (表1) Please see the attached characteristics list (1kHz/20℃) (Table 1)	
寿命 Lifespan		
贮存寿命 Shelf Life	+65℃下无负荷贮存1000小时后电容器符合规定的限值 After 1000 hours storage at +65℃ without load, the capacitor shall meet the specified limits for endurance.	
耐用性 Endurance	+65℃下采用额定电压1000小时后电容器符合以下限定值 After 1000 hours application of rated voltage at +65℃, the capacitor shall meet the following limits.	
	容量变化 Capacitance Change	初始测试值的±30% ±30% of initial measured value
	内阻 Internal Resistance	≤初始值的4倍 ≤4 times of initial specified value
高低温性能 Temperature characteristic		
高低温性能 Temperature characteristic	+65℃和-30℃电容器符合以下限定值 Capacitors shall meet the following limits when it was storage in +65℃ or -30℃.	
	容量变化 Capacitance Change	-30℃ 初始测试值的±50% ±50% of initial measured value +65℃ 初始测试值的±30% ±65% of initial measured value
	内阻 Internal Resistance	-30℃≤初始值的4倍 ≤4 times of initial specified value +65℃≤规格值 ±65%≤ limit of specification value
循环次数 Cycles		
循环次数 Cycles	+25℃下在额定电压3.8V和下限电压2.5V之间恒流充放电循环次数 (50,000次) Capacitors cycles between specified voltage 3.8V and rated voltage 2.5V under constant current at +25℃ (50,000 cycles)	
	容量变化 Capacitance Change	初始测试值的±30% ±30% of initial measured value
	内阻 Internal Resistance	≤初始值的4倍 ≤4 times of initial specified value

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锂碳电容器
 Lithium Carbon Capacitors

ZFC 系列
 Series

■ 特性
 Features

- 高能量密度 (10倍于2.5V/2.7V 超级电容器)
 Higher Energy Density (2 times of 2.5V/2.7V EDLC)
 ● 极低的自放电 (3个月电压降小于5%)
 Extremely low self-discharge (3 months voltage drop is less than 5%)
 ● 快速充电/放电
 Quick Charge & Discharge
 ● 符合RoHS无铅要求
 RoHS Directive Compliant

■ 推荐应用领域
 Recommended Applications

- 消费类电器 Consumer Electronics
 ● 工业与汽车 Industrial and Automation
 ● 短期UPS (不间断电源) Short Term UPS(Uninterruptible Power Supply)
 ● 新能源储能系统Renewable Energy Storage Systems
 ● 便携式电源工具 Portable Power Tools
 ● 智能仪表 (电表/水表/气表) Smart Meter
 ● 传感器网络 Sensor Network

■ 规格
 Specifications

项目 Item	性能 Performance Characteristics	
温度 Temperature		
工作温度范围 Operating Temperature Range	-30℃ to +65℃	
容量 Capacitance		
容量范围 Nominal Capacitance Range	7200F to10000F	
容量公差 Capacitance Tolerance	±20% or -20%~+50%等	
电压 Voltage		
额定电压 Rated Voltage	4.2 V.DC	
浪涌电压 Surge Voltage	4.2 V.DC	
最大工作电压 Maximum Operating Voltage	4.2 V.DC	
最小工作电压 Minimum Operating Voltage	2.2 V.DC	
阻抗 Resistance		
直流等值阻抗 ESR, DC	参见附件电性能列表 (表2) Please see the attached characteristics list (Table 2)	
交流等值阻抗 ESR, AC	参见附件电性能列表 (1kHz/20℃) (表2) Please see the attached characteristics list (1kHz/20℃) (Table 2)	
寿命 Lifespan		
贮存寿命 Shelf Life	+65℃下无负荷贮存1000小时后电容器符合规定的限值 After 1000 hours storage at +65℃ without load, the capacitor shall meet the specified limits for endurance.	
耐用性 Endurance	+65℃下采用额定电压1000小时后电容器符合以下限定值 After 1000 hours application of rated voltage at +65℃, the capacitor shall meet the following limits.	
	容量变化 Capacitance Change	初始测试值的±30% ±30% of initial measured value
	内阻 Internal Resistance	≤初始值的4倍 ≤4 times of initial specified value
高低温性能 Temperature characteristic		
高低温性能 Temperature characteristic	+65℃和-30℃电容器符合以下限定值 Capacitors shall meet the following limits when it was storage in +65℃ or -30℃.	
	容量变化 Capacitance Change	-30℃初始测试值的±50% ±50% of initial measured value +65℃初始测试值的±30% ±65% of initial measured value
	内阻 Internal Resistance	-30℃≤初始值的4倍 ≤4 times of initial specified value +65℃≤规格值 ±65%≤ limit of specification value
循环次数 Cycles		
循环次数 Cycles	+25℃下在额定电压4.2V和下限电压2.5V之间恒流充放电循环次数 (10,000次) Capacitors cycles between specified voltage 3.8V and rated voltage 2.5V under constant current at +25℃ (10,000 cycles)	
	容量变化 Capacitance Change	初始测试值的±30% ±30% of initial measured value
	内阻 Internal Resistance	≤初始值的4倍 ≤4 times of initial specified value

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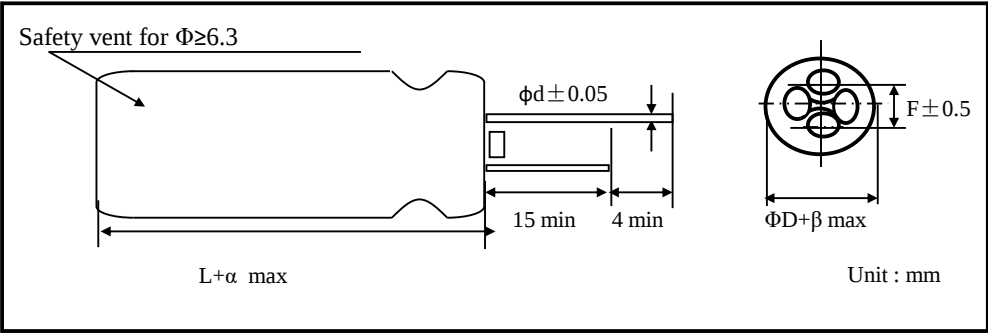
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 Lithium Carbon Capacitors

ZCC 系列
 Series

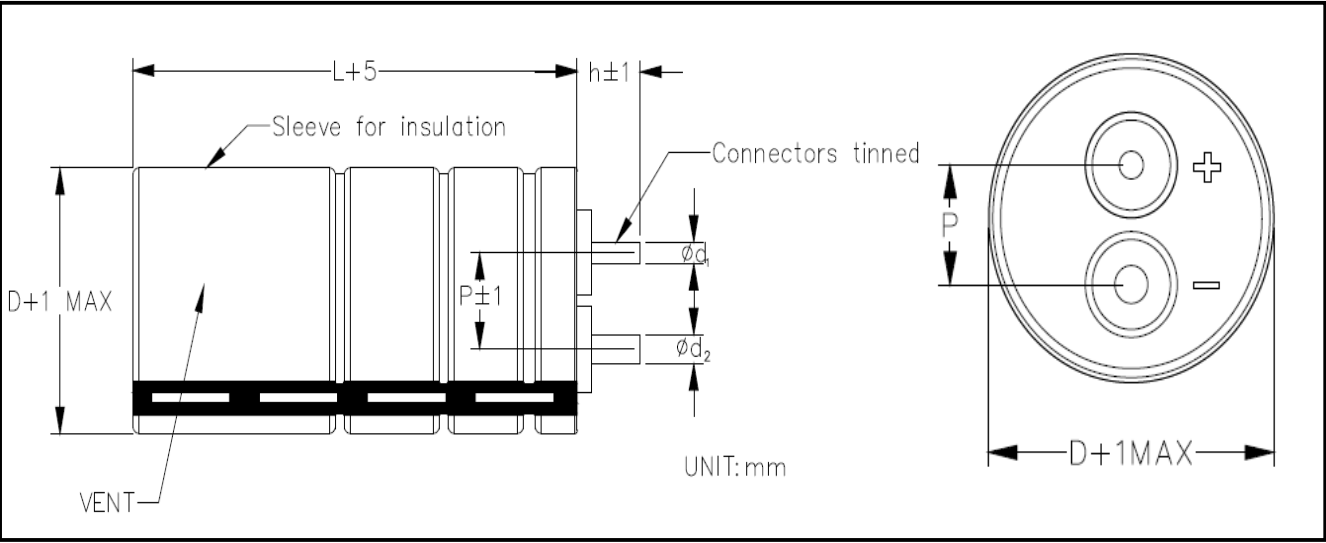
壳号尺寸表
 Case Size Table

端子
 Terminal: RR



ΦD	6.3	8	10	12.5	16	18
F	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.6	0.6	0.8	0.8
α	$(L < 20) 1.5$			$(L \geq 20) 2.0$		
β	$(D < 20) 0.5$			$(D \geq 20) 1.0$		

端子
 Terminal: AE



ΦD	35
L	70
P	12.7
h	6
Φd_1	4
Φd_2	5

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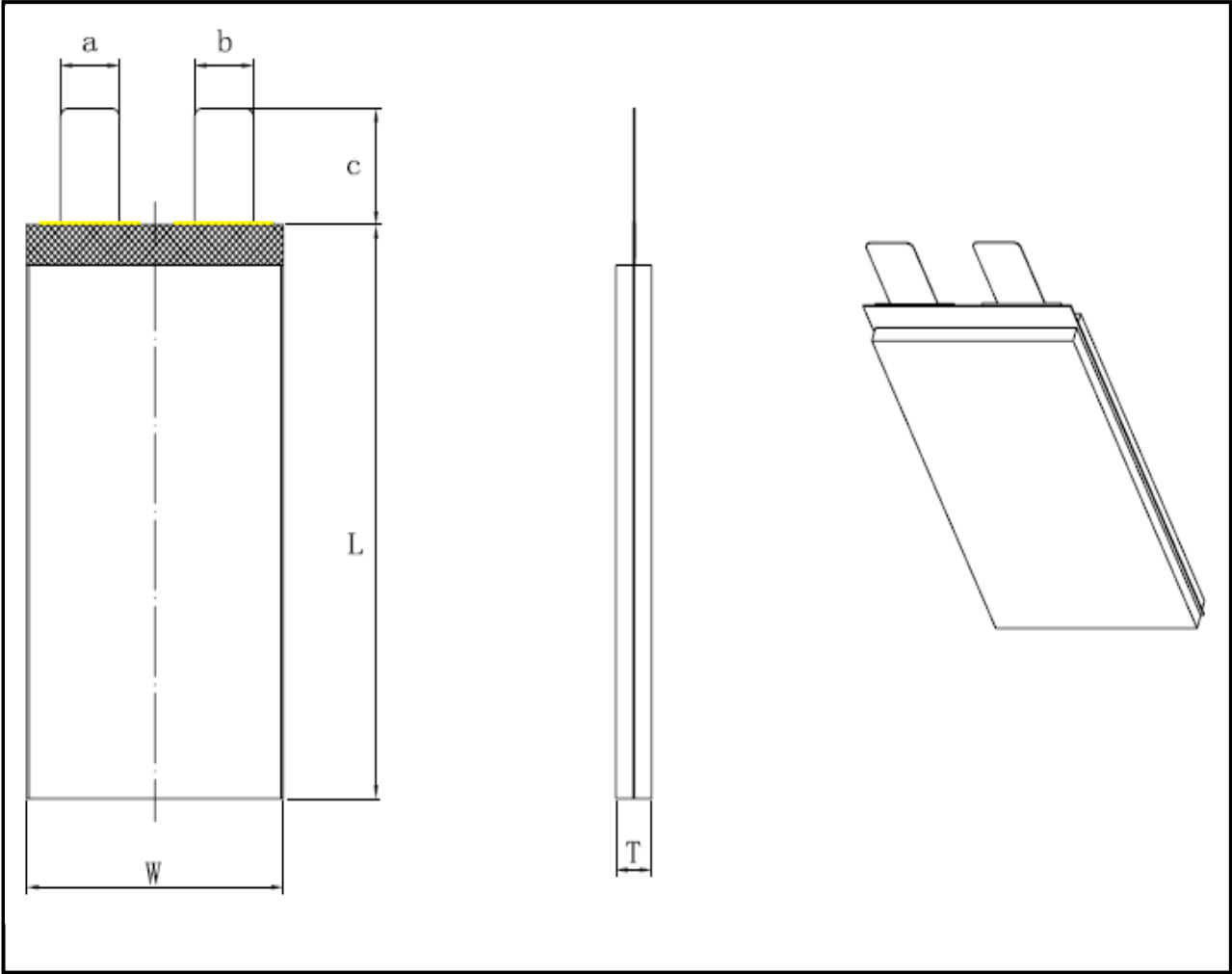
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锂碳电容器
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ZFC 系列
 Series

■ 壳号尺寸表
 Case Size Table

端子
 Terminal: L3



Items	Description	Spec	Remark
T	Cell Thickness (Fresh)	11.0mm max	Tested by 680g of PPG
	Cell Thickness (After Cycle)	12.0mm max	
W	Cell Width	65.0±2mm	
L	Cell Length	130.0±2mm	Only body
a、b	Tab Width	15.0±0.3mm	
c	Tab Exposure Length	25.0±0.5mm	
/	Sealant Exposure Length	0.2~2.0mm	

锂碳电容器
 Lithium Carbon Capacitors

ZCC系列
 Series

■ 电性能列表
 Characteristics List

● 表1
 Table 1

产品编码 Part Number	额定电压 Rated Voltage (V.DC)	额定容量 Rated Cap. (F)	尺寸 Size 直径x长度 ΦD×L (mm)	直流等值阻抗 ESR, DC (mΩ) (max)	交流等值阻抗 ESR, AC (mΩ) (max) at 1kHz/20℃	漏电流 Leakage Current (mA /72hrs)	短路电流Short Circuit Current(A)
ZCC138S0YL60RR	3.8	7	6.3x11	1500	800	0.010	2.53
ZCC106S0YF16RR	3.8	10	8x16	1200	600	0.015	3.17
ZCC306S0YG16RR	3.8	30	10x16	400	200	0.020	9.50
ZCC706S0YG25RR	3.8	70	10x25	200	100	0.050	19.00
ZCC127S0YI25RR	3.8	120	12.5x25	120	80	0.080	31.67
ZCC187S0YI35RR	3.8	180	12.5x35	105	70	0.100	36.19
ZCC227S0YK25RR	3.8	220	16x25	90	60	0.150	42.22
ZCC507S0YL40RR	3.8	500	18x40	50	35	0.500	76.00
ZCC108S0YL60RR	3.8	1000	18x60	35	20	0.400	108.57
ZCC508S0MQ70W4	4.2	5000	35x70	4	3	2.000	1050.00

ZFC系列
 Series

■ 电性能列表
 Characteristics List

● 表2
 Table 2

产品编码 Part Number	额定电压 Rated Voltage (V.DC)	额定容量 Rated Cap. (F)	尺寸 Size 直径x长度 W×L×H (mm)	直流等值阻抗 ESR, DC (mΩ) (max)	交流等值阻抗 ESR, AC (mΩ) (max) at 1kHz/20℃	漏电流 Leakage Current (mA /72hrs)	短路电流Short Circuit Current(A)
ZFC558S0YD10L3	3.8	5500	130×65×10	3	1.5	1.000	1266.67
ZFC728S0MD10L3	4.2	7200	130×65×10	3	1.5	2.000	1400.00
ZFC109S0MD10L3	4.2	10000	130×65×10	4	1.8	2.000	1050.00

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锂碳电容器
 Lithium Carbon Capacitors

ZCC ZFC系列
 Series

电性能列表
 Characteristics List

表3
 Table 3

额定容量 Rated Capacitance (F)	7	10	30	70	120	180	220	500	1000	5000	5500	7200	11600
尺寸 Size 直径x长度 ΦD×L (mm)	6.3x11	8×16	10×16	10x25	12.5x25	12.5x35	16x25	18x40	18x60	35x70	130x65x10	130x65x10	130x65x10
质量能量密度 Energy Density 最高能量值 Emax (Wh/kg)	10.6	8.8	13.7	17.7	21.0	23.3	25.0	28.4	42.1	63.3	49.3	89.7	126.6
功率密度 Power Density(W/kg)	1540.3	1332.9	2310.4	2406.7	2221.5	1875.3	1925.3	1732.8	1833.7	4233.6	4548.0	5555.9	3649.7
体积能量密度 Energy Density 最高能量值 Emax (Wh/L)	23.2	14.2	27.2	40.6	44.5	47.7	49.8	55.9	74.5	111.2	81.8	149.0	224.1
最大容量 Maximum Capacity 最大容量值 Cmax (mAh)	2.53	3.61	10.83	25.28	43.33	65.00	79.44	180.56	361.11	2361.11	1986.11	3400.00	5477.78
最大放电电流Maximum Discharge curerent(A)	0.03	0.04	0.11	0.25	0.43	0.65	0.79	1.81	3.61	23.61	19.86	34.00	54.78
最大峰值电流 Maximum Peak Curerent(pulse 1sec) (A)	0.13	0.18	0.54	1.26	2.17	3.25	3.97	9.03	18.06	118.06	99.31	170.00	273.89
最大充电电流 Charge max current(A)	0.05	0.07	0.22	0.51	0.87	1.30	1.59	3.61	7.22	47.22	39.72	68.00	109.56

* High Pd(W/kg) and Energy Density (Emas(Wh/kg))

其它技术信息
 Additional Technical Information

Ic=25℃下72小时后的漏电流

R_{DC}=直流内阻 (DC)

Ic=leakage current after 72 hours at 25℃

R_{DC}=internal resistance (DC)

Isc=短路电流

M=电容器总重 (kg)

Isc=short circuit current

M=capacitor mass (kg)

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