



Product Data Sheet for Approval

Preliminary

Date of Issue: Apr.08th.2022

Edition: 01

客户 To: Lanhai Huateng (V&T)

产品描述 Product Description: 金属化聚丙烯薄膜 PEC LP 直流电容器 1100 μ F/10%/800V.
Metallized PP Film PEC LP Capacitors 1100 μ F/10%/800V

客户物料编码 Customer Part Number:

产品编码 Product Part Number: C350A801118K0001

应用 Applications: 工业、太阳能、风能和汽车混合动力或电动汽车(xEV)的 DC Link(支持)应用。 DC Link (supporting) applications of Industrial, Solar Power, Wind Power and Automotive Hybrid or Electrical Vehicles (xEV).

审批日期 Approval Date:

审批人 Approved by:

(签名 Signature)

职位 Title:

部门 Department:

我们恳请您在确认并签字批准此规格书后退回此封面页。We kindly ask for returning this cover sheet with your confirmation and approval of this specification

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应用 Applications:

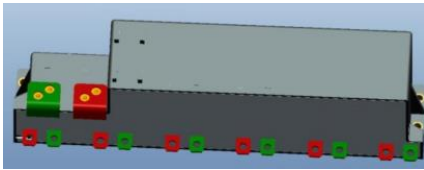
DC Link(支持)逆变器应用的工业、太阳能、风能和汽车混合动力或电动汽车(xEV)。DC Link (supporting) Inverter applications of Industrial, Solar Power, Wind Power and Automotive Hybrid or Electrical Vehicles (xEV).

参考标准 Reference Standards:

IEC /EN 61071 (2007), GB/T 17702-2013, IEC 60068-2, UL 94 and AEC-Q200D

结构 Construction

- 介质 Dielectric 聚丙烯薄膜高温 Polypropylene film high temperature
- 电极 Electrode 金属化膜(自愈性能) Metallized film (self-healing properties)
- 芯子 Winding 卷绕技术(无感型) Wound technology (Non inductive type)
- 塑壳 Plastic Case PPS+40% GF, 符合 UL 94 V0 标准 PPS+40% GF, UL 94 V0 compliant
- 内嵌环 Insert ring 铜 CuZn39Pb3 或 SPCC 钢 Brass CuZn39Pb3 or SPCC Steel
- 灌封树脂 Filling Resin 环氧树脂, 符合 UL94 V0 标准 Epoxy resin, UL94 V0 compliant
- 母排端子 Bus-bar Terminals 铜 T2(无氧) -镀有 2.5 ~ 8 微米厚的纯锡 Copper T2 (oxygen Free) - Platted with pure Tin thickness 2.5 ~ 8μm
- RoHS 兼容指令 2011/65/EU 和(EU)2015/863 Compatible with directive 2011/65/EU and (EU)2015/863



图片仅供参考 Drawing just for reference

电气技术规范 Electrical Technical Specification

- | | | |
|-------------------------------|------------------|--|
| • 容量 Capacitance | C_R | 1100 μF; Y2 : 2 x 0.33μF/300Vac |
| • 容量公差 Capacitance Tolerance | Tol. | ±110 % |
| • 额定电压 Rated Voltage | V_R (Vdc) | 800 V |
| • 最大直流电压 DC Maximum Voltage | Vdc (max) | 880Vdc (30% on-load duration)
920Vdc (30 min./day)
960Vdc (5 min./day)
1040Vdc (1 min./day) |
| • 额定存储能量 Rated Storage Energy | W_R | 352 Ws |
| • 最大纹波电流 Max. Ripple Current | $I_{RMS} (MAX)$ | 240A @ 85°C, 10kHz
350A @ 85°C, 10kHz, 60s
320A @ 70°C, 10kHz
400A @ 70°C, 10kHz, 60s
350A @ 55°C, 10kHz
420A @ 55°C, 10kHz |

We reserve the right to make technical changes without prior notice to improve reliability, function or design or otherwise.



• Max. Current	$I_{(MAX)}$	400 A at 10kHz @ 85°C
• 峰值电流 Peak Current	I_P	9240 A
• 电压增长率 Rate of Voltage Rise.	$(dV/dt)_{max.}$	8.4 V/ μ s
• 100Hz 时的损耗系数 Dissipation Factor at 100Hz	$Tan \delta$	$\leq 8 \times 10^{-4}$
• 等效串联电阻 Equivalent Series Resistance ⁽²⁾	ESR	$\leq 0.4m\Omega$ at 10kHz
• 等效串联电感 ⁽³⁾ Equivalent Self-Inductance ⁽³⁾	ESL	≤ 15 nH
• 500V (60s)、RH \leq 65%时的绝缘电阻 Insulation Resistance at 500V (60s)and RH \leq 65%	R_{ins}	$> 50M\Omega$
• Y2 Capacitor Insulation Resistance at 500V(60s) Y2 电容器 500V 时绝缘电阻(60s)		$> 500M\Omega$

可靠性规范 Reliability Specification

• 预期寿命（负载持续时间）Life expectancy (load duration)	t_{LD}	100.000h at V_R @ $T_{HS(max)} = 55^\circ C$
• 故障率 Failure rate (FIT)	λ	100 FIT ⁽¹⁾
• 寿命结束标准 End of life criteria		$\Delta C/C \geq 5\%$

热特性 Thermal Characteristics

气候类别按 IEC 60068-1. Climatic category as per IEC 60068-1		40/105/56
• 工作温度范围 Operating temperature range		
- 上限类别温度 Upper category temperature	T_{MAX}	+105 °C
- 下限类别温度 Lower category temperature	T_{MIN}	- 40 °C
- 最大运行温度 Max. operating temperature	$T_{HS(MAX)}$	+105 °C
• 储存条件 Storage conditions		
- 温度 Temperature	$T_{ST} (^\circ C)$	-40 to +105 °C
- 最大相对湿度 Maximum relative humidity RH (%)		Avr. $\leq 70\%$ (一年内最多 30 天 $\leq 85\%$)。 $\leq 70\%$ ($\leq 85\%$ for max. 30 days during the Year). 无露点 Without dew
- 储存时间 Storage time		从包装标签上的日期起，最多 36 个月。 Max. 36 months from the date of packaging label.
• 热阻 Thermal Resistance	R_{th}	$< 0.65^\circ C/W$

电气常规检测 Electrical Routine Tests ⁽²⁾

• 端子间测试电压 Test voltage between terminals	V_{TT}	1200Vdc (1.5V _R) at 10s - 漏电流 leakage current $< 5mA$
• Test voltage between terminals and Case	V_{TC}	3000Vac (50Hz) at 60s - 漏电流 leakage current $< 1mA$

(1) - F.I.T. - 每 10 亿个部件小时的故障时间($1.10^{-9}/h$). Failures in Time per billion component hours ($1.10^{-9}/h$)

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(2) - 100%分选试验 . 100% screening test

电容器产品编码说明 Explanation of Capacitor Part Number

C350A801118K0001

C350A - 电容器系列 Capacitor Series - PEC DC LP

801 - 额定电压 Rated Voltage: 800Vdc

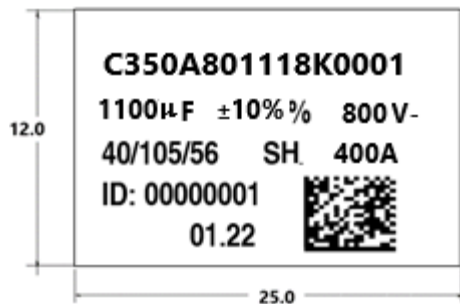
801118K0 - 容量 Capacitance = 1100 μ F

K : 公差 Tolerance: \pm 10%

001 - 带有母排端子的塑壳

001 - Plastic Case with busbar terminals

电容标记 Capacitor Marking (Labeling)



C350A801118K0001	碧彩产品编码 Bicai Product Code
1100 μ F	容量 Capacitance
\pm 10%	容量公差 Capacitance Tolerance
800V-	Rated Voltage 800Vdc
40/105/56	气候类别按 IEC 60068-1 Climatic Category as per IEC 60068-1
SH	金属化膜(自愈) Metallized film (Self-healing)
400A	最大电流 Maximum current
ID 000000001	生产序列号 Production serial number
01.22	生产月(01)年(22) Month (01) Month and (22) Year of manufacture
	二维码 Data matrix code: 客户 P/N, 碧彩 批号, 生产序列号 Customer P/N, Bicai Batch nr., production serial number

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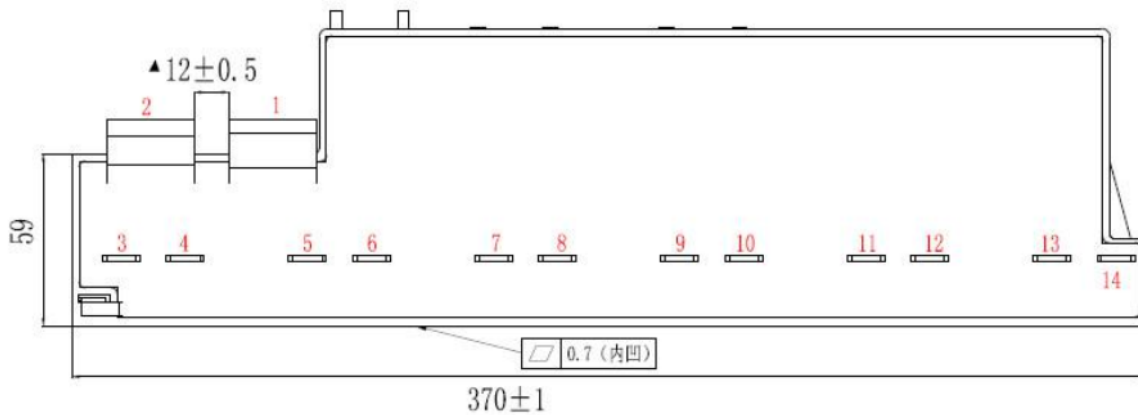
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Capacitor Marking Injected on Plastic Case (position refer to drawing)

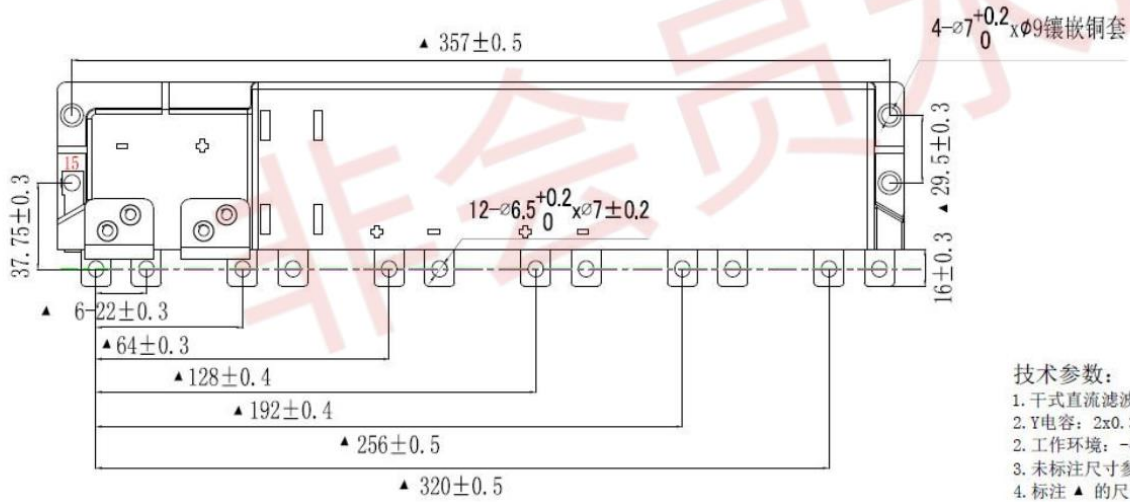
塑料外壳上的电容标记(位置参照图纸)

	Manufacture's logo
PEC DC LP	电力电子聚丙烯金属化电容器 dc 低功耗 Power Electronic Polypropylene Metallized Film Capacitor DC Low Power
Case PPS 材质 PPS	Raw material of plastic case 外壳原料
Resin Epoxy 环氧树脂	Resin filling raw material 灌注原料
Made in China 中国制造	Country of origin 原产地
	

电容器尺寸图 Capacitor drawing with dimensions

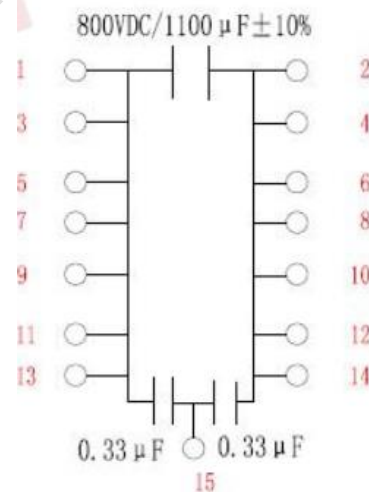
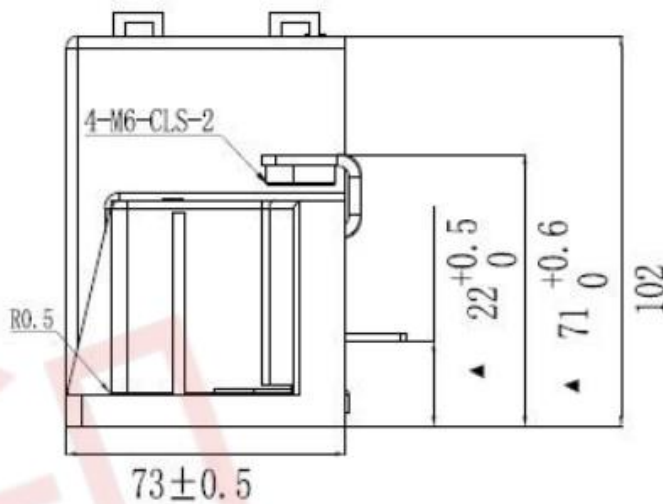


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技术参数:

1. 干式直流滤波电容器
2. Y电容: $2 \times 0.33 \mu F$
3. 工作环境: $-40^{\circ}C \sim 110^{\circ}C$
4. 未标注尺寸参照3D模型
4. 标注 ▲ 的尺寸为重



端子间电气间隙及爬电距离(母排)

Electrical Clearance and Creepage Distance between terminals (busbar)

间隙 Clearance	$\geq 4mm$
爬电 Creepage	$\geq 4mm$

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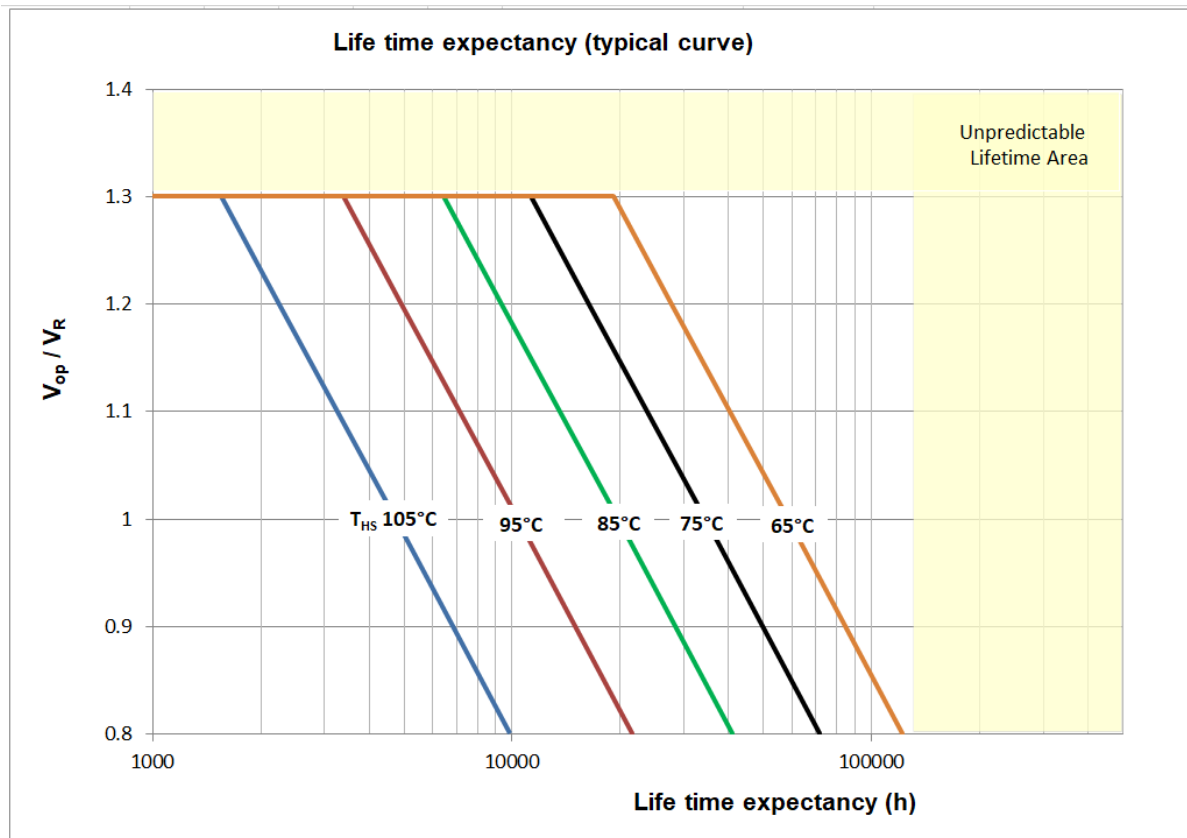
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Symbols and Terms 符号和术语:

Symbol 符号	English 英文	Chinese 中文
C_R	Rated capacitance	额定电容
V_R	Rated Voltage	额定电压
V_{OP}	Voltage of operation (working)	运行电压
V_{DC}	DC Voltage	直流电压
W_R	$0,5 \times C_R \times V_R^2$ Rated stored energy	$0.5 \times C_R \times V_R^2$ 额定储能
I_{max}	Maximum capacitor current for continuous operation	连续工作时的最大电容电流
I_{DC}	Maximum DC input current for continuous operation	连续工作时的最大直流输入电流
ESL	Equivalent Self-Inductance of Stray inductance, measured using the resonant method $1 / (4 * \pi^2)$	杂散电感的等效自感, 用谐振法测得 1

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Metallized Polypropylene Film PEC LP Capacitors

C350A801118K0001

Customer: Lanhai Huateng (V&T)



DATA SHEET

数据表

Series C350

	$*f_{res}^2 * C_R(120Hz)$	$/(4*\pi^2 * f_{res}^2 * C_R(120Hz))$
ESR	Equivalent series resistance, measured at 10kHz	等效串联电阻; 10kHz
tan δ	Maximum dissipation factor of the capacitor measured at specified frequency	在指定频率下测量的电容器的最大耗散系数
V_{max}	V _R + peak voltage transient = Maximum voltage	V _R + 暂态峰值电压=最大电压
V_s	Non recurrent surge voltage	非反复浪涌电压
I_p	Max. current transient amplitude during continuous operation	Max. 连续工作时的电流暂态幅值
I_s	Admissible peak current transient for a limited number of time (typical value: 1000 times during operation time)	有限时间内的允许峰值电流瞬变(代表值:工作时间 1000 次)
(dV/dt)_{max}	I _p / C _R = Rate of voltage rise	I _p / C _R =电压上升率
(dV/dt)_s	I _s / C _R = Rate of voltage rise	I _s / C _R =电压上升率
V_{TT}	Test voltage for capacitor, applied between terminal and terminal	电容器的测试电压, 施加在端子和端子之间
V_{TC}	Test voltage for capacitor, applied between terminal and case	测试电容器的电压, 施加在端子和外壳之间
R_{ins}	Insulation resistance of the capacitor (terminal - terminal), measured at 100V	电容器的绝缘电阻(端子-端子), 在 100V 的条件下测量
T_{min}	Lowest permitted ambient working temperature	允许的最低环境工作温度
T_{max}	Highest permitted ambient working temperature	允许的最高环境工作温度
T_a	Ambient temperature where the capacitor is installed	电容应用场景的环境温度
T_{OP}	Operating temperature T _a +	工作温度 T _a
T_{HS}	Capacitor hot spot temperature	电容器热点温度
T_{ST}	Storage Temperature	储存温度
F_T	Derating factor	降额因子
t_{LD}	Load duration for mix of inverter and charging operation	逆变器和充电混合运行负载持续时间
λ	Failure rate (FIT)	失败率 (FIT)

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Z	Impedance	阻抗
f	Frequency	频率

提醒和警告 **Reminder and Warning**

- 由于电力电容器是电能储存装置，因此在使用时必须始终保持谨慎。即使在相对较长一段时间被关闭后，它们仍可能带有致命的高压。为防止任何可能发生的点击事故，在处理前对电容器进行放电和短路。确保电容器外壳接地良好、有效。电容器的端子、连接的母线、电缆以及其他设备的端子也可能带电。As power capacitors are electrical energy storage devices, caution must always be exercised when using them. Even after being shut down for a relatively long period of time, they can carry deadly high voltage. To prevent any possible accidents, discharge and short circuit the capacitor before handling. Make sure capacitor case is well grounded and effective. Terminals of capacitors, connected busbars, cables and other equipment may also be live.

- 电容器不得在腐蚀性环境中储存或操作，特别是当存在氯化物，硫化物，酸，碱，盐，有机溶剂或类似物质时。在易受灰尘和污垢影响的环境中，定期检查和维护（尤其是端子和绝缘体）是绝对必要的，以防止在带电部件和/或保护导体/接地之间产生爬电距离。Capacitors should not be stored or operated in a corrosive environment, especially in the presence of chlorides, sulfides, acids, bases, salts, organic solvents or similar substances. In environments susceptible to dust and dirt, regular inspection and maintenance (especially of terminals and insulators) is absolutely essential to prevent creepage distances between live parts and/or protect conductors/ground.

- 必须遵守数据表中规定的最高温度，电压，电流，功率，热阻，频率，放电时间和开关频率。必须遵守规定的电气连接和紧固件扭矩。机械或电气损坏，泄漏或以其他方式损坏的电容器可能无法使用或继续使用。电容器的现有保护装置的功能不能被操纵，移除或损坏。Must comply with the maximum temperature, voltage, current, power, thermal resistance, frequency, discharge time and switching frequency specified in the data sheet. The specified electrical connections and fastener torques must be complied with. Capacitors that are mechanically or electrically damaged,

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leak or otherwise damaged may not be usable or continue to be used. The function of the existing protection device of the capacitor cannot be manipulated, removed or damaged.

如果产品将用于下列应用或需要超出本数据表中定义的技术规格的特殊要求，我们建议用户提前与我们联系。 We recommend that the user contact us in advance if the product will be used on listed below applications or need special requirements that exceed the technical specification defined in this Data Sheet:

- 1) 航天/航空设备. Aerospace /Aviation equipment
- 2) 医疗设备. Medical equipment
- 3) 原子能相关设备. Atomic energy-related equipment.
- 4) 军事装备. Military equipment.
- 5) 其他不被视为通用应用的类似应用。 Other similar application that are not considered general-purpose applications.

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Some sections of this document contain statements about the applicability of our products in certain application areas. These statements are based on our knowledge of the typical requirements common to our products in relevant application areas. However, we make it clear that such statements cannot be regarded as binding statements regarding the suitability of our products for specific customer applications. Often, Bicai is not as familiar with individual customer applications as the customer is with them. For these reasons, it is the end user's responsibility to check and determine whether a Bicai product with the attributes described in the product specification is suitable for use in a particular customer application.

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