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  『AV设备，OA设备，家电及办公设备，信息/通讯设备（手机，电脑等）』
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硬币型Polyacene电容器

回流焊

特点

- 大容量·高可靠性
  由于Polyacene电容器可以在其非晶子结构中存储大量的离子(涂料)，因此和以往的二元电容比较拥有更大的容量。同时，Polyacene电容器是非常稳定的材料，在使用寿命，对过充/放电的耐久性等方面性能优越。
- 对应RoHS/WEEE要求
  全部产品完全对应RoHS要求，不需要像锂电池二次电池那样有回收再利用的义务。

用途

- 移动电话、数码相机、移动信息设备(PDA)、便携式视讯设备等的内存以及时钟功能(RTC)的备用电源。

型号标示法

P A S 3 1 1 H R - V A 6 R

❶型号

PAS	Polyacene电容器

❷外径尺寸 φD (mm)

3	3.8
4	4.8
6	6.8

❸厚度尺寸 H (mm)

11	1.1
14	1.4

❹最大使用电压（V）／安装方法

HR	3.3	回流焊
SR	2.6	回流焊
L	3.3	焊烙铁

❺共通标号

—	固定

❻端子形状

VA5R	个别规格
VA6R	个别规格
VE5R	个别规格
VL3	个别规格

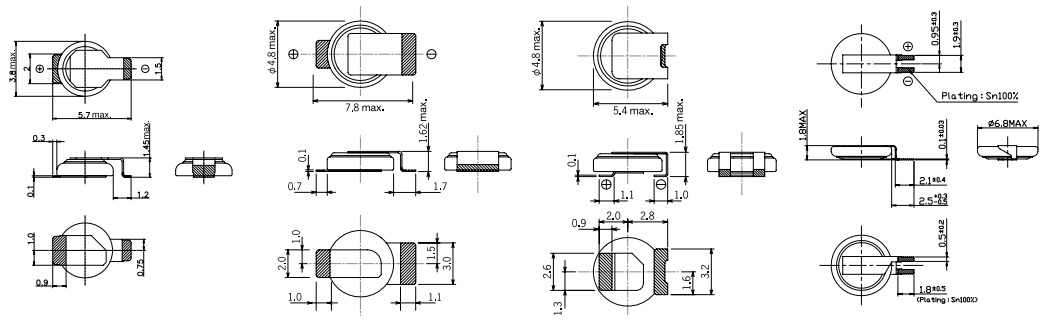
外形尺寸、重量

Type	φD(mm)	H(mm)	Weight(g)
311	3.8 (0.150)	1.1 (0.043)	0.03
414	4.8 (0.189)	1.4 (0.055)	0.06
614	6.8 (0.268)	1.4 (0.055)	0.15

单位：mm（inch），g

外形尺寸

311-VA6R Type　414-VA5R Type　414-VE5R Type　614-VL3 Type



单位：mm

型号一览

产品标号	端子形状	无铅回流	RoHS	最大使用电压 (V)	标称容量 (μAh)	标称电容量 (F)	标称内部电阻 (Ω)
PAS311HR	VA6R	○	○	3.3	10*1	0.03	130
PAS414HR	VA5R	○	○	3.3	22*1	0.07	80
	VE5R	○	○				
PAS311SR	VA6R	○	○	2.6	11*2	0.035	70
PAS614L	VL3	×	○	3.3	90*1	0.25	80

*1 最大使用电压→2.0V间测试　*2 最大使用电压→1.4V间测试

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HR型

特点

- 对应无铅回流焊
  （回流焊温度请参见"可靠性"）
- 3.3V以下可任意设定电压

规格

产品标号		311HR	414HR
1. 使用温度范围		−20～+60℃	
2. 最大使用电压		3.3V	
3. 初期容量	(F)	0.02以上	0.03以上
	(μAh)	6以上	10以上
4. 初期内部电阻(Ω)		500以下	250以下
5. 最大放电电流(μA)		10	20
6. 温度特性		最高温度(60℃) 容量：初期规格值的90%以上 最低温度(−20℃) 容量：初期规格值的50%以上	

SR型

特点

- 对应无铅回流焊
  （回流焊温度请参见"可靠性"）
- 2.6V以下可任意设定电压

规格

产品标号		311SR
1. 使用温度范围		−25～+70℃
2. 最大使用电压		2.6V
3. 初期容量	(F)	0.025以上
	(μAh)	8以上
4. 初期内部电阻(Ω)		120以下
5. 最大放电电流(μA)		10
6. 温度特性		最高温度(70℃) 容量：初期规格值的90%以上 最低温度(−25℃) 容量：初期规格值的50%以上

L型

特点

- 1.5～3.3V可任意设定电压
- 极少自己放电

规格

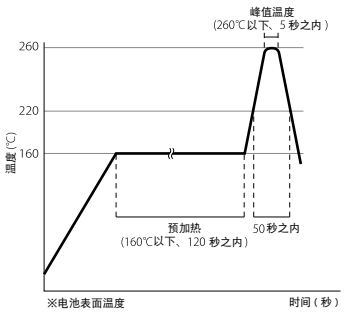
产品标号		614L
1. 使用温度范围		−20～+60℃
2. 使用电压范围		1.5～3.3V
3. 初期容量	(F)	0.14以上
	(μAh)	50以上
4. 初期内部电阻（Ω）		300以下
5. 最大放电电流(μA)		50
6. 温度特性		最高温度(60℃) 容量：满足初期规格值 最低温度(−20℃) 容量：初期规格值的50%以上

可靠性

项目	规格值			试验方法・摘要
	HR型	SR型	L型	
1. 使用温度范围	−20～+60℃	−25～+70℃	−20～+60℃	
2. 最大使用电压	3.3V	2.6V	3.3V	
3. 回流焊耐热性	容量：满足初期规定值 外观：无异常			按照下列回流焊焊接条件进行2次加热后，常温、常湿状态下进行测定。 (回流焊在0.3V以下实施)
4. 耐焊热性			满足初期性能	将380℃±10℃的电烙铁放在端子的镀锡部位上3秒钟。
5. 高温负荷特性	容量：初期规定值的 70% 以上 外观：无显著异常			在最大使用温度下，外加500小时最大使用电压后，常温、常湿状态下进行测定。
6. 充电放电循环特性	容量：初期规定值的 50% 以上 外观：无显著异常			按照以下充电放电循环条件，介入规定阻抗在规定时间内按规定电压充电， 在规定的时间内按规定阻抗放电，进行10000循环后，测定容量。
7. 耐热性	容量：初期规定值的 80% 以上 外观：无显著异常			环境温度：+85±2℃以及−30±2℃的环境中各放置96小时后，常温、常湿状态下进行测定。
8. 耐湿性	容量：初期规定值的 80% 以上 外观：无显著异常			温度：40±2℃，湿度90～95%RH的环境中各放置96小时后，常温、常湿状态下进行测定。
9. 耐振性	外观无明显异常，满足初期规定性能要求			振幅1.5mm，以振动数10～55Hz的正弦波3方向(X,Y,Z)各2小时振动，共计6小时振动。

●回流焊条件

无铅回流焊 温度曲线图



注意：回流焊之前请不要充电。
回流焊条件请限定在规格书所规定范围之内。

●充电放电循环条件

产品代码	311HR	414HR	311SR	614L
充电放电阻抗(Ω)	3000	3000	150	1000
充电电压(V)	3.3	3.3	2.5	3.3
充电时间(分)	12	24	5	24
放电时间(分)	3	6	0.5	6

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COIN TYPE PAS CAPACITOR

■PACKAGING

① Summary of Packaging Specifications

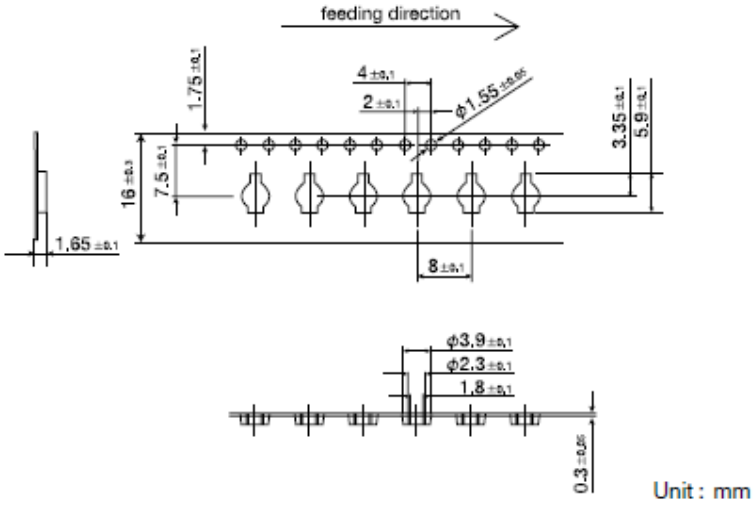
Item	Terminal Shape	Quantity per Reel	Products Direction (*)	Tape Width	Pitch	Reel Diameter	Emboss Shape
PAS311□□	VA6R	4000	—	16.0±0.3	8.0±0.1	330	A
PAS414□□	VA5R	4000	—	16.0±0.3	8.0±0.1	330	C
	VE5R	4000	—	16.0±0.3	8.0±0.1	330	C

Unit : mm

(*) Indicate the polarity of terminal which is close to sprocket hole.

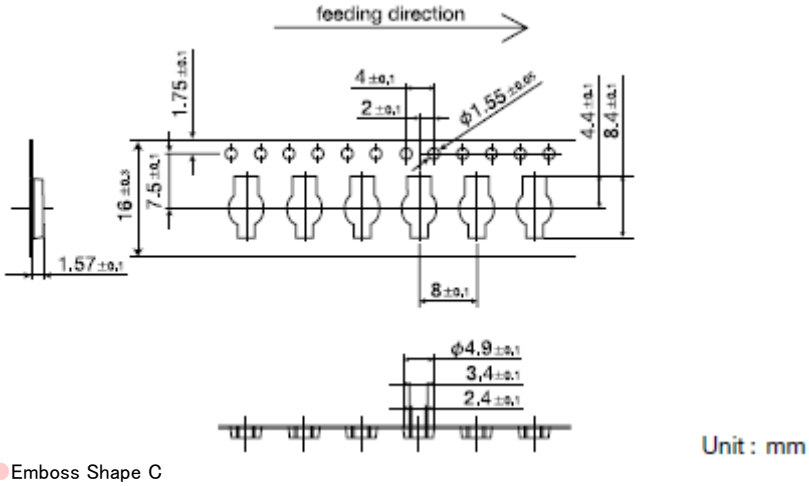
② Taping Dimensions

Emboss Shape A



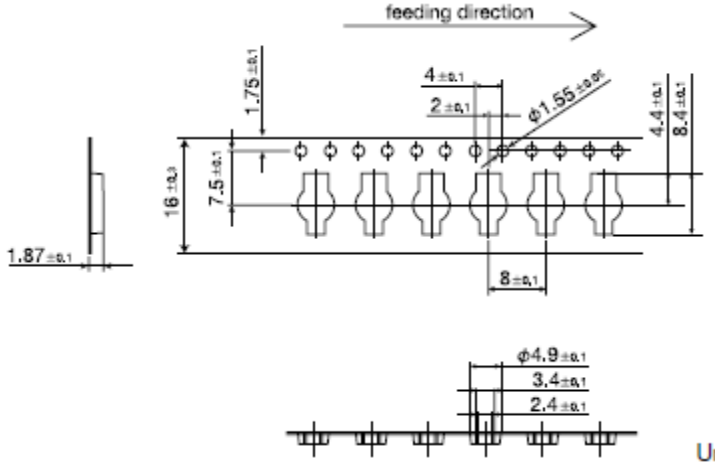
Unit : mm

Emboss Shape B



Unit : mm

Emboss Shape C

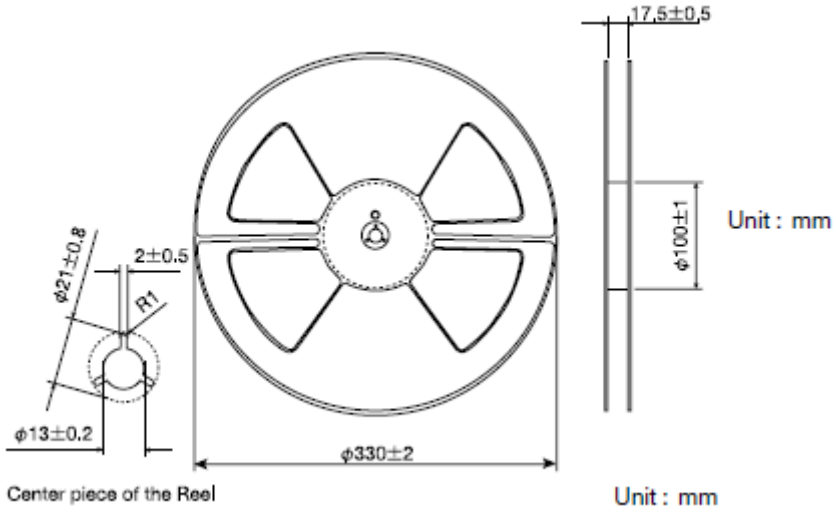


Unit : mm

③ Leader Section/Trailer Section

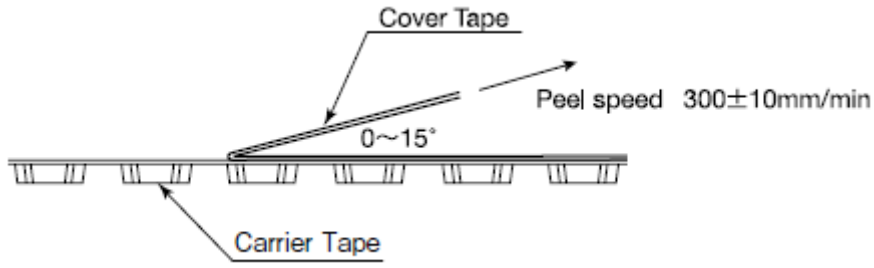
Leader section :Over 400mm(Containing at least 44 vacant pockets of carrier tape sealed with top cover tape)
Trailer section :Over 40mm(Over 5 vacant pockets of carrier tape sealed with top cover tape)

④ Reel Size



⑤ Peel Strength

0.1~0.7N under the condition of the figure below.



COIN TYPE PAS CAPACITOR

■RELIABILITY DATA

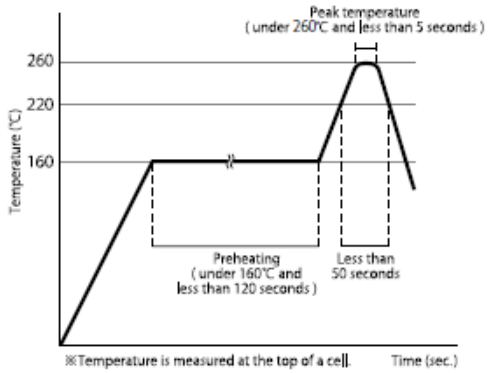
1. Operating Temperature range		
Specified Value	HR type	−20～＋60℃
	SR type	−25～＋70℃

2. Max. Usable Voltage		
Specified Value	HR type	3.3V
	SR type	2.5V 2.6V(311SR)

3. Resistance to Reflow Soldering Heat			
Specified Value	HR TYPE SR TYPE	Capacity/Capacitance Appearance	: Within initial spec. : No noticeable abnormality
Test Methods and Remarks	Conduct reflow soldering twice according to the reflow soldering test condition mentioned below. (Conduct the reflow in the condition of the voltage of 0.3V or lower.)		

Reflow Soldering Test Condition

Reflow profile with lead free condition



Cautions : Do not charge prior to reflow, Set reflow condition within the range provided in "Specifications", which will be published separately.

4. Floating Charge Characteristics			
Specified Value	HR TYPE SR TYPE	Capacity/Capacitance Appearance	: Over 70% of initial spec. : No noticeable abnormality
Test Methods and Remarks	Apply a max.usage voltage to the capacitor for 500 hours at max. operating temp. and measure the floating charge characteristics after returning to normal temperature and humidity.		

5. Charge/Discharge Cycle Characteristics			
Specified Value	HR TYPE SR TYPE	Capacity/Capacitance Appearance	: Over 50% of initial spec. : No noticeable abnormality
Test Methods and Remarks	Measure the charge/discharge cycle characteristics after the 10000 cycles of charge/discharge at 25±5 ℃ with the charge/discharge cycle test condition for each part.		

Charge/Discharge Cycle Test Condition

Part Number	311HR	414HR	311SR	414SR
Charging/Discharging Resistance (Ω)	3000	3000	150	150
Charging Voltage (V)	3.3	3.3	2.5	2.5
Charging Time (min.)	12	24	5	9
Discharging Time (min.)	3	6	0.5	1

6. Thermal Durability			
Specified Value	HR TYPE SR TYPE	Capacity/Capacitance Appearance	Over 80% of initial spec. No noticeable abnormality
Test Methods and Remarks	Leave the capacitor in an atmosphere of 85℃±2℃ and −30±2℃ consecutively for 96 hours each, and return to normal temperature and humidity.		

7. Humidity Durability			
Specified Value	HR TYPE SR TYPE	Capacity/Capacitance Appearance	Over 80% of initial spec. No noticeable abnormality
Test Methods and Remarks	Temperature : 40±2℃, Humidity : 90～95%RH Leave the capacitor for under the condition for 96hours then return to normal temperature and humidity.		

8. Vibration Durability		
Specified Value	HR TYPE SR TYPE	No exterior abnormality observed : initial spec. values retained
Test Methods and Remarks	Apply a sine wave vibration of 1.5mm amplitude at frequency 10~55Hz, for 2hours per each direction (X,Y and Z) , for 6 hours in total.	

COIN TYPE PAS CAPACITOR

■PRECAUTIONS

1. Use under the maximum usable voltage.
   If over maximum usable voltage is applied, it might cause abnormal current flow, which shorten lifetime, leakage and sometimes damage PAS capacitor.

2. Use under maximum operating temperature.
   Not only shorter life time but also leakage and damage will happen by increasing internal pressure if PAS capacitor use in over max operating temperature.

3. Limited life time.
   Lifetime of PAS capacitor is greatly affected by surrounding temperature. 10℃ drop in temperature extend its expected lifetime approximately twice as much.
   Design a circuit under consideration of deterioration of electrical characteristics after long time usage, decreasing in capacitance and increasing in internal resistance.

4. The electrical characteristics of capacitors vary with respect to temperature.
   The electrical characteristics of PAS capacitors temporarily vary with respect to temperature separately from secular change mentioned above. Design a circuit under consideration of temperature characteristics.

5. PAS capacitor has polarity.
   PAS capacitor has polarity. Please check the polarity before use. It will be damage if it is reverse charged.

6. Mind high ripple current or rapid charge / discharge.
   In circuit with high ripple current or rapid charge / discharge, the lifetime of PAS capacitors might be shortened by self-heating.

7. Mind voltage drop when back-up.
   When back-up (discharging) starts, voltage drop because of active current and internal resistance.

8. Series connection.
   In case of using PAS capacitor in series connection, the voltage of each capacitor is not always equal and it may be occurred excessive voltage in a part of capacitor, which may lead to shortening lifetime and breakdown. Take a margin against a rated voltage or add a balancing resister.

9. Don't contact with wiring pattern during installing
   If PAS capacitor contact with wiring pattern, it will be short circuit, and if there is wiring pattern underneath of PAS capacitor, short circuit would occur by damage of resist.

10. Environmental of usage.
    In case PAS capacitor is used in high humidity, alkaline or acid air, it may cause deteriorating of its performance and short circuit by corrosion of outer can or lead terminal. In addition, used in sudden temperature change or high humidity, it may cause deteriorating of its performance and electrolyte leak by dew condensation.

11. Don't apply shock and vibration or pressure.
    PAS capacitor is sensitive to shock. Don't drop PAS capacitor and not apply strong pressure to a body, terminals and lead. Soldering part or lead terminal might be damaged if applying vibration, shock and stress such as pinch, tip, push and twist after installed.

12. Soldering
    If next each item is not minded, it may cause deteriorating of its performance, leakage, shortening lifetime.
    - Don't contact solder iron to a cell body.
    - Don't solder over solder conditions in the spec. sheet.
    - Don't charge/discharge before reflow.

    ※The use of the soldering iron is outside the guarantee of this product.

13. Mind cleaning condition when cleaning circuit-board after soldering.
    Cleaning may affect PAS capacitor. Consult us about cleaning conditions beforehand.
    Some cleaning conditions cause detrimental influence.

14. Storage
    Keep following cautions for storage of PAS capacitor
    - Don't store in the high temperature and the high humidity condition and a place where receiving direct sunlight. Storing PAS capacitor in the room condition of 10℃ – 35℃ and less than 65% relative humidity is recommended. Sudden temperature change or high humidity may cause deteriorating of its characteristics and Soldering.
    - Don't store PAS capacitor near water, salt water or oil, and it the dew condensation, gasified oil or salinity filled place.
    - Don't store PAS capacitor in the hazardous gas (hydrogen sulfide, sulfurous, chlorine, ammonia, bromine, methyl bromine and etc) .
    - Don't fumigate by halogen fumigant.
    - Don't store PAS capacitor near acid or alkaline solvent.
    - Don't store PAS capacitor in a place where exposed to ozone, ultraviolet or x-ray.
    - Don't store PAS capacitor in a place where vibration and shock might occur in.

15. Disposal
Dispose PAS capacitor in accordance with local and country rules and regulations.

16. Usage
PAS capacitor is developed on the assumption of the memory-backup & RTC for usage of information & communication equipment, home electronics, audio & visual equipment, office equipment and etc. Consult us about using high reliability and safety required products such as medical equipment, transportation equipment, industrial equipment, flight / space equipment and emergency equipment.

17. Other Notice
- Don't heat or throw PAS capacitor into fire.
- Don't short circuit.
- Don't solder directly to a cell body.
- Don't open a body.
- Don't deform.
- Don't apply pressure.