

有关敝公司产品的注意事项

请务必在使用敝公司产品之前阅读。



注意

产品目录中的记载内容

本产品目录中所记载的内容为2019年10月的内容。因产品改良等原因，可能会不经预告而变更其记载内容，或是停止供应本产品目录中所记载的产品。所以，请务必在使用前先确认最新的产品信息。

未按照本产品目录中所记载的内容或交货规格说明书使用敝公司产品，即便其致使用设备发生损害、不良情况等时，敝公司也不承担任何责任，敬请知悉。

签署交货规格说明书

就本产品目录中所记载产品的产品规格等相关内容，敝公司备有交货规格说明书，详情请向敝公司咨询。在使用敝公司产品前请务必就交货规格说明书之内容确认并批准之。

实装前的事前评估

使用敝公司产品时，请务必事先安装到使用设备之后，在实际使用的环境下进行评估和确认。

用途的限定

1. 可以使用的设备

本产品目录中所记载的产品预设为使用于一般电子设备 [音像设备、办公自动化设备、家电产品、办公设备、信息通讯设备 (手机、电脑等)] 以及面向本产品目录或是交货规格说明书中另行注明的设备通用性、标准性用途。

另外，面向汽车用电子设备、电信基础设施 / 工业设备、医疗设备 (国际 (GHTF) 第一类、第二类、第三类) 方面的应用，敝公司也备有预设的产品线，请参考本产品目录或是交货规格说明书的内容，使用相对应的产品。

2. 需要另行确认的设备

若考虑将本产品目录中所记载的产品使用于当产品发生故障、品质不良，或是由此引起的运转失常而可能会危及生命、身体或是财产，以及有可能给社会造成深刻影响的以下设备 (不包括本产品目录或是交货规格说明书中另行注明可以使用设备) 等时，请务必事先向敝公司咨询。

- (1) 运输用设备 (汽车驱动控制设备、火车控制设备、船舶控制设备等)
- (2) 交通信号设备
- (3) 防灾 / 保安设备
- (4) 医疗设备 (国际 (GHTF) 第二类)
- (5) 高公共性信息通讯设备 / 信息处理设备 (电话交换机、电话 / 无线 / 广播电视基站等)
- (6) 其他与上述设备有同等品质与可靠性要求的设备

3. 禁止使用的设备

请勿将敝公司产品使用于对安全性和可靠性有着极高要求的以下设备。

- (1) 航天设备 (人工卫星、火箭等)
- (2) 航空设备 ^(注释1)
- (3) 医疗设备 (国际 (GHTF) 第四类)、植体 (体内植入型) 医疗设备 ^(注释2)
- (4) 发电控制设备 (面向核能 / 水力 / 火力发电厂等的设备)
- (5) 海底设备 (海底中继设备、海中的作业设备等)
- (6) 军事设备
- (7) 其他与上述设备有同等品质与可靠性要求的设备

注释 1：仅限于对航空设备的安全运行不产生直接干扰的设备 [机内娱乐设备、机内照明设备、电动座椅、餐饮设备等]，在满足敝公司另行指定的相关条件时，亦可将敝公司产品用于以上用途。在贵公司考虑将敝公司的产品用于以上用途时，请务必事先向敝公司咨询相关的信息。

注释 2：包括注入人体内的部分和与此相连接的体外部分。

4. 责任的限制

未经敝公司的事先书面同意，把本产品目录中所记载的产品使用于非敝公司预设用途的设备、前述需要向敝公司咨询的设备或敝公司禁止使用的设备，从而给客户或第三方造成损害的，敝公司不承担任何责任，敬请知悉。

安全设计

需将敝公司的产品使用于对安全性和可靠性要求较高的设备、电路上时，请进行充分的安全性评估和可靠性评估。另外，请通过设置保护电路、保护装置的系统，设置冗余电路不会被单一故障影响安全性的系统等失效导向安全 (fail-safe) 设计，确保充分的安全性。

有关知识产权

本产品目录中所记载的信息是用于说明相关产品的典型操作以及相关应用。此类信息的使用不代表对于敝公司以及第三方的知识产权以及其他权利的使用许可或是不侵权保证。

保证范围

敝公司产品的保证范围仅限于已经交付的敝公司产品本身，由敝公司产品的故障或不良情况所诱发的损害，敝公司不承担任何责任，敬请知悉。但是，以书面形式另行签署了交易基本合同书、品质保证协定书等时，敝公司将根据该合同的条件提供保证。

正规销售渠道

本产品目录中所记载的内容适用于从敝公司营业所、销售子公司、销售代理店 (即“正规销售渠道”) 购买的敝公司产品，并不适用于从其他渠道购买的敝公司产品，敬请知悉。

出口时的注意事项

本产品目录中所记载的部分产品在出口时须事先确认《外汇和对外贸易法》以及美国在出口管理方面的相关法规，并办理相关手续。如有不明之处，请向敝公司咨询。

圆筒型锂离子电池



手工焊接

禁止波峰焊/回流焊

■ 型号标示法

L	I	C	1	0	3	0	R	S	3	R	8	2	0	6
①	②	③	④	⑤	⑥									

① 类型

代码	类型
LIC	锂离子电池

② 尺寸 (ΦD)

代码	尺寸/(ΦD)[mm]
10	10
12	12.5
18	18
25	25

③ 尺寸 (L)

代码	尺寸/(L)[mm]
30	30
35	35
40	40

④ 特性规格

代码	特性规格
RS	低电阻型

⑤ 上限使用电压

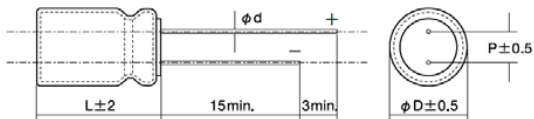
代码	上限使用电压[V]
3R8	3.8

*R=小数点

⑥ 标称电容量

代码	标称电容量 [F]
206	20
406	40
107	100
277	270

■ 外型尺寸



型号	φD	L	Φd	P
LIC1030RS3R8206	10	30	0.6	5.0
LIC1235RS3R8406	12.5	35	0.8	5.0
LIC1840RS3R8107	18	40	0.8	7.5
LIC2540RS3R8277	25	40	1.0	12.5

单位: mm (inch)

■ 规格

型号	使用温度范围 (°C)	上限使用电压 (V)	下限使用电压 (V)	初始静电容量规格 (F)	初始直流内部电阻规格 (mΩ)	温度特性			
						-30°C		+70°C/+85°C	
						静电容量 [F]	DCR [mΩ]	静电容量 [F]	DCR [mΩ]
LIC1030RS3R8206	-30 ~ +70 Over +70 ~ +85	3.8 3.5	2.2 2.5	20 ± 15%	250 以下	Over 10.2	Under 4000	应满足初始规格值。 ※在高于70°C的温度下的 充电电压为3.5V	
LIC1235RS3R8406				40 ± 15%	125 以下	Over 20	Under 2000		
LIC1840RS3R8107				100 ± 15%	60 以下	Over 51	Under 1000		
LIC2540RS3R8277				270 ± 15%	60 以下	Over 115	Under 1000		

能源器件 (电容器)

▶ 由于篇幅有限, 本产品目录中只记载了有代表性的产品规格, 若考虑使用敝公司产品时, 请确认交货规格说明书中的详细规格。另外, 有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等), 请参阅敝公司网站 (<http://www.ty-top.com/>)。

■ 可靠性

项目	规格值	试验方法·摘要
1. 使用温度范围及使用电压范围	-30°Cto+70°C: 2.2Vto3.8V Over +70°Cto+85°C: 2.5Vto3.5V	
2. 焊锡耐热性	静电容量 : 应满足初始规格值 DCR : 应满足初始规格值 外观 : 无显著异常	焊接类型 : Sn-3Ag-0.5Cu 烙铁的温度 : 390±5°C 时间 : 3秒 使上述条件下的烙铁前端与离电容器主体1毫米的引线 (+极、-极) 各接触两次。
3. 高温负荷特性-1	静电容量 : 初始规格值的80%以上 DCR : 初始规格值的1.5倍以下 外观 : 无显著异常	电容在70°C, 3.8V下, 经过1000小时后, 恢复到常温、常湿状态下进行测定。
4. 高温负荷特性-2		电容在85°C, 3.5V下, 经过1000小时后, 恢复到常温、常湿状态下进行测定。
5. 热循环特性		在环境温度+85°C±2°C、-40°C±2°C的气氛中各放置30分钟, 重复100次后, 恢复到常温、常湿状态进行测定。
6. 高温高湿负荷特性		周围温度: 60±2°C、周围湿度: 90~95%RH 施加3.8V 500小时后, 恢复到常温、常湿后进行测量。
7. 耐冲击性	外观无明显异常, 满足初期规定性能要求	根据JIS C 60068-2-27为准 半正弦波 A=294
8. 耐振性		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。

CYLINDER TYPE LITHIUM ION CAPACITORS

■ PRECAUTIONS

- 1. This product possesses the voltage from the shipment time, so appropriate consideration is needed at the time of the previous handling and using before assembling into the set. In order to use the product safely, be sure to read the "Instruction Manual" posted on our website**
- 2. Use within the usable voltage range**

Applying voltage exceeding the maximum working voltage may cause leakage or damage. Also, when discharging to a voltage lower than the minimum operating voltage, it'll be the cause which advances degradation such as capacity reduction and internal resistance increase.
Avoid using it deviating from the maximum working voltage and the minimum working voltage.
- 3. Use within the operating temperature range**
- 4. Lifetime of lithium ion capacitor is finite**

The life of the product is affected by operating temperature and operating voltage. In addition, the internal resistance rises gradually with usage and the capacity drops.
- 5. There are temperature dependence and voltage dependence in the electrical characteristics**

The electrical characteristics of the product vary depending on operating temperature and voltage. Please check the temperature characteristics before using the product.
- 6. Lithium ion capacitor has polarity**

Check the polarity before use. It will be damage if it is reversely charged. Avoid using products with reverse voltage applied.
- 7. Don't short-circuit positive (+) and negative (-) lead terminals**

If a positive lead terminal (+) and a negative lead terminal (-) are contacted each other or connected by induction tools, Lithium ion capacitor will be short-circuited and excessive current will be drained.
As a result, internal temperature will rise, internal pressure will rise and in some case leak will occur and gas may be released by opening a pressure valve.
Following actions will cause external short circuit

 - To trim two terminals by a nipper at once.
 - To measure a distance of two terminals by a metal slide gauge .
 - To mount on a circuit board by wave soldering.

Avoid using products short-circuited once.
- 8. Be aware of the ripple current and use in circuits that repeat sudden charge and discharge**

Lithium ion capacitor may be used in a circuit that repeats sudden charge / discharge or application of high ripple current may cause the life to be shortened due to heat generation. Please inquire when using it for such a circuit.
- 9. Mind the voltage drop during discharge (backup)**

If the discharge current is large, a voltage drop occurs at the start of discharge. Be careful about discharge current.
- 10. Be aware of when connecting in series and parallel.**

When lithium ion capacitors are connected in series, the balance of the applied voltage may be lost, and some capacitors may be overcharged or over discharged. Please use so that the voltage of each lithium ion capacitor is within the working voltage range. Also, when lithium ion capacitors are connected in parallel, pay attention to the balance of charge / discharge current of each lithium ion capacitor.
- 11. Lithium ion capacitor has the pressure release vent**

In case of inside pressure of capacitor excessively rising, the pressure release vent will be opened in order to release inner gas. Following clearance (Diameter $\phi 18$: over 2mm, Diameter $\geq \phi 18$: over 3mm) should be made above the pressure release vent.
Don't set up wiring or a pattern in the upper part of the pressure release vent, so that the high temperature gas is gushed when the pressure release vent open.
The product which open the pressure release vent cannot use.
- 12. Insulation of the aluminum case and sleeve of lithium ion capacitor is not guaranteed**

There is a possibility of short-circuiting when the circuit pattern is arranged under the lithium-ion capacitor or when it comes in contact with other parts.
- 13. Environmental of usage**

If the lithium ion capacitor is used in high humidity or alkaline and acidic atmosphere, the lead terminal and outer can may be corroded and the circuit may be disconnected. In addition, condensation may occur in sudden temperature change and remarkable high humidity environment, causing electrolyte leakage.
- 14. Pay attention to external stress**

Lithium ion capacitors are weak parts for mechanical shock. Be careful not to drop the product or apply strong force to the main body and lead terminal. Also, if you apply excessive vibration or shock after mounting, stress such as grasping, tilting, pushing, twisting, etc., the soldered part may come off or the lead terminal part may be damaged.
- 15. Be careful not to apply excessive heat when mounting**

If excessive heat stress is added to the product, electric characteristics deterioration and electrolyte leakage may occur.
Soldering conditions should be within the range specified in the delivery specifications.

16. Please consult about substrate cleaning after soldering

There are cases where the product may be adversely affected depending on the type of solvent and washing conditions, so please consult in advance.

17. Storage

Keep following cautions for storage of Lithium ion capacitor.

- Don't store in the high temperature and the high humidity condition and a place where receiving direct sunlight. Storing Lithium ion capacitor in the room condition of 10 °C – 35 °C and less than 65% relative humidity is recommended. Sudden temperature change or high humidity may cause deteriorating of its characteristics and solderability.
- Don't store Lithium ion capacitor near water, salt water or oil, and in the dew condensation, gasified oil or salinity filled place.
- Don't store Lithium ion capacitor in the hazardous gas (hydrogen sulfide, sulfurous, chlorine, ammonia, bromine, methyl bromine, ozone and etc.) .
- Don't fumigate by halogen fumigant.
- Don't store Lithium ion capacitor near acid or alkaline solvent.
- Don't store Lithium ion capacitor in a place where exposed to ultraviolet or radioactive rays.
- Don't store Lithium ion capacitor in a place where vibration and shock might occur.

18. Disposal

When disposing the lithium ion capacitor, cover and insulate the lead terminal part with tape etc. so as not to cause a short circuit between the (+) pole and the (-) pole, dispose properly with a decree or the regulation a local public organization designates.

19. Usage

Lithium ion capacitor is developed on the assumption that this product will be used in the memory-backup & RTC for usage of information & communication equipment, home electronics, audio & visual equipment, office equipment, 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, etc.

20. Other Notice

- Don't heat or throw Lithium ion capacitor into fire.
- Don't short-circuit.
- Don't solder directly to a cell body (except lead terminal).
- Don't open a body.
- Don't deform.
- Don't apply pressure.
- In case of emergency firing, please extinguish with fire extinguisher corresponding to water prohibition or sand etc, not water.

※All of the contents specified herein are subject to change without notice due to technical improvements, etc.

※Please see JEITA RCR-2377 for details.

JEITA RCR-2377

「Safety application guide for lithium ion capacitor (LIC)」

[Japan Electronics and Information Technology Industries Association. Established in November, 2013]
