CLOUDUPPER

东莞市亿彩电子科技有限公司

产品规格书

SPECIFICATION

客户名称customer name：	
客户编码Customer No.	
产品类型Product Name ：	反射式光电开关
产品型号 Part No.：	YC162LD
版本 Version：	V1.2
发布日期 Date:	2022-3-25

客户承认 APPROVED BY CUSTOMER			亿彩承认 APPROVED BY CLOUDUPPER		
确认意见 COMMENTS	审核 CHECKED BY	批准 APPROVED BY	编写 PREPARED BY	审核 CHECKED BY	批准 APPROVED BY
			丁煜城	钟永成	田勇
判定: Judge outcome:			判定: Judge outcome:	OK	

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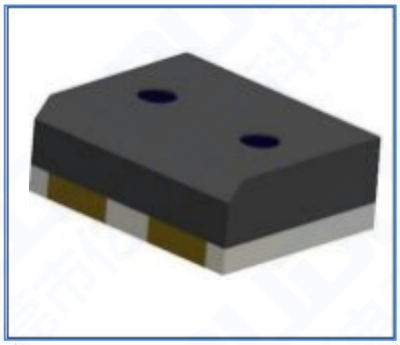
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产品特性Features：

零件编号Partnumber:YC162LD：

•微型SMD封装，尺寸为2.0 mm × 1.6 mm × 0.75 mm；

•Miniature SMD package 2.0 mm * 1.6 mm * 0.75 mm;

•低功耗；•Low power consumption;

•高灵敏度；•High sensitivity;

•检测距离可根据产品设计进行调整；

•The detection distance is adjusted according to the productdesign;

•抗干扰性能强，尤其在阳光照射环境下表现优异。

•Strong anti-interference, especially in the sunlight

产品应用领域：Product Applications

•移动电话触摸屏控制及自动对讲功能；•Mobile Handset Touchscreen Control and Automatic SpeakerphoneEnable

•机械开关替换；•Mechanical Switch Replacement

•纸张对准；•Paper alignment.

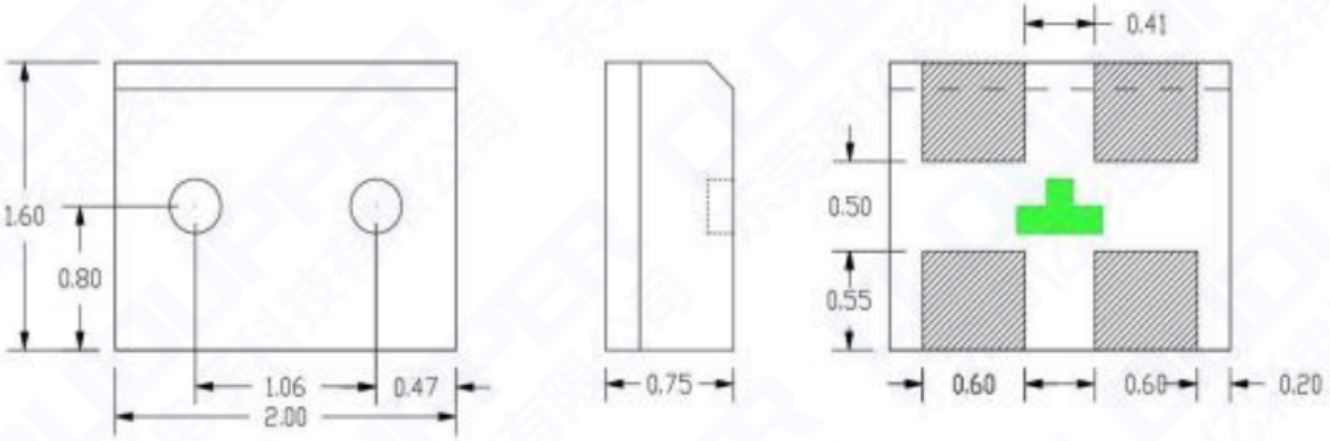
•智能穿戴设备；•Smart wear

•TWS耳机；•TWS

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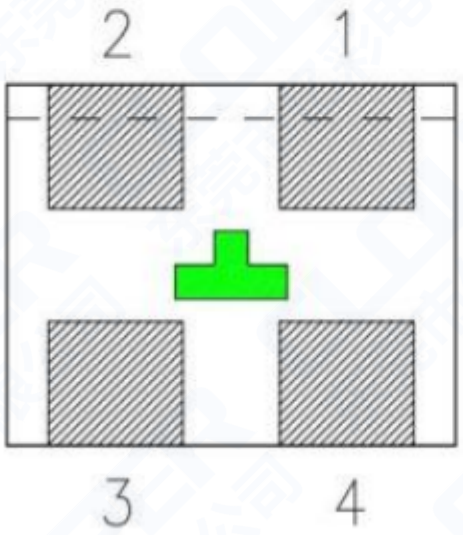
电话(Tel)：0769-82887096 邮箱（Email）：yicai@irsenor.com 网站(Web)：www.irsenor.com

产品尺寸Package



Tolerance:±0.02mm.

Pin Diagram (Top View)



1:LD-
2:VCC
3:VOUT
4:LD+

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芯片模块参数 Chip module parameters:

Parameter	Typ	Unit	Conditions
Chip size	2.0(L)X1.6(W)X0.75(H)	mm*mm*mm	
Launch angle	20±10°		
PD receiving angle	40±10°	°	
VCC	1.85/3.0	V	
LD + / LD - voltage difference	3.0	V	
Operating current	7	mA	

接收器参数 Receiver parameter：

Parameters	Symbol	Min	Typical	Max	Units	Test Condition*
Collector-emitter Breakdown Voltage	BV_{CEO}	80			V	I_{CEO} =100uA, 25℃
Emitter-collector Breakdown Voltage	BV_{ECO}	7			V	I_{ECO} =10UA, 25℃
Collector-base Breakdown Voltage	BV_{CBO}	80			V	I_{CBO}=100UA, 25℃
Collector Dark Current	I_{CEO}			30	uA	V_{CE} =20V, 25℃
Collector Dark Current	I_{CEO}			150	uA	V_{CE} =70V, 25℃
Collector-emitter Saturation Voltage	VCE(sat)			0.3	V	IC=2MA, IB=100UA, 25℃
Spectrum	λp	880			nm	25℃

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发射器参数 Emitter parameter：

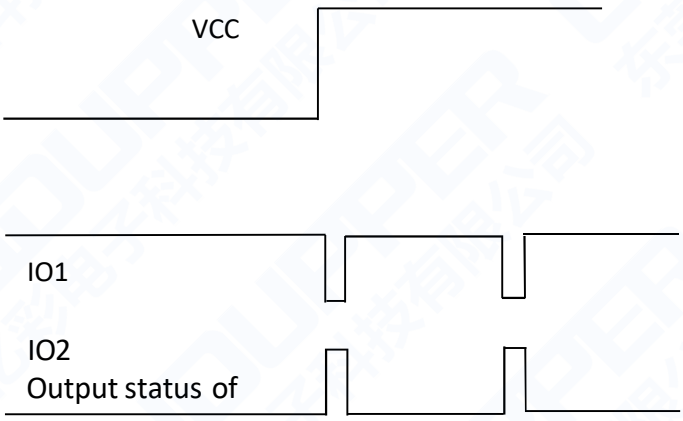
Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Optical Output Power	P_{OP}	150	165	-	mW	Pulse 180mA 25℃
Optical Output Power	P_{OP}	190	210	-	mW	Pulse 240mA 25℃
Threshold Current	I_{th}	-	26	50	mA	Pulse 25℃
Operating Current	I_{op}	-	180	240	mA	Pulse 25℃.
Differential resistance	Rs	-	3.2	-	Ω	Pulse 180mA 25℃
Operating Voltage	V_{op}	-	1.95	2.05	V	Pulse 180mA 25℃
Operating Voltage	V_{op}	-	2.15	2.20	V	Pulse 240mA 25℃
Slope Efficiency		0.9	1.05	-	W/A	
Power Conversion Efficiency	PCE	40	47	-	%	Pulse 180mA 25℃
Power Conversion Efficiency	PCE	39	42	-	%	Pulse 240mA 25℃
Wavelength	λ_{peak}	932	940	948	nm	
Beam Full Divergence ($1/e^{2}$)	φ	19	22	25	°	Pulse 180mA 25℃

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应用电路的工作顺序Working sequence of application circuit

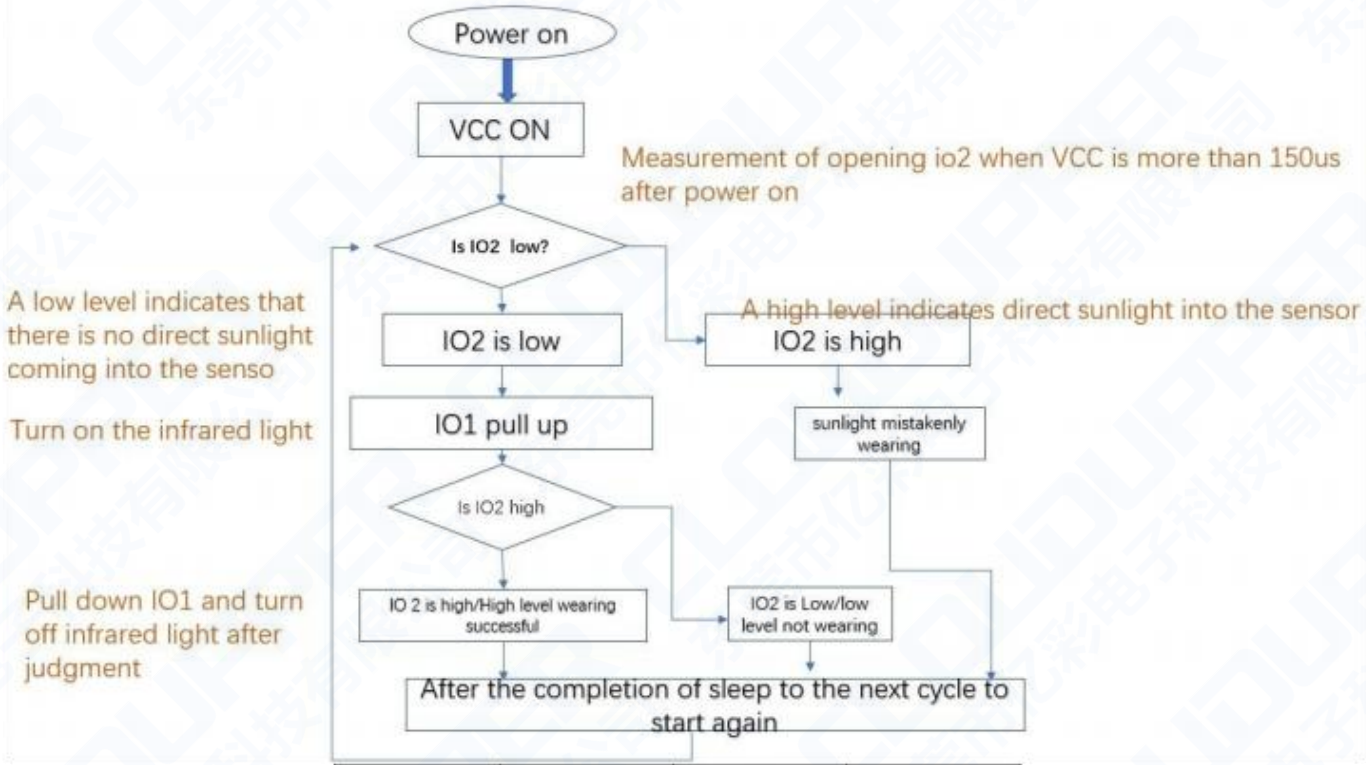
For example, 250us is used to work for 50ms (the average current is 30uA), and the timing is adjusted according to the actual application. Standby current 180nA



Wor

Not worn The output state of Vout port is always low。

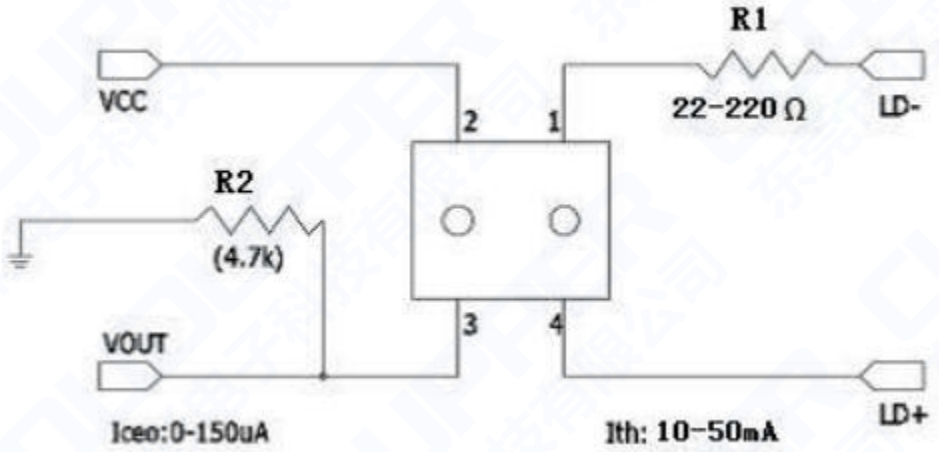
Software flow in application circuit 250us



State	LD-(IO1)	VOUT (IO2)	Result
WORK	0	1	Worn
	1	0	Not worn
Sleep	0	0	

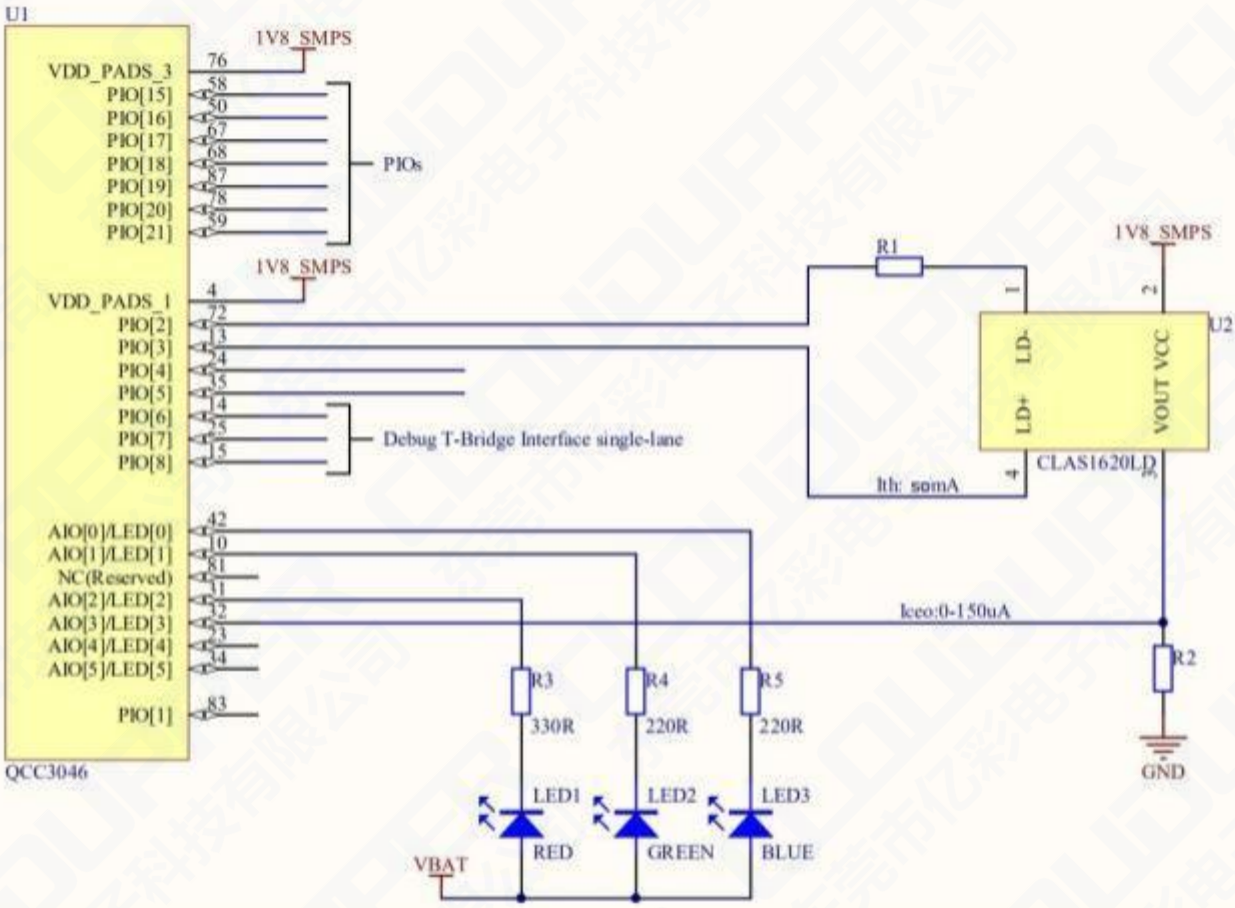
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Typical application circuit：



Dimension

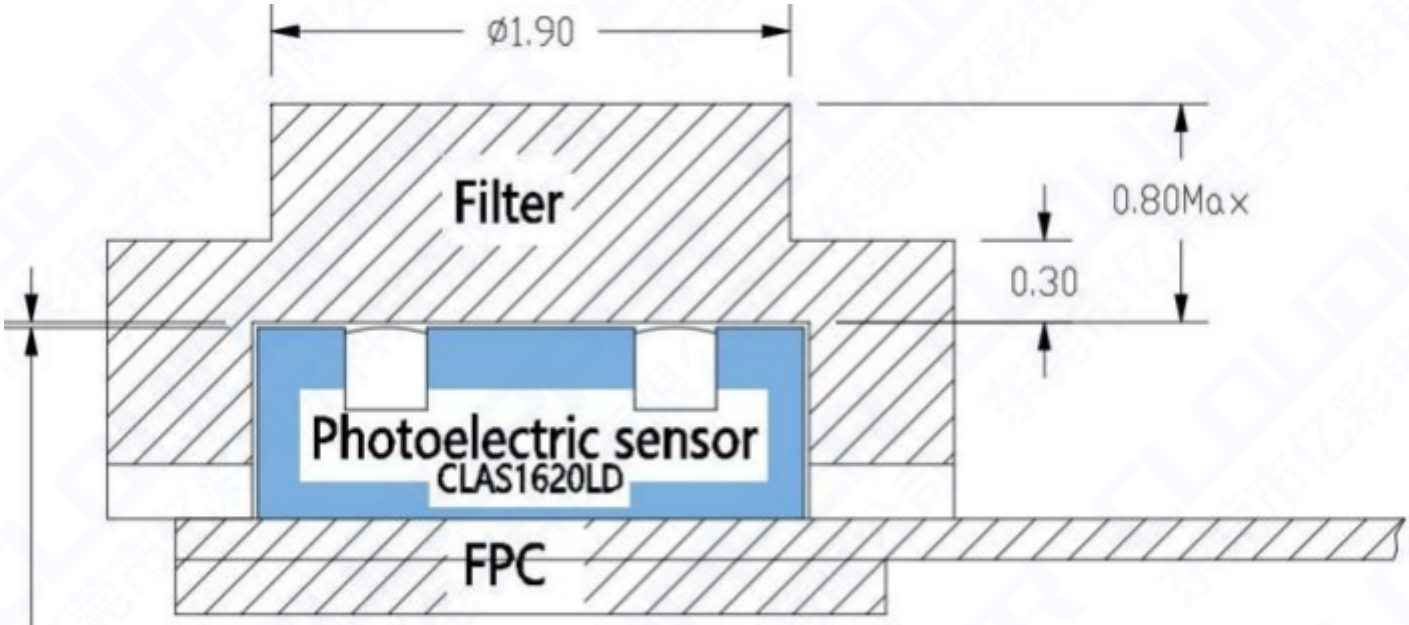
Typical application circuit:



In this paper, the total system control circuit based on SoC Qualcomm QCC3046 was designed.（For reference only, please refer to the actual design）

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Structural design reference:



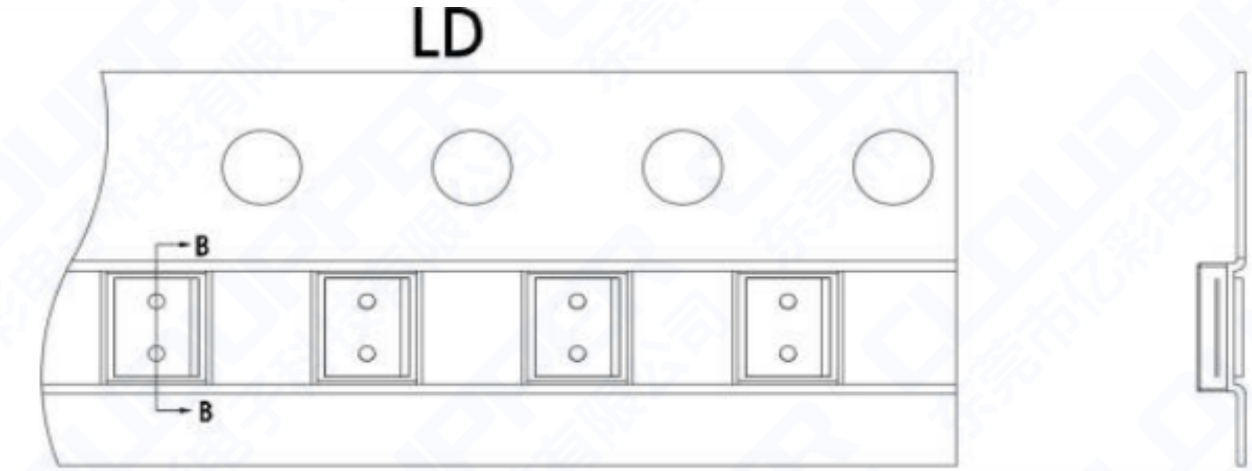
The inner surface of the filter is smooth and polished, and the chip is fitted as close as possible during assembly.

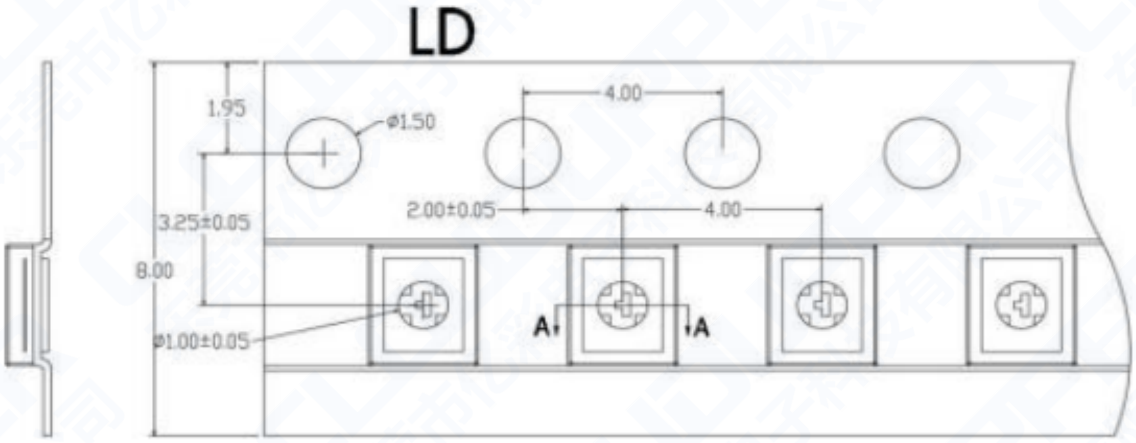


NO.	Name	Features	Comment
1	FPC	Connect sensor to PCBA.	
2	Photoelectric sensor	It is used to detect the non-electric quantity which directly causes the change of light quantity, such as light intensity, illumination, radiation temperature measurement, gas composition analysis, etc.Can also be other non-electric charges, such as part diameter, surface roughness, strain, displacement, vibration, etc., that can be converted into changes in the amount of light. Speed, acceleration, as well as the shape of the object, the recognition of the working state.Photoelectric sensor with non-contact, fast response, Therefore, it has been widely used in industrial automation devices and robots.	
3	Filter	Used to filter light beyond the wavelength of 940nm.	

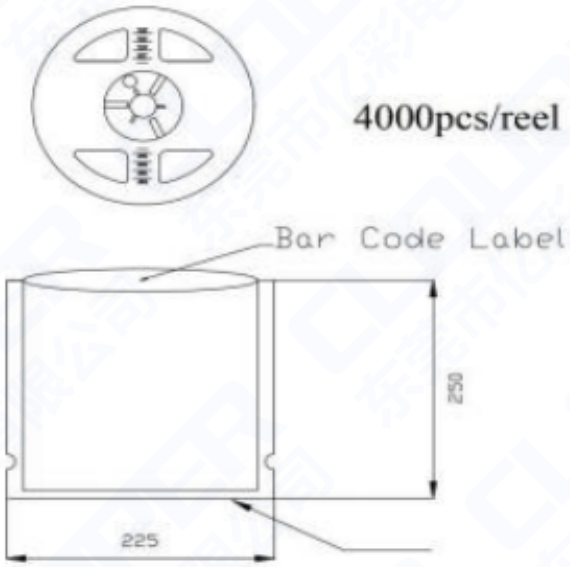
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Tapping and packaging specifications (Units: mm)





●Package Method:(Units: mm)



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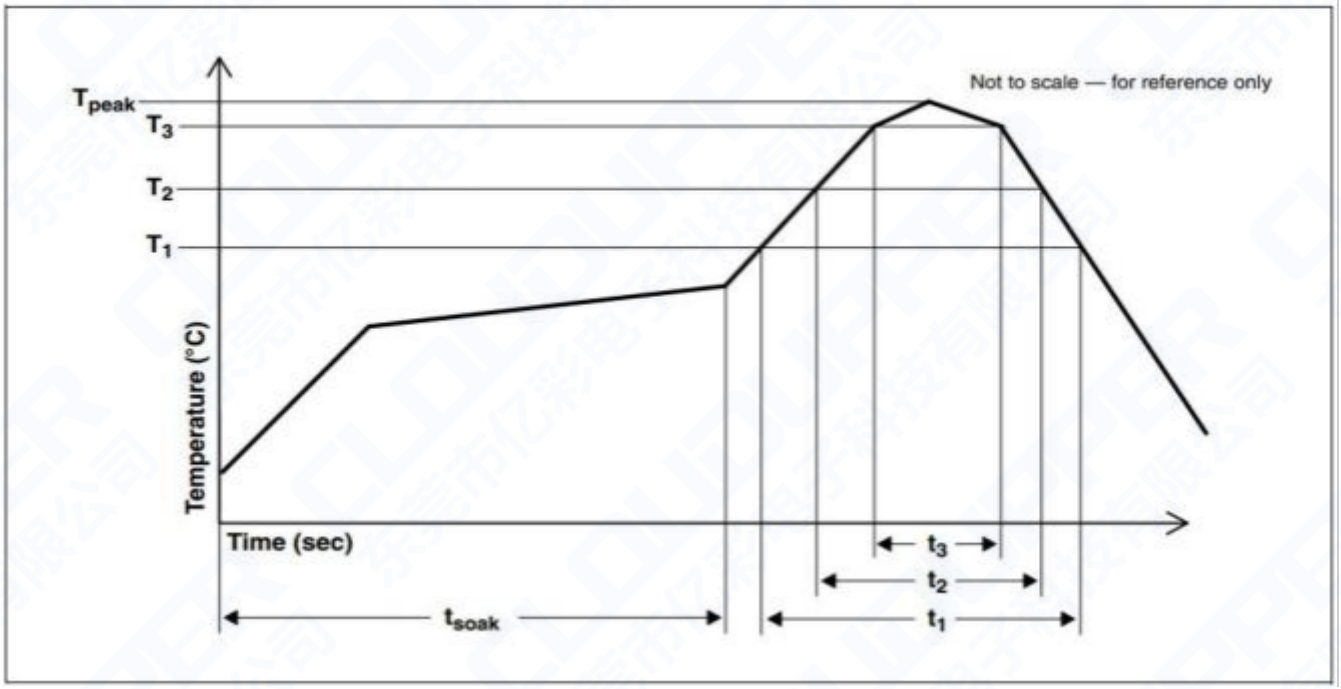
存储信息：
湿度敏感性器件在焊接过程中，其光学特性可能会受到先前已吸收于封装内的水分释放及汽化的影响而受到不利影响。为确保封装内所含的吸收水分量尽可能少，在将器件装箱运输前，需对每块器件进行干烤处理。器件应装入一种称为“防潮袋”的密封铝箔包装袋中，并内附硅胶，以在运输、搬运及使用前的储存期间保护器件免受环境湿气影响。防潮袋应存放于以下条件下：
温度范围：< 40°C
相对湿度：< 90%
总存放时间：若包装袋未开封，则自铝箔包装袋上的日期代码之日起，存放时间不得超过12个月。若器件未开封存放时间超过12个月，且湿度指示卡显示该器件已超出允许的湿度范围，则需对卷材进行重新烘烤。若卷材已开封且处于以下条件之下，则应在168小时内使用：
温度范围：< 30°C ?相对湿度：< 60%；若需进行重新烘烤，烘烤温度应为50°C，烘烤时长为12小时。该模块被分配的湿度敏感等级为MSL 3。

Storage Information Moisture Sensitivity
Optical characteristics of the device can be adversely affected during the soldering process by the release and vaporization of moisture that has been previously absorbed into the package. To ensure the package contains the smallest amount of absorbed moisture possible, each device is dry-baked prior to being packed for shipping. Devices are packed in a sealed aluminized envelope called a moisture barrier bag with silica gel to protect them from ambient moisture during shipping, handling, and storage before use. The Moisture Barrier Bags should be stored under the following conditions:?Temperature Range: < 40°C
RelativeHumidity: < 90%
Total Time: No longer than 12 months from the date code on the aluminized envelope if unopened. Rebaking of the reel will be required if the devices have been stored unopened for more than 12 months and the Humidity Indicator Card shows the parts to be out of the allowable moisture region. Opened reels should be used within 168 hours if exposed to the following conditions:?Temperature Range: < 30°C
Relative Humidity: < 60%If rebaking is required, it should be done at 50°C for 12 hours. The Module has been assigned a moisture sensitivity level of MSL 3.

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Parameter	Reference	Device
Average temperature gradient in preheating		2.5°C/sec
Soak time	t_{soak}	2 to 3 minutes
Time above 217°C (T_1)	t_1	Max 60 sec
Time above 230°C (T_2)	t_2	Max 50 sec
Time above T_{peak} - 10°C (T_3)	t_3	Max 10 sec
Peak temperature in reflow	T_{peak}	260°C
Temperature gradient in cooling		Max -5°C/sec

Solder Reflow Profile Graph



--其他 （Other）

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