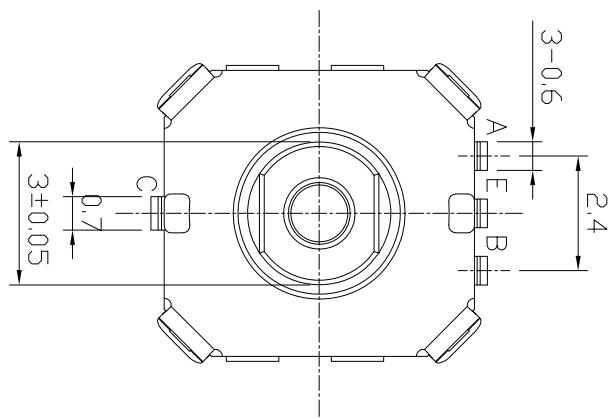
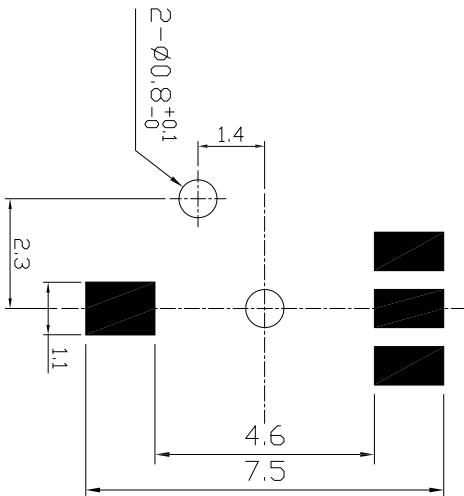
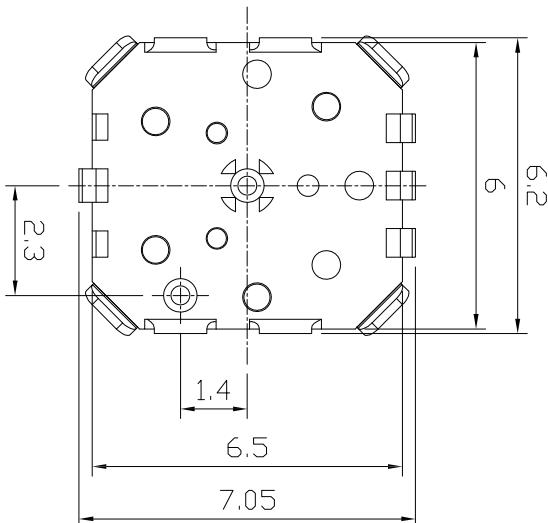
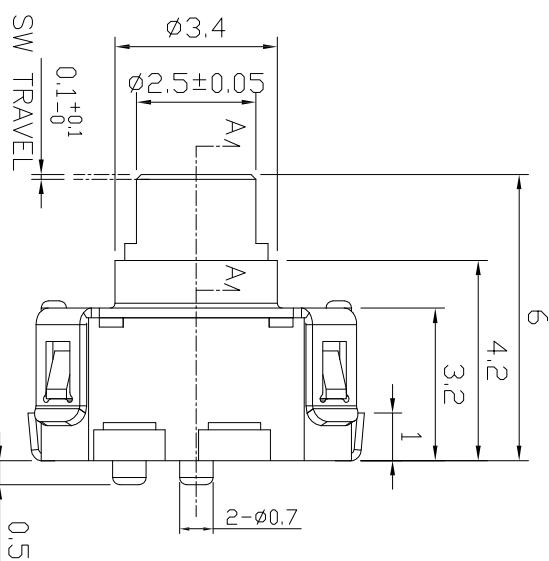
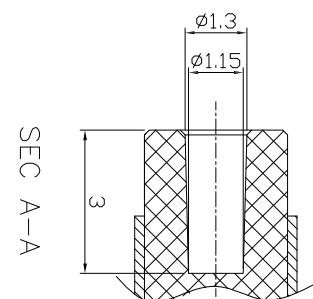
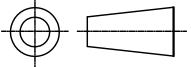


P.C.B.MOUNTING DETAIL



C
SW
E



03			 深圳市亚特联科技有限公司 SHENZHEN YATELIAN TECHNOLOGY CO., LTD	
02				
01			NAME YEC06-6P12C-6.05F-170g	
00				
NO	DATE	DESCRIPTION	DRAWING NO YE0602-02	
SCALE		TOLERANCE		
UNIT	mm	$L \leq 10 \pm 0.3$	DRAWN BY	CHECK BY
		$10 < L \leq 30 \pm 0.5$	<i>Julie</i>	<i>Levin</i>
		$30 < L \leq 100 \pm 1.0$		
		ANGLE $\pm 5^\circ$		

1. 一般事项 General

1-1: 适用规格 Scope

本规格书适用于电子设备用微小电流回路06型回转式编码器。

This specification applies to 6mm size low-profile rotary encoder (incremental type) for microscopic current circuits used in electronic equipment.

1-2: 标准状态 Standard atmospheric conditions

除另有规定外, 测量应在以下状态下进行:

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and test is as following limits:

温 度 Ambient temperature : 15°C to 35°C

相对湿度 Relative humidity : 25 % to 85%

气 压 Air pressure : 86KPa to 106 Kpa

1-3: 使用温度范围

Operating temperature range : -30°C to +80 °C

1-4: 保存温度范围

Storage temperature range : -40 °C to +85 °C

图1 fig. 1

2. 构造 Construction

2-1: 尺寸 Dimensions

见所附成品图Refer to attached drawing

3. 额定值 Rating

3-1: 额定电压

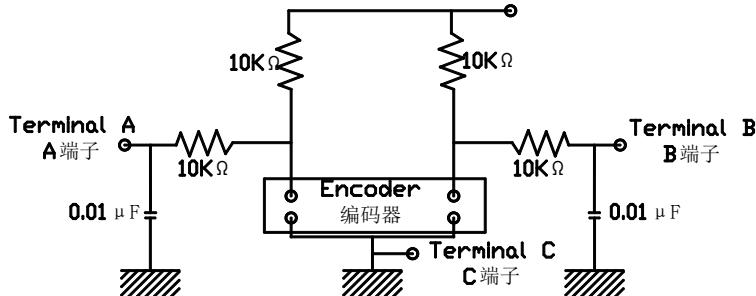
Rated voltage : DC. 5V

3-2: 最大额定电流 (阻抗负载)

Maximum operating current (resistive load)

各相导线 Each lead: 0.5mA(Max 5mA;Min 0.5mA)

公共导线 Common lead: 1mA(Max 10mA;Min 1mA)



4. 使用注意事项 Application Notes

4-1: 不要在高温、多湿及腐蚀性气体环境中保管。

During operation storage in high temperature and in corrosive gas should be avoided.

4-2: 对编码器脉冲数的处理、设计时, 要充分考虑速度、脉冲调制时间和杂音干扰等因素。

As design of the pulse count process. Care should be taken with operational speed.

4-3: 本制品在卡点上使A相在OFF状态下比较安定, 软件设计时以A相为标准

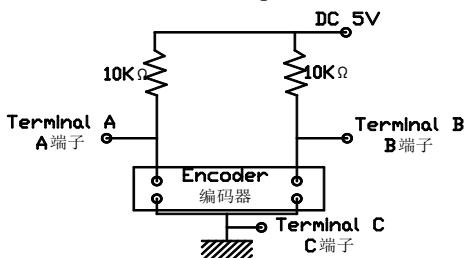
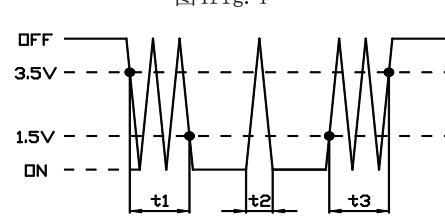
With this part detent positions we always be aligned with a-off phase. Therefore Make the a phase the reference at the soft ware design stage.

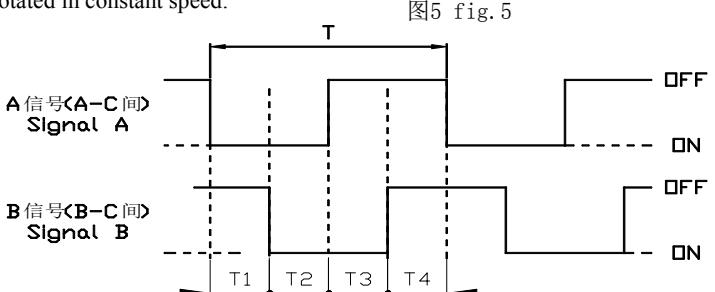
4-4: 编码器的脉冲数处理电路建议附加滤波电路 (图1)。

The circuit of the pulsecount process should be adding filter as figure(fig.1).

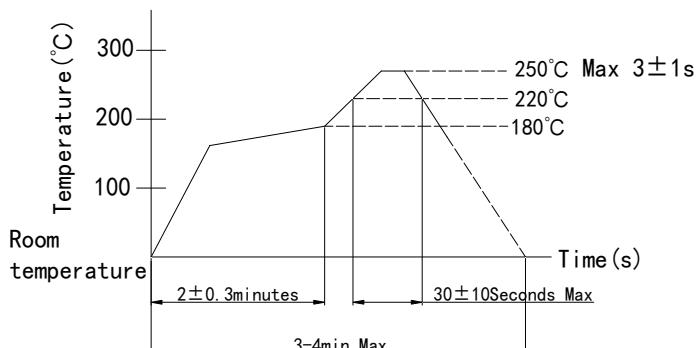
4-5: 本制品本体若接触水分则对脉冲波形能产生异常影响, 避免直接接触水分。

This product when touching wet or water can be influence the pulse wave.

项 目 Item	条 件 Conditions			规 格 Specifications
5-1	输出信号 Output signal forma	AB两个信号的相位差输出波型详见Fig.2;虚线表示带卡点装置的上擎子处位置 2 phase-different signals (signal A,signal B)Details shown in fig.2;The broken line shows detent position		
		轴的回转方向 Shaft rotational direction	信号 signal	输出波型 Output Fig.2
		顺时针方向 C.W.	A(A~C端子间) A(Terminal A~C)	OFF ON
			B(B~C端子间) B(Terminal B~C)	OFF ON
		逆时针方向 C.C.W.	A(A~C端子间) A(Terminal A~C)	OFF ON
			B(B~C端子间) B(Terminal B~C)	OFF ON
5-2	分解能力 Resolution	回转360° 的输出脉冲数 Number of pulses in 360°rotation		6个脉冲/360°(Fig.2) 6 pulses/360°for each phase
5-3	开关特性 Switching Characteristics	下图Fig.3所示回路, 轴以360°/s的速度回转测定 Measurement shall be made under the condition as follows Shaft rotational speed: 360°/s Test circuit: Fig.3		
图3 fig. 3 		图4fig. 4 		
(注)编码器 ON 指输出电压1.5V以下的状态。 Code-ON area :The area which the voltage is 1.5V or less(Fig.4) 编码器OFF指输出电压3.5V以上的状态。 Code-OFF area :The area which the voltage is 3.5V or more(Fig.4)				
5-3-1	振荡 Chattering	编码从OFF→ON或ON→OFF时,输出1.5V~3.5V 的通过时间应符合规定 Specified by the signal's passage time from 1.5V to 3.5V of each switching position(code OFF~ON or ON~OFF)		t1,t3 \leq 3ms 带卡点时,在卡点位置上的B信号振荡 无规定 On the case within detent,B Signal will be irregular oscillation.
5-3-2	滑动杂音 (突跳) Sliding noise (Bounce)	编码 ON 部份的1.5V以上的电压变动时间在振荡t1,t3之间会产生 1ms以上1.5 V以下的ON部份。另外, 如果各突跳1.5V以下的范围 在1ms以上时, 则判定为另一个突跳。 Specified by the time of voltage change exceed 1.5V in code-ON area. When the bounce has code-ON time Less than 1mS between chattering (t1 or t3),the voltage change shall be regarded as a part of chattering. When the code-ON time between 2 bounces is less than 1mS,they are regarded as 1 linked bounce.		t2 \leq 2ms

5-3-3	滑动杂音 Sliding noise	编码OFF部份的电压变动 The voltage change in code-OFF area.	3.5V以上 3.5V Min
5-4	相位差 Phase difference	<p>以固定的速度(360°/s)操作轴进行回转。 Measurement shaft be made under the condition which the shaft is rotated in constant speed.</p> <p style="text-align: center;">图5 fig. 5</p> 	<p>见(Fig.5) in (Fig.5) T1、T2、T3、T4≥6ms</p>
5-5	耐电压 Dielectric strength	<p>在端子和支架间施加AC.300V电压1分钟。 A voltage of 300VAC. shaft be applied for 1 min between individual terminals and frame.</p>	不得有绝缘破坏 Without arcing or breakdown.
5-6	绝缘阻抗 Insulation resistance	<p>在端子和支架间施加DC.250V 1mA</p> <p>Measurement shaft be made under the condition which a voltage of 250V DC. is applied between individual terminals and frame.</p>	端子和轴间电阻50MΩ以上 Between individual terminals and bushing:50MΩ Min.
6. 机械性能 Mechanical characteristics			
6-1	全回转角度 Total rotational angle		360°(无止挡点) 360°(Endless)
6-2	卡点出脱力矩 Detent torque	只适用于附卡点装置 Only suitable for C.C, equipment.	1~4mN.m(10~40gf.cm)
6-3	定位点数及位置 Number and Position of detent	只适用于附卡点装置 Only suitable for C.C, equipment.	12点定位(间隔角度30°±3°) 12 detents(Step angle: 30°±3°)
6-4	轴的推拉强度 Push-pull strength of shaft	<p>在轴端, 沿轴向施加20N(2kgf)的推力和拉力各5秒钟。 (在PCB焊锡后)</p> <p>Push and pull static load of 20N shall be applied to the shaft in the axial direction for 5s.(After installing)</p>	产品不可散开, 轴向虚位间隙0.4mm以 The product can not be disperse, Shaft play in axial direction 0.4mmMax ;
6-5	端子强度 Terminal strength	<p>端子前端的任意方向施加3N(0.3Kgf)的静负荷力1分钟。 A static load of 3N shall be applied to the tip of terminals for 1 min in any direction.</p>	端子不得有明显松动及接触不良, 但允许变形。 Without excessive play in terminal or poor contact.
6-6	轴摆动 Shaft wobble	<p>在轴前端2mm处, 沿径向瞬间施加3N (0.3 Kgf)的力。 A momentary load of 50N shall be applied at the point 5mm from the tip of the shaft in a direction perpendicular to the axis of shaft.</p>	1*L/30mm p-p 以下 (L: 指安装平面到轴的柄端的距离.) 1* L/30mm p-p Max L:Distance between mounting surface and measuring point on the shaft
6-7	轴的回转方向摆动 Shaft play in rotational wobble	用角度板测定 Testing by angle board.	5°以下 5°Max
6-8	轴向间隙 Shaft play in axial direction	在轴上施加5N(50gf)的推力或拉力. The pull / push load of 5N(50gf) shall be imposed on the shaft.	0.3mm 以下 0.3mm Max.

7. 耐久性能 Endurance characteristics

项 目 Item	条 件 Conditions	规 格 Specifications
7-1 回转寿命 Rotational life	在无负荷条件下轴以600~1000/h速度回转30,000周。 The shaft of encoder shall be rotated to 30,000 cycles at a speed of 600~1000/h without electrical load, after which measurements shall be made.	振荡: $t_1, t_2 \leq 3\text{ms}$ Chattering $t_1, t_2 \leq 3\text{ms}$ 卡点出脱力矩-30%~+10% Detent torque -30%~+10%
7-2 耐湿性 Damp heat	温度 $40 \pm 2^\circ\text{C}$ 、湿度90~95%的恒温恒湿槽中放置 96 ± 4 小时后,在常温、常湿中放置1.5小时后测试。 The encoder shall be stored at temperature of $40 \pm 2^\circ\text{C}$ with relative humidity of 90% to 95% for 96 ± 4 in a thermostatic chamber. And then the encoder shall be subjected to standard atmospheric conditions for 1.5H. After which measurements shall be made.	应满足初期规格。 Specifications in clause
7-3 耐热性 Dry heat	温度 $85 \pm 3^\circ\text{C}$ 的恒温箱中放置 96 ± 4 小时, 常温、常湿放置1.5小时后测量。 The encoder shall be stored at a temperature of $85 \pm 3^\circ\text{C}$ for $96 \pm 4\text{H}$ in a thermostatic chamber. And then the encoder shall be subjected to standard atmospheric conditions for 1.5H. After which measurement shaft be made.	应满足初期规格。 Specifications in clause
7-4 低温特性 Cold	温度 $-40 \pm 3^\circ\text{C}$ 的恒温箱中放置 96 ± 4 小时, 常温、常湿放置1.5小时后测量 The encoder shall be stored at a temperature of $-40 \pm 3^\circ\text{C}$ for $96 \pm 4\text{H}$ in a thermostatic chamber. And then the encoder shall be subjected to standard atmospheric conditions for 1.5H. After which measurement shaft be made.	应满足初期规格。 Specifications in clause
7-5 预先加热 Preheat	预热: PBC板表面温度 $180 \pm 3^\circ\text{C}$ 以下, 时间2分钟以内。 Preating must be finished within 2 minutes to reach Max. $180 \pm 3^\circ\text{C}$ of copper foil surface after a PCB is placed a reflow soldering furnace.	
7-6 焊接加热 Soldering Heat	焊接温度 250°C 以下,仅允许时间 3 ± 1 秒以内。 Soldering temperature is only allowed within $3 \pm 1\text{s}$ at Max. 250°C of copper foil surface after preheating.	
7-7 允许焊锡过程次数 Allowable frequency of Soldering Process	2次以下 2 times max	

推动开关部份 Push Switch Portion

备注: 以下规格适用于E06编码器带开关系列

Note: The following specification is only suitable for the one type with switch of E06 encoder series

1. 额定值 Rating

1-1: 额定电压

Rated voltage : DC 5V

1-2: 最大额定电流 (阻抗负载)

Maximum operating current (resistive load): 10 mA Max

2. 电气性能 Electrical characteristics

项 目 Item		条 件 Conditions	规 格 Specifications
2-1	接触电阻 Contact resistance	用DC 5V 1mA 电压测定 Voltage test at DC 5V 1mA.	100mΩMax
2-2	振荡 Bouncing	以1秒钟1往复(OFF-ON-OFF)回转运转 shaft shall be Rotated at 1 cycles/sec(OFF-ON-OFF)	10ms以下 10ms Max
2-3	绝缘电阻 Insulation resistance	在端子与安装板间施加DC.250V 1mA Measurement shall be made under the Condition which a voltage 250V DC 1mA Is applied between individual Terminals and tracked	在端子安装板间50MΩ以上 Between individual Terminals and bracket 50MΩ Min.
2-4	耐电压 Dielectric strength	在端子和安装板间施加AC300V电压1分钟 A voltage of 300V AC shall be applied for 1 minute between individual terminals and bushing and plank.	不得有绝缘破坏 Without arcing or Breakdown.

3. 机械性能 Mechanical characteristics

3-1	开关电路、接点数 Switch circuit and Number of pulse		单极单投(推ON) Single pole and single throw(push on)
3-2	开关移动量 Travel of switch		0.1+0.1/-0mm
3-3	开关动作力 Operating force of switch	在轴方向施加的按压力 Push static load to the shaft in the axial direction	250±100gf

4. 耐久性能 Endurance characteristics

4-1	寿命特性 Operating life	在无负荷条件下沿轴向施以200gf以下的力, 以600次/小时的速度按压, 连续运转20,000往复。 The encoder's shall shall be rotated to 20,000 cycles at a speed of 600/h without electrical load.	接触电阻:200mΩ以下 Contact resistance: 200mΩ Max. 开关动作力:-30%~+10%。 Operating force of switch:-30% +10%
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