



东莞市凡睿电子科技有限公司

DONG GUAN FAN RUI TECHNOLOGY&ELECTRONICS CO., LTD.

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承认书 FOR APPROVAL

客户名称(Customer's Name): _____

客户摘要(Customer Note): _____

承认编号
Samples lot No.: FR220905

发布日期:
Issue Date: 2022-09-06

客户确认回复/Evaluation Results

客户品名		客户料号	Y.DZ.13.000008	
OK(判定可用)	NG(不可使用)	确 认	核 准	贵公司盖章

如诚蒙贵公司确认合格，敝司将按样品进行生产交货，如规格有变请提前通知！

以下为凡睿资料 FANRUI INFORMATION

机种类别(Product): RK11 旋转式电位器

产品规格(Part No.): RK11GV01-YD30A12-B10K±20%

物料编码(Materiel No.):

产品图号(Drawing No.): GC-G-RK11-005

摘 要(Note):



凡睿电子科技有限公司专业生产销售各种编码器，电位器及多路旋转开关，公司从前期的产品开发，模具制做，到后期的零件生产，成品组装及销售为一体的一站式完成。并可根据客户要求设计开发各种编码器，电位器及多路旋转开关。欢迎来电咨询！	业务员 Sales Department	曾海发
	承 办 Prepared By	陈 炯
	审 核 Proofed By	吕 单
	核 准 Checked By	刘建国

凡睿，竭诚为您服务！欢迎来电咨询！！



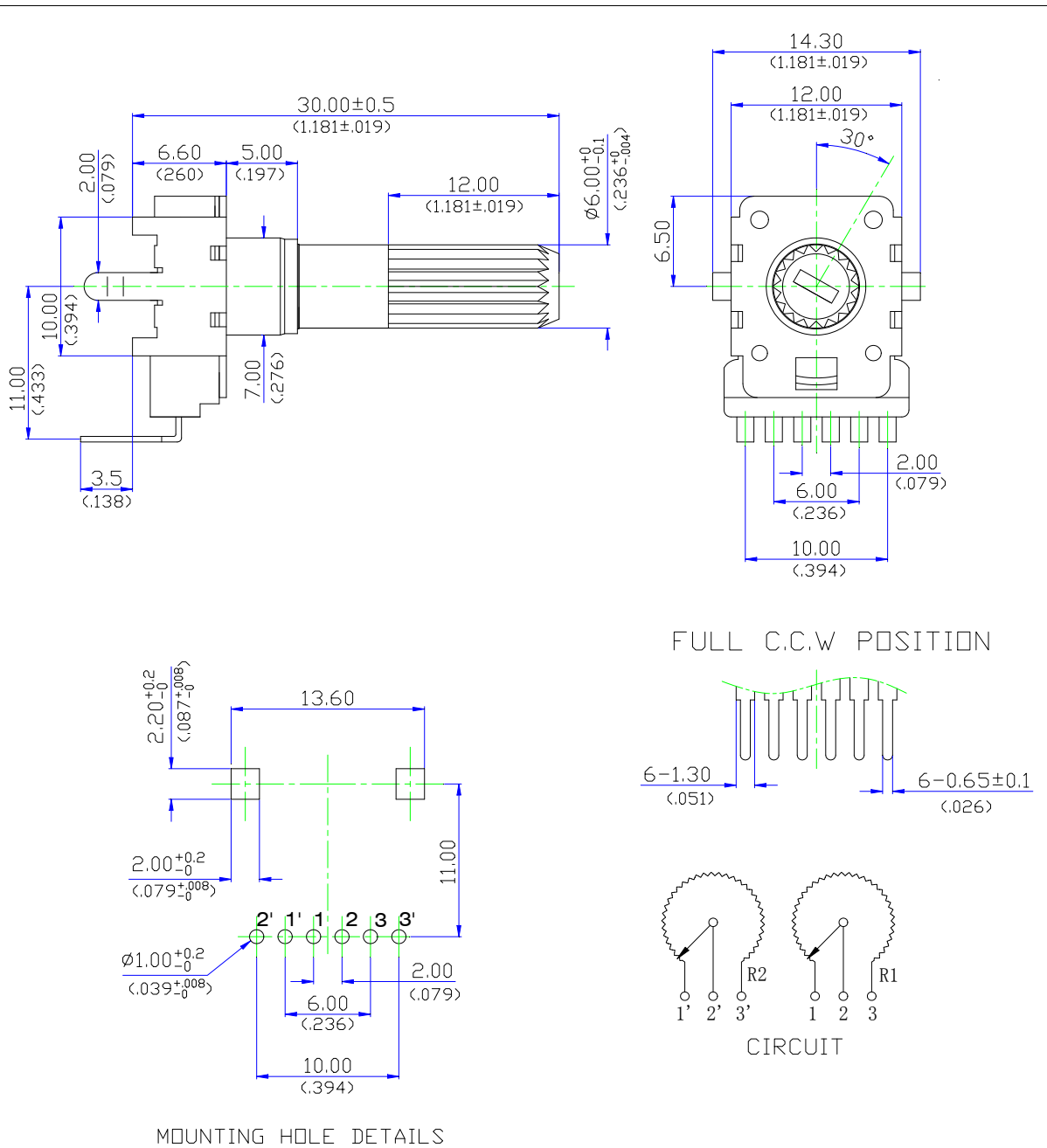
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Title	RK11 Series		
Code	/		
Dwg Name	RK11GV01-YD30A12-B10K±20%		
Dwg No	GC-G-RK11-005	Version	A
DESIGN	CHECK	APPROVAL	

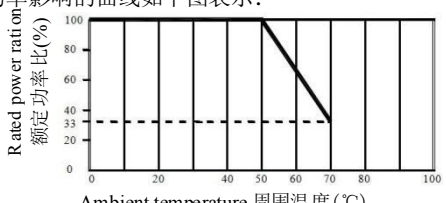
③			
②			
①			
Devision	Date	Design	
	Unit	Scale	TOLERANCE
	MM	3:1	
MTL			UNDER 10 ±0.3
SPEC			10~100 ±0.5
DISPOSAL			OVER 100 ±0.8
			ANGULAR DIMENSION ±5°

RK11 SERIES GENERAL SPECIFICATION

RK11 系列规格书

1. GENERAL	1. 一般事项
1.1、Scope The specification applies to model RK11 type mainly used for consumer products 1.2、Operating temperature range 1.3、Storage temperature range 1.4、Test conditions: Standard atmospheric conditions: Unless otherwise specified,the standard range of atmospheric conditions for making measurements and test is as follows: Ambient temperature:5~35℃ Relative humidity:45~85% Air pressure:86kpa to 106kpa If there is any doubt about the results,measurements shall be Made within the following limit: Ambient temperature:20±2℃ Relative humidity:60~70% Air pressure:86kpa to 106kpa	适用范围 此规格书适用于 RK11 机型 使用温度范围 -10℃~70℃ 保存温度范围 -20℃~85℃ 试验状态 标准状态 无特别规定之实验及测定以温度 5~35℃，相对湿度 45~85%，气压 86~106kpa 之标准状态测定。 发生判定疑问或另有特别要求则以 基准状态（温度 20±2℃，相对湿度 60~70%，气压 86~106kpa）为标准测定。

2. ELECTRICAL CHARACTERISTICS	2. 电气特性
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Item 项目	Conditions 条件	Specifications 规格
1、Nominal total resistance and tolerance 公称全阻抗值	The resistance between terminals 1 and 3 shall be measured 端子 1-3 间阻值测定。	<u>10K</u> Ω <input checked="" type="checkbox"/> ±20%
2、Resistance law 阻抗变化特性	Measurement shall be made by the resistance law method. For other procedures(refer JISC5261 standard) 用电压法测试，参照 JISC5261 标准	B Taper 线性 See the potentiometer curve on the last page 参见最后一页电位器曲线图
3、Power rating 额定功率	Power rating is based on continuum full load operation at the maximum voltage between terminals 1 and 3 . Power rating vs.ambient temperature shall be denoted on the following graph. 端子 1-3 间连续负载后的最大功率。 环境温度对功率影响的曲线如下图所示： 	B taper: 0.05W B 曲线: 0.05W
4、Rated voltage 额定电压	Rated voltage 额定电压: $E = \sqrt{PR}$ Power rating P: 额定功率 (W) Nominal total resistance R: 公称阻抗值 (Ω) When the rated voltage exceeds the maximum operating voltage. the maximum operating voltage shall be the rated voltage . 额定电压大于最高使用电压时,最高使用电压作为额定电压.	Maximum operating voltage 最高使用电压 AC50V/DC20V
5、Residual resistance 残留电阻	Contact brush stop at the end of the (A). Resistance between terminals 1 and 2, terminals 2 and 3 shall be measured. A: Angle of effective rotation 接触刷停留在(A)终端位置,在端子 1-2 间,端子 2-3 间测定之电阻值. A:有效回转角度	R1,2: ≤ 20 Ω less R2,3: ≤ 20 Ω less 以下
6、Rotational noise 转动噪音	Apply DC 20V between terminals 1-3 to measure the noise voltage (rated voltage $\leq 20V$ apply by rated voltage). 在端子 1-3 间加直流电压 20V(额定电压 $\leq 20V$,则以额定电压值测试)后,测定的杂音电压. Shaft rotation : 1 rotation / 3S 轴转速:1 回转/3 秒	100mVp-p or less $\leq 100mVp-p$ 以下

RK11 SERIES GENERAL SPECIFICATION

RK11 系列规格书

2. ELECTRICAL CHARACTERISTICS		2. 电气特性	
Item 项 目	Conditions 条 件	Specifications 规 格	
7、Tracking error 连动误差	<p>The voltage of 2 V r.m.s. Shall be applied between terminals 1 and 3 and between terminals 1' to 3' by measuring frequency at 1KHz. The output voltage shall be measured between terminals 1 and 2 and between terminal 1' and 2'(for the 15C and 25C taper. the measurement shall be made between terminals 2 and 3 and between terminals 2' and 3').</p> <p>it should be the same standard with the first measuring result .</p> <p>If there is not any doubt about the results . This DC voltage shall be used as the test voltage.</p> <p>在端子 1-3 间,1'-3'间,输入频率 1KHz,电压 2V 的正弦波实值,测量端子 1-2 间,端子 1'-2'间的输出电压(适用于 15C 和 25C 线型,端子 2-3 间, 2'-3'间也应测量输出电压) 结合第一次的测量结果,应为同一标准. 如对测量结果没有质疑, 则将此电压作为测试电压值。</p> <p>Input impedance of the voltmeter: 10M Ω or more 电压表输入阻抗 10M Ω 以上</p> <div style="text-align: center;"> </div>	<p>Multi-circuit tracking error: R1,2: ±3dB.at -40~0dB</p>	
		≤±3dB.at -40~0dB(special) ≤±1.5dB at -60~0dB)	
8、Insulation resistance 绝缘阻抗	Apply voltage of 250V DC and measure for 1 minute	Between individual terminals and frame 端子-固定脚	100M Ω or more 100M Ω 以上
9、Dielectric strength 耐电压	Measuring frequency : 50~60Hz; 250V AC for 1 minute.	Between individual terminals and frame 端子-固定脚	Electrical characteristics shall be satisfied with specification. 电气性能符合规定要求
3. MECHANICAL CHARACTERISTICS		3. 机械特性	
1、 Total mechanical rotation 全回转角度	Angle of effective rotation 有效旋转角度		300°±5°
2、 Rotational torque 旋转力矩	Rotational speed 旋转速度 60°/S	Standard atmospheric conditions 常温 5°C 至 35°C	10~100 gf.cm
3、 Number of Detents Click 定位数目	For with-detent type. 加中段功能机种使用		□ 1C (Center Detent 中段功能) □ 8C
4、 Click slip out force 定位推动力	For with-detent type. 加中段功能机种使用		60~120gf.cm
5、 Shaft stop strength 止档强度	The following torsion moment load of 3kg shall be applied to the shaft for 5sec at both ends (After fixation). 固定后与轴转至末端加 3Kg 力矩并持续 5 秒。		Electrical characteristics shall be satisfied with specification. 电气性能符合规定要求
6、 Shaft push & pull strength 轴向推拉强度	Pull: 5.0 Kg Max. Push: 5.0 Kg Max. 最大拉力 5Kg 力矩。最大推力 5kg 力矩。		Shaft without damage, rotational torque. without abnormality . Electrical characteristics shall be satisfied with specification 轴无破损, 旋转无异常。 电气性能符合规定要求


RK11 SERIES GENERAL SPECIFICATION

RK11 系列规格书

3. MECHANICAL CHARACTERISTICS		3. 机械特性	
Item 项 目	Conditions 条 件	Specifications 规 格	
7、Shaft wobble 轴摆动	A momentary load of 500gf.cm shall be applied at the point 5 mm from the tip of the shaft in a direction perpendicular to the axis (after fixation) 固定后在与轴垂直的端面 5mm 处施加 500gf.cm 静载荷	0.7 x L / 20 mm p-p L: 固定面到测试点的距离 L is the length between mounting surface and measuring point .	
4. ENDURANCE CHARACTERISTICS		4. 耐久性能	
Item 项 目	Conditions 条 件	Specifications 规 格	
1、Solder ability 焊锡性	The terminals shall be stored at a temperature of 40°C with relative humidity of 90~95% and measured in 168 hours. 温度 40°C, 湿度 90~95%RH , 168 小时测定。 The terminals shall be immersed into solder bath at 260°C±5°C for 3±0.5S 端子在 260°C±5°C 温度的焊锡槽内浸锡 3±0.5 秒	A new uniform coating of solder shall cover 75% minimum of the surface being immersed. 浸渍面须有 75% 以上焊锡附着	
2、Resistance to soldering heat 焊锡耐热性	Soldering method 手焊条件: Soldering temperature 手焊温度: 300°C±10°C Application time of soldering 时间: 3±1 秒 Substrate to be soldered: Cooper clad laminated phenol in one surface of 1.6mm thickness, Do not use double sided through PCB. Preheating: Surface temperature of substrate shall be settled within 100°C in one minutes. 使用基板: T=1.6mm 厚单面铜箔积层板面。 预热: 基板表面温度 100°C 以下, 1 分钟以内。 Wave soldering: 波峰焊条件: Bit temperature 温度: 260°±5°C	Change in total resistance is relative to the value before test: ±5% Without visual deformation or terminals loosening. Electrical characteristics shall be satisfied with specification 总阻变化值: ±5% 外观无变形, 端子无松动, 电气性能符合规定要求	
3、Resistance to heat 耐热性	The potentiometer shall be stored at a temperature of 85°C±2°C for 120±4H in a thermostatic chamber. Then the potentiometer shall be measured after maintaining at standard atmospheric conditions for 1H, in order to remove surface moisture. 温度 85°C±2°C 恒温槽中 120±4 小时放置后, 置于常温常湿 1 小时除去水滴后测定。	Change in total resistance is relative to the value before test: ±20% 总阻变化值: 初期值的±20%	
4、Resistance to cold 耐寒性	The potentiometer shall be stored at a temperature of -20±3°C for 120±4H in a thermostatic chamber. Then the potentiometer shall be taken out of the chamber and its surface moisture shall be removed. And measure the potentiometer which shall be subjected to standard atmospheric conditions for 1H. 温度 -20±3°C 恒温槽中 120±4 小时放置后, 置于常温常湿 1 小时除去水滴后, 1 小时内测定。	Change in total resistance is relative to the value before test: ±20% 总阻变化值: 初期值的±20%	
5、Damp heat 耐湿性	The potentiometer shall be stored at a temperature of 40±2°C, with relative humidity of 90% to 95% for 96±4H in a thermostatic chamber. Then the potentiometer shall be taken out of the chamber and its surface moisture shall be removed. and measure the potentiometer which shall be subjected to standard atmospheric conditions for 1H. 温度 40±2°C, 湿度 90-95%, 恒温恒湿槽中放置 120±4 小时后,	Change in total resistance is relative to the value before test: +35%, -5% 总阻变化值: 初期值的+35%, -5% Insulation resistance: 10M Ω or more 绝缘阻抗: 10M Ω 以上 Rotational Noise: 150mV p-p less than 转动噪音: 150mV p-p 以下	
6、Change of temperature 温度循环试验	Temperature cycles, each as shown in table below. Surface moisture shall be removed. And measure the potentiometer which shall be subjected to standard atmospheric conditions for 1 hour. 以下条件温度连续 5 个周期的试验后, 置于常温常湿 1 小时, 除去水滴后, 1 小时内测定。	Temperature 温度	Duration 放置时间
	1	-10°C±3°C	30 min (分)
	2	standard atmospheric conditions(常温)	10 min to 15 min(分)
	3	70°C±2°C	30 min (分)
	4	standard atmospheric conditions(常温)	10 min to 15 min(分)
		Change in total resistance is relative to the value before test: ±30% 总阻变化值: 初期值的±30% Insulation resistance: 100M Ω or more 绝缘阻抗: ≥100MΩ Dielectric strength: Without damage to parts arcing or breakdown etc. 耐电压: 无损伤, 变形, 绝缘破坏等情形 Appearance: There shall be no deformation or cracks of molded part. 外观: 塑胶部分无形成破裂	

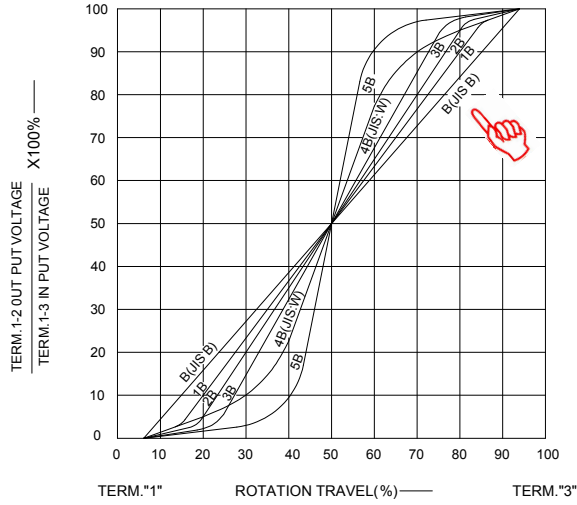
RK11 SERIES GENERAL SPECIFICATION

RK11 系列规格书

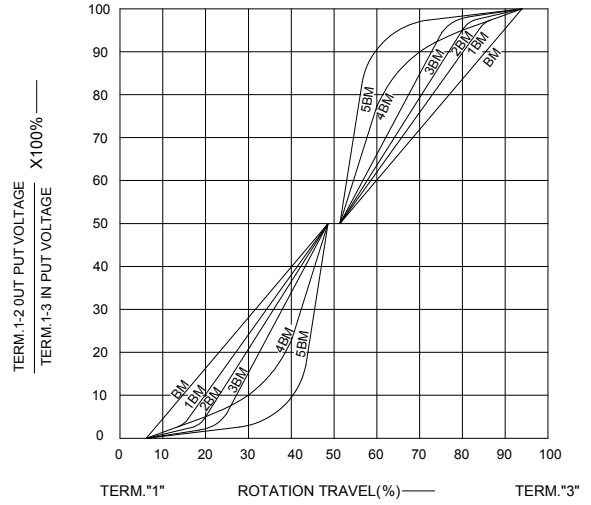
4. ENDURANCE CHARACTERISTICS		4. 耐久性能		
Item 项 目	Conditions 条 件			Specifications 规 格
7、Endurance 持久性	The moving contact without electrical load shall be rotated from one end stop to the other and returned to its original position exceeds 90% of effective angle. This procedure constitutes 1 cycle. And the moving contact shall be subjected to 600 cycles per hour. total 15000±200 cycles.(5000 to 8000 continuous cycles for 24H). 轴以 600 周/小时(来回算 1 周)的速度旋转,24 小时旋转 5000~8000 周,有效旋转角度超过 90%,共 15000±200 周.			Variable Value of Total Resistance: specified value±15% 总阻变化值: 规格值范围的±15% Noise 150mV p-p less than 转动噪音: 150mV p-p 以下 Rotational torque shall not deviate from the previously specified value. 回转力矩满足规格值
REVISION 变更记事	变更时间	 东莞市凡睿电子科技有限公司		
		DSGD.主办	CHKD.审查	APPD.核准
TITLE 标题: POTENTIOMETER 电位器规格书				
Model. 机种: RK11 系列				

电位器曲线图

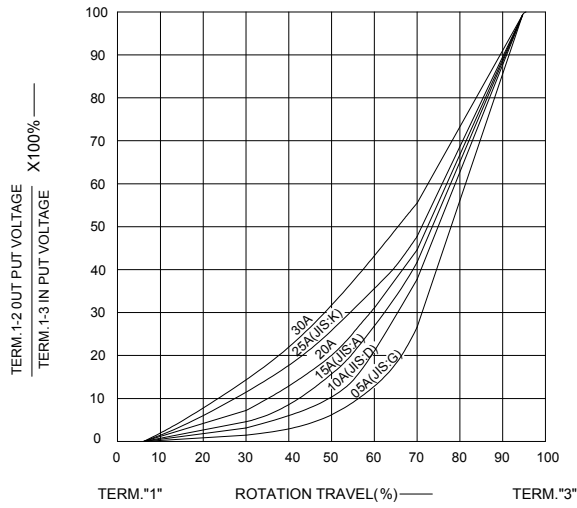
TAPERS B SERIES



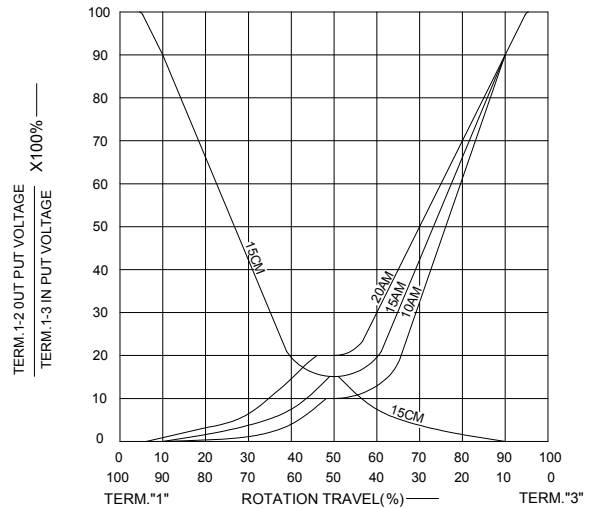
TAPERS B WITH 50% TAP



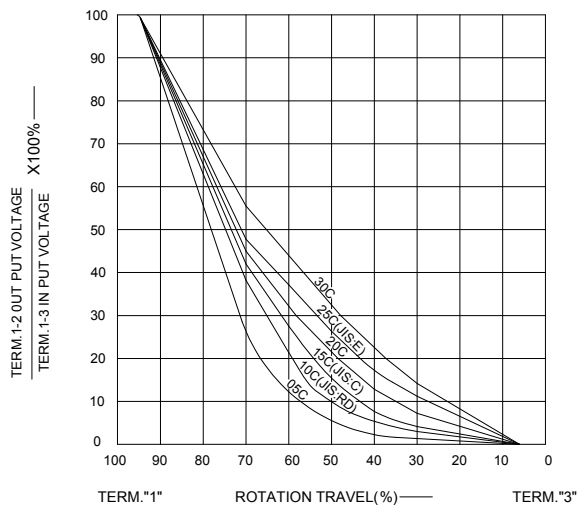
TAPERS A SERIES



TAPERS A&C WITH 50% TAP



TAPERS C SERIES



TAPERS M & N

