



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

FAX (0769) 82991458

E-mail: fanrui@dgifanrui.com

网址: www.dgifanrui.com

地址: 东莞市茶山镇京山第三工业区

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.: FR221108

签发日期:

Issue Date: 2022-11-18

客户确认回复/Evaluation Results

客户品名		客户料号		
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): RK093 旋转式电位器

产品规格(Part No.): RK093NV01-FTD25A12-B50K ±20%-FR

物料编码(Materiel No.):

产品图号(Drawing No.): GC-G-RK093-008

摘 要(Note): 透明半圆塑胶轴



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！



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

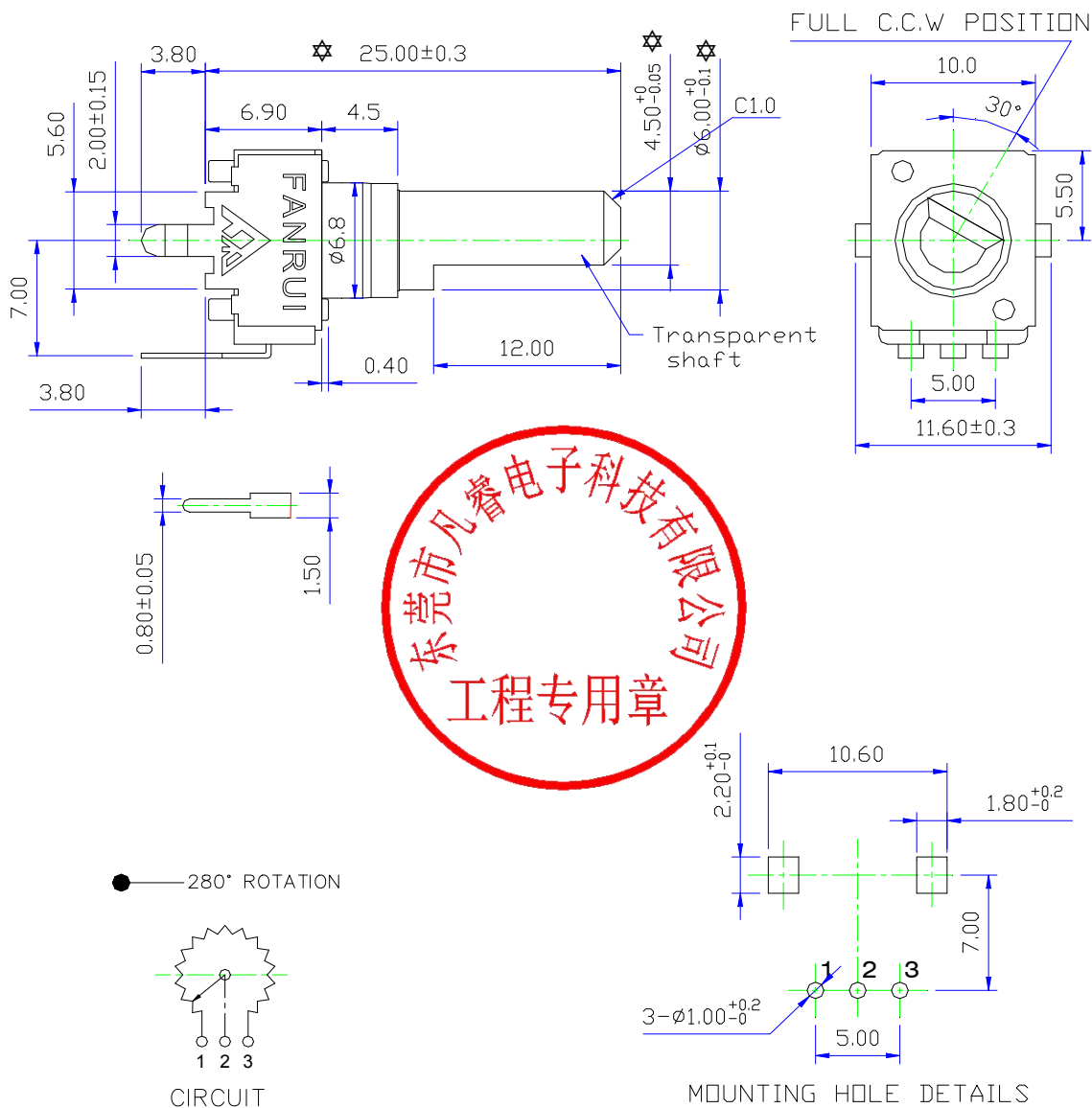
FAX (0769) 82991458

E-mail: fanrui@dgfanrui.com

网址: www.dgfanrui.com

地址: 东莞市茶山镇京山第三工业区

备注: 1. 标有“☆”符号为重点管控尺寸;



TITLE		RK093 Series		4		
CODING		/		3		
NAME		RK093NV01-FTD25A12-B50K±20%-FR		2		
DWG NO		GC-G-RK093-008	VERSION	0	1	
DESIGN		CHECK	APPROVAL		DEVISION	DATE
					UNIT	SCALE
					MM	3:1
					TOLERANCE	
					UNDER 10	±0.3
					10~100	±0.5
					OVER 100	±0.8
					ANGULAR DIMENSION	±5°



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

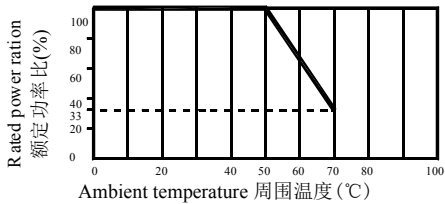
FAX (0769) 82991458

E-mail: fanrui@dgfanrui.com

网址: www.dgfanrui.com

地址: 东莞市茶山镇京山第三工业区

RK093 系列规格书

1. ENERAL		1.一般事项
1.1、Scope	适用范围	
The specification applies to model RK093 type mainly used for consumer products	此规格书适用于 RK093 机型	
1.2、Operating temperature range	使用温度范围 -10℃~70℃	
1.3、Storage temperature range	保存温度范围 -25℃~70℃	
1.4、Test conditions:	试验状态	
Standard atmospheric conditions:	标准状态	
Unless otherwise specified, the standard range of atmospheric conditions for making measurements and test is as follows:	无特别规定之实验及测定时以温度	
Ambient temperature: 5~35℃ Relative humidity: 45~85%	15~35℃, 相对湿度 25~85%, 气压	
Air pressure: 86kpa to 106kpa	86~106kpa 之标准状态测定。	
If there is any doubt about the results, measurements shall be Made within the following limit:	发生判定疑问或另有特别要求则以	
Ambient temperature: 20±2℃ Relative humidity: 60~70%	基准状态 (温度 20±2℃, 相对湿度 63~67%,	
定。 Air pressure: 86kpa to 106kpa	气压 86~106kpa) 为标准测	
2. ELECTRICAL CHARACTERISTICS		2.电气特性
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。	50K Ω ☒ ±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: 	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: 50V AC 20V DC
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



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

FAX (0769) 82991458

E-mail: fanrui@dgfanrui.com

网址: www.dgfmrui.com

地址: 东莞市茶山镇京山第三工业区

RK093 系列规格书

2. ELECTRICAL CHARACTERISTICS			2.电气特性
Item 项 目	Conditions 条 件		Specifications 规 格
6、Rotational noise 转动噪音	Apply DC 20V between terminals 1-3 to measure the noise voltage (rated voltage ≤20V apply by rated voltage). 在端子 1-3 间加直流电压 20V(额定电压≤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 ≤ 100mVp-p 以下
7、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
8、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		280°±5°
2、Rotational torque 旋转力矩	Rotational speed 旋转速度 S 旋转速度 60°/S	Standard atmospheric condition 常温 5℃ 至 35℃	10~90 gf.cm
3、Number of Detents Click 定位数目	For with-detent type. 加中段功能机种使用		10 (Center Detent 中段功能)
4、Click slip out force 定位推动力	For with-detent type. 加中段功能机种使用		30~120gf.cm
5、Shaft stop strength 止档强度	The following torsion moment load of 0.25 N.m(2.5kgf.cm) shall be applied to the shaft for 5s at both ends (after fixation) 固定后于旋转前后两端 0.25 N.m(2.5kgf.cm)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	Push & pull static load of (3kgf.cm) shall be applied to the shaft in vertical with axial directions for 10 seconds.(After fixation). 固定后与轴垂直的端面方向加 3Kgf.cm 并保持 10 秒。		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
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
1、Solderability 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℃, 湿度 90~95%RH , 168 小时测定。 The terminals shall be immersed into solder bath at 230°C±5°C for 3±0.5S 端子在 230℃±5℃ 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



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

FAX (0769) 82991458

E-mail: fanrui@dgfanrui.com

网址: www.dgfanrui.com

地址: 东莞市茶山镇京山第三工业区

RK093 系列规格书

4. ENDURANCE CHARACTERISTICS			4.耐久性能		
Item 项 目	Conditions 条 件			Specifications 规格	
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 When Soldering For The Part With switch, The Switch Should Be At On Status 带圆形基板的开关产品，焊锡时开关应处于接通状态,不能处于关闭状态 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 qithin 100°C in one minutes. 使用基板：T=1.6mm 厚单面铜泊积层板面. 预热：基板表面温度 100℃ 以下，1 分以内. Wave soldering: 波峰焊条件： Bit temperature 温度 : 260°±5°C Application time of soldering 时间 : 3 ±1 sec			No insulation damage and deformation contact is abnormal 不得有绝缘体破损 变形 接触无异常	
3、Resistance to heat 耐热性	The potentiometer shall be stored at a temperature of 70°C±2°C for 240±8H in a thermostatic chamber.Then the potentiometer shall be measured after maintaining at standard atmospheric conditions for 1.5H, in order to remove surface moisture .温度 70°C±2°C 恒温槽中 240±8 小时放置后,置于常温常湿 1.5 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 -25±3°C 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 1.5H. 温度-25±3°C 恒温槽中 96±4 小时放置后，置于常温常湿 1.5 小时除去水滴后,1.5 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 1.5H. 温度 40±2°C,湿度 90-95%,恒温恒湿槽中放置 96±4 小时后，置于常温常湿 1.5 小时除去水滴后,1.5 小时内测定。			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: 100M Ω or more 绝缘阻抗: 100M Ω 以上 Rotational Noise: 150mV p-p less than 转动噪音: 150mV p-p 以下	
6、Endurance 耐久性	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 10000±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 10000±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 Residual resistance 残留电阻: R1, 2: < 50 Ω ; R2, 3: < 50 Ω	
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:
					RK093 系列



东莞市凡睿电子科技有限公司

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

TEL: (0769) 81805438/86866001

Mobile: 13751429385

FAX (0769) 82991458

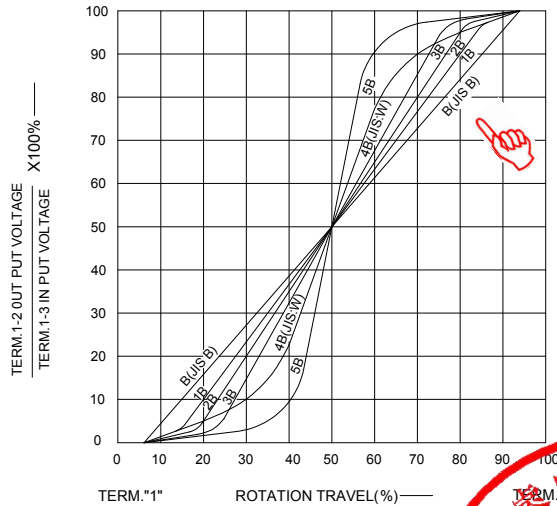
E-mail: fanrui@dgfanrui.com

网址: www.dgfanrui.com

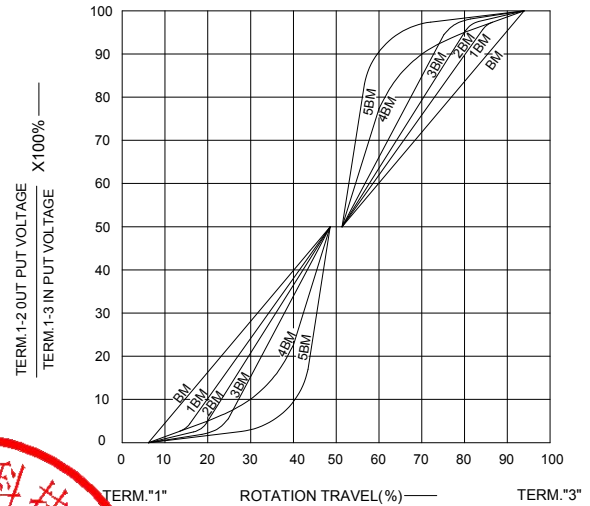
地址: 东莞市茶山镇京山第三工业区

电位器曲线图

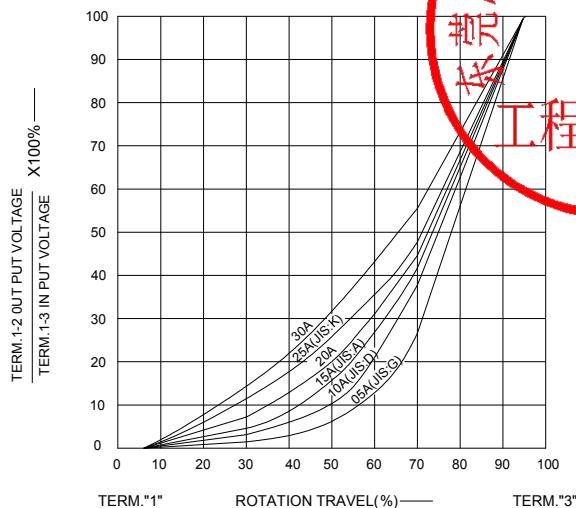
TAPERS B SERIES



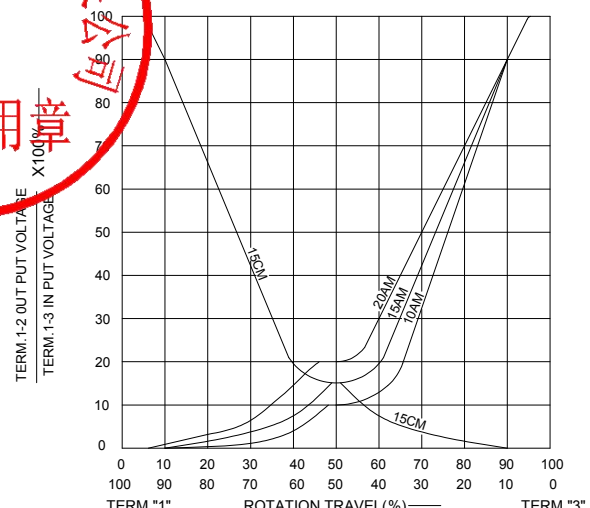
TAPERS B WITH 50% TAP



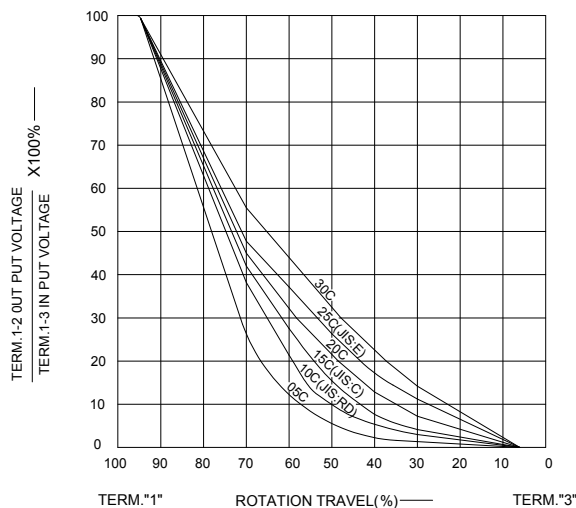
TAPERS A SERIES



TAPERS A & C WITH 50% TAP



TAPERS C SERIES



TAPERS M & N

