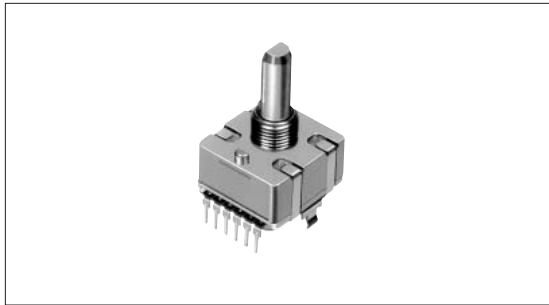


# Metal Shaft Potentiometer 20mm Size Metal Shaft Type (for Electric Ovens)

RK20B Series



High detent torque type for safe, assured operation under high-temperature environments.



## Features

- Endless rotation.
- Resistive element with printed-pattern switch.
- With the shaft-locking mechanism.

## Applications

- Temperature control for electric or gas ovens

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Rotary Sensors  
Linear Sensors

Metal Shaft

Insulated Shaft

Knob Operating

## Typical Specifications

| Items                       | Specifications  |
|-----------------------------|-----------------|
| Total resistance tolerance  | ±20%            |
| Maximum operating voltage   | 20V DC          |
| Total rotational angle      | 360° Endless    |
| Detent torque               | 140±50 mN·m     |
| Operating life              | 15,000 cycles   |
| Operating temperature range | -10°C to +105°C |

## Recommended Products List

| Number of resistor elements | Mounting direction | Products No. | Shaft type | Length of the shaft (mm) | Total resistance (kΩ) | Resistance taper | Rating power (W) | Switch contact resistance | Switch rating  | Axial locking release | Rotation stoppage strength when the axis is locked | Minimum packing unit (pcs.) |
|-----------------------------|--------------------|--------------|------------|--------------------------|-----------------------|------------------|------------------|---------------------------|----------------|-----------------------|--|-----------------------------|
| Single-unit                 | Vertical type      | RK20B1100001 | Flat       | 19.95                    | 10                    | 1B               | 0.06             | 300Ω max.                 | 10mA<br>12V DC | 7±3N                  | 1.7N·m min.  | 100                         |

## Dimensions

Unit:mm

| Style  | PC board mounting hole dimensions (Viewed from mounting side)   |
|--|---|
| <p>1.1mm Push travel limit<br/>0.7mm On push-to-tin<br/>32.15<br/>12.2<br/>19.95<br/>0.8 max.<br/>6<br/>12.85<br/>15<br/>3.6<br/>1.8<br/>1.5<br/>M9×0.75<br/>0.5<br/>ø6<br/>Shaft shown in start pos.<br/>20<br/>4.5<br/>0.6<br/>0.3<br/>9<br/>11.3<br/>0.8<br/>ø3</p> <p>Switch1<br/>Switch2<br/>235°<br/>54°<br/>10°<br/>9°<br/>20°<br/>18°<br/>Start pos.<br/>Detent position</p> | <p>20<br/>1.6<br/>ø2<br/>12<br/>1T 2T 3T<br/>7.5<br/>2.5<br/>12.5<br/>6-ø1 holes<br/>PC board T=1.6mm</p> |

For products specifications, see P.46, 47

## Products Specifications

| Items                                  |                                      | Model  | RK20B              | RK25T  | RK271              | RK501          |  |
|--|--------------------------------------|--|--------------------|--|--------------------|----------------|--|
|  |                                      | Operating temperature range  |                    | -10°C to +105°C  | -10°C to +60°C     | -10°C to +70°C |  |
| Electrical performance                 | Total resistance tolerance           | ±20%   |                    |  |                    |                |  |
|  | Rated power                          | 0.06W  | 0.05W              |  | 0.1W               |                |  |
|  | Maximum operating voltage            | 20V DC   | 5V DC              | 30V AC   | 150V AC            |                |  |
|  | Residual resistance                  | —  |                    | $R \leq 10k\Omega$ 20Ω max.<br>$10k\Omega < R \leq 50k\Omega$ 30Ω max.<br>$50k\Omega < R$ 0.1% or less of nominal total resistance                                 |                    | —              |  |
|  | Maximum attenuation (Volume control) | —  |                    | $5k\Omega \leq R < 10k\Omega$ 70dB min.<br>$10k\Omega \leq R < 50k\Omega$ 80dB min.<br>$50k\Omega \leq R < 100k\Omega$ 90dB min.<br>$100k\Omega \leq R$ 100dB min. |                    | 120dB min.     |  |
|  | Insulation resistance                | 100MΩ min. 250V DC   |                    |  | 100MΩ min. 500V DC |                |  |
|  | Voltage proof                        | 1 minute 300V AC   |                    |  | 1 minute 500V AC   |                |  |
| Mechanical performance                 | Total rotational angle               | 360°   | 300±5°             | 300±3°<br>Motor-driven 300±5°  | 300±3°             |                |  |
|  | Rotational torque (mN·m)             | 20 to 80   | 0.5 to 7.5         | 5 to 35<br>Motor-driven 15 to 45   | 13 to 43           |                |  |
|  | Stopper strength (N·m)               | —  | 0.5                | 0.9  | 1.5                |                |  |
|  | Push-pull strength                   | 100N max.  |                    |  |                    | 150N max.      |  |
|  | Vibration                            | 10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z and for 2 hours respectively |                    |  |                    |                |  |
|  | Solder heat resistance               | Manual soldering   | 350°C max. 3s max. |  |                    |                |  |
| Dip soldering (Dip available products) |                                      | 260±5°C, 4±1s  |                    | —  | 260±5°C, 4±1s      |                |  |
| Endurance                              | Operating life                       | 15,000 cycles  | 100,000 cycles     | 15,000 cycles  |                    |                |  |
| Environmental test                     | Cold                                 | -10°C for 96h  |                    |  |                    |                |  |
|  | Long-term heat resistance            | +105°C for 96h   | +70°C for 96h      |  |                    |                |  |
|  | Moisture resistance                  | +40±2°C, 90 to 95%RH for 96h   |                    |  |                    |                |  |

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