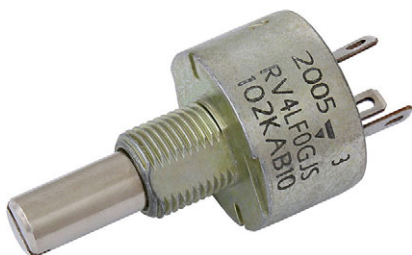


## Long Life / Heavy Duty Potentiometer



### FEATURES

- High power rating 2 W at 70 °C
- Sealed up to IP 67
- Low contact resistance variation (2 % typical)
- Robust nickel plated brass shaft
- Use of faston 2.86 connections
- Cermet element
- Center detent option
- Test according to IEC 60393-1
- Long life  $\geq 200K$  cycle
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### LINKS TO ADDITIONAL RESOURCES



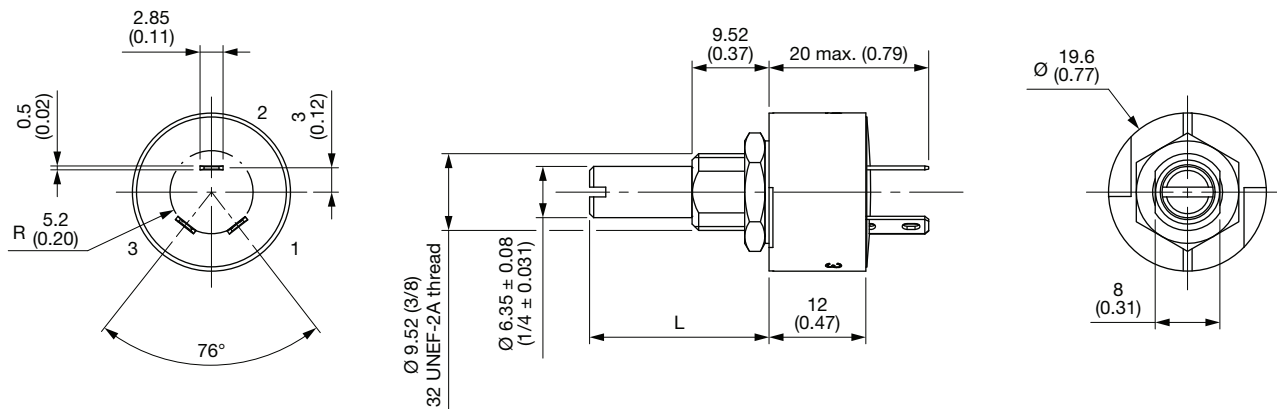
3D Models


Capabilities and  
Custom Options

### QUICK REFERENCE DATA

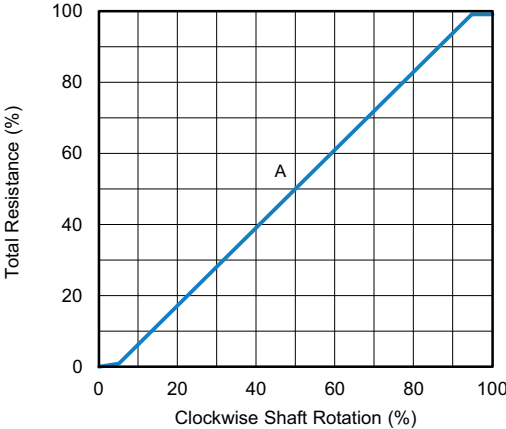
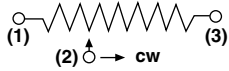
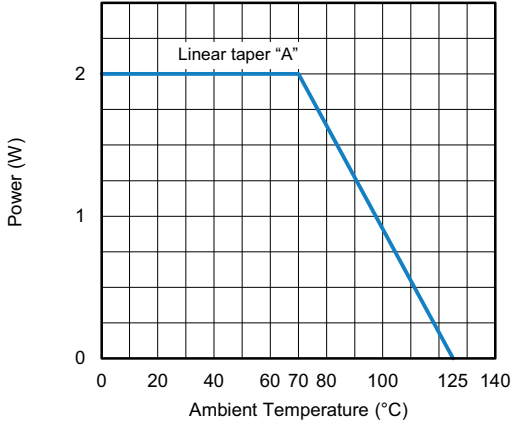
|                         |            |
|-------------------------|------------|
| Multiple module         | No         |
| Switch module           | n/a        |
| Detent module           | Yes        |
| Special electrical laws | A: linear  |
| Sealing level           | IP 67      |
| Lifespan                | 200K cycle |

### DIMENSIONS in millimeters (inches) $\pm 0.5$ mm ( $\pm 0.02$ " )



|            |      |      |     |
|------------|------|------|-----|
| Length "L" | 1/2" | 7/8" | 2"  |
| Shaft code | GBS  | GJS  | GRS |



| ELECTRICAL SPECIFICATIONS  |              |   |  |
|--|--------------|---|--|
| Resistive element  |              | Cermet  |  |
| Electrical travel  |              | $270^{\circ} \pm 10^{\circ}$  |  |
| Resistance range   | Linear taper | 500 $\Omega$ to 5 M $\Omega$  |  |
| Standard series  |              | Please refer to table "Standard Resistance Element Data"                            |  |
| Tolerance  | Standard     | $\pm 20\%$  |  |
|  | On request   | $\pm 10\%$  |  |
| Taper standard law: A (linear)<br>(other custom laws upon request) |              |   |  |
| Circuit diagram  |              |  |  |
| Power rating   | Linear       | 2 W at 70 $^{\circ}\text{C}$  |  |
| Temperature coefficient (typical)                                  |              | 300 ppm/ $^{\circ}\text{C}$   |  |
| Limiting element voltage (linear law)                              |              | 500 V   |  |
| Contact resistance variation (typical)                             |              | 2 % R <sub>n</sub>  |  |
| End resistance   |              | 1 $\Omega$  |  |
| Dielectric strength (RMS)  |              | 1500 V  |  |
| Insulation resistance (500 V <sub>DC</sub> )                       |              | 10 <sup>4</sup> M $\Omega$  |  |
| Independent linearity (typical)                                    |              | 5 %   |  |

**STANDARD RESISTANCE ELEMENT DATA**

| STANDARD<br>RESISTANCE<br>VALUES | LINEAR TAPER        |                      |                                    |
|----------------------------------|---------------------|----------------------|------------------------------------|
|                                  | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH<br>ELEMENT WIPER |
| $\Omega$                         | W                   | V                    | mA                                 |
| 500                              | 2                   | 31.6                 | 53.2                               |
| 1K                               | 2                   | 44.7                 | 44.7                               |
| 2K                               | 2                   | 53.2                 | 31.6                               |
| 5K                               | 2                   | 100                  | 20.00                              |
| 10K                              | 2                   | 141                  | 14.14                              |
| 20K                              | 2                   | 200                  | 10.00                              |
| 50K                              | 2                   | 315                  | 6.32                               |
| 100K                             | 2                   | 447                  | 4.47                               |
| 200K                             | 1                   | 500                  | 2.50                               |
| 500K                             | 0.50                | 500                  | 1.00                               |
| 1M                               | 0.25                | 500                  | 0.50                               |
| 2M                               | 0.13                | 500                  | 0.25                               |
| 5M                               | 0.05                | 500                  | 0.10                               |

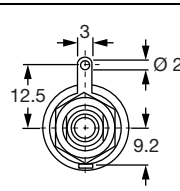
**MECHANICAL SPECIFICATIONS**

|                                   |  |
|-----------------------------------|--|
| Mechanical travel                 | 300° ± 5°                                |
| Operating torque / typical value  | 2 Ncm (2.83 oz.-inch)                    |
| End stop torque                   | 70 Ncm max. (6.5 lb-inch max.)           |
| Tightening torque of mounting nut | 200 Ncm max. (17.3 lb-inch max.)         |
| Unit weight                       | 23 g to 32 g max. (0.82 oz. to 1.14 oz.) |

**ENVIRONMENTAL SPECIFICATIONS**

|                   |                                |
|-------------------|--------------------------------|
| Temperature range | -55 °C to +125 °C              |
| Climatic category | 55/125/10                      |
| Sealing           | Fully sealed - container IP 67 |

**OPTIONS**

|                               |  |
|-------------------------------|--|
| Special feature command shaft | Length is measured from the mounting surface to the free end of the shaft. The screwdriver slot is aligned with the wiper within ± 10°. Special shafts are available, in accordance to drawings supplied by customers. We recommend that customers should not machine tool shafts, in order to avoid damage. Bending or torsion of terminals should also be avoided. |
| RV4L LPRP - with locating peg |    |

**MARKING**

- Vishay trademark
- Full ordering information (see Ordering Information table)
- Manufacturing date
- Marking of terminals 1, 2, 3



| PERFORMANCE             |   |                           |   |
|-------------------------|---|---------------------------|---|
| TESTS                   | CONDITIONS  | TYPICAL VALUES AND DRIFTS |   |
|                         |   | $\Delta R_T/R_T$ (%)      | OTHER                                       |
| Electrical endurance    | 1000 h at rated power<br>90°/30° - ambient temp. 70 °C  | ± 3 %                     | -   |
| Climatic sequence       | Phase A dry heat 125 °C<br>Phase B damp heat<br>Phase C cold -55 °C<br>Phase D damp heat 5 cycles | ± 0.5 %                   | -   |
| Damp heat, steady state | 56 days<br>40 °C, 93 % HR   | ± 0.5 %                   | Insulation resistance: > 10 <sup>5</sup> MΩ |
| Change of temperature   | 5 cycles<br>-55 °C at +125 °C   | ± 0.5 %                   |   |
| Mechanical endurance    | 200 000 cycles at rated power<br>turn angle ± 60°<br>T° = 20 °C                                   | ± 20 %                    | Independent linearity ± 10 %                |
| Shock                   | 50 g's at 11 ms<br>3 successive shocks in 3 directions  | ± 1 %                     |   |
| Vibration               | 10 Hz to 55 Hz<br>0.75 mm or 10 g's at 6 h  | ± 1 %                     |   |

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability

| ORDERING INFORMATION (part number) |            |                                 |  |  |   |   |  |  |   |   |   |   |   |
|------------------------------------|------------|---------------------------------|--|--|---|---|--|--|---|---|---|---|---|
| R                                  | V          | 4                               | L  | F  | L   | G                                       | J  | S  | 5 | 0 | 2 | M | A |
| MODEL                              | BUSHING    | OPTION                          | SHAFT  | SHAFT END  | OHMIC VALUE                                 | TOLERANCE                               | TAPER  | SPECIAL  |   |   |   |   |   |
| RV4L                               | F = Ø 3/8" | L = LPRP<br>0 = no locating peg | GB<br>GJ<br>GR<br>AP = custom shaft <sup>(1)</sup> | S = slotted<br><br>On request:<br>R = round<br>F = flattened<br>D = knurled or<br>C = custom | Linear from 500 Ω to 5 MΩ<br><br>502 = 5 kΩ | M = 20 %<br><br>On request:<br>K = 10 % | A = linear<br><br>On request:<br>custom laws | CV1M = detent option or special code given by Vishay |   |   |   |   |   |

**Note**

- <sup>(1)</sup> See Dimensions table

| PART NUMBER DESCRIPTION (for information only) |         |        |       |           |       |           |       |               |           |       |         |                |    |
|--|---------|--------|-------|-----------|-------|-----------|-------|---------------|-----------|-------|---------|----------------|----|
| RV4L   | F       | L      | GJ    | S         | 5K    | 20 %      | A     |               | BO50      |       |         |                | e3 |
| MODEL  | BUSHING | OPTION | SHAFT | SHAFT END | VALUE | TOLERANCE | TAPER | DETENT OPTION | PACKAGING | AP N° | SPECIAL | LEAD (Pb)-FREE |    |

| ACCESSORIES                                  |  |
|--|--|
| Additional Accessories (to order separately) | <a href="http://www.vishay.com/doc?51051">www.vishay.com/doc?51051</a> |
| Control knobs                                | <a href="http://www.vishay.com/doc?51101">www.vishay.com/doc?51101</a> |

| RELATED DOCUMENTS   |  |
|---|--|
| APPLICATION NOTES   |  |
| Potentiometers and Trimmers                                       | <a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a> |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | <a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a> |
| Capabilities and Custom Options                                   | <a href="http://www.vishay.com/doc?48485">www.vishay.com/doc?48485</a> |



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