

# Model 6180 series

## 7/8" Diameter

## Single Turn

## Conductive Plastic

## Precision Potentiometer /

## Position Sensor



### MODEL STYLES AVAILABLE

|                                 |                          |
|---------------------------------|--------------------------|
| 6181                            | 1/8" Shaft, 1/4" Bushing |
| 6184                            | 6 mm Shaft, 3/8" Bushing |
| 6186                            | 1/8" Shaft, 3/8" Bushing |
| 6187                            | 1/4" Shaft, 3/8" Bushing |
| 6188 for side load applications | 1/4" Shaft, 3/8" Bushing |

### ELECTRICAL<sup>1</sup>

|                                                        |                                             |
|--------------------------------------------------------|---------------------------------------------|
| Resistance Range                                       | 1K to 100K Ohms                             |
| Standard Resistance Tolerance                          | ±10%                                        |
| Minimum Practical Resistance Tolerance                 | ±5%                                         |
| Independent Linearity <sup>2</sup>                     | ±1%                                         |
| Minimum Practical Independent Linearity                | ±0.5%                                       |
| Input Voltage                                          | 400 VDC maximum, not to exceed power rating |
| Power Rating                                           | 1.0 Watt at 70°C, derating to 0 at 125°C    |
| Dielectric Strength                                    | 750 V rms                                   |
| Insulation Resistance                                  | 1,000 Megohms minimum                       |
| Output smoothness                                      | 0.1% maximum                                |
| Actual Electrical Travel                               | 340° nominal (300° with stop feature)       |
| Electrical Continuity Travel                           | 350° nominal (320° with stop feature)       |
| End Voltage                                            | maximum 0.5% of input voltage               |
| Resolution                                             | essentially infinite                        |
| Temperature Coefficient of Resistance <sup>3</sup>     | -400 ppm/°C typical                         |
| Temperature Coefficient of Output Voltage <sup>4</sup> | ±10 ppm/°C typical                          |

### MECHANICAL

|                             |                                              |
|-----------------------------|----------------------------------------------|
| Total Mechanical Travel     | 360° Continuous (320° ±3° with stop feature) |
| Number of Gangs             | 1 maximum                                    |
| Weight                      | 0.53 oz. nominal (single gang)               |
| Backlash                    | 1° maximum                                   |
| Static Stop Strength        | 40 oz.-in.                                   |
| Panel Nut Tightening Torque | 25 lb.-in. maximum                           |
| Start/Run Torque            | 1.0 oz.-in.                                  |

<sup>1</sup> Specifications subject to change without notice.

<sup>2</sup> Linearity is measured between 1% and 99% of input voltage.

<sup>3</sup> Special TCR available to ±100 ppm/°C.

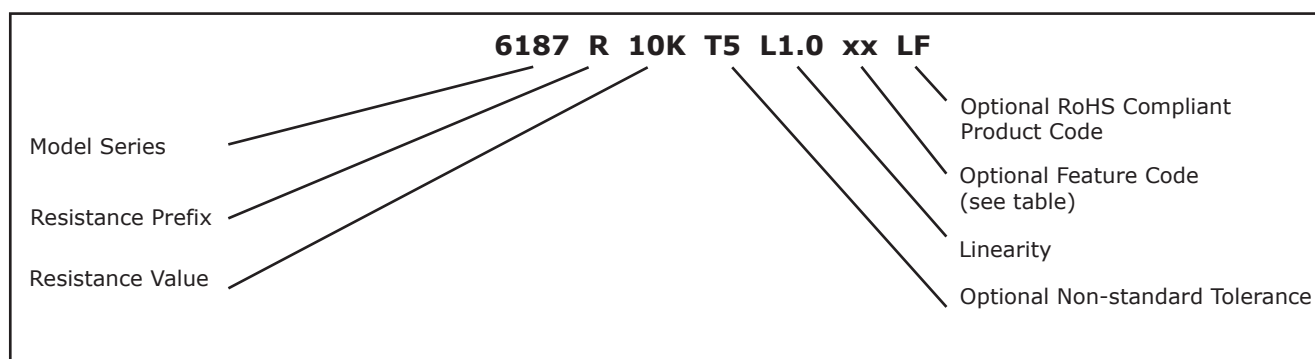
<sup>4</sup> Measured with 10 VDC CW to CCW and slider at 50% of electrical travel

# Model 6180

## ENVIRONMENTAL (MIL-PRF-39023)

|                                     |                                                                            |
|-------------------------------------|----------------------------------------------------------------------------|
| Operating Temperature Range         | -40°C to +125°C dynamic, -65°C to +125°C static                            |
| Temperature Cycling                 | 5 cycles, -65°C to +125°C, maximum 10% $\Delta R$                          |
| Shock                               | 6 ms Saw-tooth, 100 G's, 0.1 ms maximum discontinuity                      |
| Vibration                           | 10 G's, 10 to 500 Hz, maximum 2% $\Delta R$ , 0.1 ms maximum discontinuity |
| Moisture Resistance                 | five 24 hour cycles, maximum 25% $\Delta R$                                |
| High Temperature Exposure           | 1,000 hours at 125°C, maximum 0.5% $\Delta V_R$                            |
| Rotational Life                     | 5 million shaft revolutions                                                |
| Rotational Load Life                | 5 million shaft revolutions, maximum 10% $\Delta R$                        |
| Ingress Protection Rating (IP Code) | IP40                                                                       |

## ORDERING INFORMATION

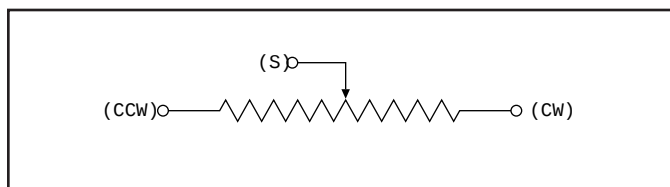


## FEATURE CODES

|                |    |
|----------------|----|
| Center Tap     | CT |
| Linearity Tape | LT |
| Shaft Lock     | SL |
| Stop           | ST |

When multiple feature codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

## CIRCUIT DIAGRAM



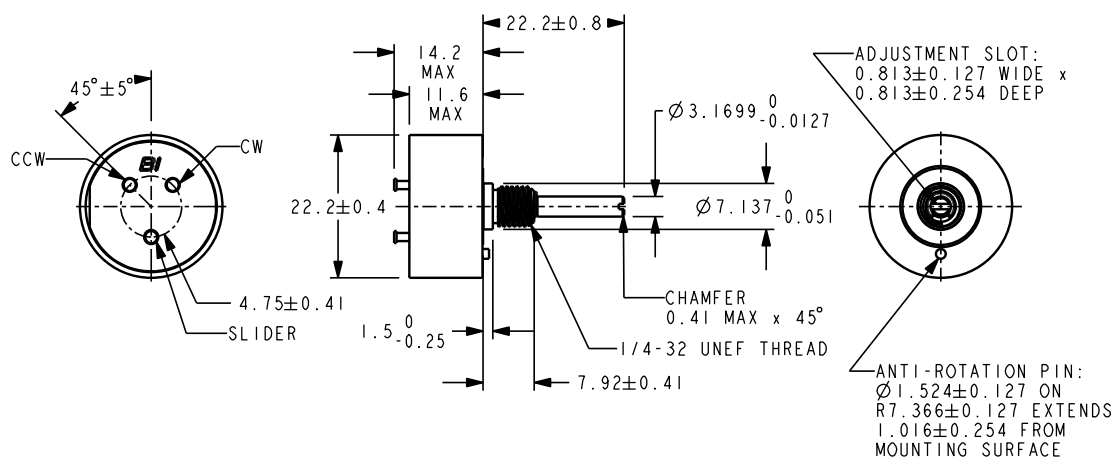
## STANDARD RESISTANCE VALUES

|    |    |    |     |     |     |
|----|----|----|-----|-----|-----|
| 1K | 2K | 5K | 10K | 20K | 50K |
|----|----|----|-----|-----|-----|

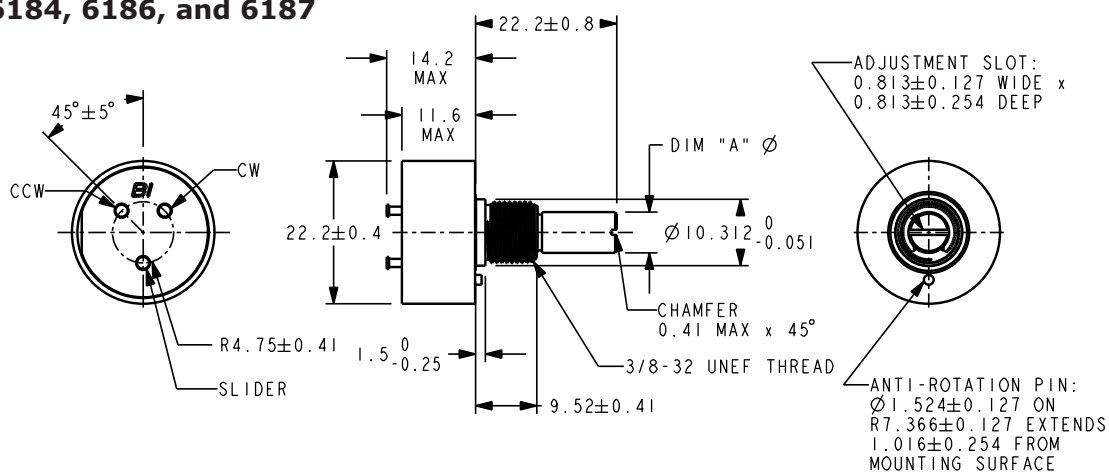
# Model 6180

## OUTLINE DRAWING

### Model 6181



### Models 6184, 6186, and 6187



| DIM | MODEL 6184                 | MODEL 6186                    | MODEL 6187                    |
|-----|----------------------------|-------------------------------|-------------------------------|
| A   | $6.0 +0.0000$<br>$-0.0127$ | $3.1699 +0.0000$<br>$-0.0127$ | $6.3424 +0.0000$<br>$-0.0127$ |

Dimensions in mm