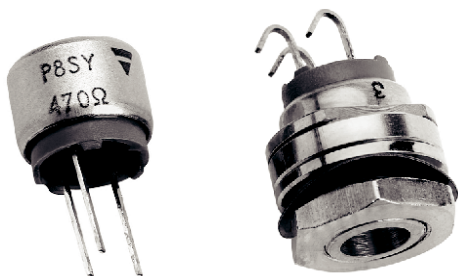


# 8.5 mm Diameter Fully Sealed Container Cermet Trimmer



## FEATURES

- Industrial grade
- High quality cermet resistive track:
  - 1 W at 70 °C, P8ST
  - 0.5 W at 70 °C, P8SX and P8SY
- Test according to CECC 41000 or IEC 60393-1
- Wide resistance range (10 Ω to 2.2 MΩ)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

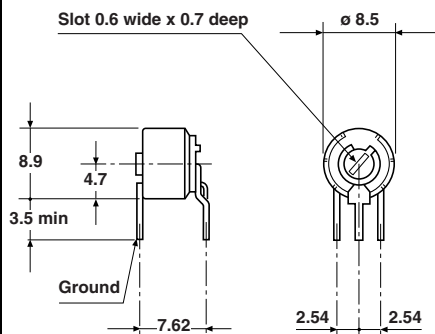

**RoHS**  
COMPLIANT

The P8S series trimmers are well adapted for all industrial applications as their maximum resistance contact variation is within 3 % of Rn and as they are fully sealed.

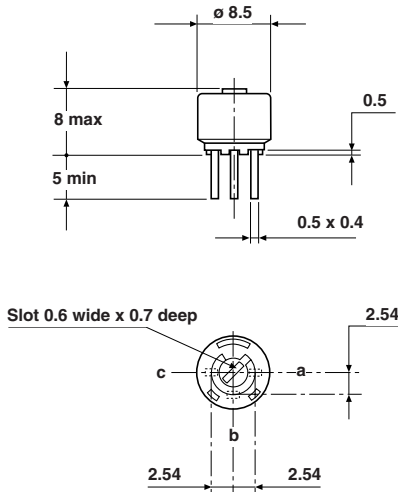
For more stringent requirements the P8P series is recommended.

## DIMENSIONS in millimeters (± 0.5 mm)

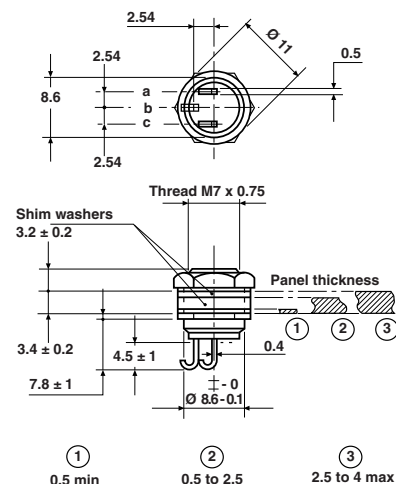
### P8SX



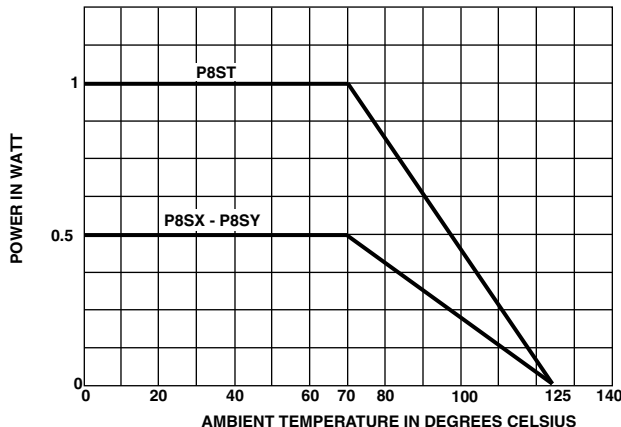
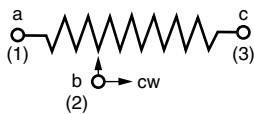
### P8SY



### P8ST



Consult Vishay Sfernice for panel sealed type

| ELECTRICAL SPECIFICATIONS                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                        |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Resistive element                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cermet                                 |
| Electrical travel                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 270° ± 15°                             |
| Resistance range                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10 Ω to 2.2 MΩ                         |
| Standard series E3                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 - 2.2 - 4.7 and on request 1 - 2 - 5 |
| Tolerance                                    | standard                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ± 10 %                                 |
|                                              | on request                                                                                                                                                                                                                                                                                                                                                                                                                                               | ± 5 %                                  |
| Power rating                                 | P8SX, P8SY                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.5 W at 70 °C                         |
|                                              | P8ST                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 W at 70 °C                           |
| Power rating chart                           |  <p>The chart shows the power rating in Watts versus ambient temperature in degrees Celsius. The P8ST series (1 W at 70 °C) has a constant power rating of 1 W from 0 to 70 °C, then decreases linearly to 0 W at 125 °C. The P8SX - P8SY series (0.5 W at 70 °C) has a constant power rating of 0.5 W from 0 to 70 °C, then decreases linearly to 0 W at 125 °C.</p> |                                        |
| Circuit diagram                              |  <p>The circuit diagram shows a variable resistor with three terminals: a (1), b (2), and c (3). Terminal b (2) is the wiper, and the arrow indicates clockwise (cw) rotation.</p>                                                                                                                                                                                   |                                        |
| Temperature coefficient                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | See Standard Resistance Element Table  |
| Limiting element voltage (linear law)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 250 V                                  |
| Contact resistance variation                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3 % R <sub>n</sub> or 3 Ω              |
| End resistance (typical)                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 Ω                                    |
| Dielectric strength (RMS)                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1000 V                                 |
| Insulation resistance (500 V <sub>DC</sub> ) |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 GΩ                                   |

| MECHANICAL SPECIFICATIONS   |                    |                      |
|-----------------------------|--------------------|----------------------|
| Mechanical travel           |                    | 300° ± 5°            |
| Operating torque (max. Ncm) |                    | 3                    |
| End stop torque (max. Ncm)  |                    | 6                    |
| Unit weight (max. g)        | P8SX, P8SY<br>P8ST | 1.1<br>3.6           |
| Terminals                   |                    | SnAg alloy (code e2) |

| ENVIRONMENTAL SPECIFICATIONS |  |                      |
|------------------------------|--|----------------------|
| Temperature range            |  | - 55 °C to + 125 °C  |
| Climatic category            |  | 55/125/56            |
| Sealing                      |  | IP67<br>Fully sealed |



| PERFORMANCES             |                                                                                                    |                                                                                                    |                                              |
|--------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------|
| TESTS                    | CONDITIONS                                                                                         | TYPICAL VALUES AND DRIFTS                                                                          |                                              |
|                          |                                                                                                    | $\Delta R_T/R_T$ (%)                                                                               | $\Delta R_{1-2}/R_{1-2}$ (%)                 |
| Load life                | 1000 h at rated power<br>90'/30' - ambient temperature 70 °C                                       | ± 2 %<br>Contact res. variation: < 3 % R <sub>n</sub>                                              | ± 3 %                                        |
| Climatic sequence        | Phase A dry heat 100 °C<br>Phase B damp heat<br>Phase C cold - 55 °C<br>Phase D damp heat 5 cycles | ± 0.5 %                                                                                            | ± 1 %                                        |
| Long term damp heat      | 56 days<br>40 °C, 93 % RH                                                                          | ± 1 %<br>Dielectric strength: 1000 V <sub>RMS</sub><br>Insulation resistance: > 10 <sup>4</sup> MΩ | ± 2 %                                        |
| Rapid temperature change | 5 cycles<br>- 55 °C to + 125 °C                                                                    | ± 0.5 %                                                                                            | $\Delta V_{1-2}/\Delta V_{1-3}$<br>≤ ± 1 %   |
| Shock                    | 50 g at 11 ms<br>3 successive shocks<br>in 3 directions                                            | ± 0.2 %                                                                                            | ± 0.5 %                                      |
| Vibration                | 10 Hz to 55 Hz<br>0.75 mm or 10 g during 6 h                                                       | ± 0.2 %                                                                                            | $\Delta V_{1-2}/\Delta V_{1-3}$<br>≤ ± 0.5 % |
| Rotational life          | 200 cycles                                                                                         | ± 3 %<br>Contact res. variation: < 3 % R <sub>n</sub>                                              |                                              |

| STANDARD RESISTANCE ELEMENT DATA |                           |                            |                                  |                           |                            |                                  |                                    |
|----------------------------------|---------------------------|----------------------------|----------------------------------|---------------------------|----------------------------|----------------------------------|------------------------------------|
| STANDARD<br>RESISTANCE VALUES    | P8SX, P8SY                |                            |                                  | P8ST                      |                            |                                  | TYPICAL TCR<br>- 55 °C to + 125 °C |
|                                  | MAX.<br>POWER<br>AT 70 °C | MAX.<br>WORKING<br>VOLTAGE | MAX. CURRENT<br>THROUGH<br>WIPER | MAX.<br>POWER<br>AT 70 °C | MAX.<br>WORKING<br>VOLTAGE | MAX. CURRENT<br>THROUGH<br>WIPER |                                    |
| Ω                                | W                         | V                          | mA                               | W                         | V                          | mA                               | ppm/°C                             |
| 10                               | 0.5                       | 2.2                        | 224                              | 1                         | 3.16                       | 316                              | ± 100                              |
| 22                               | 0.5                       | 3.3                        | 150                              | 1                         | 4.69                       | 213                              |                                    |
| 47                               | 0.5                       | 4.8                        | 103                              | 1                         | 6.86                       | 146                              |                                    |
| 100                              | 0.5                       | 7.0                        | 70                               | 1                         | 10.0                       | 100                              |                                    |
| 220                              | 0.5                       | 10.5                       | 47                               | 1                         | 14.8                       | 67                               |                                    |
| 470                              | 0.5                       | 15.3                       | 32                               | 1                         | 21.7                       | 46                               |                                    |
| 1K                               | 0.5                       | 22.4                       | 22                               | 1                         | 31.6                       | 32                               |                                    |
| 2.2K                             | 0.5                       | 33.2                       | 15                               | 1                         | 46.9                       | 21                               |                                    |
| 4.7K                             | 0.5                       | 48.5                       | 10                               | 1                         | 68.6                       | 15                               |                                    |
| 10K                              | 0.5                       | 70.7                       | 7.0                              | 1                         | 100                        | 10                               |                                    |
| 22K                              | 0.5                       | 105                        | 4.8                              | 1                         | 148                        | 6.7                              |                                    |
| 47K                              | 0.5                       | 153                        | 3.2                              | 1                         | 217                        | 4.6                              |                                    |
| 100K                             | 0.5                       | 224                        | 2.2                              | 0.63                      | 250                        | 2.5                              |                                    |
| 220K                             | 0.28                      | 250                        | 1.1                              | 0.28                      | 250                        | 1.1                              |                                    |
| 470K                             | 0.13                      | 250                        | 0.53                             | 0.13                      | 250                        | 0.53                             |                                    |
| 1M                               | 0.06                      | 250                        | 0.25                             | 0.06                      | 250                        | 0.25                             |                                    |
| 2.2M                             | 0.028                     | 250                        | 0.11                             | 0.03                      | 250                        | 0.11                             |                                    |



## MARKING

- Vishay trademark
- Model
- Style
- Ohmic value (in  $\Omega$ , k $\Omega$ , M $\Omega$ )
- Tolerance (in %)
- Manufacturing date
- Marking of terminal: 3

## PACKAGING

- In plastic box of 50 pieces, code B25 (BL50)

## ORDERING INFORMATION (part number)

|       |                |   |   |                                                    |   |   |                                    |                     |   |   |                                                         |  |  |  |
|-------|----------------|---|---|----------------------------------------------------|---|---|------------------------------------|---------------------|---|---|---------------------------------------------------------|--|--|--|
| P     | 8              | S | X | 1                                                  | 0 | 4 | K                                  | B                   | 2 | 5 |                                                         |  |  |  |
| MODEL | STYLE          |   |   | OHMIC VALUE                                        |   |   | TOLERANCE                          | PACKAGING CODE      |   |   | SPECIAL NUMBER                                          |  |  |  |
| P8    | ST<br>SX<br>SY |   |   | From 10 $\Omega$<br>to 2.2 M $\Omega$<br>103 = 10K |   |   | K = 10 %<br>On request:<br>J = 5 % | B25 = Box 50 pieces |   |   | (If applicable)<br>Given by Vishay for custom<br>design |  |  |  |

## PART NUMBER DESCRIPTION (for information only)

|       |       |       |       |           |         |           |             |
|-------|-------|-------|-------|-----------|---------|-----------|-------------|
| P8    | S     | X     | 100K  | 10 %      |         | BL        | e2          |
| MODEL | STYLE | STYLE | VALUE | TOLERANCE | SPECIAL | PACKAGING | LEAD FINISH |



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