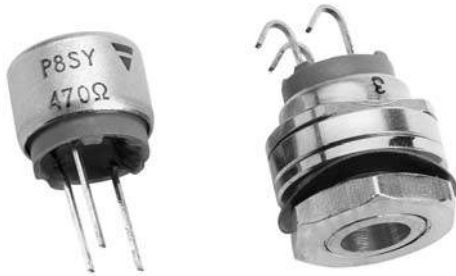


8.5 mm Diameter Single-Turn Fully Sealed Container Cermet Trimmer



FEATURES

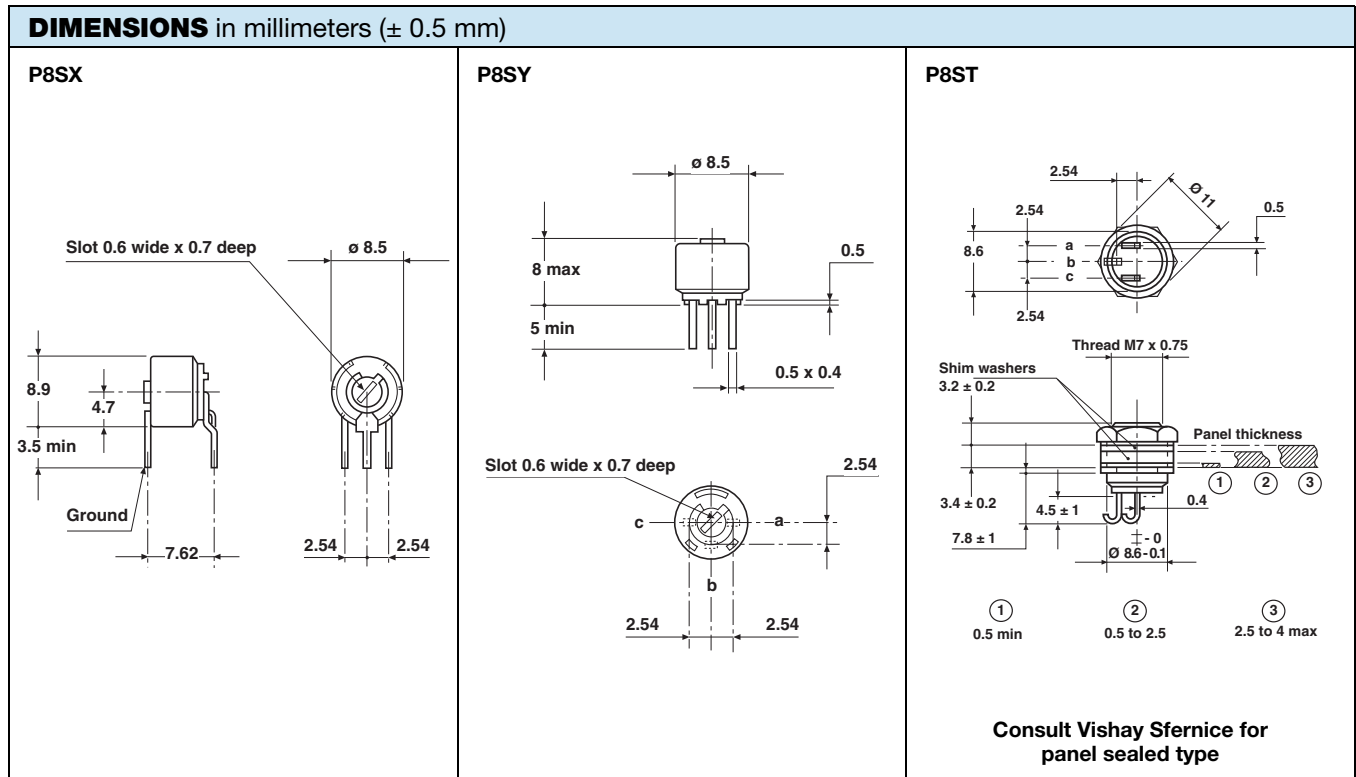
- Industrial grade
- High quality cermet resistive track:
 - 1 W at 70 °C, P8ST
 - 0.5 W at 70 °C, P8SX and P8SY
- Test according to CECC 41000 or IEC 60393-1
- Wide resistance range (10 Ω to 2.2 MΩ)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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.



| 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 x-axis ranges from 0 to 140 °C, and the y-axis ranges from 0 to 1 W. Two lines represent the power ratings: P8ST (top line) and P8SX - P8SY (bottom line). Both lines are constant at 70 °C and then decrease linearly to 0 W at 125 °C.</p> <table border="1"> <caption>Power Rating Data from Chart</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>P8ST Power (W)</th> <th>P8SX - P8SY Power (W)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1.0</td> <td>0.5</td> </tr> <tr> <td>70</td> <td>1.0</td> <td>0.5</td> </tr> <tr> <td>125</td> <td>0.0</td> <td>0.0</td> </tr> </tbody> </table> | | Ambient Temperature (°C) | P8ST Power (W) | P8SX - P8SY Power (W) | 0 | 1.0 | 0.5 | 70 | 1.0 | 0.5 | 125 | 0.0 | 0.0 |
| Ambient Temperature (°C) | P8ST Power (W) | P8SX - P8SY Power (W) | | | | | | | | | | | | |
| 0 | 1.0 | 0.5 | | | | | | | | | | | | |
| 70 | 1.0 | 0.5 | | | | | | | | | | | | |
| 125 | 0.0 | 0.0 | | | | | | | | | | | | |
| Circuit diagram | <p>The circuit diagram shows a resistor with three terminals: a (1) on the left, b (2) at the bottom center, and c (3) on the right. Terminal b (2) is connected to a common terminal 'cw'.</p> | | | | | | | | | | | | | |
| Temperature coefficient | | See Standard Resistance Element Table | | | | | | | | | | | | |
| Limiting element voltage (linear law) | | 250 V | | | | | | | | | | | | |
| Contact resistance variation | | 3 % R _n or 3 Ω | | | | | | | | | | | | |
| End resistance (typical) | | 1 Ω | | | | | | | | | | | | |
| Dielectric strength (RMS) | | 1000 V | | | | | | | | | | | | |
| Insulation resistance (500 V _{DC}) | | 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 | 1.1 |
| | P8ST | 3.6 |
| Terminals | | SnAg alloy (code e2) |

| ENVIRONMENTAL SPECIFICATIONS | | |
|------------------------------|--|----------------------|
| Temperature range | | -55 °C to +125 °C |
| Climatic category | | 55/125/56 |
| Sealing | | IP67 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 90'/30' - ambient temperature 70 °C | ± 2 % Contact res. variation: < 3 % Rn | ± 3 % |
| Climatic sequence | Phase A dry heat 100 °C Phase B damp heat Phase C cold -55 °C Phase D damp heat 5 cycles | ± 0.5 % | ± 1 % |
| Long term damp heat | 56 days 40 °C, 93 % RH | ± 1 % Dielectric strength: 1000 V _{RMS} Insulation resistance: > 10 ⁴ MΩ | ± 2 % |
| Rapid temperature change | 5 cycles -55 °C to +125 °C | ± 0.5 % | $\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 1$ % |
| Shock | 50 g at 11 ms 3 successive shocks in 3 directions | ± 0.2 % | ± 0.5 % |
| Vibration | 10 Hz to 55 Hz 0.75 mm or 10 g during 6 h | ± 0.2 % | $\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 0.5$ % |
| Rotational life | 200 cycles | ± 3 % Contact res. variation: < 3 % Rn | |

Note

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

| STANDARD RESISTANCE ELEMENT DATA | | | | | | | |
|----------------------------------|---------------------|----------------------|----------------------------|---------------------|----------------------|----------------------------|----------------------------------|
| STANDARD RESISTANCE VALUES | P8SX, P8SY | | | P8ST | | | TYPICAL TCR -55 °C to +125 °C |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CURRENT THROUGH WIPER | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CURRENT THROUGH 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 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Vishay trademark • Model • Style • Ohmic value (in Ω, kΩ, MΩ) • Tolerance (in %) • Manufacturing date • Marking of terminal: 3 |

| PACKAGING |
|--------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • 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 SX SY | | From 10 Ω to 2.2 M Ω 103 = 10K | | K = 10 % On request: J = 5 % | | B25 = box 50 pieces | | (If applicable) Given by Vishay for custom design | | | | | |

| PART NUMBER DESCRIPTION (for information only) | | | | | | | |
|------------------------------------------------|-------|-------|-------|-----------|---------|-----------|-------------|
| P8 | S | X | 100K | 10 % | | BL | e2 |
| MODEL | STYLE | STYLE | VALUE | TOLERANCE | SPECIAL | PACKAGING | LEAD FINISH |

| RELATED DOCUMENTS | |
|-------------------------------------------------------------------|------------------------------------------------------------------------|
| APPLICATION NOTES | |
| Potentiometers and Trimmers | www.vishay.com/doc?51001 |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | www.vishay.com/doc?52029 |



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