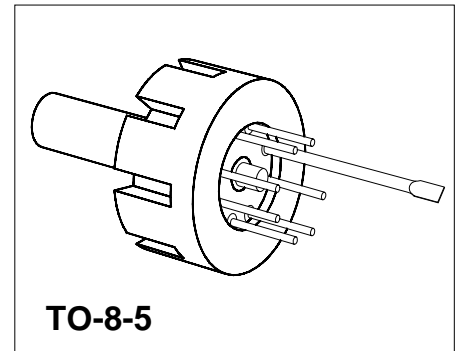


Silicon Piezoresistive Absolute Pressure Sensor

KPY 52-AK
KPY 56-AK

Features

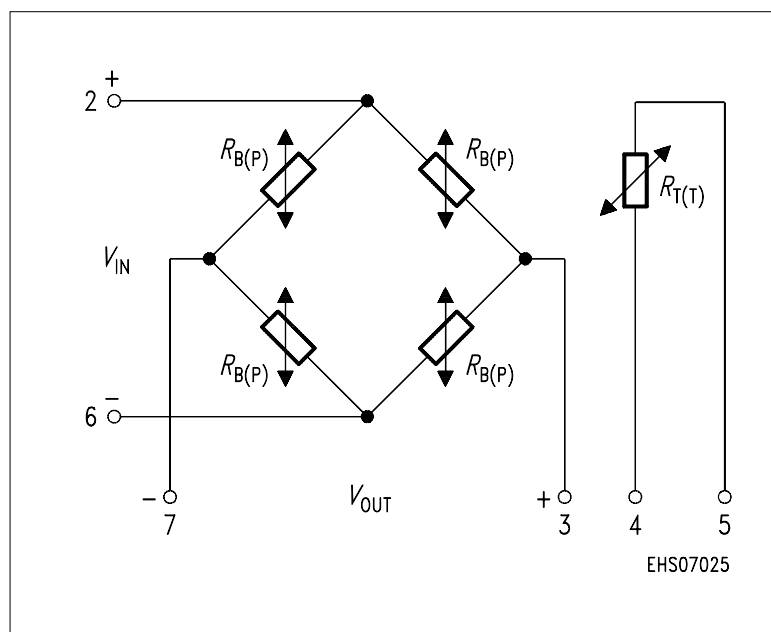
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Built in silicon temperature sensor
- Provided for further fabrication, protection cap



| Type and Marking | Symbol | Pressure Range | Unit | Ordering Code |
|------------------|-----------------|----------------|------|---------------|
| KPY 52 AK | $P_0 \dots P_N$ | 0 ... 0.6 | bar | Q62705-K205 |
| KPY 53 AK | | 0 ... 1.6 | | Q62705-K192 |
| KPY 54 AK | | 0 ... 4 | | Q62705-K194 |
| KPY 55 AK | | 0 ... 10 | | Q62705-K196 |
| KPY 56 AK | | 0 ... 25 | | Q62705-K198 |

Pin Configuration

| | |
|---|--|
| 1 | Capillary tube |
| 2 | + V_{IN} |
| 3 | - V_{OUT} |
| 4 | Temperature sensor (typ. $R_{25} = 2 \text{ k}\Omega$) |
| 5 | Temperature sensor |
| 6 | - V_{IN} |
| 7 | + V_{OUT} |
| 8 | Not connected |



Absolute Maximum Ratings

| Parameter | Symbol | Limit Values | Unit |
|-----------------------------|-----------|----------------|------|
| Pressure overload | P_{MAX} | 6 | bar |
| KPY 52 AK | | 10 | |
| KPY 53 AK | | 16 | |
| KPY 54 AK | | 30 | |
| KPY 55 AK | | 75 | |
| KPY 56 AK | | | |
| Operating temperature range | T_A | - 40 ... + 125 | °C |
| Storage temperature range | T_{stg} | - 50 ... + 150 | °C |
| Supply voltage | V_{IN} | 12 | V |

Electrical Characteristics

at $T_A = 25$ °C and $V_{IN} = 5$ V, unless otherwise specified.

| Parameter | Symbol | Limit Values | | | Unit |
|---|-----------|--------------|--------|--------|-------------|
| | | min. | typ. | max. | |
| Bridge resistance | R_B | 4 | – | 8 | kΩ |
| Sensitivity | s | 11.0 | 15.0 | 24.0 | mV/ Vbar |
| KPY 52 AK | | 5.6 | 8.8 | 12.5 | |
| KPY 53 AK | | 4.0 | 6.0 | 9.0 | |
| KPY 54 AK | | 1.8 | 2.6 | 4.0 | |
| KPY 55 AK | | 0.88 | 1.2 | 2.0 | |
| KPY 56 AK | | | | | |
| Output voltage | V_{fin} | 33 | 45 | 72 | mV |
| KPY 52 AK | | 45 | 70 | 100 | |
| KPY 53 AK | | 80 | 120 | 180 | |
| KPY 54 AK | | 90 | 130 | 200 | |
| KPY 55 AK | | 110 | 150 | 250 | |
| KPY 56 AK | | | | | |
| Offset voltage $P = P_0$ | V_0 | - 25 | – | + 25 | mV |
| Linearity error (Best fit straight line) $P_0 = P_0 \dots P_N$ | F_L | – | ± 0.15 | ± 0.35 | % V_{fin} |
| KPY 52 ... 55 AK | | – | ± 0.15 | – | |
| KPY 56 AK | | | | | |
| Pressure hysteresis $P_1 = P_0, P_2 = P_N, P_3 = P_0$ | P_H | – | ± 0.1 | – | % V_{fin} |
| KPY 52 ... 56 AK | | | | | |

Electrical Characteristics

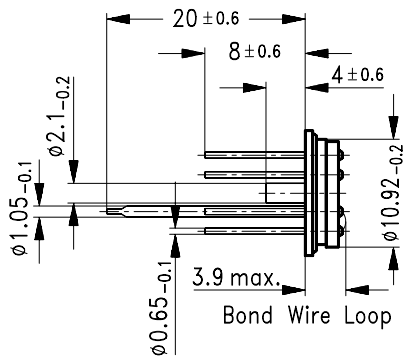
at $T_1 = 25\text{ °C}$, $T_2 = 125\text{ °C}$, $T_3 = 25\text{ °C}$ and $V_{IN} = 5\text{ V}$, unless otherwise specified.

| Parameter | Symbol | Limit Values | | | Unit |
|---|----------------|--------------|---------|--------|----------------|
| | | min. | typ. | max. | |
| Temperature coefficient of V_{fin} | $TC_{V_{fin}}$ | | | | %/K |
| KPY 52 AK | | - 0.19 | - 0.15 | - 0.12 | |
| KPY 53 AK | | - 0.19 | - 0.16 | - 0.13 | |
| KPY 54 AK | | - 0.19 | - 0.17 | - 0.14 | |
| KPY 55 AK | | - 0.19 | - 0.17 | - 0.14 | |
| KPY 56 AK | | - 0.19 | - 0.17 | - 0.15 | |
| Temperature coefficient of V_0 | TC_{V_0} | | | | %/K |
| KPY 52 AK | | - 0.05 | - | + 0.05 | |
| KPY 53 AK | | - 0.03 | - | + 0.03 | |
| KPY 54 AK | | - 0.03 | - | + 0.03 | |
| KPY 55 AK | | - 0.03 | - | + 0.03 | |
| KPY 56 AK | | - 0.03 | - | + 0.03 | |
| Temperature coefficient of R_B | TC_{R_B} | | | | %/K |
| KPY 52 ... 56 AK | | - | + 0.095 | - | |
| Temperature hysteresis of V_0 ; V_{fin} | TH | | | | % v. V_{fin} |
| KPY 52 AK | | - 0.5 | - | + 0.5 | |
| KPY 53 ... 56 AK | | - 0.3 | - | + 0.3 | |

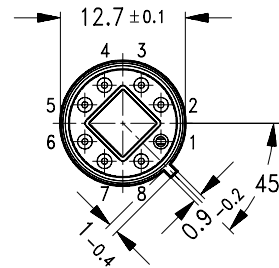
Package Outline

TO-8-5

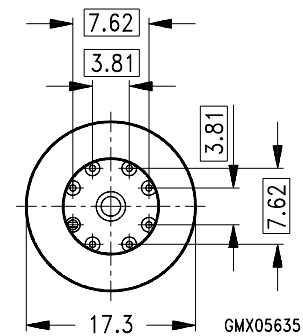
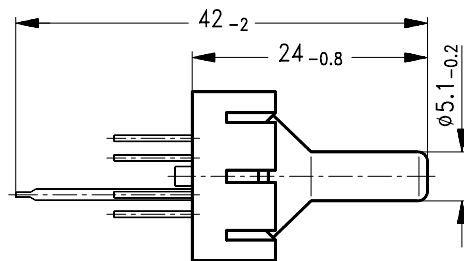
Basic Component



View on Chip



Component Delivery Form



Weight approx. 4.1 g

Dimension in mm

Exterior Packaging

I.e. tubes, trays, boxes are shown in our Data Book "Package Information".