

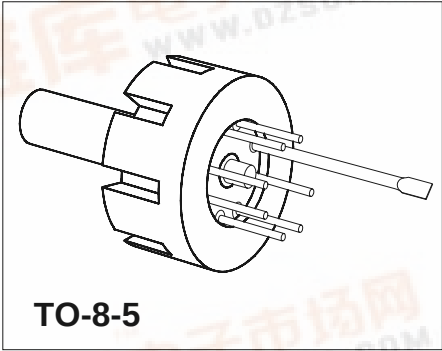
SIEMENS

Silicon Piezoresistive Absolute Pressure Sensor

KPY 52-AK
KPY 56-AK

Features

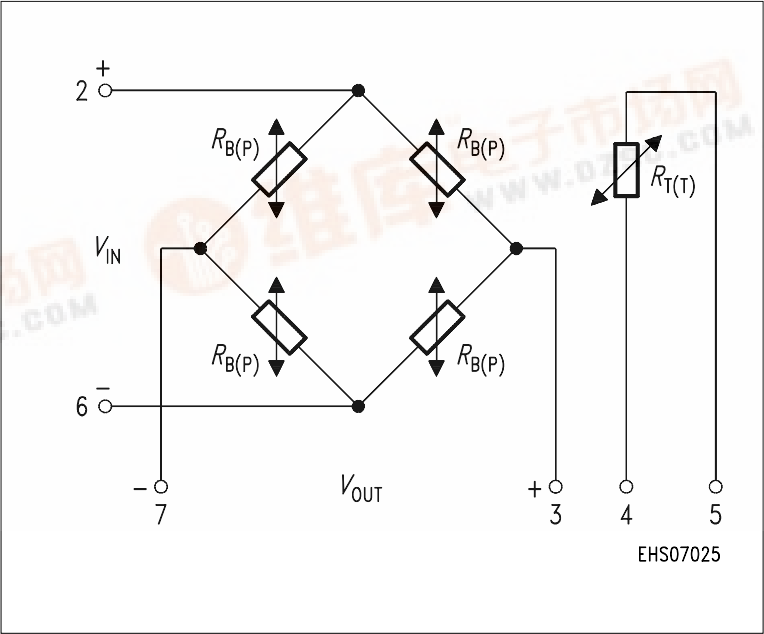
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Built in silicon temperature sensor
- Provided for further fabrication, protection cap



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 KPY 52 AK KPY 53 AK KPY 54 AK KPY 55 AK KPY 56 AK	P_{MAX}	6 10 16 30 75	bar
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 $T_A = 25\text{ °C}$ and $V_{IN} = 5\text{ V}$, unless otherwise specified.

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

Electrical Characteristics

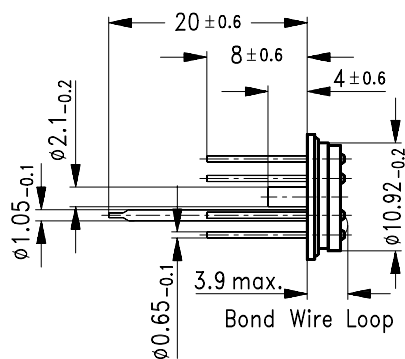
at $T_1 = 25\text{ °C}$, $T_2 = 125\text{ °C}$, $T_3 = 25\text{ °C}$ and $V_{IN} = 5\text{ V}$, unless otherwise specified.

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_{RB}				%/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	

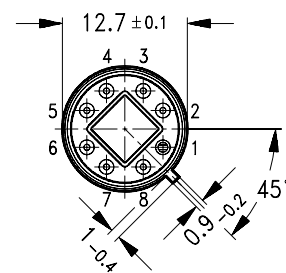
Package Outline

TO-8-5

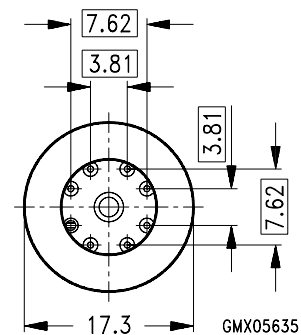
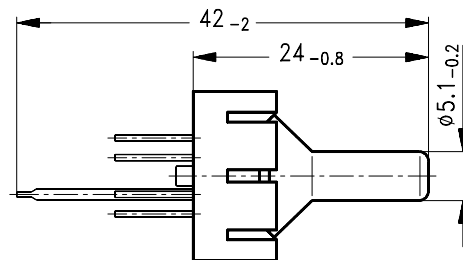
Basic Component



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".