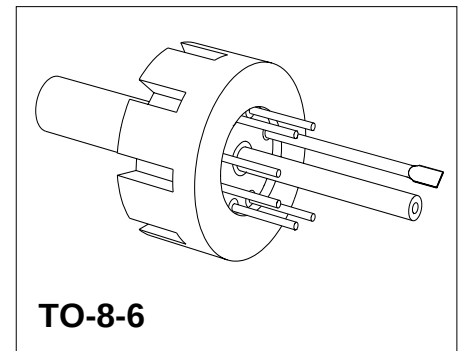


Silicon Piezoresistive Relative Pressure Sensor

KPY 51-RK
KPY 57-RK

Features

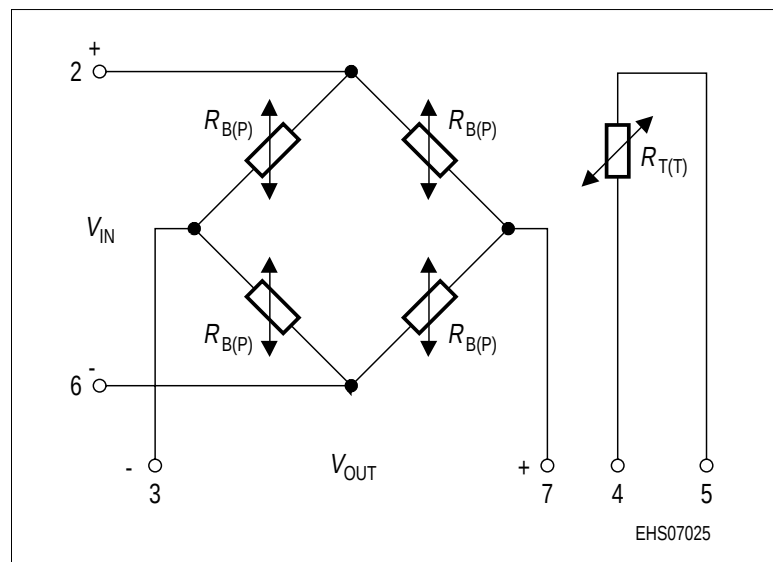
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Built in silicon temperature sensor
- Provided for further fabrication, protection cap



Type	Symbol	Pressure Range	Unit	Ordering Code
KPY 51-RK	$P_0 \dots P_N$	0 ... 0.25	bar	Q62705-K189
KPY 52-RK		0 ... 0.6		Q62705-K190
KPY 53-RK		0 ... 1.6		Q62705-K191
KPY 54-RK		0 ... 4		Q62705-K193
KPY 55-RK		0 ... 10		Q62705-K195
KPY 56-RK		0 ... 25		Q62705-K197
KPY 57-RK		0 ... 60		Q62705-K199

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 ¹⁾		Unit
		Frontside	Rearside	
Pressure overload	P_{MAX}			bar
KPY 51-RK		2	2	
KPY 52-RK		6	6	
KPY 53-RK		10	10	
KPY 54-RK		16	16	
KPY 55-RK		30	30	
KPY 56-RK		75	40	
KPY 57-RK		100	70	
Operating temperature range	T_A	– 40 ... + 125		°C
Storage temperature range	T_{stg}	– 50 ... + 150		°C
Supply voltage	V_{IN}	12		V

- 1) Frontside coupling applies pressure onto chip face.
 Rearside coupling applies pressure through Kovar centre tube.

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	s				mV/ Vbar
KPY 51-RK		16.8	24.0	32.0	
KPY 52-RK		11.0	15.0	24.0	
KPY 53-RK		5.6	8.8	12.5	
KPY 54-RK		4.0	6.0	9.0	
KPY 55-RK		1.8	2.6	4.0	
KPY 56-RK		0.88	1.2	2.0	
KPY 57-RK		0.47	0.67	1.0	
Output voltage	V_{fin}				mV
KPY 51-RK		21	30	40	
KPY 52-RK		33	45	72	
KPY 53-RK		45	70	100	
KPY 54-RK		80	120	180	
KPY 55-RK		90	130	200	
KPY 56-RK		110	150	250	
KPY 57-RK		140	200	300	

Electrical Characteristics (cont'd)

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

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Offset voltage $P = P_0$	V_0	- 25	-	+ 25	mV
Linearity error (Best fit straight line) $P_0 = P_0 \dots P_N$ KPY 51 ... 55-RK KPYP 56/57-RK	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 51 ... 57-RK	P_H	-	± 0.1	-	% V_{fin}

Electrical Characteristics

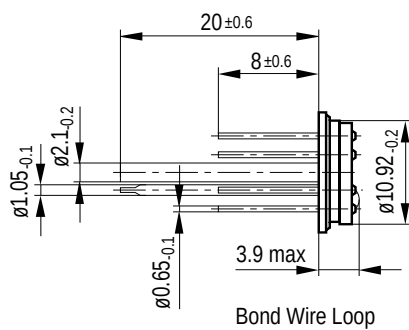
at $T_1 = 25\text{ °C}$, $T_2 = 125\text{ °C}$, $T_3 = 25\text{ °C}$ and $V_{IN} = 5\text{ V}$, unless otherwise specified.

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Temperature coefficient of V_{fin} KPYP 51-RK KPYP 52-RK KPYP 53-RK KPYP 54-RK KPYP 55-RK KPYP 56-RK KPYP 57-RK	TC_{Vfin}	- 0.19 - 0.19 - 0.19 - 0.19 - 0.19 - 0.19 - 0.19	- 0.13 - 0.15 - 0.16 - 0.17 - 0.17 - 0.17 - 0.17	- 0.09 - 0.12 - 0.13 - 0.14 - 0.14 - 0.15 - 0.15	%/K
Temperature coefficient of V_0 KPYP 51-RK KPYP 52-RK KPYP 53-RK KPYP 54-RK KPYP 55-RK KPYP 56-RK KPYP 57-RK	TC_{V0}	- 0.05 - 0.05 - 0.03 - 0.03 - 0.03 - 0.03 - 0.01	- - - - - - -	+ 0.05 + 0.05 + 0.03 + 0.03 + 0.03 + 0.03 + 0.01	%/K
Temperature coefficient of R_B KPYP 51 ... 57-RK	TC_{RB}	-	+ 0.095	-	%/K
Temperature hysteresis of V_0 ; V_{fin} KPYP 51-RK KPYP 52-RK KPYP 53 ... 57-RK	TH	- 0.7 - 0.5 - 0.3	- - -	+ 0.7 + 0.5 + 0.3	% v. V_{fin}

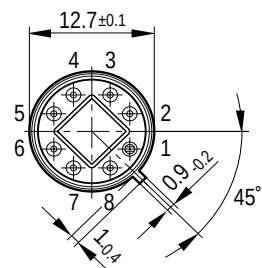
Package Outline

TO-8-6

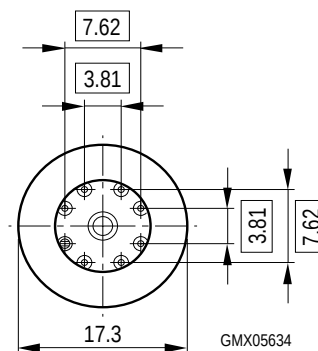
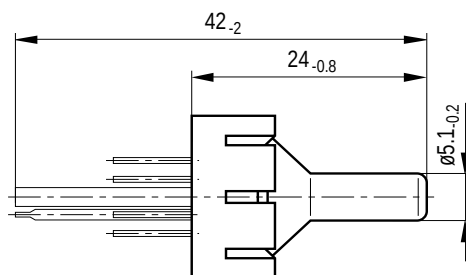
Basic Component



View on Chip



Component Delivery Form



Weight approx. 4.5 g

Sorts of Packing

Package outlines for tubes, trays etc. are contained in our Data Book "Package Information".

Dimensions in mm