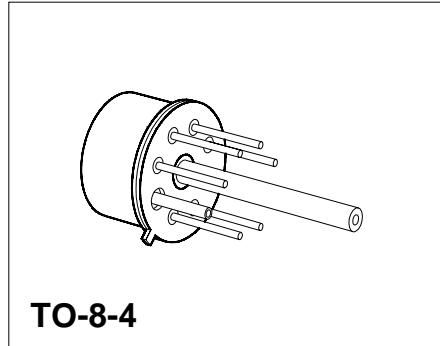


Silicon Piezoresistive Relative Pressure Sensor

KPY 41-R
KPY 46-R

Features

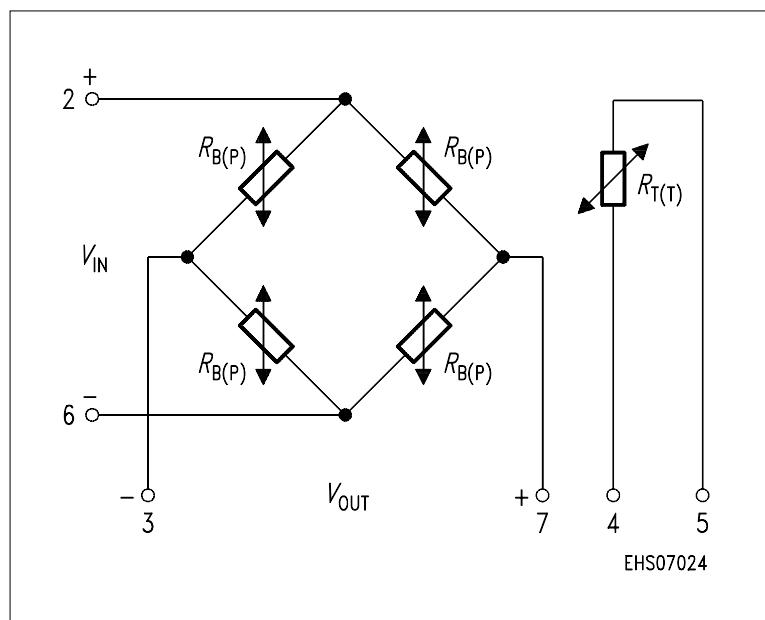
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Pressure coupled to rear side of silicon diaphragm
- Built in silicon temperature sensor



Type and Marking	Symbol	Pressure Range	Unit	Ordering Code
KPY 41 R	$P_0 \dots P_N$	0 ... 0.25	bar	Q62705-K159
KPY 42 R		0 ... 0.6		Q62705-K160
KPY 43 R		0 ... 1.6		Q62705-K161
KPY 44 R		0 ... 4		Q62705-K163
KPY 45 R		0 ... 10		Q62705-K165
KPY 46 R		0 ... 25		Q62705-K167

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 Value	Unit
Pressure overload	P_{MAX}		bar
KPY 41 R		2	
KPY 42 R		6	
KPY 43 R		10	
KPY 44 R		16	
KPY 45 R		30	
KPY 46 R		40	
Operating temperature range	T_A	- 40 ... + 125	°C
Storage temperature range	T_{stg}	- 50 ... + 150	°C
Supply voltage	V_{IN}	12	V

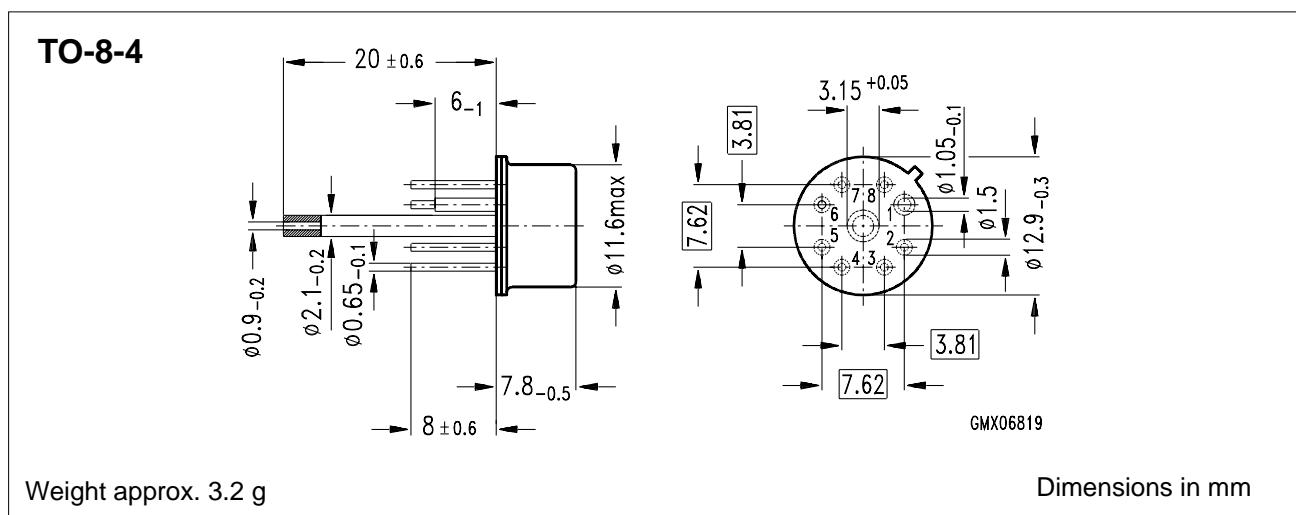
Electrical Characteristicsat $T_A = 25$ °C and $V_{\text{IN}} = 5$ V, unless otherwise specified.

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Bridge resistance	R_B	4	—	8	kΩ
Sensitivity	s				mV/Vbar
KPY 41 R		16.8	24.0	32.0	
KPY 42 R		11.0	15.0	24.0	
KPY 43 R		5.6	8.8	12.5	
KPY 44 R		4.0	6.0	9.0	
KPY 45 R		1.8	2.6	4.0	
KPY 46 R		0.88	1.2	2.0	
Output voltage	V_{fin}				mV
KPY 41 R		21	30	40	
KPY 42 R		33	45	72	
KPY 43 R		45	70	100	
KPY 44 R		80	120	180	
KPY 45 R		90	130	200	
KPY 46 R		110	150	250	
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				% V_{fin}
KPY 41 ... 45 R		—	± 0.15	± 0.35	
KPY 46 R			± 0.15	—	
Pressure hysteresis $P_1 = P_0, P_2 = P_N,$ $P_3 = P_0$	P_H	—	± 0.1	—	% V_{fin}

Electrical Characteristics

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

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Temperature coefficient of V_{fin} KPY 41 R KPY 42 R KPY 43 R KPY 44 R KPY 45 R KPY 46 R	$TC_{V_{\text{fin}}}$	– 0.19	– 0.13	– 0.09	%/K
Temperature coefficient of V_0 KPY 41 R KPY 42 R KPY 43 R KPY 44 R KPY 45 R KPY 46 R	TC_{V_0}	– 0.05	–	+ 0.05	%/K
Temperature coefficient of R_B KPY 41 ... 46 R	TC_{RB}	–	+ 0.095	–	%/K
Temperature hysteresis of V_0 ; V_{fin} KPY 41 R KPY 42 R KPY 43 ... 46 R	TH	– 0.7	–	+ 0.7	% v. V_{fin}

Package Outline

Exterior Packaging

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