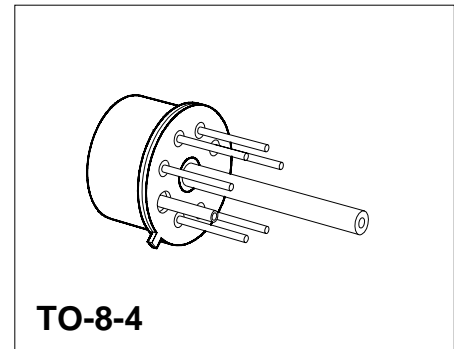


Silicon Piezoresistive Relative Pressure Sensor

KPY 41-R
KPY 46-R

Features

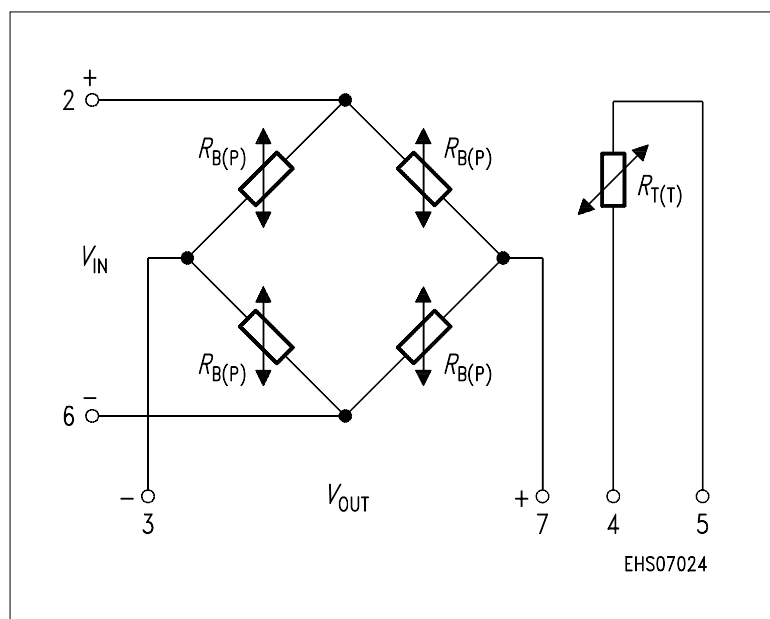
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Pressure coupled to rearside of silicon diaphragm
- Built in silicon temperature sensor



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}	2	bar
KPY 41 R		6	
KPY 42 R		10	
KPY 43 R		16	
KPY 44 R		30	
KPY 45 R		40	
KPY 46 R			
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.

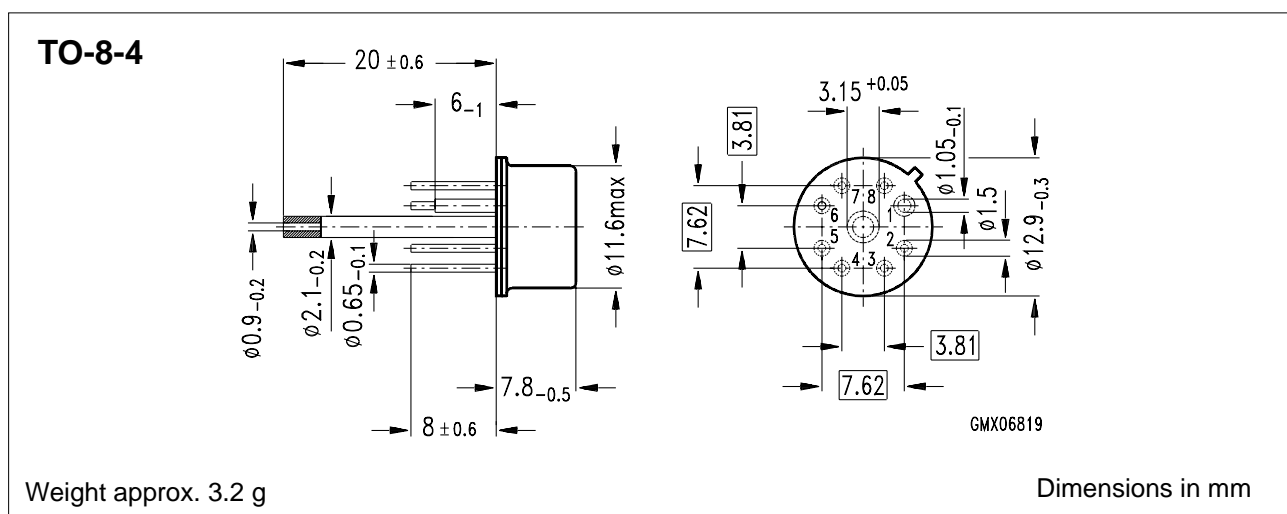
Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Bridge resistance	R_B	4	–	8	kΩ
Sensitivity	s				mV/Vbar
KPY 41 R		16.8	24.0	32.0	
KPY 42 R		11.0	15.0	24.0	
KPY 43 R		5.6	8.8	12.5	
KPY 44 R		4.0	6.0	9.0	
KPY 45 R		1.8	2.6	4.0	
KPY 46 R		0.88	1.2	2.0	
Output voltage	V_{fin}				mV
KPY 41 R		21	30	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	–	± 0.15	± 0.35	% V_{fin}
KPY 41 ... 45 R 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 $T_1 = 25\text{ °C}$, $T_2 = 125\text{ °C}$, $T_3 = 25\text{ °C}$ 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 41 R		- 0.19	- 0.13	- 0.09	
KPY 42 R		- 0.19	- 0.15	- 0.12	
KPY 43 R		- 0.19	- 0.16	- 0.13	
KPY 44 R		- 0.19	- 0.17	- 0.14	
KPY 45 R		- 0.19	- 0.17	- 0.14	
KPY 46 R	- 0.19	- 0.17	- 0.15		
Temperature coefficient of V_0	TC_{V_0}				% / K
KPY 41 R		- 0.05	-	+ 0.05	
KPY 42 R		- 0.05	-	+ 0.05	
KPY 43 R		- 0.03	-	+ 0.03	
KPY 44 R		- 0.03	-	+ 0.03	
KPY 45 R		- 0.03	-	+ 0.03	
KPY 46 R	- 0.03	-	+ 0.03		
Temperature coefficient of R_B	TC_{R_B}				% / K
KPY 41 ... 46 R		-	+ 0.095	-	
Temperature hysteresis of V_0 ; V_{fin}	TH				% v. V_{fin}
KPY 41 R		- 0.7	-	+ 0.7	
KPY 42 R		- 0.5	-	+ 0.5	
KPY 43 ... 46 R		- 0.3	-	+ 0.3	

Package Outline



Exterior Packaging

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