

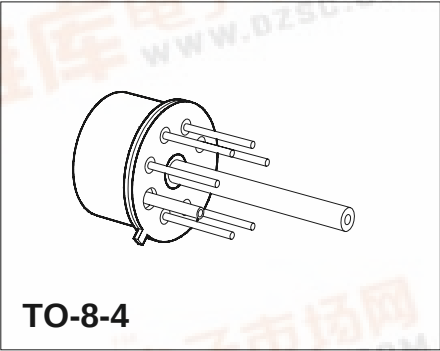
SIEMENS

Silicon Piezoresistive Relative Pressure Sensor

KPY 41-R
KPY 46-R

Features

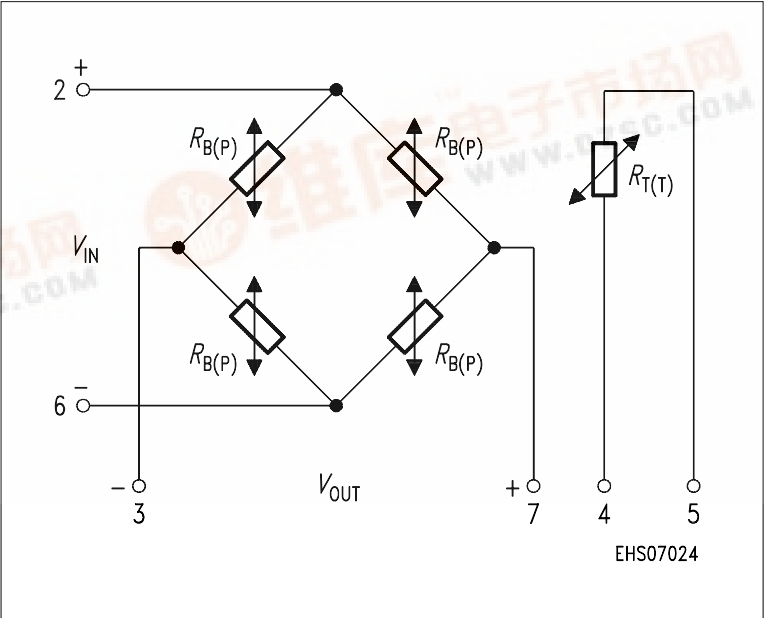
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Pressure coupled to rearside of silicon diaphragm
- Built in silicon temperature sensor



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

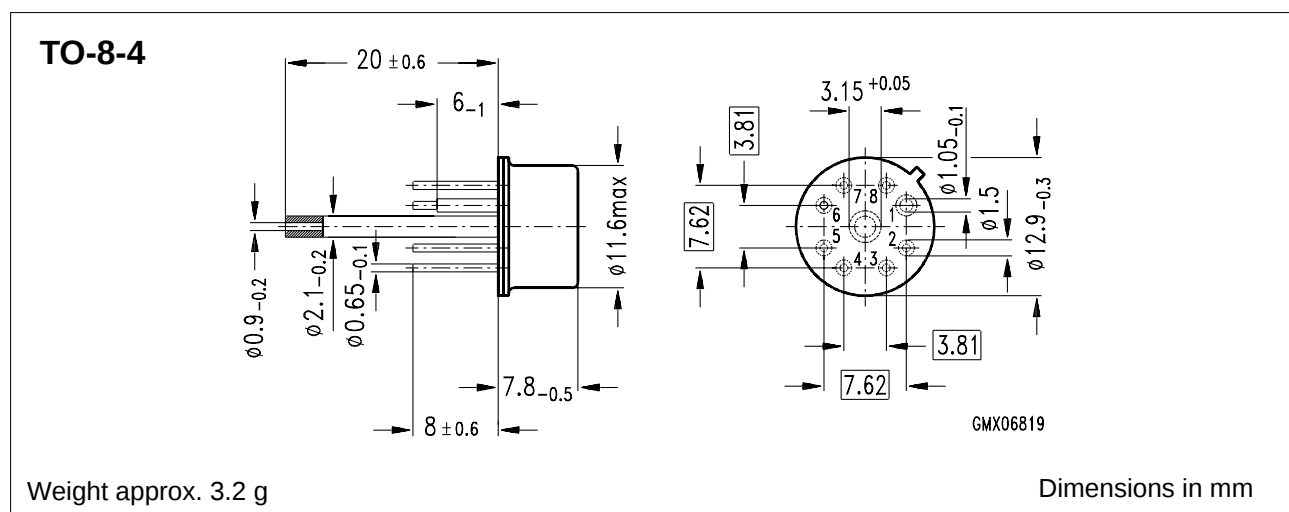
Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Bridge resistance	R_B	4	–	8	kΩ
Sensitivity KPY 41 R KPY 42 R KPY 43 R KPY 44 R KPY 45 R KPY 46 R	s	16.8 11.0 5.6 4.0 1.8 0.88	24.0 15.0 8.8 6.0 2.6 1.2	32.0 24.0 12.5 9.0 4.0 2.0	mV/Vbar
Output voltage KPY 41 R KPY 42 R KPY 43 R KPY 44 R KPY 45 R KPY 46 R	V_{fin}	21 33 45 80 90 110	30 45 70 120 130 150	40 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 41 ... 45 R KPY 46 R	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 41 ... 46 R	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} KPY 41 R KPY 42 R KPY 43 R KPY 44 R KPY 45 R KPY 46 R	$TC_{V_{fin}}$	− 0.19 − 0.19 − 0.19 − 0.19 − 0.19 − 0.19	− 0.13 − 0.15 − 0.16 − 0.17 − 0.17 − 0.17	− 0.09 − 0.12 − 0.13 − 0.14 − 0.14 − 0.15	%/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 − 0.03 − 0.03 − 0.03 − 0.03	− − − − − −	+ 0.05 + 0.05 + 0.03 + 0.03 + 0.03 + 0.03	%/K
Temperature coefficient of R_B KPY 41 ... 46 R	TC_{R_B}	−	+ 0.095	−	%/K
Temperature hysteresis of V_0 ; V_{fin} KPY 41 R KPY 42 R KPY 43 ... 46 R	TH	− 0.7 − 0.5 − 0.3	− − −	+ 0.7 + 0.5 + 0.3	% v. V_{fin}

Package Outline



Exterior Packaging

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