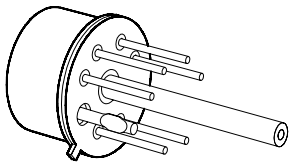
SIEMENS

Silicon Piezoresistive Absolute Pressure Sensor

KPY 42-A
KPY 46-A

Features

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



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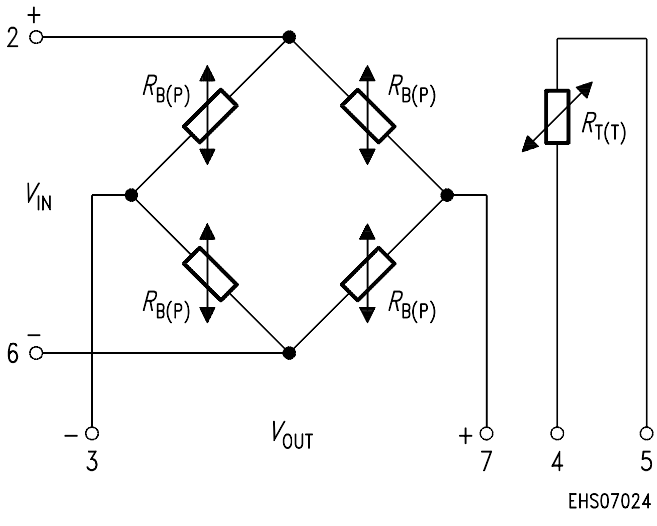
Type and Marking	Symbol	Pressure Range	Unit	Ordering Code
KPY 42 A	$P_0 \ldots P_N$	0 … 0.6	bar	Q62705-K204
KPY 43 A		0 … 1.6		Q62705-K162
KPY 44 A		0 … 4		Q62705-K164
KPY 45 A		0 … 10		Q62705-K166
KPY 46 A		0 … 25		Q62705-K168

Pin Configuration

1	Capillary tube
2	+ V_{IN}
3	– V_{OUT}
4	Temperature sensor (typ. R_{25} = 2 kΩ)
5	Temperature sensor
6	– V_{IN}
7	+ V_{OUT}
8	Not connected



Absolute Maximum Ratings

Parameter		Symbol	Limit Values	Unit
Pressure overload		P_{MAX}		bar
	KPY 42 A		6	
	KPY 43 A		10	
	KPY 44 A		16	
	KPY 45 A		30	
	KPY 46 A		40	
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 ˚C and V_{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 42 A		11.0	15.0	24.0	
	KPY 43 A		5.6	8.8	12.5	
	KPY 44 A		4.0	6.0	9.0	
	KPY 45 A		1.8	2.6	4.0	
	KPY 46 A					
Output voltage		V_{fin}				mV
	KPY 42 A		33	45	72	
	KPY 43 A		45	70	100	
	KPY 44 A		80	120	180	
	KPY 45 A		90	130	200	
	KPY 46 A		110	150	250	
Offset voltage $P = P_0$		V_0	– 25	–	+ 25	mV
Linearity error (Best fit straight line)		F_L				% V_{fin}
$P_0 = P_0 \ldots P_N$	KPY 42 … 46 A		–	± 0.15	± 0.35	
	KPY 46 A			± 0.15	–	
Pressure hysteresis		P_H				% V_{fin}
$P_1 = P_0$, $P_2 = P_N$, $P_3 = P_0$	KPY 42 … 46 A		–	± 0.1	–	

Electrical Characteristics

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

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Temperature coefficient of V_{fin}	TC_{Vfin}				%/K
KPY 42 A		– 0.19	– 0.15	– 0.12	
KPY 43 A		– 0.19	– 0.16	– 0.13	
KPY 44 A		– 0.19	– 0.17	– 0.14	
KPY 45 A		– 0.19	– 0.17	– 0.14	
KPY 46 A		– 0.19	– 0.17	– 0.15	
Temperature coefficient of V_0	TC_{V0}				%/K
KPY 42 A		– 0.05	–	+ 0.05	
KPY 43 A		– 0.03	–	+ 0.03	
KPY 44 A		– 0.03	–	+ 0.03	
KPY 45 A		– 0.03	–	+ 0.03	
KPY 46 A		– 0.03	–	+ 0.03	
Temperature coefficient of R_B	TC_{RB}				%/K
KPY 42 … 46 A		–	+ 0.095	–	
Temperature coefficient of V_0; V_{fin}	TH				% v. V_{fin}
KPY 42 A		– 0.5	–	+ 0.5	
KPY 43 … 46 A		– 0.3	–	+ 0.3	

Package Outline

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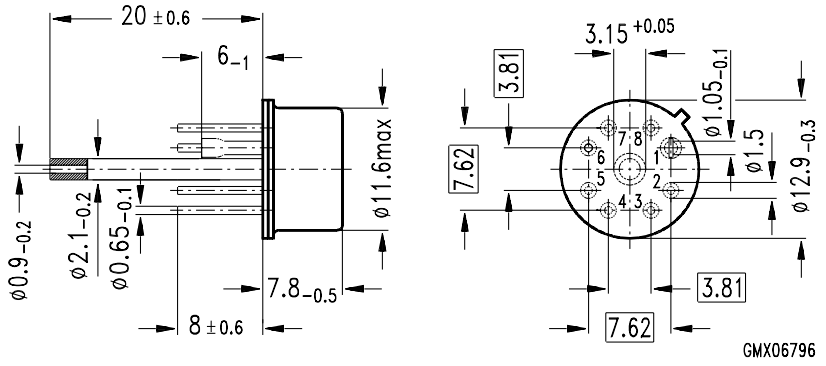

Weight approx. 3.2 g

Dimensions in mm

Exterior Packaging

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