

Silicon Piezoresistive Absolute Pressure Sensor

KPY 52-A
KPY 56-A

Features

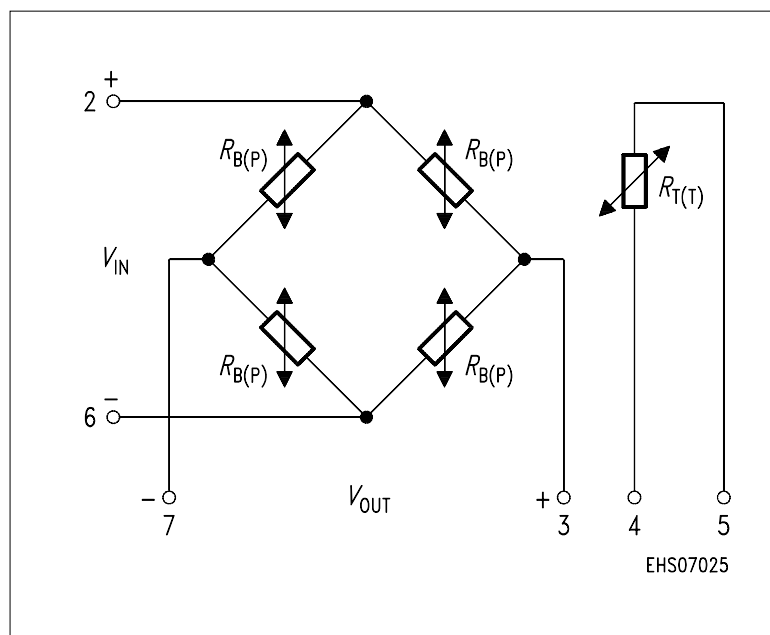
- Low pressure and temperature hysteresis
- Fast response
- High sensitivity and linearity
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- High long term stability
- Built in silicon temperature sensor
- Media compatible stainless steel housing



Type and Marking	Symbol	Pressure Range	Unit	Ordering Code
KPY 52 A	$P_0 \dots P_N$	0 ... 0.6	bar	Q62705-K211
KPY 53 A		0 ... 1.6		Q62705-K177
KPY 54 A		0 ... 4		Q62705-K179
KPY 55 A		0 ... 10		Q62705-K181
KPY 56 A		0 ... 25		Q62705-K183

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	Unit
Pressure overload	P_{MAX}		bar
KPY 52 A		2	
KPY 53 A		6	
KPY 54 A		10	
KPY 55 A		16	
KPY 56 A		30	
Operating temperature range	T_A	- 40 ... + 125	°C
Storage temperature range	T_{stg}	- 50 ... + 130	°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 52 A		11.0	15.0	24.0	
KPY 53 A		5.6	8.8	12.5	
KPY 54 A		4.0	6.0	9.0	
KPY 55 A		1.8	2.6	4.0	
KPY 56 A		0.88	1.2	2.0	
Output voltage	V_{fin}				mV
KPY 52 A		33	45	72	
KPY 53 A		45	70	100	
KPY 54 A		80	120	180	
KPY 55 A		90	130	200	
KPY 56 A		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 52... 55 A		–	± 0.15	± 0.35	
KPY 56A		–	± 0.15	–	
Pressure hysteresis $P_1 = P_0, P_2 = P_N, P_3 = P_0$	P_H				% V_{fin}
KPY 52 ... 56 A		–	± 0.1	–	

Electrical Characteristics

at $T_1 = 25\text{ °C}$, $T_2 = 80\text{ °C}$, $T_3 = 25\text{ °C}$ 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 52 A		- 0.20	-	- 0.12	
KPY 53 A		- 0.20	-	- 0.13	
KPY 54 A		- 0.20	-	- 0.14	
KPY 55 A		- 0.20	-	- 0.15	
KPY 56 A		- 0.20	-	- 0.15	
Temperature coefficient of V_0	TC_{V_0}				%/K
KPY 52 A		- 0.03	-	+ 0.08	
KPY 53 A		- 0.03	-	+ 0.05	
KPY 54 A		- 0.03	-	+ 0.05	
KPY 55 A		- 0.03	-	+ 0.05	
KPY 56 A		- 0.03	-	+ 0.05	
Temperature coefficient of R_B	TC_{R_B}				%/K
KPY 52 ... 56 A		-	+ 0.095	-	
Temperature hysteresis of V_0 ; V_{fin}	TH				% v. V_{fin}
KPY 52 ... 56 A		-	± 0.2	-	

