



4677375 I C SENSORS INC

Pressure Chips Series T-65-13

83D 00055 D

Preliminary

## Pressure Sensor Chips Selection Guide 0-5 psi to 0-1000 psi High-Volume Applications

### Features

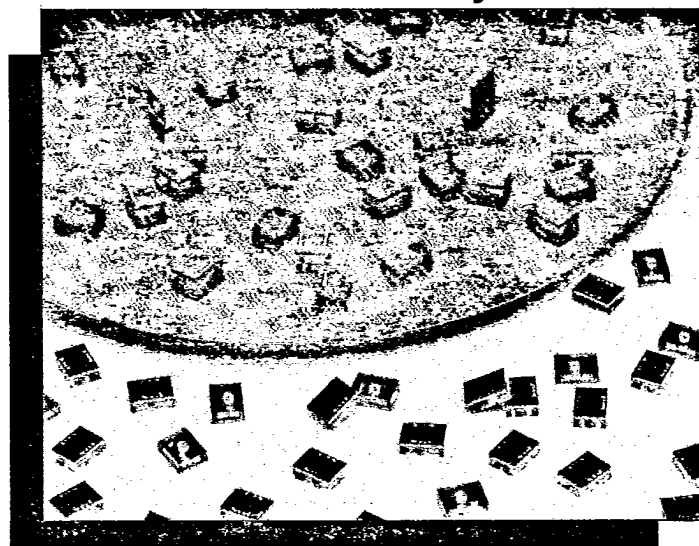
- Excellent Linearity
- Solid State Reliability
- Low Cost
- Highest Value Added
- Hysteresis Negligible
- Infinite Resolution
- Compatible with Automated Assembly
- Ratiometric
- Open-Bridge Configuration

### Typical Applications

- Medical Instruments
- Appliances
- Computer Peripherals
- Automotive
- Environmental Control
- Process Control

### Standard Ranges

0 to 5 psid	0 to 5 psia
0 to 10 psid	0 to 10 psia
0 to 15 psid	0 to 15 psia
0 to 30 psid	0 to 30 psia
0 to 100 psid	0 to 100 psia
0 to 250 psid	0 to 250 psia
0 to 300 psis	0 to 300 psia
0 to 1000 psis	0 to 1000 psia



### Description

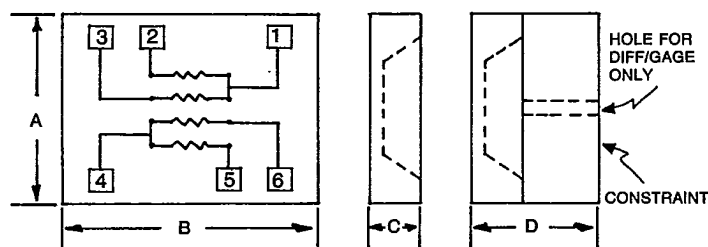
IC Sensors has made available for high-volume OEM applications the pressure sensor chips used in its own pressure sensors and transducers. Each sensor chip is a fully active four-arm Wheatstone bridge configuration.

For ease of assembly and for subsequent temperature compensation and balancing, each chip has a symmetrical configuration. No orientation is necessary. The electrical bonding pads are large and can be used with either gold or aluminum wire.

Sensor chips are shipped mounted onto holding tape after dicing at the factory. Removal can be by tweezers or by the use of automatic pick and place equipment. All chips are 100% electrically tested and rejects have a dot of ink on the surface which is compatible with optical assembly equipment.

All wafers have lot control and are traceable to the starting material and processes utilized. ICS periodically samples from all shipments and constructs and tests sensors to verify performance. Chips can be purchased with or without the Pyrex constraint.

### Connections/Dimensions



ELECTRICAL CONNECTIONS - SEE NOTE 13

MODEL	A	B	C	D
171-172-173	110	130	15	50
175	120	160	15	50
176	90	114	15	70

ALL DIMENSIONS IN MILS-SEE NOTE 10

**Pressure Chips Series**

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83D 00056

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**Performance Specifications**

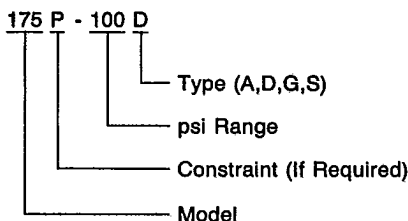
T-65-13

Ambient Temperature = 25°C (Unless otherwise specified)

PARAMETER	MEDICAL		AUTOMOTIVE		INDUSTRIAL & PROCESS CONTROL					Units	Notes
	171	171P	172	172P	173	173P	175	175P	176P		
Full-Scale Output Span			60	60	100	100	100	100	100	mV	1
Sensitivity	20-70									$\mu$ V/V/mmHg	
Zero Pressure Output	$\pm 2\%$ Excitation		35	35	50	50	50	50	50	$\pm$ mV	2
Linearity	.50	.25	.15	.15	.15	.15	.10	.10	.25	$\pm$ % Span	3
Bridge Resistance	350	350	450	450	5000	5000	5000	5000	5000	$\Omega$	4
Resistance Temp. Coeff.	8	8	8	8	14	14	14	14	18	%/100°F	5
Gage Factor Temp. Coeff.	-6	-6	-6	-6	-12	-12	-12	-12	-12	%/100°F	5
Excitation Voltage	3-10	3-10	3	3	7.5	7.5	7.5	7.5	7.5	V	
Excitation Current					1.5	1.5	1.5	1.5	1.5	mA	
Full-Scale Pressure	300mmHg		15	15-30	5-15	5-250	5-15	5-250	300-1000	PSI	
Pressure Type	G	G	D	D-A	D	D-A	D	D-A	S-A		6
Pressure Overload	14x	14x	3x	3x	3x	3x	3x	3x	3x	Rated	7
Bonding Pads	6	6	6	6	6	6	6	6	6		8
Pyrex Constraint		35		35		35		35	55	Mils	9,10

**Notes**

1. Nominal value. Ratiometric to excitation current or voltage.
2. Nominal value. Electrical offset with no applied pressure (diaphragm at rest).
3. Best fit straight line nominal value.
4. Bridge resistance tolerance is  $\pm 20\%$ .
5. TCR and TCGF tolerances are  $\pm 2\%/100^\circ\text{F}$ .
6. Pressure types available are A-absolute, D-differential (or G-gage) and S-sealed gage.
7. Minimum pressure overload is 20 psi.
8. The electrical bonding pads are aluminum with a minimum dimension of 10 mils on a side and a minimum thickness of 1.2 microns.
9. The constraint will have a 35 mil hole for D and G types. No hole will exist for A and S types. The A-type is sealed in a vacuum, with the S-type sealed at atmospheric pressure.
10. Die sizes listed are prior to dicing. Reduce die size due to dicing by 4 mils (no constraint) or 8 mils (with constraint).
11. Electrical test data and specific wafer identification is supplied with each wafer.
12. All wafers are visually inspected to IC Sensors standard Visual Quality Specification.
13. Typical electrical connections
  - Pads 1 & 4: Outputs
  - Pads 2 & 6: Negative supply
  - Pads 3 & 5: Positive supply

**Ordering Information****Represented By**

I.C. Sensors products are warranted against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ALL OTHER EXPRESSED OR IMPLIED WARRANTIES. I.C. Sensors reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.



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