Honeywell

Pressure Sensors

Low-cost, Stainless Steel, Isolated Sensors

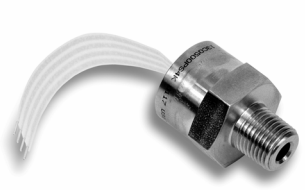
13 mm Series

FEATURES

- Rugged, isolated stainless steel package
- Reliable semiconductor technology
- Calibrated and temperature compensated
- Voltage or current supply options
- Absolute and sealed gage pressures
- Low-cost cell package
- Absolute pressure
- 0 psi to 500 psi, 1000 psi, 2000 psi, 3000 psi, and 5000 psi

TYPICAL APPLICATIONS

- Industrial controls
- Hydraulic controls
- Tank pressure
- Pressure transmitters
- Process control systems

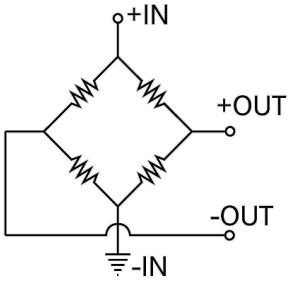


Honeywell's 13 mm Series stainless steel pressure sensors are designed for high pressure applications that involve measurement of hostile media in harsh environments. This series uses Honeywell's proven piezoresistive semiconductor sensor chip in an oil-isolated housing with or without an integral ceramic for temperature compensation and calibration. This design has proven to be highly reliable, stable and accurate.

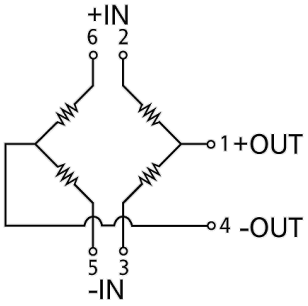
These sensors feature a weld-ring collar and special back support ring for high cycle life capability as they are designed for further package integration in OEM (Original Equipment Manufacturer) applications. Products are available with pressure ranges from 500 psi through 5000 psi and can be used with voltage or current supplies.

EQUIVALENT CIRCUIT

13 mm compensated series



13 mm uncompensated series



⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

PRESSURE SENSOR CHARACTERISTICS (all devices)

Environmental specifications	
Compensated temperature range	0 °C to 82 °C [32 °F to 180 °F]
Operating temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Storage temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Vibration	10 G at 20 Hz to 2000 Hz
Shock	100 G for 11 ms
Life	1 million cycles min.
Insulation resistance	100 mΩ at 50 Vdc
Maximum ratings	
Voltage version “K”	Supply voltage V_S = +15 Vdc
Voltage version “L”	Supply current I_S = +2.0 mA

PERFORMANCE CHARACTERISTICS – COMPENSATED SERIES (1)

Characteristic	Minimum	Typical	Maximum	Units
Zero pressure offset	-2	0	+2	mV
Pressure non-linearity (3)	–	±0.1	±0.25	%FSS
Pressure hysteresis (3)	–	±0.015	±0.030	%FSS
Repeatability	–	±0.010	±0.030	%FSS
Temp. effect on span (4)	–	±0.5	±1.0	%FSS
Temp. effect on offset (4)	–	±0.5	±1.0	%FSS
Thermal hysteresis (0 °C to 82 °C [32 °F to 180 °F])	–	±0.1	±0.3	%FSS
Long-term stability of offset and span (5)	–	±0.1	±0.3	%FSS
Response time (6)	–	0.1	–	ms
Common mode voltage (voltage version “K”) (9)	0.50	1.25	2.0	Vdc
Input resistance (current version “L”)	2.0	4.5	8.0	kΩ
Input resistance (voltage version “K”)	8.0	25	50	kΩ
Output resistance	3.0	4.5	6.0	kΩ

PRESSURE RANGE SPECIFICATIONS – COMPENSATED SERIES

Catalog Listing	Pressure range	Full scale span (2)	Proof pressure (7)	Burst pressure (8)
13C 0500P (A,S) (1,4,5,6) (K,L)	0 psi to 500 psi	98 mV to 102 mV	1500 psi	2500 psi
13C 1000P (A,S) (1,4,5,6) (K,L)	0 psi to 1000 psi	98 mV to 102 mV	3000 psi	5000 psi
13C 2000P (A,S) (1,4,5,6) (K,L)	0 psi to 2000 psi	98 mV to 102 mV	6000 psi	10,000 psi
13C 3000P (A,S) (1,4,5,6) (K,L)	0 psi to 3000 psi	98 mV to 102 mV	9000 psi	10,000 psi
13C 5000P (A,S) (1,4,5,6) (K,L)	0 psi to 5000 psi	148 mV to 152 mV	10,000 psi	10,000 psi

NOTES

1. Reference conditions (unless otherwise noted): T_A = 25 °C [77 °F]; Supply V_S = 10 Vdc ±0.01 Vdc or I_S = 1.5 mA ±0.0015 mA.
2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. FSS is ratiometric to supply voltage.
3. Pressure non-linearity is based on best-fit straight line from zero to the full-scale pressure. Pressure hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
4. Maximum error band of the offset voltage or span over the compensated temperature range, relative to the 25 °C [77 °F] reading.
5. Long-term stability over a six-month period.
6. Response time for a 0 psi to FSS pressure step change, 10 % to 90 % rise time.
7. The maximum pressure that can be applied without changing the transducer’s performance or accuracy.
8. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.
9. Common mode voltage as measure from output to ground.

PERFORMANCE CHARACTERISTICS – UNCOMPENSATED SERIES (1)

Characteristic	Minimum	Typical	Maximum	Unit
Zero pressure offset	-7.5	0	+7.5	mV/V
Pressure non-linearity (3)	–	±0.1	±0.25	%FSS
Pressure hysteresis (3)	–	±0.015	±0.030	%FSS
Repeatability	–	±0.010	±0.030	%FSS
Temp. coefficient of span (4) (0 °C to 82 °C [32 °F to 180 °F])	360	720	1260	ppm/°C
Temp. coefficient of resistance (4) (0 °C to 82 °C [32 °F to 180 °F])	2700	3420	4500	ppm/°C
Temp. coefficient of offset (4) (0 °C to 82 °C [32 °F to 180 °F])	–	30	–	µV/V/°C
Thermal hysteresis (0 °C to 82 °C [32 °F to 180 °F])	–	±0.1	±0.3	%FSS
Long-term stability of offset and span (5)	–	±0.1	±0.3	%FSS
Response time (6)	–	0.1	–	ms
Input resistance	4.0	4.75	6.0	kΩ
Output resistance	4.0	4.75	6.0	kΩ

PRESSURE RANGE SPECIFICATIONS – UNCOMPENSATED SERIES

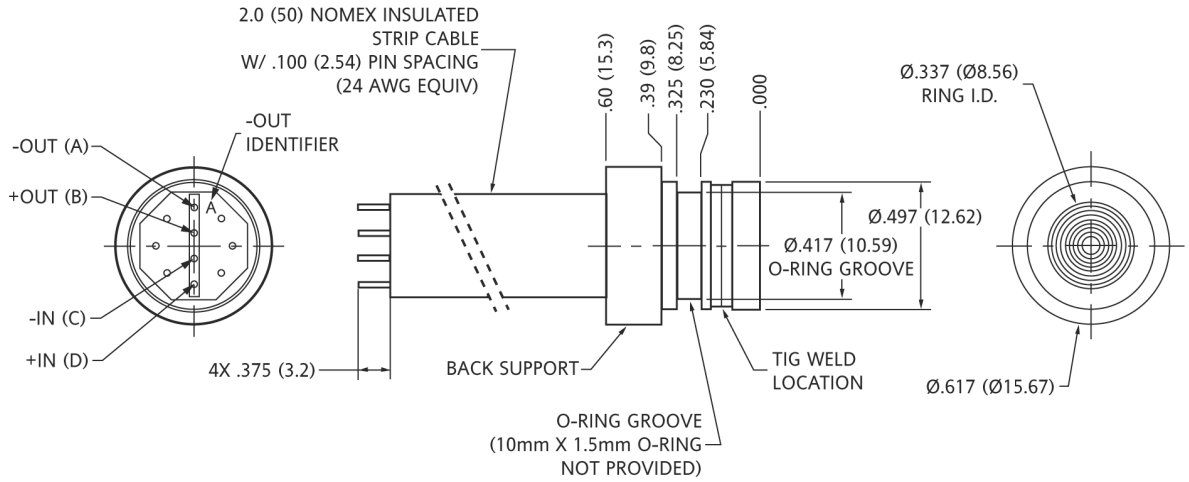
Catalog Listing	Pressure range	Full scale span (2)	Proof pressure (7)	Burst pressure (8)
13U 0500P A 0 K	0 psi to 500 psi	175 mV to 300 mV	1200 psi	2400 psi
13U 1000P A 0 K	0 psi to 1000 psi	175 mV to 300 mV	3000 psi	5000 psi
13U 2000P A 0 K	0 psi to 2000 psi	175 mV to 300 mV	6000 psi	10,000 psi
13U 3000P A 0 K	0 psi to 3000 psi	175 mV to 300 mV	9000 psi	10,000 psi
13U 5000P A 0 K	0 psi to 5000 psi	290 mV to 500 mV	10,000 psi	10,000 psi

NOTES

1. Reference conditions (unless otherwise noted): T_A = 25 °C [77 °F]; Supply V_S = 10 Vdc ±0.01 Vdc or I_S = 1.5 mA ±0.0015 mA.
2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. FSS is ratiometric to supply voltage.
3. Pressure non-linearity is based on best-fit straight line from zero to the full-scale pressure. Pressure hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
4. The error band resulting from maximum deviation of a transducer's output parameter (offset, span, or resistance) as temperature is varied from 25 °C [77 °F] to any other temperature within the specified range 0 °C to 82 °C [32 °F to 180 °F]. This parameter is not 100 % tested and is guaranteed by process design and tested on a sample basis only. Temperature coefficient of span is evaluated using a constant current source.
5. Long-term stability over a six-month period.
6. Response time for a 0 psi to FSS pressure step change, 10 % to 90 % rise time.
7. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
8. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.

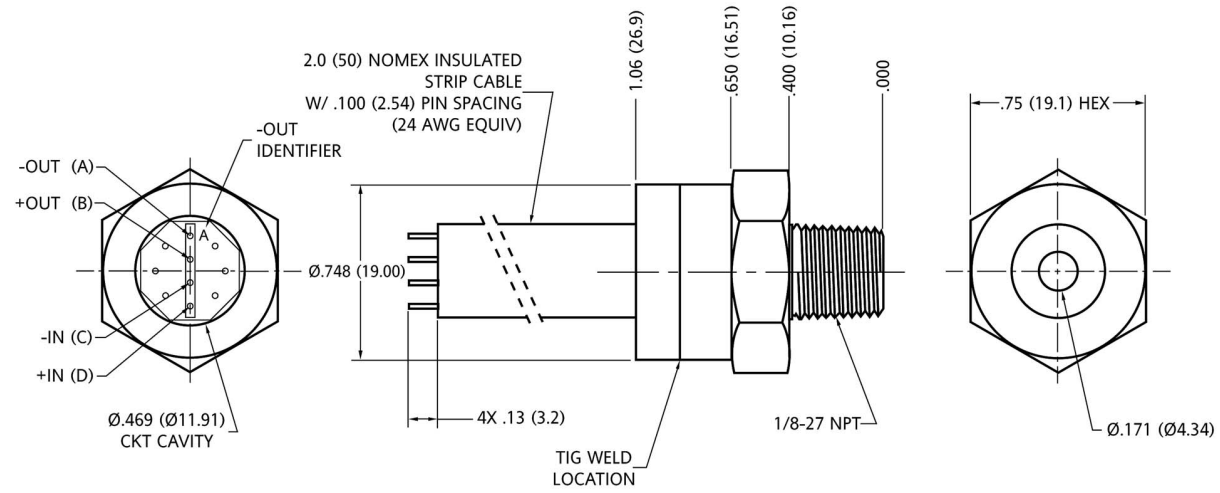
PHYSICAL DIMENSIONS for reference only, in (mm)

Package 1 (see note): Ring with back support

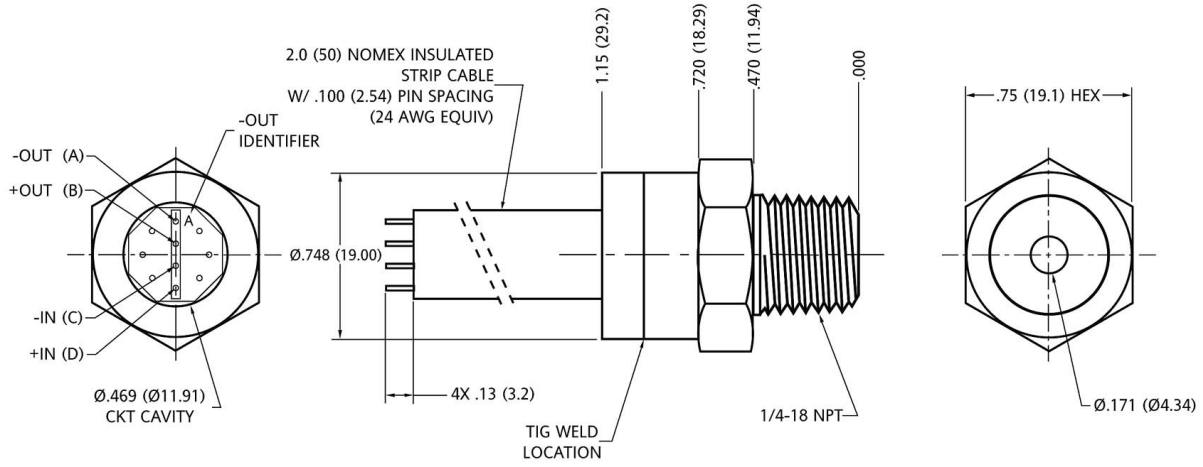


Note: Non-concentricity effects at the diaphragm weld area may cause runout of up to ±0.006 in between the upper and lower portions of the sensor body. (It is recommended to use a counter bore to mate with this device to allow for this non-concentricity).

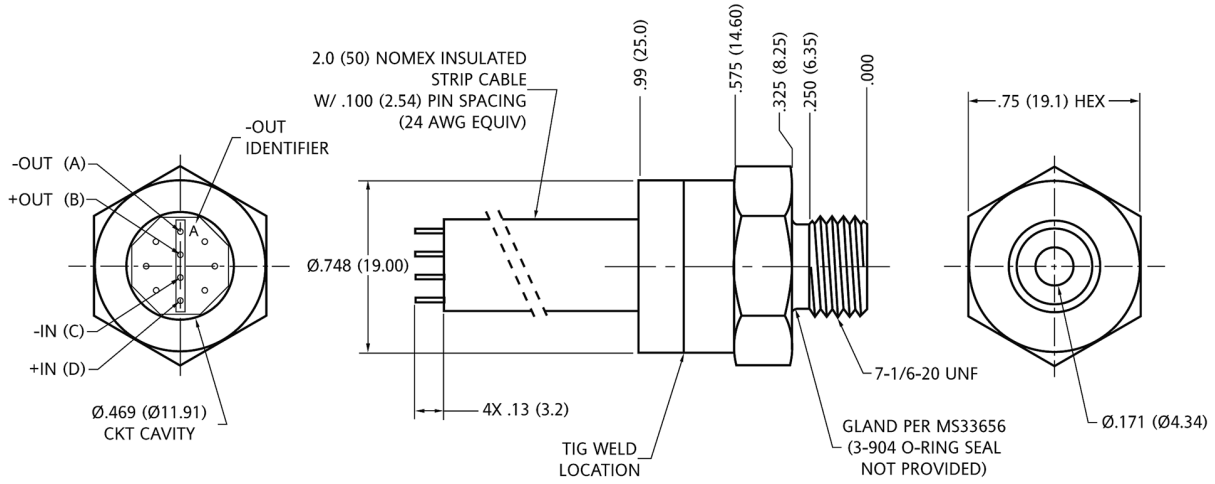
Package 4: 1/8-27 NPT



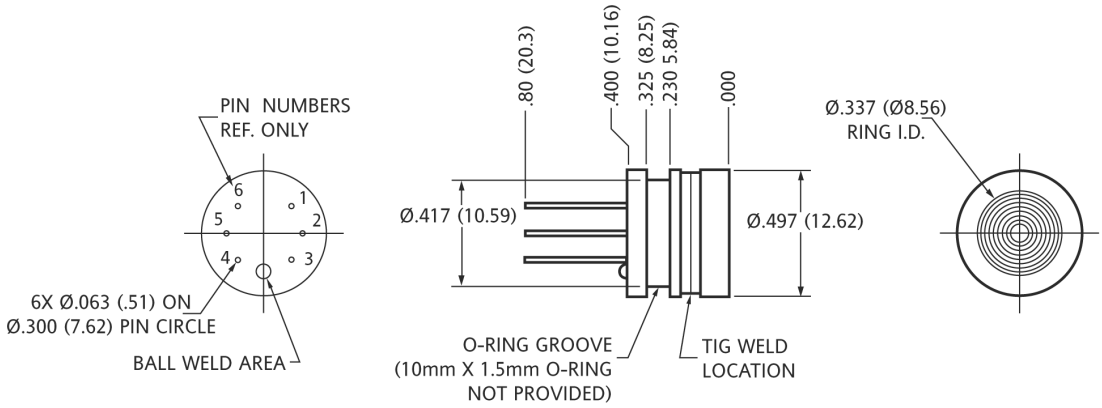
Package 5: 1/4-18 NPT



Package 6: 7/16-20 UNF



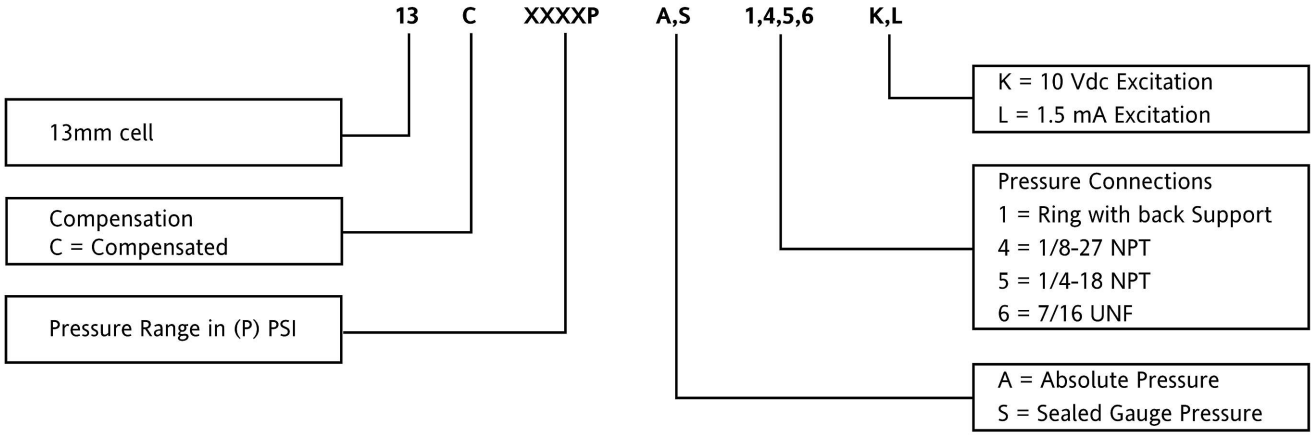
Package 0 (see note): Ring and cell



Note: Non-concentricity effects at the diaphragm weld area may cause runout of up to ±0.006 in between the upper and lower portions of the sensor body. (It is recommended to use a counter bore to mate with this device to allow for this non-concentricity).

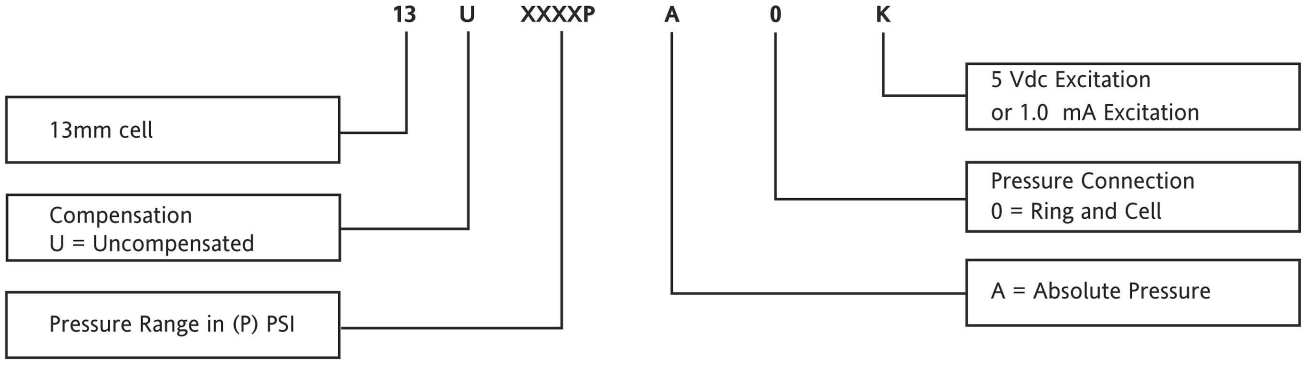
ORDERING INFORMATION

13 mm Compensated Series



For example: **Part #13C3000PS4K** = 13 mm Cell, Compensated, 3000 psi, Sealed Gauge, 1/8NPT Port with 10 Vdc excitation.

13 mm Uncompensated Series



For example: **Part #13U 3000PA0K** = 13 mm Cell, Uncompensated, 3000 psi, Absolute, Ring pressure connection with 5 Vdc excitation.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application. For application assistance, current specifications, or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

1-800-537-6945 USA/Canada
1-815-235-6847 International

FAX

1-815-235-6545 USA

INTERNET

www.honeywell.com/sensing
info.sc@honeywell.com

Honeywell

Sensing and Control
www.honeywell.com/sensing
Honeywell
11 West Spring Street
Freeport, Illinois 61032

008131-1-EN IL50 GLO 1004 Printed in USA

Copyright 2004 Honeywell International Inc. All Rights Reserved.

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А