



Features

- Surface Mount SMA package
- Breakdown Voltage: 15 to 68 volts
- Power Dissipation: 400 watts
- RoHS compliant* and halogen free**
- AEC-Q101 compliant***

Applications

- Protection of power buses
- Protection of I/O interfaces
- Overvoltage transient protection
- Telecom, computer, industrial and consumer electronics applications

P4SMA-Q Transient Voltage Suppressor Diode Series

General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-214AC (SMA) size format. The Transient Voltage Suppressor series offers a choice of Breakdown Voltages from 15 V up to 68 V. Typical fast response times are less than 1.0 picosecond for unidirectional devices and less than 5.0 picoseconds for bidirectional devices.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.

Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|-------|
| Peak Pulse Power Dissipation (T _P = 1 ms) (Note 1,2) | P _{PK} | 400 | Watts |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3) | I _{FSM} | 40 | Amps |
| Instantaneous Forward Voltage @ 25 A (For Unidirectional Units Only) | V _F | 3.5 | Volts |
| Operating Temperature Range | T _J | -55 to +150 | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | °C |

1. Non-repetitive current pulse, per Pulse Waveform graph and derated above T_A = 25 °C per Pulse Derating Curve.
2. Mounted on 5.0 mm x 5.0 mm copper pad to each terminal.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).

BOURNS®

Asia-Pacific:

Tel: +886-2 2562-4117
Email: asiacus@bourns.com

Europe:

Tel: +36 88 885 877
Email: eurocus@bourns.com

The Americas:

Tel: +1-951 781-5500
Email: americus@bourns.com

www.bourns.com

How to Order

P4SMA 15 CA - Q

Series _____
P4SMA = SMA/DO-214AC

Breakdown Voltage _____
15 to 68 = 15 to 68 V_{BR} (Volts)

Suffix _____
A = 5 % Tolerance Unidirectional Device
CA = 5 % Tolerance Bidirectional Device

AEC-Q101 Suffix _____
Q = AEC-Q101 Compliant, 13-inch Reel (5000 pcs.)



WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

*** Q suffix for applications requiring appropriate AEC-Q101 compliance for electronic limiters.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

P4SMA-Q Transient Voltage Suppressor Diode Series

BOURNS®

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

| Unidirectional Device | | Bidirectional Device | | Breakdown Voltage V _{BR} (Volts) | | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V _{RWM} | Maximum Reverse Voltage @ I _{RSM} | Maximum Reverse Surge Current |
|-----------------------|---------|----------------------|---------|--|------|-----------------------|---------------------------------------|---|---|--|
| Part No. | Marking | Part No. | Marking | Min. | Max. | @ I _T (mA) | V _{RWM} (V) | I _R (μA) | V _{RSM} (V) | I _{RSM} (A) |
| P4SMA15A-Q | 15AQ | P4SMA15CA-Q | 15CQ | 14.3 | 15.8 | 1 | 12.8 | 1 | 21.2 | 19.3 |
| P4SMA16A-Q | 16AQ | P4SMA16CA-Q | 16CQ | 15.2 | 16.8 | 1 | 13.6 | 1 | 22.5 | 18.2 |
| P4SMA18A-Q | 18AQ | P4SMA18CA-Q | 18CQ | 17.1 | 18.9 | 1 | 15.3 | 1 | 25.5 | 16.1 |
| P4SMA20A-Q | 20AQ | P4SMA20CA-Q | 20CQ | 19 | 21 | 1 | 17.1 | 1 | 27.7 | 14.8 |
| P4SMA22A-Q | 22AQ | P4SMA22CA-Q | 22CQ | 20.9 | 23.1 | 1 | 18.8 | 1 | 30.6 | 13.4 |
| P4SMA24A-Q | 24AQ | P4SMA24CA-Q | 24CQ | 22.8 | 25.2 | 1 | 20.5 | 1 | 33.2 | 12.3 |
| P4SMA27A-Q | 27AQ | P4SMA27CA-Q | 27CQ | 25.7 | 28.4 | 1 | 23.1 | 1 | 37.5 | 10.9 |
| P4SMA30A-Q | 30AQ | P4SMA30CA-Q | 30CQ | 28.5 | 31.5 | 1 | 25.6 | 1 | 41.4 | 9.9 |
| P4SMA33A-Q | 33AQ | P4SMA33CA-Q | 33CQ | 31.4 | 34.7 | 1 | 28.2 | 1 | 45.7 | 9 |
| P4SMA36A-Q | 36AQ | P4SMA36CA-Q | 36CQ | 34.2 | 37.8 | 1 | 30.8 | 1 | 49.9 | 8.2 |
| P4SMA39A-Q | 39AQ | P4SMA39CA-Q | 39CQ | 37.1 | 41 | 1 | 33.3 | 1 | 53.9 | 7.6 |
| P4SMA43A-Q | 43AQ | P4SMA43CA-Q | 43CQ | 40.9 | 45.2 | 1 | 36.8 | 1 | 59.3 | 6.9 |
| P4SMA47A-Q | 47AQ | P4SMA47CA-Q | 47CQ | 44.7 | 49.4 | 1 | 40.2 | 1 | 64.8 | 6.3 |
| P4SMA51A-Q | 51AQ | P4SMA51CA-Q | 51CQ | 48.5 | 53.6 | 1 | 43.6 | 1 | 70.1 | 5.8 |
| P4SMA56A-Q | 56AQ | P4SMA56CA-Q | 56CQ | 53.2 | 58.8 | 1 | 47.8 | 1 | 77 | 5.3 |
| P4SMA62A-Q | 62AQ | P4SMA62CA-Q | 62CQ | 58.9 | 65.1 | 1 | 53 | 1 | 85 | 4.8 |
| P4SMA68A-Q | 68AQ | P4SMA68CA-Q | 68CQ | 64.6 | 71.4 | 1 | 58.1 | 1 | 92 | 4.5 |

Notes: 1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
 2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

P4SMA-Q Transient Voltage Suppressor Diode Series



Rating & Characteristic Curves

Pulse Derating Curve



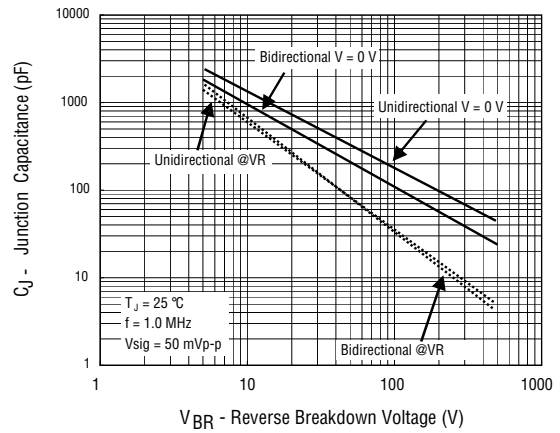
Maximum Non-Repetitive Surge Current



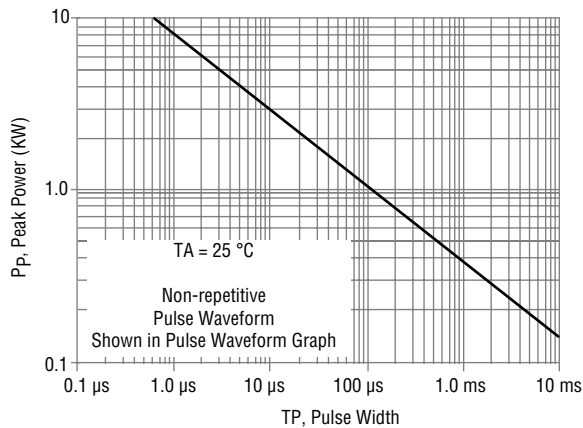
Pulse Waveform



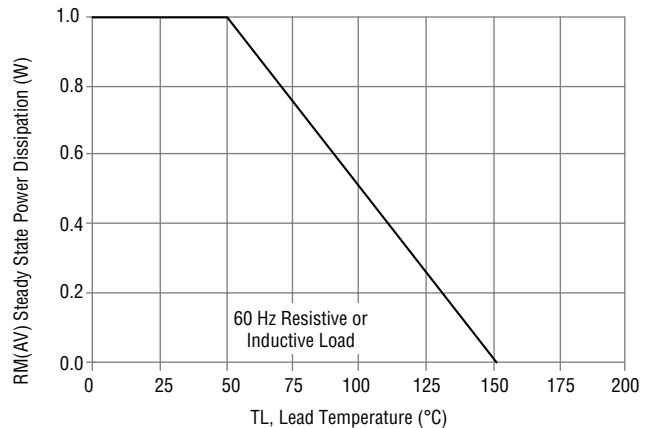
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



Specifications are subject to change without notice.

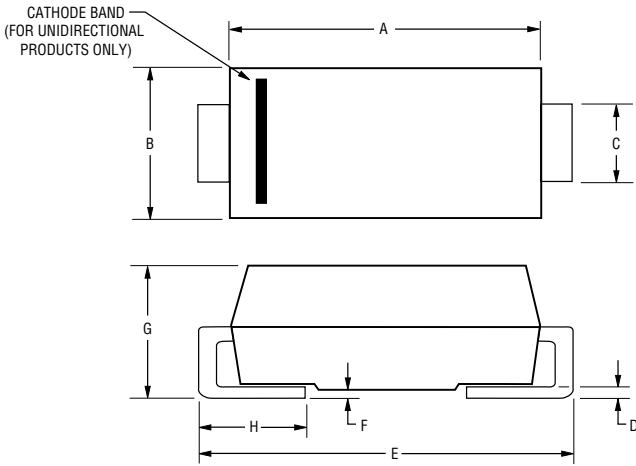
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

P4SMA-Q Transient Voltage Suppressor Diode Series



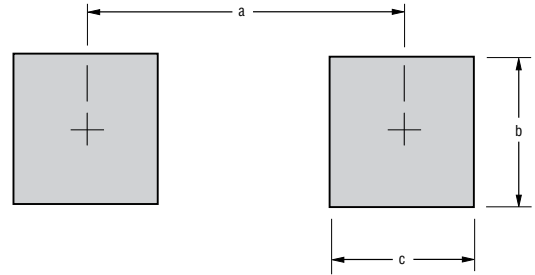
Product Dimensions



| Dimension | SMA (DO-214AC) |
|-----------|---------------------------------------|
| A | $\frac{3.99 - 4.50}{(0.157 - 0.177)}$ |
| B | $\frac{2.54 - 2.79}{(0.100 - 0.110)}$ |
| C | $\frac{1.25 - 1.65}{(0.049 - 0.065)}$ |
| D | $\frac{0.15 - 0.31}{(0.006 - 0.012)}$ |
| E | $\frac{4.93 - 5.28}{(0.194 - 0.208)}$ |
| F | $\frac{0.203}{(0.008)}$ MAX. |
| G | $\frac{1.98 - 2.29}{(0.078 - 0.090)}$ |
| H | $\frac{0.76 - 1.52}{(0.030 - 0.060)}$ |

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Recommended Footprint



| Dimension | SMA (DO-214AC) |
|-----------|------------------------|
| a (Max.) | $\frac{2.70}{(0.106)}$ |
| b (Min.) | $\frac{2.10}{(0.083)}$ |
| c (Min.) | $\frac{1.27}{(0.050)}$ |

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

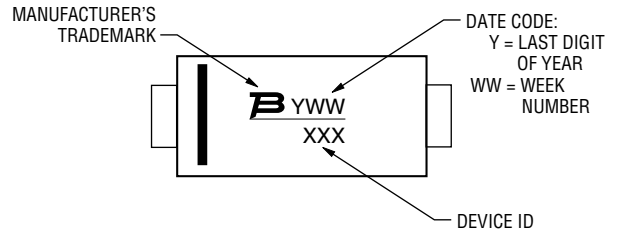
Physical Specifications

Case Molded plastic per UL Class 94V-0
 Polarity..... Cathode band indicates unidirectional device
 No cathode band indicates bidirectional device

Environmental Specifications

Moisture Sensitivity Level 1
 ESD Classification (HBM) 3B

Typical Part Marking



Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

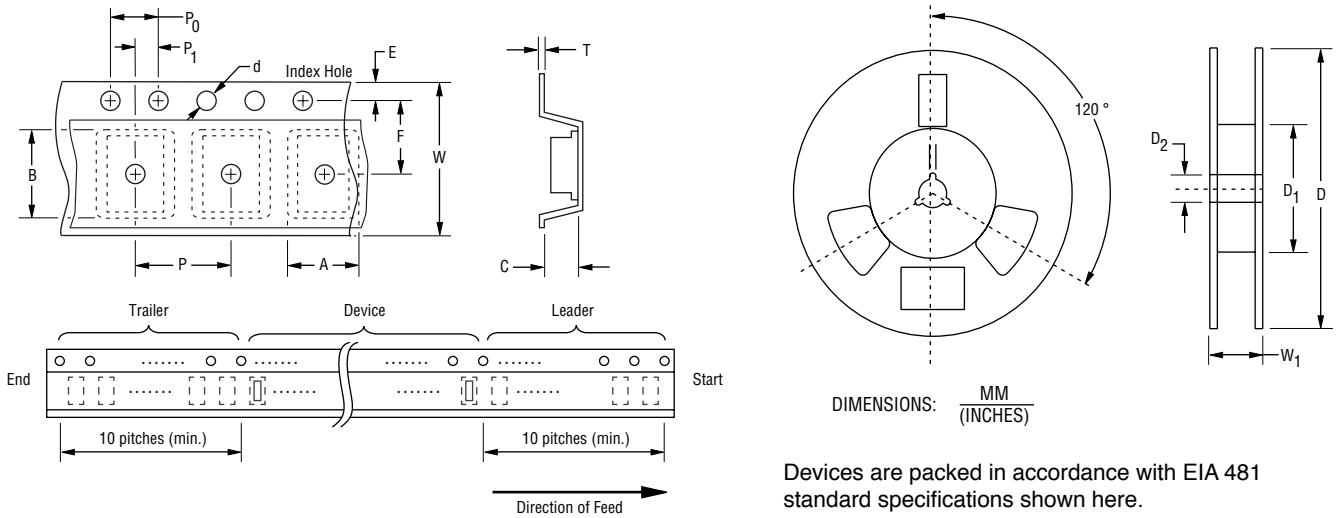
The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

P4SMA-Q Transient Voltage Suppressor Diode Series

BOURNS®

Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



| Item | Symbol | SMA (DO-214AC) |
|------------------------|----------------|-------------------------------------|
| | | 13-Inch Reel |
| Carrier Width | A | 2.90 ± 0.20 (0.114 ± 0.008) |
| Carrier Length | B | 5.50 ± 0.20 (0.217 ± 0.008) |
| Carrier Depth | C | 2.26 ± 0.20 (0.089 ± 0.008) |
| Sprocket Hole | d | 1.50 ± 0.10 (0.061 ± 0.004) |
| Reel Outside Diameter | D | 330 (12.992) |
| Reel Inner Diameter | D ₁ | 50.0 (1.969) MIN. |
| Feed Hole Diameter | D ₂ | 13.0 ± 0.20 (0.512 ± 0.008) |
| Sprocket Hole Position | E | 1.75 ± 0.10 (0.069 ± 0.004) |
| Punch Hole Position | F | 5.50 ± 0.05 (0.217 ± 0.002) |
| Punch Hole Pitch | P | 4.00 ± 0.10 (0.157 ± 0.004) |
| Sprocket Hole Pitch | P ₀ | 4.00 ± 0.10 (0.157 ± 0.004) |
| Embossment Center | P ₁ | 2.00 ± 0.05 (0.079 ± 0.002) |
| Overall Tape Thickness | T | 0.30 ± 0.10 (0.012 ± 0.004) |
| Tape Width | W | 12.00 ± 0.30 (0.472 ± 0.012) |
| Reel Width | W ₁ | 18.4 (0.724) MAX. |
| Quantity per Reel | -- | 5000 |

07/19

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns' knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user's sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or "automotive grade" does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>

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».



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).



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