



# 3-terminal Filters

For power line

## ACH series

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**ACH32C**

**[1206 inch]\***

**ACH3218**

**[1207 inch]**

\* Dimensions Code JIS[EIA]

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## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

#### REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).  
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
  - Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
  - Before soldering, be sure to preheat components.  
The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
  - Soldering corrections after mounting should be within the range of the conditions determined in the specifications.  
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
  - When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
  - Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
  - Carefully lay out the coil for the circuit board design of the non-magnetic shield type.  
A malfunction may occur due to magnetic interference.
  - Use a wrist band to discharge static electricity in your body through the grounding wire.
  - Do not expose the products to magnets or magnetic fields.
  - Do not use for a purpose outside of the contents regulated in the delivery specifications.
  - The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.  
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.  
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.
- |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>(1) Aerospace/Aviation equipment</li> <li>(2) Transportation equipment (cars, electric trains, ships, etc.)</li> <li>(3) Medical equipment</li> <li>(4) Power-generation control equipment</li> <li>(5) Atomic energy-related equipment</li> <li>(6) Seabed equipment</li> <li>(7) Transportation control equipment</li> </ul> | <ul style="list-style-type: none"> <li>(8) Public information-processing equipment</li> <li>(9) Military equipment</li> <li>(10) Electric heating apparatus, burning equipment</li> <li>(11) Disaster prevention/crime prevention equipment</li> <li>(12) Safety equipment</li> <li>(13) Other applications that are not considered general-purpose applications</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

## 3-terminal Filters

For power line

Product compatible with RoHS directive

Halogen-free

Compatible with lead-free solders

# Overview of the ACH Series

## FEATURES

- T-type EMC filter that can be used for high-current circuits.
- Achieve excellent attenuation characteristics by using it for circuits with stable grounds.
- Does not require mounting space due to vertical mounting design, making it perfect for high-density circuits.
- Guaranteed temperature range is  $-40$  to  $+125^{\circ}\text{C}$ , so it can be used under severe environmental conditions.
- Use this product under reflow soldering conditions.

## APPLICATION

- HE devices (TVs, VTRs, CD players, electronic musical instruments, PCs, etc.)
- OA equipment (Computers, terminals, facsimiles, etc.)
- FA equipment (Robots, NC machine tools, process controllers, etc.)
- AE equipment (Car navigation systems, ECUs, etc.) \* ACH32C cannot be used for ECUs.

## PART NUMBER CONSTRUCTION

### ACH32C

|             |                          |   |                     |   |                 |               |
|-------------|--------------------------|---|---------------------|---|-----------------|---------------|
| ACH         | 32C                      | - | 103                 | - | T               | 001           |
| Series name | LxWxT Dimensions<br>(mm) |   | Capacitance<br>(pF) |   | Packaging style | Internal code |
|             | 32C 3.2×1.6×2.1          |   | 100 10<br>103 10000 |   | T Taping        |               |

### ACH3218

|             |                          |   |                     |   |                 |                                                                |
|-------------|--------------------------|---|---------------------|---|-----------------|----------------------------------------------------------------|
| ACH         | 3218                     | - | 223                 | - | T               | <input type="text"/> <input type="text"/> <input type="text"/> |
| Series name | LxWxT Dimensions<br>(mm) |   | Capacitance<br>(pF) |   | Packaging style | Internal code                                                  |
|             | 3218 3.2×1.8×2.5         |   | 223 22000           |   | T Taping        |                                                                |

## OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

| Type    | Temperature range      |                        | Package quantity<br>(pieces/reel) | Individual weight<br>(mg) |
|---------|------------------------|------------------------|-----------------------------------|---------------------------|
|         | Operating temperature  | Storage temperature*   |                                   |                           |
|         | ( $^{\circ}\text{C}$ ) | ( $^{\circ}\text{C}$ ) |                                   |                           |
| ACH32C  | $-40$ to $+125$        | $-40$ to $+125$        | 2,000                             | 70                        |
| ACH3218 | $-40$ to $+125$        | $-40$ to $+125$        | 1,000                             | 70                        |

\* The Storage temperature range is for after the circuit board is mounted.

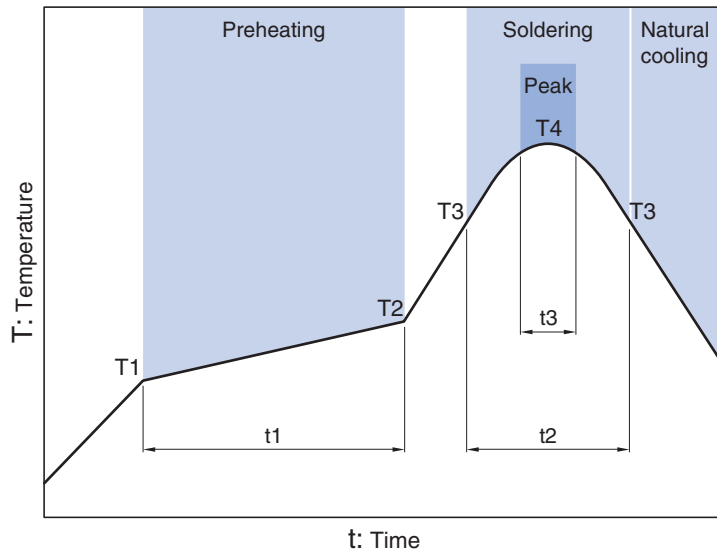
○ RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://www.tdk.co.jp/rohs/>

○ Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

• All specifications are subject to change without notice.

# Overview of the ACH Series

## RECOMMENDED REFLOW PROFILE



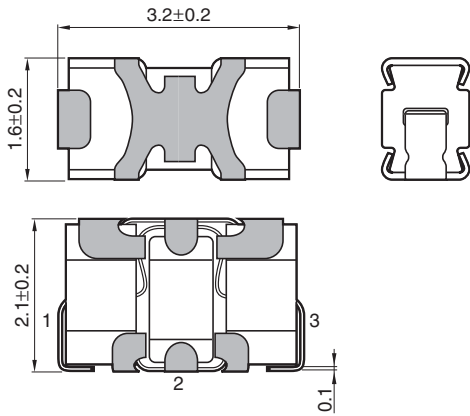
| Preheating |       |            | Soldering |           | Peak         |          |
|------------|-------|------------|-----------|-----------|--------------|----------|
| Temp.      |       | Time       | Temp.     | Time      | Temp.        | Time     |
| T1         | T2    | t1         | T3        | t2        | T4           | t3       |
| 150°C      | 180°C | 60 to 120s | 230°C     | 30 to 60s | 250 to 260°C | 10s max. |

ACH series

# ACH32C Type

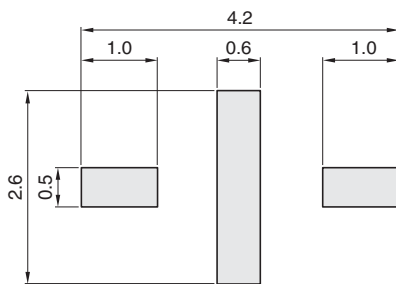


## ■ SHAPE & DIMENSIONS



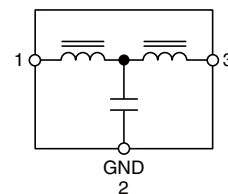
Dimensions in mm

## ■ RECOMMENDED LAND PATTERN



Dimensions in mm

## ■ CIRCUIT DIAGRAM



• No polarity

# ACH series **ACH32C Type**

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

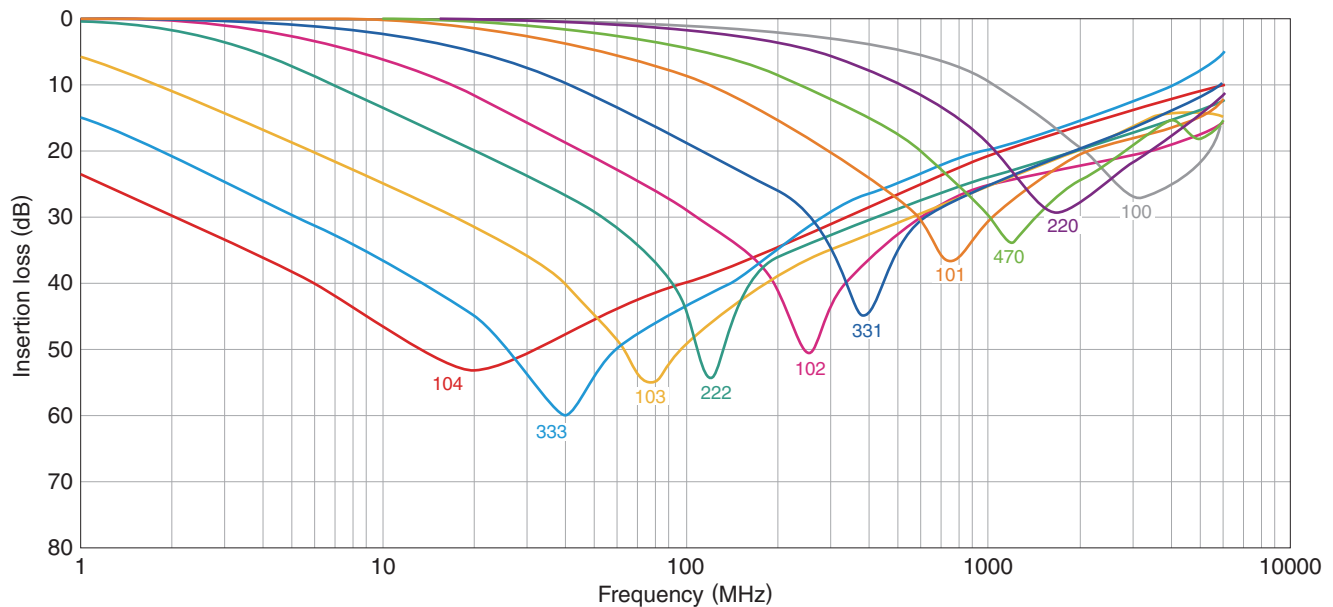
| Rated voltage (V)max. | Rated current (A)max. | Insulation resistance (MΩ)min. | DC resistance (mΩ)max. | Guaranteed insertion loss (dB) | Guaranteed frequency bandwidth (MHz) | Part No.        |
|-----------------------|-----------------------|--------------------------------|------------------------|--------------------------------|--------------------------------------|-----------------|
| 50                    | 6                     | 100                            | 2                      | -15                            | 2000 to 6000                         | ACH32C-100-T001 |
| 50                    | 6                     | 100                            | 2                      | -15                            | 1300 to 2500                         | ACH32C-220-T001 |
| 50                    | 6                     | 100                            | 2                      | -15                            | 650 to 2500                          | ACH32C-470-T001 |
| 50                    | 6                     | 100                            | 2                      | -20                            | 450 to 1300                          | ACH32C-101-T001 |
| 50                    | 6                     | 100                            | 2                      | -20                            | 200 to 800                           | ACH32C-331-T001 |
| 50                    | 6                     | 100                            | 2                      | -25                            | 100 to 350                           | ACH32C-102-T001 |
| 50                    | 6                     | 100                            | 2                      | -25                            | 55 to 300                            | ACH32C-222-T001 |
| 50                    | 6                     | 100                            | 2                      | -25                            | 30 to 200                            | ACH32C-103-T001 |
| 50                    | 6                     | 100                            | 2                      | -25                            | 10 to 300                            | ACH32C-333-T001 |
| 50                    | 6                     | 100                            | 2                      | -25                            | 3.5 to 200                           | ACH32C-104-T001 |

#### ○ Measurement equipment

| Measurement item      | Product No. | Manufacturer         |
|-----------------------|-------------|----------------------|
| Insertion loss        | E5071B      | Agilent Technologies |
| DC resistance         | 4338A       | Agilent Technologies |
| Insulation resistance | 4339A       | Agilent Technologies |

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



#### ○ Measurement equipment

| Product No. | Manufacturer         |
|-------------|----------------------|
| E5071B      | Agilent Technologies |

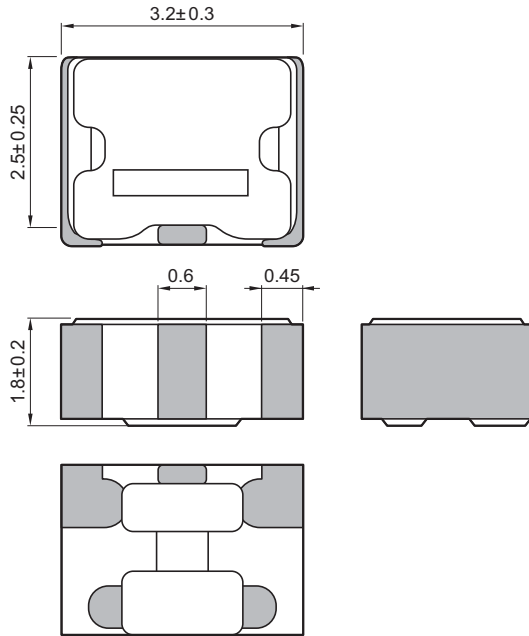
\* Equivalent measurement equipment may be used.

ACH series

## ACH3218 Type

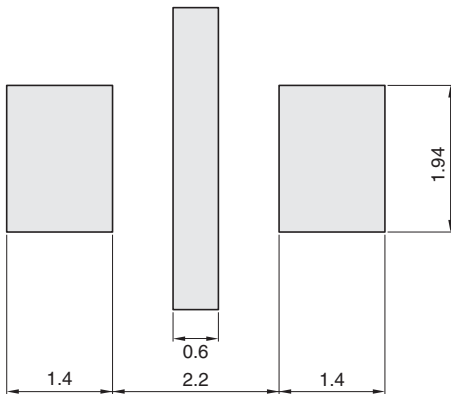


## ■ SHAPE &amp; DIMENSIONS



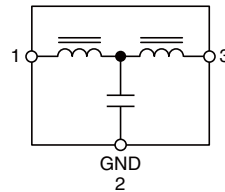
Dimensions in mm

## ■ RECOMMENDED LAND PATTERN



Dimensions in mm

## ■ CIRCUIT DIAGRAM



• No polarity

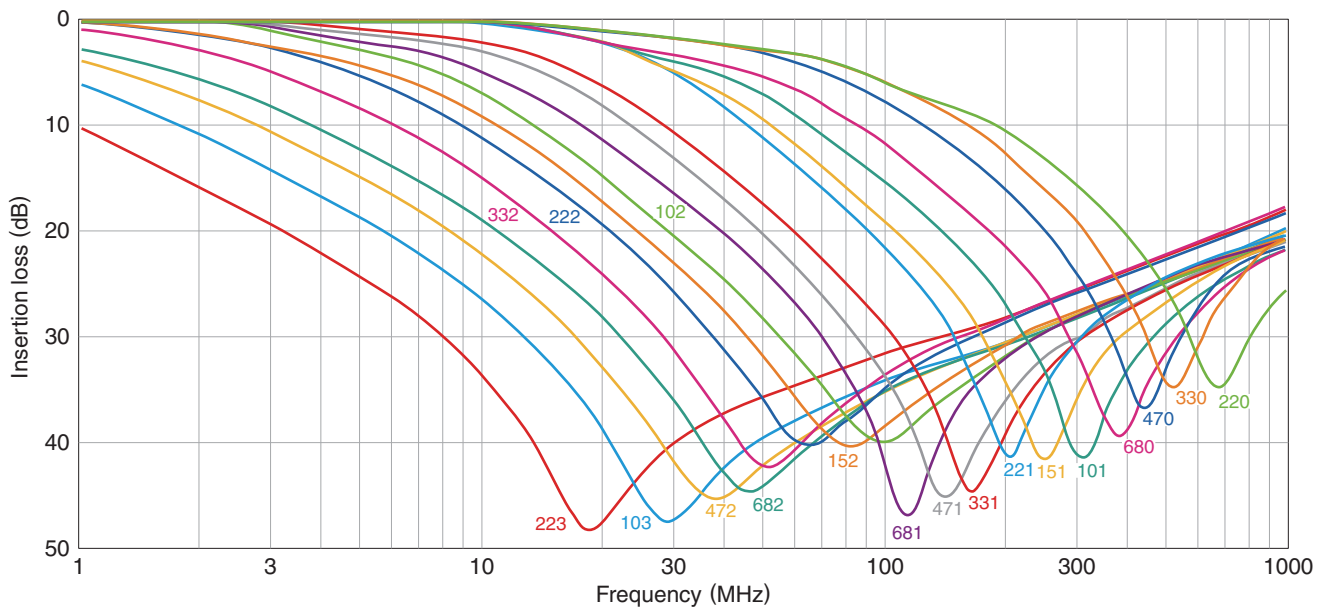
ACH series **ACH3218 Type**

## ■ ELECTRICAL CHARACTERISTICS

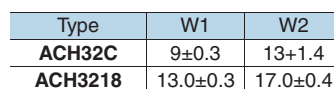
## □ CHARACTERISTICS SPECIFICATION TABLE

| Insertion loss 25dB<br>frequency range<br>(MHz) | Rated voltage<br>(V)max. | Rated current<br>(A)max. | DC resistance<br>( $\Omega$ )max.<br>[Terminal No.1 to 3] | Insulation resistance<br>(M $\Omega$ )min.<br>[Terminal No.1 to 2/No.2 to 3] | Part No.         |
|-------------------------------------------------|--------------------------|--------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|------------------|
| 11 to 55                                        | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-223-T□□□ |
| 17 to 60                                        | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-103-T□□□ |
| 22 to 75                                        | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-682-T□□□ |
| 30 to 85                                        | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-472-T□□□ |
| 37 to 90                                        | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-332-T□□□ |
| 45 to 105                                       | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-222-T□□□ |
| 60 to 115                                       | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-152-T□□□ |
| 80 to 140                                       | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-102-T□□□ |
| 95 to 150                                       | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-681-T□□□ |
| 120 to 180                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-471-T□□□ |
| 130 to 210                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-331-T□□□ |
| 170 to 250                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-221-T□□□ |
| 205 to 280                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-151-T□□□ |
| 265 to 340                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-101-T□□□ |
| 340 to 420                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-680-T□□□ |
| 420 to 500                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-470-T□□□ |
| 500 to 600                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-330-T□□□ |
| 600 to 700                                      | 20                       | 1.5                      | 0.06                                                      | 1000                                                                         | ACH3218-220-T□□□ |

## □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



## ■ REEL DIMENSIONS



Technical drawing of a mechanical part. The drawing shows a side view of a component with a wavy profile. Dimensions are given in millimeters (mm). The overall width is  $4.0 \pm 0.1$ . The overall height is  $8.0 \pm 0.3$ . The distance from the top surface to the center of the first hole is  $1.5 \pm 0.1$ . The distance between the centers of the first and second holes is  $2.0 \pm 0.05$ . The distance between the centers of the second and third holes is  $4.0 \pm 0.1$ . The distance from the center of the third hole to the right edge is  $1.75 \pm 0.1$ . The distance from the left edge to the center of the first hole is  $B$ . The distance from the bottom surface to the center of the first hole is  $F$ . A cross-section view is shown on the right, labeled K, showing a U-shaped profile with a central slot.

| Type           | A       | B        | F        | W        | K        |
|----------------|---------|----------|----------|----------|----------|
| <b>ACH32C</b>  | 1.9±0.1 | 3.5±0.1  | 3.5±0.05 | 8.0±0.2  | 2.3±0.1  |
| <b>ACH3218</b> | 2.2±0.1 | 3.7±0.05 | 5.5±0.05 | 12.0±0.3 | 3.15max. |



Figure 1 is a schematic diagram of the experimental setup. It shows a horizontal assembly line with various components and a drawing direction arrow. The components are labeled with dimensions and time: "40 to 80", "Taping", "200min.", and "300min.". The drawing direction is indicated by an arrow pointing left.

**ACH3218 TYPE**

Dimensions in mm

001-01 / 20130722 / e9611\_ach



**Стандарт  
Электрон  
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

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Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

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