



## Features

- RoHS compliant\*
- Power rating at 70 °C: CR0603 - 0.10 W, CR0805 - 0.125 W, CR1206 - 0.25 W
- Tight tolerances of bottom electrode width
- Suitable for all types of soldering processes

- Three layer contacting process with nickel barrier prevents leaching and provides excellent solderability
- Paper tape on reel for automatic placement

## CR0603/CR0805/CR1206 - Chip Resistors

### Electrical Characteristics

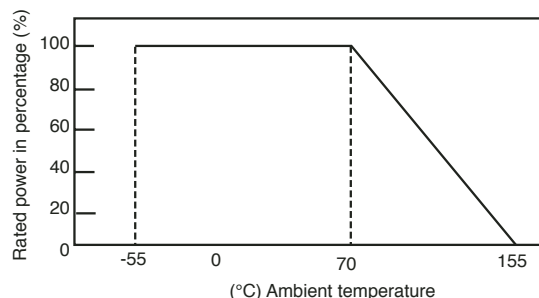
| Characteristic                                            | Model CR0603                                                                                                              | Model CR0805 | Model CR1206 |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| Power Rating @ 70 °C                                      | 1/10 W                                                                                                                    | 1/8 W        | 1/4 W        |
| Operating Temperature Range                               | -55 °C to +155 °C                                                                                                         |              |              |
| Derated to 0 Load at                                      | +155 °C                                                                                                                   |              |              |
| Maximum Working Voltage                                   | 50 V                                                                                                                      | 150 V        | 200 V        |
| Maximum Overload Voltage                                  | 100 V                                                                                                                     | 300 V        | 400 V        |
| Resistance Range: 1 %, E-96 + E-24                        | 10 ohms - 1 megohm                                                                                                        |              |              |
| Resistance Range: 5 %, E-24<br>Zero Ohm Jumper <0.01 ohms | 1 ohms - 10 megohms                                                                                                       |              |              |
| Temperature Coefficient                                   | Special value on request<br>1 %: $\pm 100$ ppm/°C<br>5 %: $\pm 200$ ppm/°C<br>1 ohm - 10 ohms: -200 ppm/°C to +500 ppm/°C |              |              |

For Standard Values Used in Capacitors, Inductors, and Resistors, [click here](#).

### Chip Dimensions

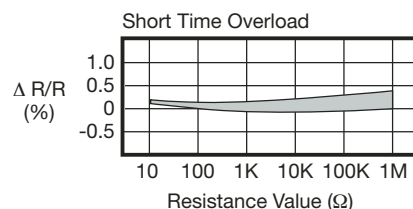
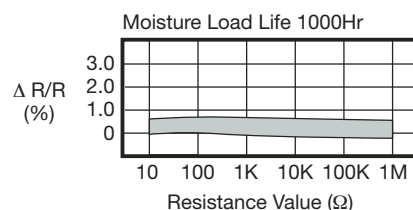
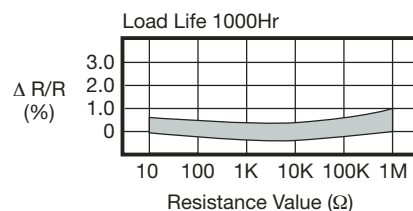
| Dimension | Model CR0603                              | Model CR0805                              | Model CR1206                              |
|-----------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| L         | $\frac{1.60 \pm 0.10}{(0.063 \pm 0.004)}$ | $\frac{2.00 \pm 0.15}{(0.079 \pm 0.006)}$ | $\frac{3.20 \pm 0.25}{(0.126 \pm 0.010)}$ |
| W         | $\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$ | $\frac{1.25 \pm 0.15}{(0.049 \pm 0.006)}$ | $\frac{1.60 \pm 0.15}{(0.063 \pm 0.006)}$ |
| H         | $\frac{0.45 \pm 0.10}{(0.018 \pm 0.004)}$ | $\frac{0.50 \pm 0.10}{(0.020 \pm 0.004)}$ | $\frac{0.60 \pm 0.15}{(0.024 \pm 0.006)}$ |
| $l_1$     | $\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$ | $\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$ | $\frac{0.50 \pm 0.25}{(0.020 \pm 0.010)}$ |
| $l_2$     | $\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$ | $\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$ | $\frac{0.50 \pm 0.20}{(0.020 \pm 0.010)}$ |

### Derating Curve

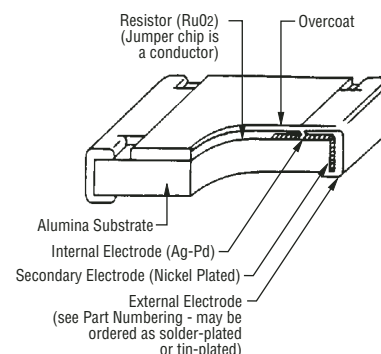
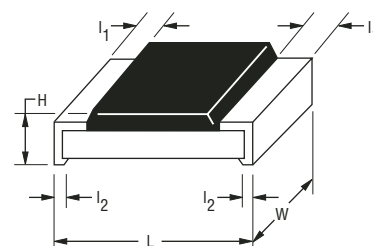


DIMENSIONS ARE:  $\frac{\text{MM}}{(\text{INCHES})}$

### Characteristic Data



### Dimensional Drawing



\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex  
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# CR0603/CR0805/CR1206 - Chip Resistors

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## Performance Characteristics (Tests According to MIL-STD-202, MIL-R-55342B, EIA RS-396)

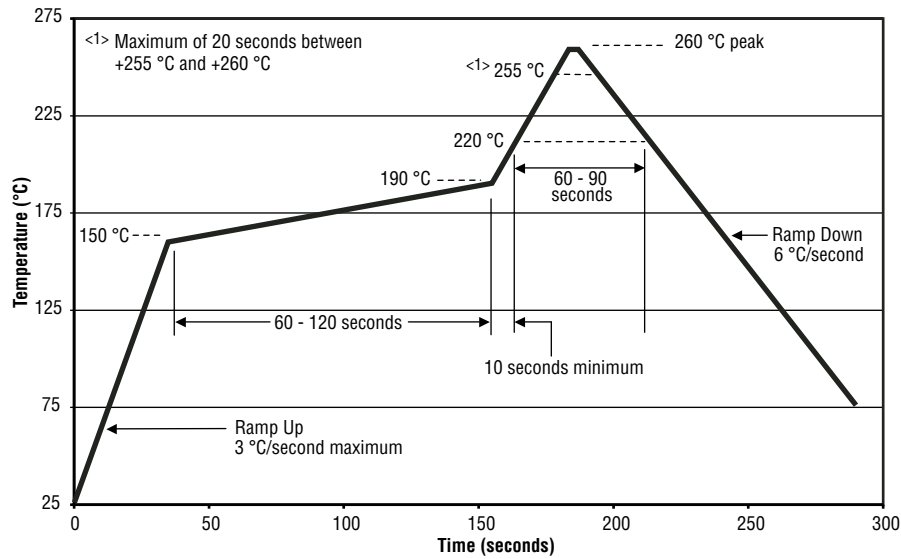
| Test                            | Procedure                                                                                           | Method                                            | Specification       | Deviation from Nominal                                                                                                                                               |                                                                                                                                                                      |
|---------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |                                                                                                     |                                                   |                     | 1 %                                                                                                                                                                  | 5 %                                                                                                                                                                  |
| DC Resistance                   | —                                                                                                   | MIL-STD-202 303<br>EIA RS-396 4.4                 | MIL-R-55342D 4.7.2  | F: $\leq \pm 1 \%$                                                                                                                                                   | $\leq \pm 5.0 \%$                                                                                                                                                    |
| Thermal Shock                   | -40 °C, 60 minutes;<br>+125 °C, 60 minutes                                                          | MIL-STD-202 107<br>EIA RS-396 4.5                 | MIL-R-55342D 4.7.3  | $\leq \pm 0.5 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 1 \%$ +0.05 $\Omega$                                                                                                                                       |
| Low Temperature Operation       | -55 °C, 1 hour off;<br>45 minutes on                                                                | MIL-R-55342D 4.7.4<br>EIA RS-396 4.6              | MIL-R-55342D 4.7.4  | $\leq \pm 0.5 \%$ 0.05 $\Omega$                                                                                                                                      | $\leq \pm 1.0 \%$ +0.05 $\Omega$                                                                                                                                     |
| Short Time Overload             | Rated Voltage x 2.5;<br>5 seconds<br>CR0603: 100 V max.<br>CR0805: 300 V max.<br>CR1206: 400 V max. | MIL-R-55342D 4.7.5<br>EIA RS-396 4.7              | MIL-R-55342D 4.7.5  | $\leq \pm 1 \%$ +0.05 $\Omega$                                                                                                                                       | $\leq \pm 2.0 \%$ +0.05 $\Omega$                                                                                                                                     |
| High Temperature Exposure       | +125 °C; 1000 hours                                                                                 | MIL-R-55342D 4.7.6<br>EIA RS-396 4.8              | MIL-R-55342D 4.7.6  | $\leq \pm 1.0 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 2.0 \%$ +0.1 $\Omega$                                                                                                                                      |
| Resistance to Soldering Heat    | 260 °C, 10 seconds                                                                                  | MIL-R-55342D 4.7.7                                | MIL-R-55342D 4.7.7  | $\leq \pm 0.5 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 1.0 \%$ +0.05 $\Omega$                                                                                                                                     |
| Moisture Resistance             | 90-98 %RH; 10 cycles                                                                                | MIL-STD-202 106D<br>EIA RS-396 4.9                | MIL-R-55342D 4.7.8  | $\leq \pm 0.5 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 2.0 \%$ +0.05 $\Omega$                                                                                                                                     |
| Load Life 1000 Hours            | +70 °C; 1.5 hours on,<br>0.5 hours off;<br>1000 hours                                               | MIL-STD-202 108<br>Condition D<br>EIA RS-396 4.12 | MIL-R-55342D 4.7.10 | $\leq \pm 1.0 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 3.0 \%$ +0.1 $\Omega$                                                                                                                                      |
| Solderability                   | +235 °C; 3 seconds                                                                                  | MIL-STD-202 208<br>EIA RS-396 4.11                | MIL-R-55342D 4.7.11 | $\geq 95 \%$ of area covered                                                                                                                                         | $\geq 95 \%$ of area covered                                                                                                                                         |
| Terminal Strength               | Pull Test                                                                                           | MIL-R-55342D 4.7.12                               | MIL-R-55342D 4.7.12 | $\geq 500$ g                                                                                                                                                         | $\geq 500$ g                                                                                                                                                         |
| Current Noise                   | Quan-Tech Model 315B                                                                                | MIL-STD-202 308                                   | MIL-R-55342D 6.6    | $R \leq 1k \Omega$ ; max. 1 $\mu$ V/V<br>$R \leq 10k \Omega$ ; max. 3 $\mu$ V/V<br>$R \leq 100k \Omega$ ; max. 6 $\mu$ V/V<br>$R \leq 1M \Omega$ ; max. 10 $\mu$ V/V | $R \leq 1k \Omega$ ; max. 1 $\mu$ V/V<br>$R \leq 10k \Omega$ ; max. 3 $\mu$ V/V<br>$R \leq 100k \Omega$ ; max. 6 $\mu$ V/V<br>$R \leq 2M \Omega$ ; max. 10 $\mu$ V/V |
| Humidity, Steady State          | +40 °C; 90-95 % RH,<br>1344 Hours                                                                   | MIL-STD-202 103B<br>Condition D                   | —                   | $\leq \pm 2.5 \%$ +0.05 $\Omega$                                                                                                                                     | $\leq \pm 2.5 \%$ +0.05 $\Omega$                                                                                                                                     |
| Salt Spray                      | 96 hours                                                                                            | MIL-STD-202 101D<br>Condition A                   | —                   | $\leq \pm 1.0 \%$ +0.2 $\Omega$                                                                                                                                      | $\leq \pm 1.0 \%$ +0.1 $\Omega$                                                                                                                                      |
| Vibration                       | 10-2000 Hz, 6 hours                                                                                 | MIL-STD-202 201A                                  | —                   | $\leq \pm 0.5 \%$ +0.1 $\Omega$                                                                                                                                      | $\leq \pm 1.0 \%$ +0.1 $\Omega$                                                                                                                                      |
| Voltage Coefficient             | —                                                                                                   | MIL-STD-202 309                                   | —                   | $\leq 100$ ppm/V                                                                                                                                                     | $\leq 100$ ppm/V                                                                                                                                                     |
| Insulation Resistance           | Test Potential 500V<br>CR0603: 100V                                                                 | MIL-STD-202 302<br>Condition B                    | —                   | $\geq 10^9 M \Omega$                                                                                                                                                 | $\geq 10^9 M \Omega$                                                                                                                                                 |
| Dielectric Withstanding Voltage | —                                                                                                   | MIL-STD-202 301                                   | —                   | $\geq 500$ V (CR1206, CR0805)<br>$\geq 300$ V (CR0603)                                                                                                               |                                                                                                                                                                      |
| Drop Test                       | 1 m                                                                                                 | MIL-STD-202 203B                                  | —                   | $\leq \pm 0.5 \%$ +0.1 $\Omega$                                                                                                                                      | $\leq \pm 1.0 \%$ +0.1 $\Omega$                                                                                                                                      |
| Bending Test                    | 5 mm/90 mm; 10 sec.                                                                                 | —                                                 | —                   | $\leq \pm 1 \%$ +0.05 $\Omega$                                                                                                                                       | $\leq \pm 1.0 \%$ +0.05 $\Omega$                                                                                                                                     |

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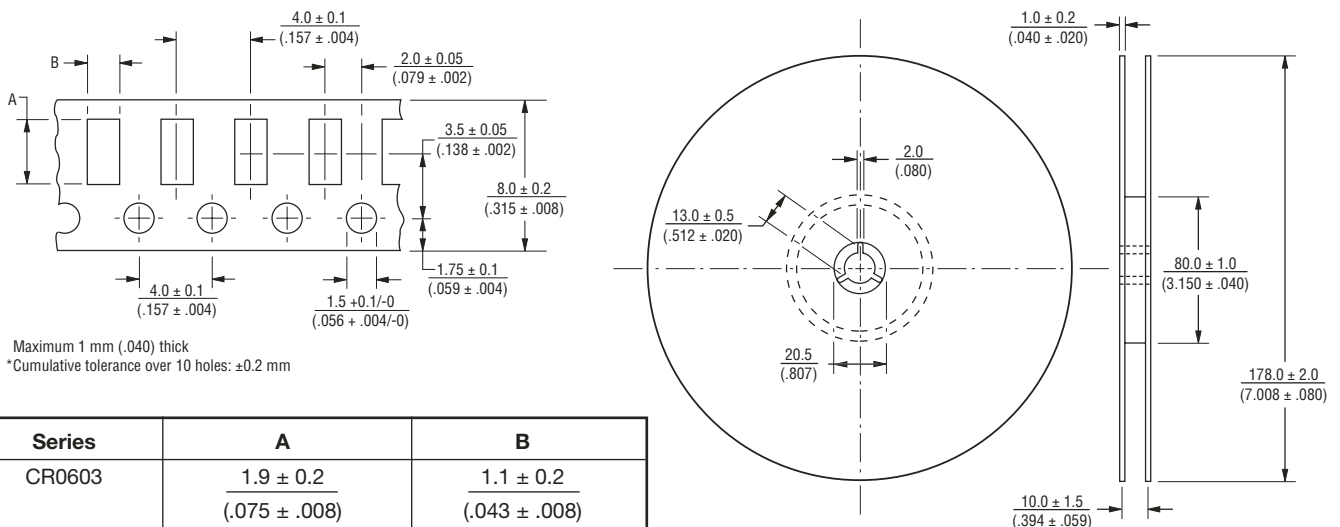
# CR0603/CR0805/CR1206 - Chip Resistors

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## Soldering Profile for RoHS Compliant Chip Resistors and Arrays



## Packaging Dimensions (Conforms to EIA RS-481A)



Marking on reel: Part number, quantity, resistance value and tolerance, date code.

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# CR0603/CR0805/CR1206 - Chip Resistors

**BOURNS®**

## Resistor Markings

CR0603  
CR0805  
CR1206



E-24 marking  
Value = 10K ohms

CR0805  
CR1206



E-96 marking  
Value = 44.2K ohms

CR0603  
EIA-96 Marking



1 % marking  
Value = 12.4K ohms

## Marking Explanation

- E-24: 3 digits, first two digits are significant, third digit is number of zeros.  
Letter R is decimal point.
  - E-96: 4 digits, first three digits are significant, fourth digit is number of zeros.  
Letter R is decimal point.
- 0603 E-96: EIA-96 marking (see table below).

## EIA-96 Marking for CR0603, 1 %

| Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value |
|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|
| 01   | 100     | 13   | 133     | 25   | 178     | 37   | 237     | 49   | 316     | 61   | 422     | 73   | 562     | 85   | 750     |
| 02   | 102     | 14   | 137     | 26   | 182     | 38   | 243     | 50   | 324     | 62   | 432     | 74   | 576     | 86   | 768     |
| 03   | 105     | 15   | 140     | 27   | 187     | 39   | 249     | 51   | 332     | 63   | 442     | 75   | 590     | 87   | 787     |
| 04   | 107     | 16   | 143     | 28   | 191     | 40   | 255     | 52   | 340     | 64   | 453     | 76   | 604     | 88   | 806     |
| 05   | 110     | 17   | 147     | 29   | 196     | 41   | 261     | 53   | 348     | 65   | 464     | 77   | 619     | 89   | 825     |
| 06   | 113     | 18   | 150     | 30   | 200     | 42   | 267     | 54   | 357     | 66   | 475     | 78   | 634     | 90   | 845     |
| 07   | 115     | 19   | 154     | 31   | 205     | 43   | 274     | 55   | 365     | 67   | 487     | 79   | 649     | 91   | 866     |
| 08   | 118     | 20   | 158     | 32   | 210     | 44   | 280     | 56   | 374     | 68   | 499     | 80   | 665     | 92   | 887     |
| 09   | 121     | 21   | 162     | 33   | 215     | 45   | 287     | 57   | 383     | 69   | 511     | 81   | 681     | 93   | 909     |
| 10   | 124     | 22   | 165     | 34   | 221     | 46   | 294     | 58   | 392     | 70   | 523     | 82   | 698     | 94   | 931     |
| 11   | 127     | 23   | 169     | 35   | 226     | 47   | 301     | 59   | 402     | 71   | 536     | 83   | 715     | 95   | 953     |
| 12   | 130     | 24   | 174     | 36   | 232     | 48   | 309     | 60   | 412     | 72   | 549     | 84   | 732     | 96   | 976     |

This table shows the first two digits for the three-digit EIA-96 part marking scheme. The third character is a letter multiplier:  
Y=10<sup>-2</sup> X=10<sup>-1</sup> A=10<sup>0</sup> B=10<sup>1</sup> C=10<sup>2</sup> D=10<sup>3</sup> E=10<sup>4</sup> F=10<sup>5</sup>

# CR0603/CR0805/CR1206 - Chip Resistors

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## How To Order

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CR | 1206 | - | F | X | - | 8252 | E | LF |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|---|---|---|---|------|---|----|
| Model _____<br>(CR = Chip Resistor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |      |   |   |   |   |      |   |    |
| Size _____ <ul style="list-style-type: none"><li>• 0603</li><li>• 0805</li><li>• 1206</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                   |    |      |   |   |   |   |      |   |    |
| Resistance Tolerance _____<br>F = $\pm 1\%$ .....Used with "X" TCR code only for values from 10 ohms through 1 megohm.<br>J = $\pm 5\%$ .....Used with "W" TCR code for values from 10 ohms through 10 megohms. Used with "/" TCR code for zero ohm (jumper) and for values from 1 ohm through 9.1 ohms.                                                                                                                                                                                                          |    |      |   |   |   |   |      |   |    |
| TCR (ppm/°C) _____<br>X = $\pm 100$ .....Used with "F" Resistance Tolerance code only for values from 10 ohms through 1 megohm.<br>W = $\pm 200$ .....Used with "J" Resistance Tolerance code for values from 10 ohms through 10 megohms.<br>/ = -250 to +500 ..Used with "J" Resistance Tolerance code only for zero ohm (jumper), and for values from 1 ohm through 9.1 ohms.                                                                                                                                   |    |      |   |   |   |   |      |   |    |
| Resistance Value _____<br>For 1 % Tolerance:<br><100 ohms....."R" represents decimal point (example: 24R3 = 24.3 ohms)<br>$\geq 100$ ohms.....First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5k ohms).<br>For 5 % Tolerance:<br><10 ohms....."R" represents decimal point (example: 4R7 = 4.7 ohms)<br>$\geq 10$ ohms.....First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470k ohms; 000 = Jumper). |    |      |   |   |   |   |      |   |    |
| Packaging _____<br>E = Paper Tape (5,000 pcs.) on 7 " Plastic Reel                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |      |   |   |   |   |      |   |    |
| Termination _____<br>LF = Tin-plated (RoHS compliant)                                                                                                                                                                                                                                                                                                                                                                                                                                                             |    |      |   |   |   |   |      |   |    |



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

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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