




## Features

- Radial leaded devices
- Fast tripping resettable PTCs
- Binned and sorted narrow resistance ranges available
- RoHS compliant\*
- Agency recognition:   

## Applications

- Customer Premise Equipment (CPE)
- Central Office / Telecom Centers (CO)
- Access equipment

# MF-RX/250 Series - Telecom PTC Resettable Fuses

### Electrical Characteristics

| Model          | Max. Operating Voltage (Vdc) | Max. Interrupt Ratings |          | Hold Current   | Initial Resistance |               | One Hour Post-Trip Resistance |
|----------------|------------------------------|------------------------|----------|----------------|--------------------|---------------|-------------------------------|
|                |                              | Volts (Vrms)           | Amps (A) |                | Amps at 23 °C      | Ohms at 23 °C |                               |
|                |                              | Max.                   | Max.     | I <sub>H</sub> | Min.               | Max.          | Max.                          |
| MF-RX012/250   | 60                           | 250                    | 3.0      | 0.12           | 4.0                | 8.0           | 16.0                          |
| MF-RX012/250-A | 60                           | 250                    | 3.0      | 0.12           | 7.0                | 9.0           | 16.0                          |
| MF-RX012/250-C | 60                           | 250                    | 3.0      | 0.12           | 5.5                | 7.5           | 14.0                          |
| MF-RX012/250-F | 60                           | 250                    | 3.0      | 0.12           | 6.0                | 10.5          | 16.0                          |
| MF-RX012/250-1 | 60                           | 250                    | 3.0      | 0.12           | 6.0                | 9.0           | 16.0                          |
| MF-RX012/250-2 | 60                           | 250                    | 3.0      | 0.12           | 8.0                | 10.5          | 16.0                          |
| MF-RX012/250-T | 60                           | 250                    | 3.0      | 0.12           | 7.0                | 12.0          | 16.0                          |
| MF-RX012/250U  | 60                           | 250                    | 3.0      | 0.12           | 6.0                | 10.0          | 16.0                          |
| MF-RX014/250   | 60                           | 250                    | 3.0      | 0.145          | 3.0                | 6.0           | 14.0                          |
| MF-RX014/250-A | 60                           | 250                    | 3.0      | 0.145          | 3.0                | 5.5           | 12.0                          |
| MF-RX014/250-B | 60                           | 250                    | 3.0      | 0.145          | 4.5                | 6.0           | 14.0                          |
| MF-RX014/250-T | 60                           | 250                    | 3.0      | 0.145          | 5.4                | 7.5           | 14.0                          |
| MF-RX014/250U  | 60                           | 250                    | 3.0      | 0.145          | 3.5                | 6.5           | 12.0                          |
| MF-RX018/250   | 60                           | 250                    | 10.0     | 0.18           | 0.8                | 2.0           | 4.0                           |
| MF-RX018/250U  | 60                           | 250                    | 10.0     | 0.18           | 0.8                | 2.0           | 4.0                           |

\*"U" suffix indicates product without insulation coating.

### Environmental Characteristics

|   |  |                                 |
|---|--|---------------------------------|
| Operating/Storage Temperature.....                        | -40 °C to +85 °C   |                                 |
| Maximum Device Surface Temperature in Tripped State ..... | 125 °C   |                                 |
| Passive Aging .....                                       | +85 °C, 1000 hours..... ±15 % typical resistance change          |                                 |
| .....   | +60°C, 1000 hours..... ±15 % typical resistance change           |                                 |
| Humidity Aging .....                                      | +85 °C, 85 % R.H. 500 hours..... ±15 % typical resistance change |                                 |
| Thermal Shock .....                                       | MIL-STD-202F, Method 107G, .....                                 | ±10 % typical resistance change |
| .....   | +125 °C to -55 °C, 10 times .....                                | ±15 % typical resistance change |
| Solvent Resistance.....                                   | MIL-STD-202, Method 215B .....                                   | No change                       |
| Lead Solderability .....                                  | ANSI/J-STD-002 .....   | >95 % coverage                  |
| Flammability .....  | IEC 695-2-2 .....  | No Flame for 60 secs.           |
| Vibration .....   | MIL-STD-883C, Method 2007.1, Condition A .....                   | ±5 % typical resistance change  |

### Test Procedures And Requirements For Model MF-RX/250 Series

| Test                  | Test Conditions  | Accept/Reject Criteria                  |
|-----------------------|--|---|
| Visual/Mech .....     | Verify dimensions and materials .....                      | Per MF physical description             |
| Resistance .....      | In still air @ 23 °C.....                                  | R <sub>min</sub> ≤ R ≤ R <sub>max</sub> |
| Time to Trip.....     | 5 times I <sub>hold</sub> , V <sub>max</sub> , 23 °C ..... | T ≤ max. time to trip (seconds)         |
| Hold Current .....    | 30 min. at I <sub>hold</sub> .....                         | No trip                                 |
| Trip Cycle Life ..... | V <sub>max</sub> , I <sub>max</sub> , 100 cycles.....      | No arcing or burning                    |
| Trip Endurance .....  | V <sub>max</sub> , 48 hours.....                           | No arcing or burning                    |

|                       |           |
|-----------------------|-----------|
| UL File Number .....  | E 174545S |
| CSA File Number ..... | CA 110338 |
| TÜV File Number ..... | R2057213  |

\*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.

## Additional Features

- Ability to withstand AC power cross conditions
- Assists equipment with meeting ITU-T K.20/K.21/K.45
- Assists equipment with meeting Telcordia GR-1089-C Intrabuilding

## MF-RX/250 Series - Telecom PTC Resettable Fuses

**BOURNS®**

### Thermal Derating Chart - $I_{hold}$ (Amps)

| Model        | Ambient Operating Temperature |        |       |       |       |       |       |       |       |
|--------------|-------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|
|              | -40 °C                        | -20 °C | 0 °C  | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| MF-RX012/250 | 0.186                         | 0.165  | 0.143 | 0.120 | 0.099 | 0.088 | 0.077 | 0.066 | 0.050 |
| MF-RX014/250 | 0.225                         | 0.199  | 0.172 | 0.145 | 0.119 | 0.106 | 0.093 | 0.080 | 0.060 |
| MF-RX018/250 | 0.269                         | 0.240  | 0.211 | 0.180 | 0.153 | 0.138 | 0.123 | 0.109 | 0.087 |

$I_{trip}$  is approximately two times  $I_{hold}$ .

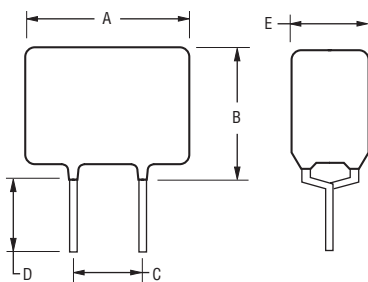
### Product Dimensions

| Model         | A<br>Max.       | B<br>Max.       | C<br>Nom.                    | D<br>Min.      | E<br>Max.      | Physical Characteristics |       |          |
|---------------|-----------------|-----------------|------------------------------|----------------|----------------|--------------------------|-------|----------|
|               |                 |                 |                              |                |                | Lead Dia.                | Style | Material |
| MF-RX012/250  | 6.5<br>(0.256)  | 11.0<br>(0.433) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX012/250U | 6.0<br>(0.236)  | 10.0<br>(0.394) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |
| MF-RX014/250  | 6.5<br>(0.256)  | 11.0<br>(0.433) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX014/250U | 6.0<br>(0.236)  | 10.0<br>(0.394) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |
| MF-RX018/250  | 11.0<br>(0.433) | 13.6<br>(0.535) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX018/250U | 10.4<br>(0.409) | 12.6<br>(0.496) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |

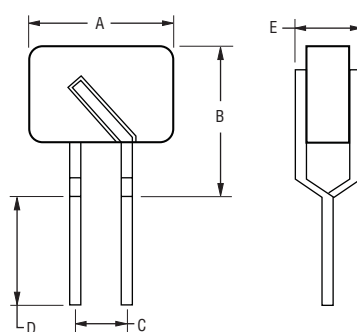
Packaging options: BULK: 500 pcs. per bag. TAPE & REEL: 1500 pcs. per reel (available binned).

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

Style 1

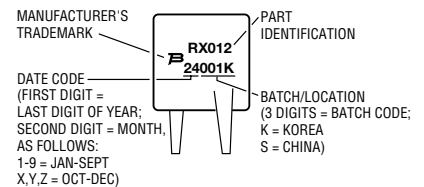


Style 2



### Typical Part Marking

Represents total content. Layout may vary.



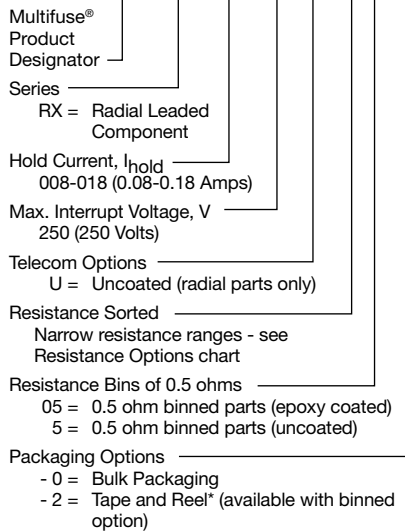
NOTE: UNCOATED PARTS HAVE NO PART MARKING. MARKING IS ON LABEL ONLY.

# MF-RX/250 Series - Telecom PTC Resettable Fuses

**BOURNS®**

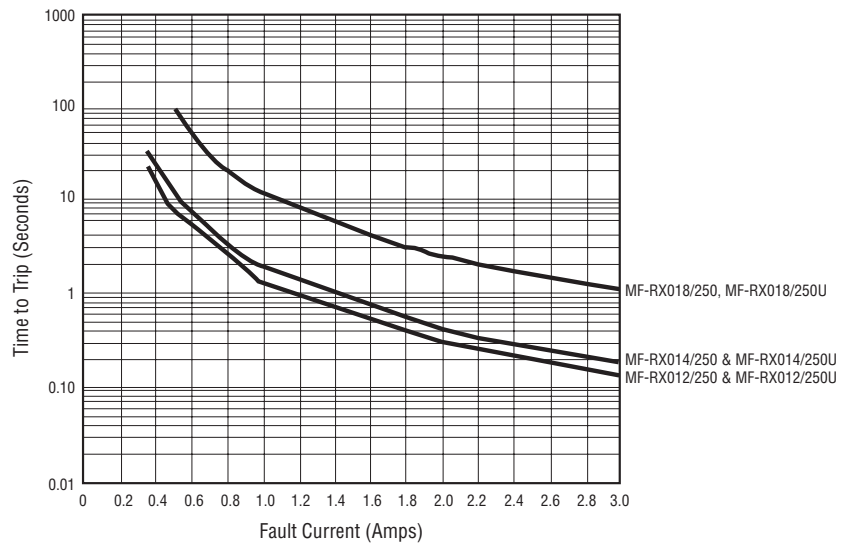
## How to Order

**MF - RX 012/250 U - A 5 - 2**



\*Packaged per EIA486-B

## Typical Time to Trip at 23 °C



## Resistance Options

| Model            | Initial Resistance Values |      | R1max         | Bin |
|------------------|---------------------------|------|---------------|-----|
|                  | Ohms @ 23 ° C             |      | Ohms @ 23 ° C |     |
|                  | Min.                      | Max. | Max.          |     |
| MF-RX012/250     | 4.0                       | 8.0  | 16.0          | 0.5 |
| MF-RX012/250-A05 | 7.0                       | 9.0  | 16.0          | 0.5 |
| MF-RX012/250-C05 | 5.5                       | 7.5  | 14.0          | 0.5 |
| MF-RX012/250-F05 | 6.0                       | 10.5 | 16.0          | 0.5 |
| MF-RX012/250-105 | 6.0                       | 9.0  | 16.0          | 0.5 |
| MF-RX012/250-205 | 8.0                       | 10.5 | 16.0          | 0.5 |
| MF-RX012/250-T05 | 7.0                       | 12.0 | 16.0          | 0.5 |
| MF-RX012/250U    | 6.0                       | 10.0 | 16.0          | 0.5 |
| MF-RX014/250     | 3.0                       | 6.0  | 14.0          | 0.5 |
| MF-RX014/250-A05 | 3.0                       | 5.5  | 12.0          | 0.5 |
| MF-RX014/250-B05 | 4.5                       | 6.0  | 14.0          | 0.5 |
| MF-RX014/250U    | 3.5                       | 6.5  | 12.0          | 0.5 |

MF-RX/250, REV. J, 05/11

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 & MF-RX/250 Series Tape and Reel Specifications

**BOURNS®**

Devices taped using EIA468-B/IEC286-2 standards. See table below and Figures 1 and 2 for details.

| Dimension Description  | IEC Mark   | EIA Mark   | Dimensions             |                                    |
|--|------------|------------|------------------------|------------------------------------|
|  |            |            | Dimensions             | Tolerance                          |
| Carrier tape width   | $W$        | $W$        | $\frac{18}{(.709)}$    | $\frac{-0.5/+1.0}{(-0.02/+0.039)}$ |
| Hold down tape width   | $W_0$      | $W_4$      | $\frac{11}{(.433)}$    | min.                               |
| Hold down tape   |            |            | No protrusion          |                                    |
| Top distance between tape edges  | $W_2$      | $W_6$      | $\frac{3}{(.118)}$     | max.                               |
| Sprocket hole position   | $W_1$      | $W_5$      | $\frac{9}{(.354)}$     | $\frac{-0.5/+0.75}{(-0.02/+0.03)}$ |
| Sprocket hole diameter   | $D_0$      | $D_0$      | $\frac{4}{(.157)}$     | $\frac{\pm 0.2}{(\pm .0078)}$      |
| Abscissa to plane (straight lead)  | $H$        | $H$        | $\frac{18.5}{(.728)}$  | $\frac{\pm 3.0}{(\pm .118)}$       |
| Abscissa to plane (kinked lead)  | $H_0$      | $H_0$      | $\frac{16}{(.63)}$     | $\frac{\pm 0.5}{(\pm .02)}$        |
| Abscissa to top (straight lead)  | $H_1$      | $H_1$      | $\frac{38.0}{(1.496)}$ | max.                               |
| Abscissa to top (kinked lead)  | $H_1$      | $H_1$      | $\frac{32.2}{(1.268)}$ | max.                               |
| Overall width w/lead protrusion (straight lead)  |            | $C_1$      | $\frac{55.0}{(2.165)}$ | max.                               |
| Overall width w/lead protrusion (kinked lead)  |            | $C_1$      | $\frac{43.2}{(1.7)}$   | max.                               |
| Overall width w/o lead protrusion (straight lead)  |            | $C_2$      | $\frac{54.0}{(2.126)}$ | max.                               |
| Overall width w/o lead protrusion (kinked lead)  |            | $C_2$      | $\frac{42.5}{(1.673)}$ | max.                               |
| Lead protrusion  | $l_1$      | $L_1$      | $\frac{1.0}{(.039)}$   | max.                               |
| Protrusion of cutout   | $L$        | $L$        | $\frac{11}{(.433)}$    | max.                               |
| Protrusion beyond hold-down tape   | $l_2$      | $l_2$      | Not specified          |                                    |
| Sprocket hole pitch  | $P_0$      | $P_0$      | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Pitch tolerance  |            |            | 20 consecutive         | $\frac{\pm 1}{(\pm .039)}$         |
| Device pitch: MF-R005–MF-R160, MF-R/90,<br>MF-RX110/72–MF-RX185/72                                   |            |            | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Device pitch: MF-R185–MF-R400, MF-RX110–MF-RX375<br>MF-R/600, MF-RX250/72–MF-RX375/72                |            |            | $\frac{25.4}{(1.0)}$   | $\frac{\pm 0.6}{(\pm .024)}$       |
| Tape thickness   | $t$        | $t$        | $\frac{0.9}{(.035)}$   | max.                               |
| Tape thickness with splice: MF-R010–MF-R160,<br>MF-RX110/72–MF-RX185/72                              |            | $t_1$      | $\frac{1.5}{(.059)}$   | max.                               |
| Tape thickness with splice: MF-R250–MF-R1100,<br>MF-RX110–MF-RX375, MF-R/90, MF-RX250/72–MF-RX375/72 |            | $t_1$      | $\frac{2.3}{(.091)}$   | max.                               |
| Splice sprocket hole alignment   |            |            | 0                      | $\frac{\pm 0.3}{(\pm .012)}$       |
| Body lateral deviation   | $\Delta_h$ | $\Delta_h$ | 0                      | $\frac{\pm 1.0}{(\pm .039)}$       |
| Body tape plane deviation  | $\Delta_p$ | $\Delta_p$ | 0                      | $\frac{\pm 1.3}{(\pm .051)}$       |

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

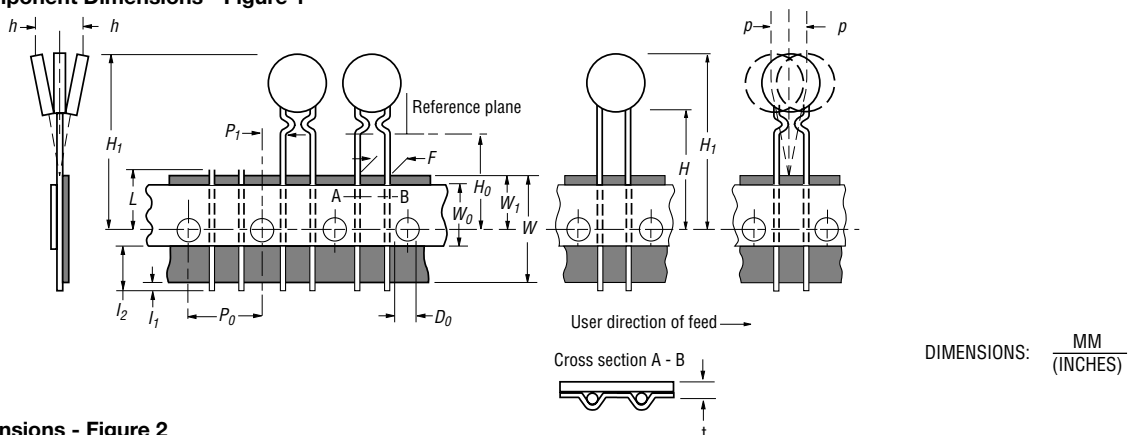
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

# MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 & MF-RX/250 Series Tape and Reel Specifications

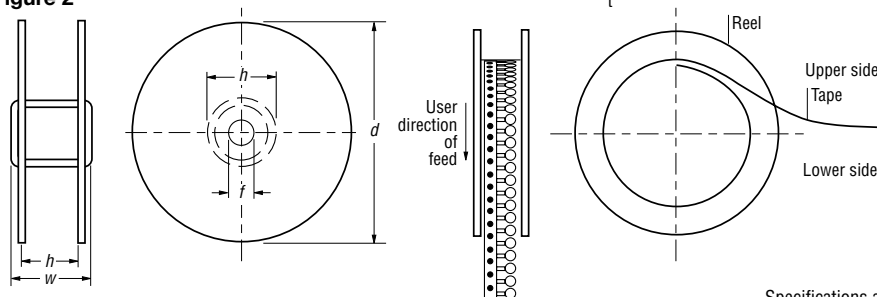


| Dimension Description                                  | IEC Mark             | EIA Mark             | Dimensions       |                                    |                |               |
|--|----------------------|----------------------|------------------|------------------------------------|----------------|---------------|
|  |                      |                      | Dimensions       | Tolerance                          |                |               |
| Lead spacing: MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 | <i>F</i>             | <i>F</i>             | 5.08<br>(0.2)    | $\pm 0.2$<br>( $\pm 0.008$ )       |                |               |
| Lead spacing: MF-RX/250                                | <i>F</i>             | <i>F</i>             | 5.08<br>(0.2)    | $-0.5/+0.6$<br>( $-0.020/+0.024$ ) |                |               |
| Reel width   | <i>w</i>             | <i>W<sub>2</sub></i> | 56.0<br>(2.205)  | max.                               |                |               |
| Reel diameter  | <i>d</i>             | <i>a</i>             | 370.0<br>(14.57) | max.                               |                |               |
| Space between flanges less device                      | <i>W<sub>1</sub></i> | <i>h</i>             | 4.75<br>(.187)   | $\pm 3.25$<br>( $\pm .128$ )       |                |               |
| Arbor hole diameter                                    | <i>f</i>             | <i>c</i>             | 26.0<br>(1.024)  | $\pm 12.0$<br>( $\pm .472$ )       |                |               |
| Core diameter: MF-R, MF-RX, MF-R/90                    | <i>h</i>             | <i>n</i>             | 80<br>(3.15)     | max.                               |                |               |
| Core diameter: MF-RX/250, MF-R/600                     | <i>h</i>             | <i>n</i>             | 91<br>(3.58)     | max.                               |                |               |
| Box: MF-R, MF-RX, MF-R/90                              |                      |                      | 56<br>(2.2)      | 372<br>(14.6)                      | 372<br>(14.6)  | max.          |
| Box: MF-RX/250   |                      |                      | 67<br>(2.64)     | 372<br>(14.6)                      | 362<br>(14.25) | max.          |
| Box: MF-R/600  |                      |                      | 64<br>(2.52)     | 372<br>(14.6)                      | 362<br>(14.25) | max.          |
| Consecutive missing places: MF-R, MF-RX, MF-R/90       |                      |                      | 3                |                                    |                | max.          |
| Consecutive missing places: MF-RX/250, MF-R/600        |                      |                      | none             |                                    |                |               |
| Empty places per reel: MF-R, MF-RX, MF-R/90            |                      |                      |                  |                                    |                | Not specified |
| Empty places per reel: MF-RX/250, MF-R/600             |                      |                      |                  |                                    |                | 0.1 %         |

**Taped Component Dimensions - Figure 1**



**Reel Dimensions - Figure 2**



Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)