



创新科技，丰富人类生活！  
Innovation enriches life



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The First **CHIPLD**  
Manufacturer in China  
Global Patent Approved **2020**

瑞丰大厦效果图



## 关于瑞丰 About us

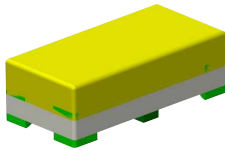
深圳市瑞丰光电子股份有限公司是一家集研发、生产LED光源并提供应用解决方案的全球知名 L E D 封装方案及产品提供商。

公司成立于2000年，科技创新、技术领先、产品差异化是瑞丰光电赖以生存的核心竞争力。与全球一线品牌企业建立了深度的业务与战略合作关系。目前，公司将重点在Mini LED、Micro LED以及AI感测器件等领域进行研发与业务布局，提升公司核心竞争力和持续盈利能力。

经过多年的发展和积淀，凭着科技创新，帮助各行业的客户满足当今和未来社会发展的需求。未来，瑞丰光电将继续秉承“创新科技 丰富人类生活”的理念，整合全球资源与技术，不断创新与发展，致力于实现“成为全球领先的科技公司”的企业愿景。

SHENZHEN REFOND OPTOELECTRONICS CO.,LTD(hereinafter referred to “Refond”), a world renowned LED packaging solution and product provider, specializing in the development and production of LED light sources and application solutions.Since the foundation in 2000, Refond hold the core competitiveness: scientific and technological innovation, technology-leading and product- customized. We established deep business and strategic cooperation with top international brands. For the moment, we focus on the development and business layout of Mini LED、Micro LED and AI sensor components, enhancing our core competitiveness and sustainable profitability.After over years of development and accumulation, with technology innovation, Refond help customers in various industries to meet the needs of current and future social development. In the future, Refond will strive to uphold the philosophy of "innovation enriches life", integrate global resources and technology, and pursue continuous innovation and development, committed to realize the corporate vision of becoming a leading global technology company.

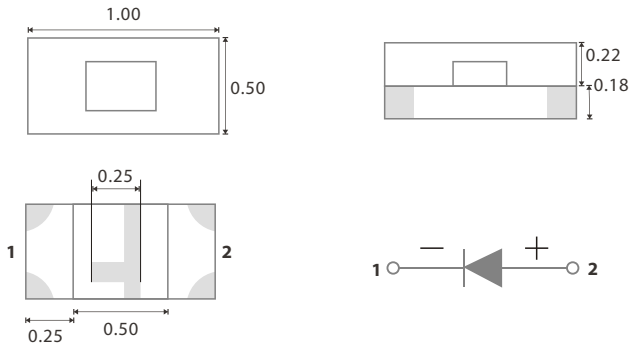
CHIP LED



0402 series

Dimension(L\*W\*H): 1.0\*0.5\*0.4mm

Package Outline Drawing:



**0402** series (0402: 1.0\*0.5\*0.4mm)

**0603** series (B190、 B191: 1.6\*0.8\*0.7mm)

**0603** series (M190: 1.6\*0.8\*0.4mm)

**0603 Bi-color and RGB** series(S196、 S198: 1.6\*1.6\*0.7mm)

**0805** series(B170: 2.0\*1.25\*0.7mm)

**1206** series (S150: 3.2\*1.6\*0.7mm)

**1206 Bi-color and RGB series** (S155: 3.2\*2.7\*0.7mm)

**1204** series (T112: 3.2\*1.0\*1.5mm)

**1204 Bi-color series** (S115: 3.2\*1.0\*1.48mm)

**1204 RGB** series (S118: 3.2\*1.0\*1.48mm)

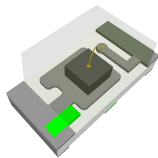
Parameter:

| Part No.         | Color  | IF (mA) | λD (nm)   | VF (V) | IV (mcd) | 2θ <sub>1/2</sub> (°) |
|------------------|--------|---------|-----------|--------|----------|-----------------------|
| RF-BU0402TS-CE-B | Blue   | 5       | 470       | 2.8    | 70       | 140                   |
| RF-GN0402TS-CF-B | Green  | 5       | 522       | 2.5    | 290      | 140                   |
| RF-YU0402TS-AE-B | Yellow | 5       | 588       | 1.9    | 15       | 140                   |
| RF-OU0402TS-CE-B | Orange | 5       | 622       | 1.9    | 28       | 140                   |
| RF-WU0402DS-DD-B | White  | 5       | 0.27/0.27 | 2.75   | 230      | 140                   |

Product Character

Mainly used in the wearable market: the elderly care areas, mobile medical, child anti-lost, smart glasses, smart bands, smart watches

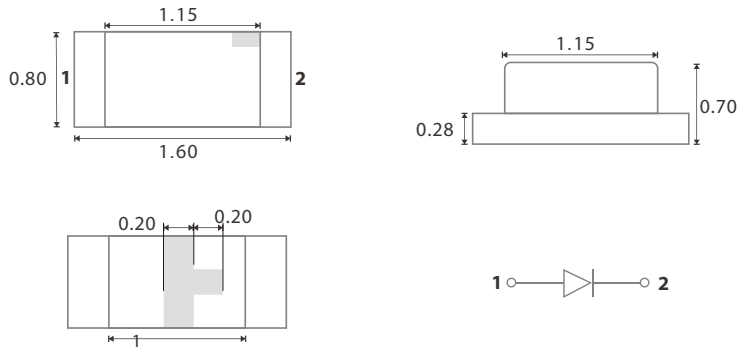




# 0603 IR Series

Dimension(L\*W\*H): 1.6\*0.8\*0.7mm

Package Outline Drawing:

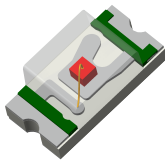
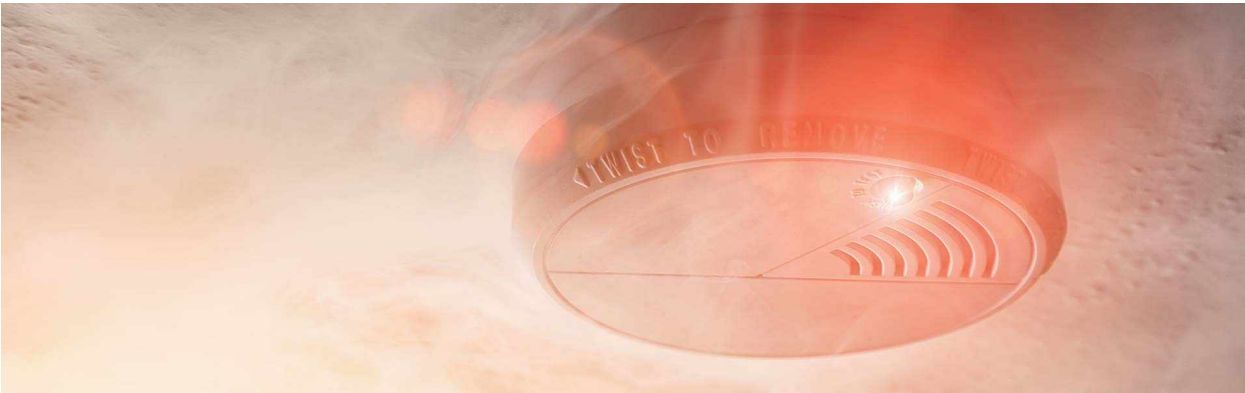


Parameter:

| Part No.          | IF (mA) | Radiant intensity | Peak Wavelength | Spectral bandwidth | Reverse Voltage | 2θ <sub>1/2</sub> (°) |
|-------------------|---------|-------------------|-----------------|--------------------|-----------------|-----------------------|
| RF-IRBB191TS-14-G | 50      | 5.5mw/sr          | 850 nm          | 80nm               | 1.3V            | 140                   |
| RF-IRDB191TS-14-G | 50      | 5mw/sr            | 940 nm          | 50nm               | 1.2V            | 140                   |

## Product Character

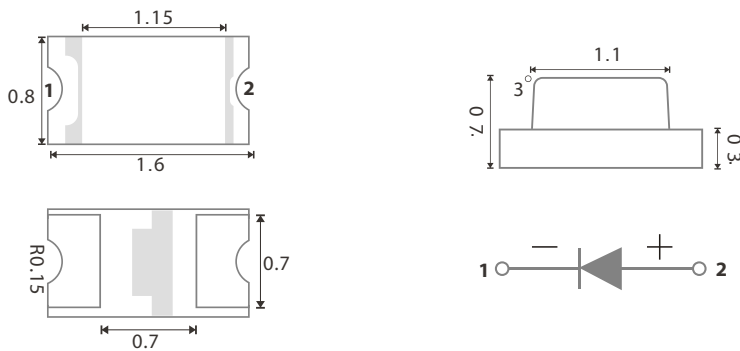
Infrared sensor, infrared remote control, smoke detector, infrared application system



# B190 Series

Dimension(L\*W\*H): 1.6\*0.8\*0.7mm

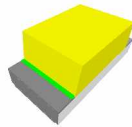
Package Outline Drawing:



Parameter:

| Part No.       | Color        | IF (mA) | λD (nm)     | VF (V) | IV (mcd) | 2θ <sub>1/2</sub> (°) |
|----------------|--------------|---------|-------------|--------|----------|-----------------------|
| RF-GTB190TS-CA | Yellow Green | 20      | 568         | 2      | 20       | 140                   |
| RF-YUB190TS-CA | Yellow       | 20      | 588         | 2      | 120      | 140                   |
| RF-AUB190TS-CA | Amber        | 20      | 603         | 2      | 120      | 140                   |
| RF-OUB190TS-CA | Orange       | 20      | 620         | 1.8    | 120      | 140                   |
| RF-WUB190DS-DD | Whiet        | 20      | 0.255/0.240 | 3.1    | 800      | 140                   |

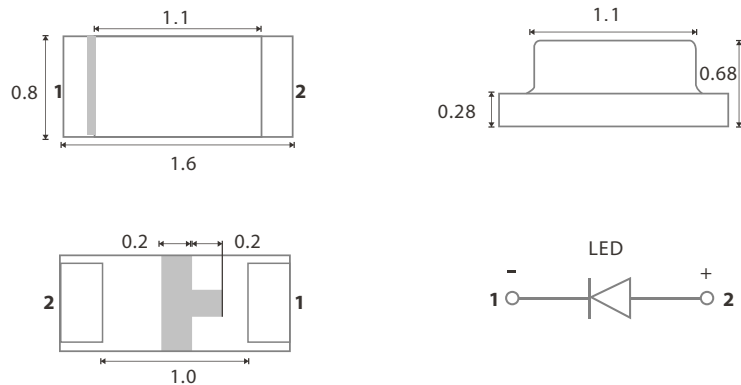




## B191 Series

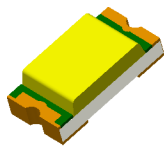
Dimension(L\*W\*H): 1.6mm\*0.8mm\*0.7mm

Package Outline Drawing:



Parameter:

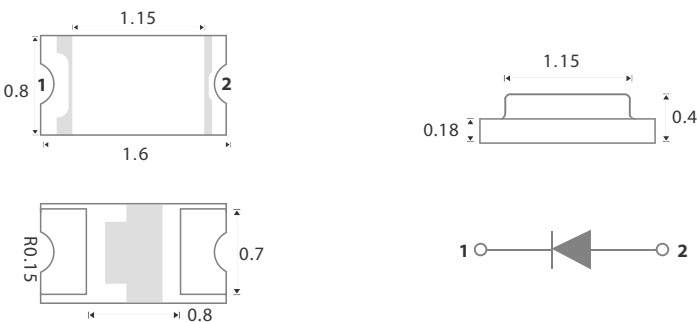
| Part No.                                                   | Color           | IF (mA) | $\lambda$ D (nm) | VF (V) | IV (mcd) | $2\theta_{1/2}$ (°) |
|------------------------------------------------------------|-----------------|---------|------------------|--------|----------|---------------------|
| RF-WUB191DS-DD                                             | White           | 20      | 0.255/0.240      | 3.1    | 800      | 140                 |
| RF-WUB191DS-DD-P<br>Europe and the<br>United States patent | White           | 20      | 0.255/0.240      | 3.1    | 800      | 140                 |
| RF-WUB191DS-DD-GP<br>Global patent                         | White           | 20      | 0.255/0.240      | 3.1    | 800      | 140                 |
| RF-BWB191DS-DD                                             | White           | 20      | 0.227/0.185      | 3.1    | 700      | 140                 |
| RF-BWB191DS-CE                                             | White           | 20      | 0.215/0.170      | 3.1    | 430      | 140                 |
| RF-BWB191DS-EB-C                                           | White           | 10      | 0.2196/0.2164    | 3      | 350      | 140                 |
| RF-BUB191TS-CE                                             | Blue            | 20      | 470              | 3.1    | 160      | 140                 |
| RF-GNB191TS-CF                                             | Green           | 20      | 522              | 2.8    | 600      | 140                 |
| RF-YUB191TS-AE                                             | Yellow          | 20      | 590              | 2      | 180      | 140                 |
| RF-OUB191TS-CE                                             | Orange          | 20      | 622              | 2      | 120      | 140                 |
| RF-GTB191TS-BC                                             | Yellow<br>Green | 20      | 570              | 2      | 70       | 140                 |



## M190 Series

Dimension(L\*W\*H): 1.6\*0.8\*0.4mm

Package Outline Drawing:



Parameter:

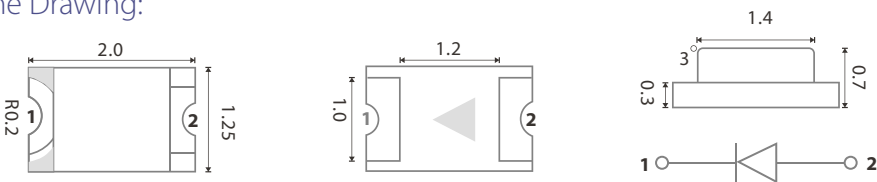
| Part No.         | Color | IF (mA) | $\lambda$ D (nm) | VF (V) | IV (mcd) | $2\theta_{1/2}$ (°) |
|------------------|-------|---------|------------------|--------|----------|---------------------|
| RF-WNM190DS-DB-B | White | 5       | 0.265/0.25       | 3      | 150      | 160                 |
| RF-WUM190DS-DC-B | White | 5       | 0.26/0.25        | 3      | 150      | 160                 |



## B170 Series

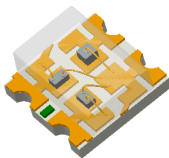
Dimension(L\*W\*H): 2.0\*1.25\*0.7mm

Package Outline Drawing:



Parameter:

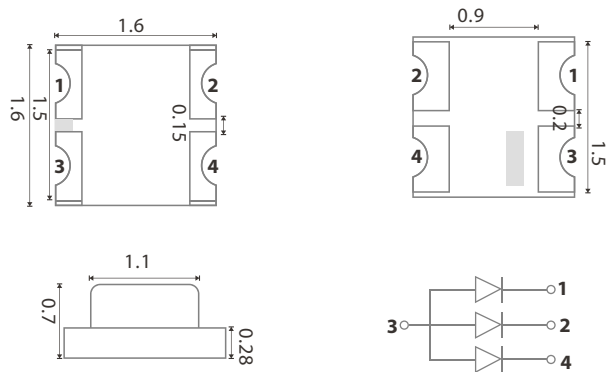
| Part No.       | Color           | IF (mA) | $\lambda$ D (nm) | VF (V) | IV (mcd) | $2\theta_{1/2}$ (°) |
|----------------|-----------------|---------|------------------|--------|----------|---------------------|
| RF-WNB170DS-DD | White           | 20      | 0.29/0.29        | 3.1    | 600      | 140                 |
| RF-RUB170TS-BD | Red             | 20      | 630              | 2      | 60       | 140                 |
| RF-GSB170TS-BC | Yellow<br>Green | 20      | 570              | 2      | 45       | 140                 |
| RF-BNB170TS-CE | Blue            | 20      | 470              | 3.1    | 160      | 140                 |
| RF-YUB170TS-AE | Yellow          | 20      | 590              | 2      | 150      | 140                 |
| RF-GNB170TS-CF | Green           | 20      | 522              | 3.1    | 560      | 140                 |



# S196/S198 Series

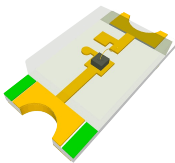
Dimension(L\*W\*H): 1.6\*1.6\*0.7mm

Package Outline Drawing:



Parameter:

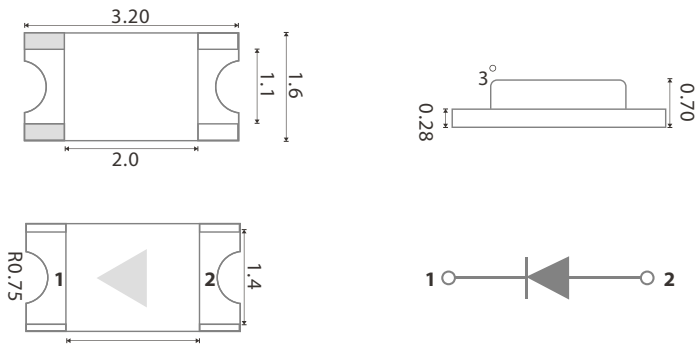
| Part No.        | Color  | IF (mA) | λD (nm) | VF (V)  | IV (mcd) | 2θ <sub>1/2</sub> (°) |
|-----------------|--------|---------|---------|---------|----------|-----------------------|
| RF-P1S196TS-B49 | Yellow | 20      | 590     | 2       | 120      | 160                   |
|                 | Green  | 20      | 522     | 3.1     | 560      | 160                   |
| RF-P1S196TS-B53 | Red    | 20      | 630     | 2       | 60       | 160                   |
|                 | Yellow | 20      | 570     | 2       | 50       | 160                   |
|                 | Green  |         |         |         |          |                       |
| RF-P1S196TS-B54 | Red    | 20      | 615-630 | 1.6-2.4 | 150-430  | 140                   |
|                 | Green  | 20      | 515-530 | 2.6-3.4 | 330-700  | 140                   |
| RF-P2S196TS-B38 | Orange | 20      | 622     | 2       | 120      | 160                   |
|                 | Blue   | 20      | 460     | 3.1     | 50       | 160                   |
| RF-W3S198TS-A12 | Orange | 20      | 622     | 2       | 120      | 160                   |
|                 | Green  | 20      | 522     | 3.1     | 560      | 160                   |
|                 | Blue   | 20      | 470     | 3.1     | 140      | 160                   |
| RF-W3S198TS-A37 | Yellow | 20      | 590     | 2       | 120      | 160                   |
|                 | Green  | 20      | 522     | 3.1     | 560      | 160                   |
|                 | Blue   | 20      | 470     | 3.1     | 140      | 160                   |
| RF-W3S198TS-A41 | Red    | 20      | 630     | 2       | 60       | 160                   |
|                 | Green  | 20      | 523     | 3.1     | 560      | 160                   |
|                 | Blue   | 20      | 470     | 3.1     | 140      | 160                   |



# S150 series

Dimension(L\*W\*H):3.2\*1.6\*0.7mm

Package Outline Drawing:



Parameter:

| Part No.       | Color        | IF (mA) | λD (nm) | VF (V) | IV (mcd) | 2θ <sub>1/2</sub> (°) |
|----------------|--------------|---------|---------|--------|----------|-----------------------|
| RF-GSS150TS-BC | Yellow Green | 20      | 570     | 2      | 50       | 140                   |
| RF-BNS150TS-CE | Blue         | 20      | 470     | 3.1    | 180      | 140                   |
| RF-YUS150TS-AE | Yellow       | 20      | 590     | 2      | 180      | 140                   |
| RF-GNS150TS-CF | Green        | 20      | 522     | 3.1    | 560      | 140                   |
| RF-OUS150TS-CE | Orange       | 20      | 620     | 2      | 180      | 140                   |
| RF-RUS150TS-BD | Red          | 20      | 630     | 2      | 65       | 140                   |

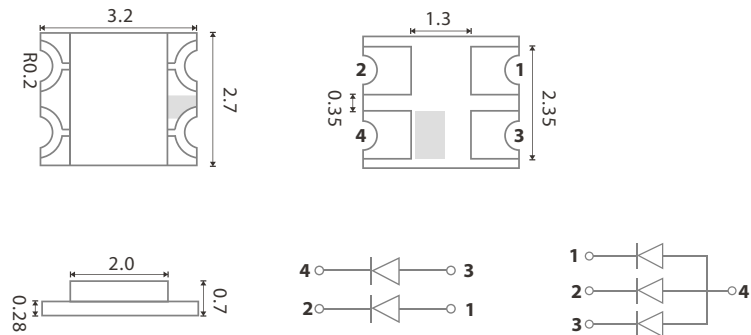




## S155 series

Dimension(L\*W\*H): 3.2\*2.7\*0.7mm

Package Outline Drawing:



Parameter:

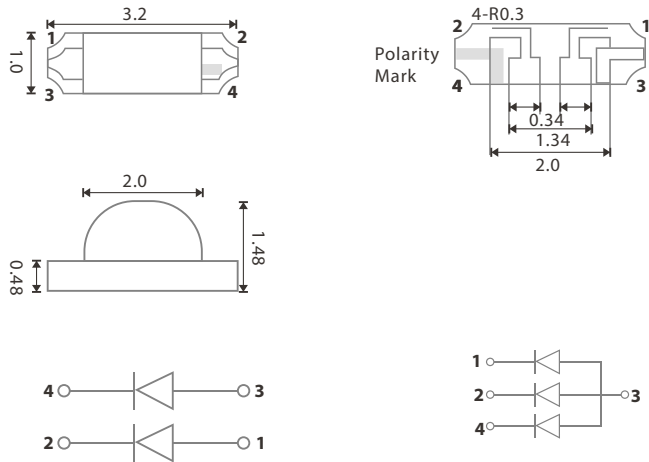
| Part No.        | Color        | IF (mA) | $\lambda D$ (nm) | VF (V) | IV (mcd) | $2\theta_{1/2}$ (°) |
|-----------------|--------------|---------|------------------|--------|----------|---------------------|
| RF-P3S155TS-B51 | Yellow       | 20      | 587              | 2      | 120      | 160                 |
|                 | Yellow Green | 20      | 570              | 2      | 30       | 160                 |
| RF-P3S155TS-B53 | Red          | 20      | 630              | 2      | 30       | 160                 |
|                 | Yellow Green | 20      | 570              | 2      | 30       | 160                 |
| RF-P3S155TS-B54 | Orange       | 20      | 622              | 2      | 90       | 160                 |
|                 | Green        | 20      | 522              | 3.1    | 560      | 160                 |
| RF-W2S155TS-A41 | Red          | 20      | 630              | 2      | 30       | 160                 |
|                 | Green        | 20      | 523              | 3.1    | 560      | 160                 |
|                 | Blue         | 20      | 470              | 3.1    | 140      | 160                 |



## S115/S118 series

Dimension(L\*W\*H): 3.2\*1.0\*1.48mm

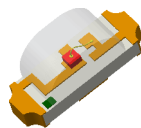
Package Outline Drawing:



Parameter:

| Part No.        | Color        | IF (mA) | $\lambda D$ (nm) | VF (V) | IV (mcd) | $2\theta_{1/2}$ (°) |
|-----------------|--------------|---------|------------------|--------|----------|---------------------|
| RF-W1S118TS-A42 | Orange       | 20      | 622              | 2      | 90       | 160                 |
|                 | Green        | 20      | 522              | 3.1    | 560      | 160                 |
|                 | Blue         | 20      | 470              | 3.1    | 140      | 160                 |
| RF-W2S118TS-A41 | Red          | 20      | 630              | 2      | 60       | 160                 |
|                 | Green        | 20      | 523              | 3.1    | 560      | 160                 |
|                 | Blue         | 20      | 470              | 3.1    | 140      | 160                 |
| RF-P3S115TS-B09 | Orange       | 20      | 622              | 2      | 90       | 160                 |
|                 | Yellow Green | 20      | 570              | 2      | 50       | 160                 |
| RF-P3S115TS-B37 | Red          | 20      | 630              | 2      | 50       | 160                 |
|                 | Yellow Green | 20      | 570              | 2      | 40       | 160                 |
| RF-P3S115TS-B51 | Yellow       | 20      | 587              | 2      | 90       | 160                 |
|                 | Yellow       | 20      | 570              | 2      | 40       | 160                 |
|                 | Green        | 20      | 522              | 3.1    | 560      | 160                 |
| RF-P3S115TS-B52 | Red          | 20      | 630              | 2      | 60       | 160                 |
|                 | Yellow       | 20      | 587              | 2      | 90       | 160                 |

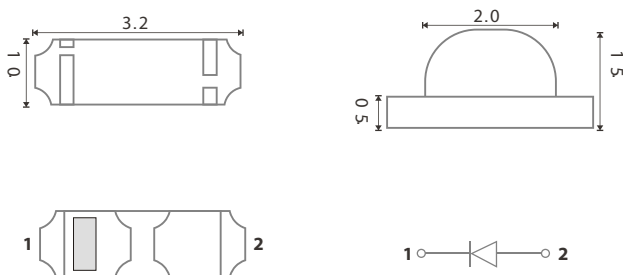




# T112 series

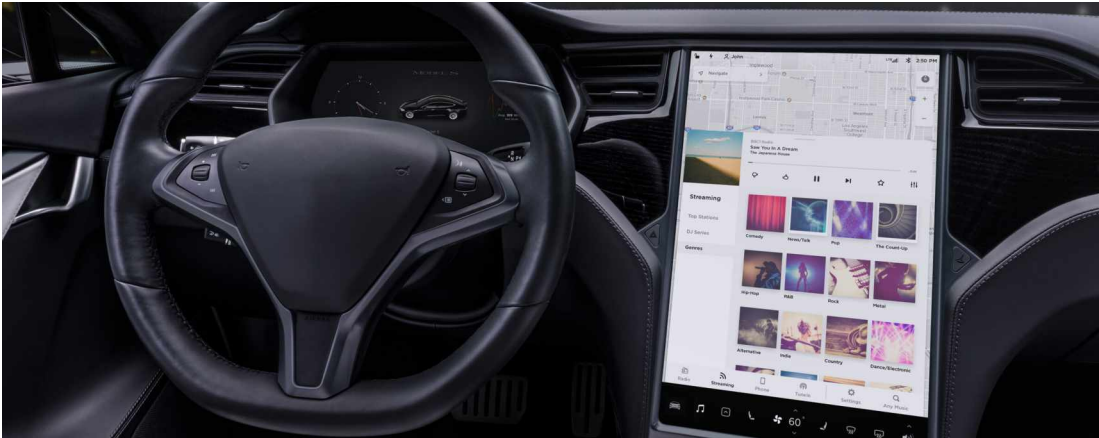
Dimension(L\*W\*H): 3.2\*1.0\*1.5mm

Package Outline Drawing:



Parameter:

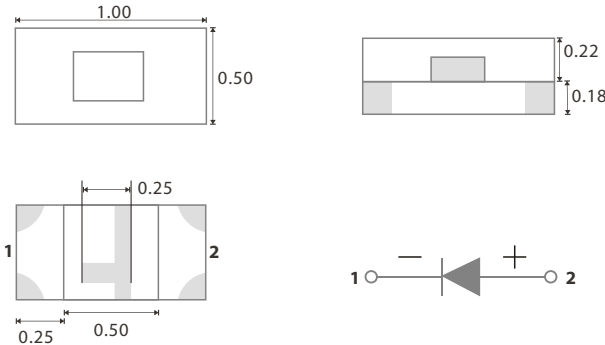
| Part No.       | Color  | IF (mA) | λD (nm) | VF (V) | IV (mcd) | 2θ <sup>1</sup> / <sub>2</sub> (°) |
|----------------|--------|---------|---------|--------|----------|------------------------------------|
| RF-RUT112TS-BD | Red    | 20      | 630     | 2      | 50       | 160                                |
| RF-OUT112TS-CE | Orange | 20      | 622     | 2      | 90       | 160                                |
| RF-YUT112TS-AE | Yellow | 20      | 588     | 2      | 90       | 160                                |
| RF-BNT112TS-CF | Blue   | 20      | 470     | 3.1    | 90       | 160                                |
| RF-GNT112TS-CF | Green  | 20      | 523     | 3.1    | 330      | 160                                |
| RF-GST112TS-BC | Yellow | 20      | 570     | 2      | 40       | 160                                |
|                | Green  |         |         |        |          |                                    |



# 0402 IR series

Dimension(L\*W\*H): 1.0\*0.5\*0.4mm

Package Outline Drawing:

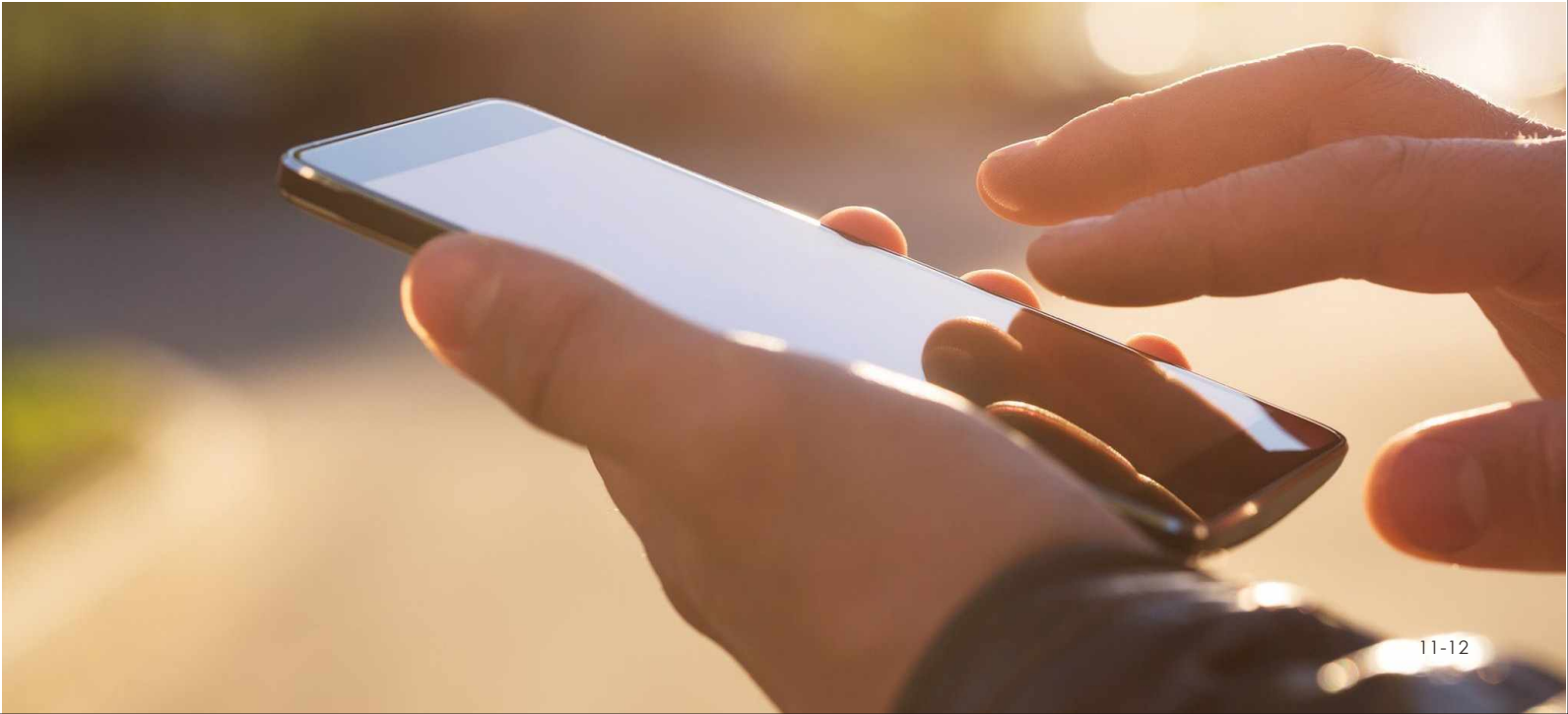


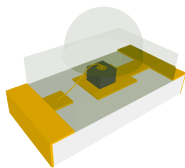
Parameter:

| Part No.          | Test Condition(mA) | Radiant intensity | Peak Wavelength | Spectral bandwidth | Reverse Voltage | 2θ <sup>1</sup> / <sub>2</sub> (°) |
|-------------------|--------------------|-------------------|-----------------|--------------------|-----------------|------------------------------------|
| RF-IRB0402TS-10-G | 50                 | 4.5mw/sr          | 850 nm          | 30nm               | 1.3V            | 140                                |
| RF-IRD0402TS-10-G | 50                 | 4mw/sr            | 940 nm          | 30nm               | 1.2V            | 140                                |

## Product Character

Close range sensor, mobile devices, intelligent household

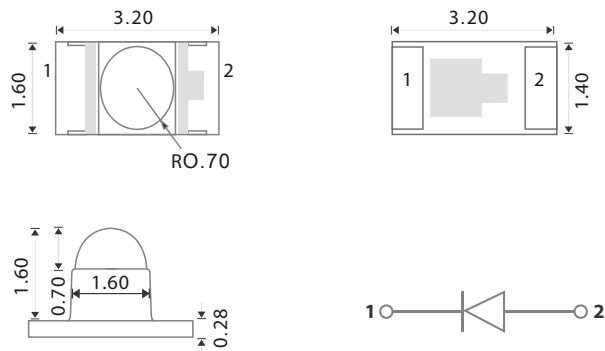




# L150 Series

Dimension(L\*W\*H): 3.2\*1.6\*1.88mm

Package Outline Drawing:



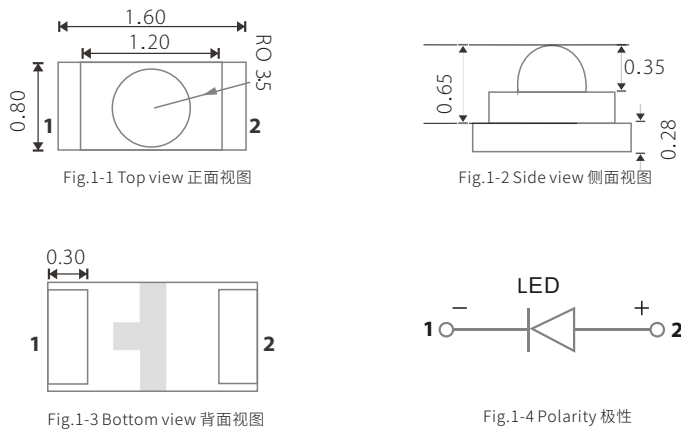
Parameter:

| Part No.          | Color        | IF (mA) | $\lambda$ D (nm) | VF (V)  | IV (mcd)   | $2\theta_{1/2}$ (°) |
|-------------------|--------------|---------|------------------|---------|------------|---------------------|
| RF-AUL150TS-CB-E1 | Amber        | 20      | 600-615          | 1.8-2.4 | 530-2800   | 30                  |
| RF-BUL150TS-CE-E1 | Blue         | 20      | 460-470          | 2.8-3.4 | 150-1200   | 30                  |
| RF-GUL150TS-BE-E1 | Yellow-green | 20      | 565-575          | 1.6-2.4 | 150-1200   | 30                  |
| RF-OUL150TS-CA-E1 | Orange       | 20      | 620-630          | 1.8-2.3 | 1200-4300  | 30                  |
| RF-RUL150TS-CA-E1 | Red          | 20      | 625-640          | 1.8-2.4 | 230-1200   | 30                  |
| RF-TUL150TS-CG-E1 | Green        | 20      | 515-530          | 2.8-3.5 | 1200-10000 | 30                  |
| RF-YUL150TS-AC-E1 | Yellow       | 20      | 585-595          | 1.8-3.0 | 530-2800   | 30                  |



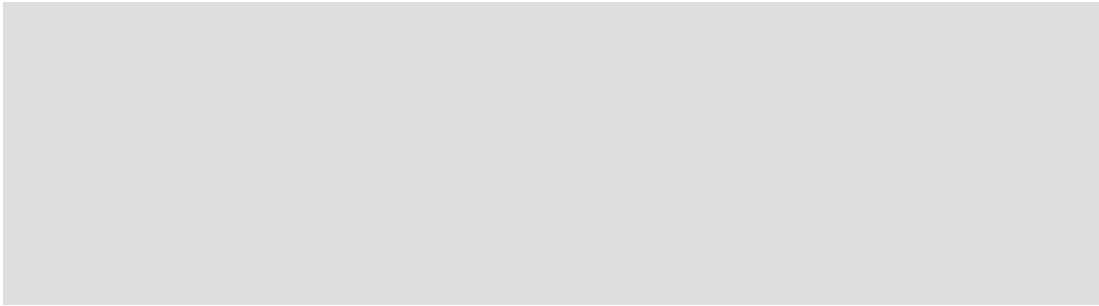
# L191 Series

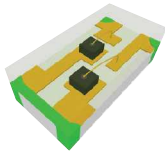
Package Outline Drawing:



Parameter:

| Part No.          | Color        | IF (mA) | $\lambda$ D (nm)                   | VF (V)  | IV (mcd) | $2\theta_{1/2}$ (°) |
|-------------------|--------------|---------|------------------------------------|---------|----------|---------------------|
| RF-AUL191TS-BC-E1 | Amber        | 20      | 600-610                            | 1.6-2.4 | 350-800  | 60                  |
| RF-BUL191TS-BC-E1 | Blue         | 20      | 460-475                            | 2.6-3.8 | 230-650  | 60                  |
| RF-BWL191DS-DD-E1 | Blue         | 20      | X:0.2320-0.2553<br>Y:0.2008-0.2346 | 2.8-3.6 | 350-800  | 60                  |
| RF-GUL191TS-BC-E1 | Yellow-green | 20      | 565-575                            | 1.8-2.4 | 100-530  | 60                  |
| RF-OUL191TS-BC-E1 | Orange       | 20      | 615-630                            | 1.6-2.4 | 230-650  | 60                  |
| RF-TUL191TS-BC-E1 | Green        | 20      | 520-530                            | 2.8-3.6 | 530-1200 | 60                  |
| RF-YUL191TS-BC-E1 | Yellow       | 20      | 585-595                            | 1.6-2.4 | 350-650  | 60                  |

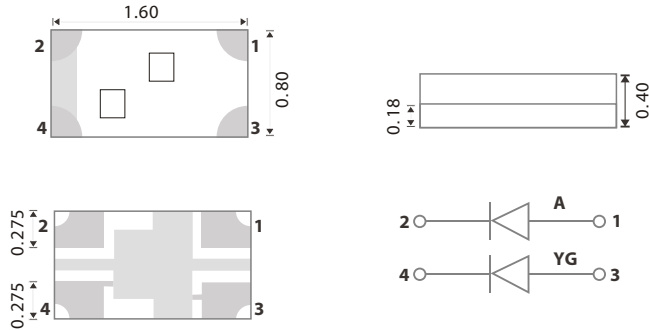




# S191 Series

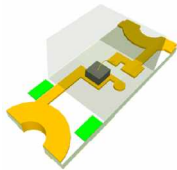
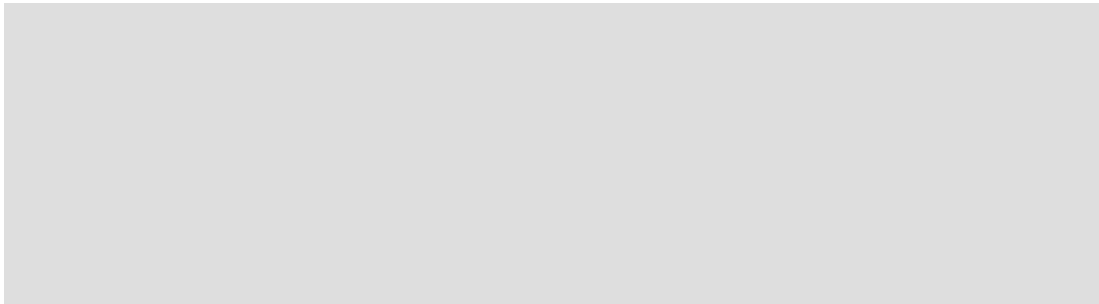
Dimension(L\*W\*H):1.6\*0.8\*0.4mm

Package Outline Drawing:



Parameter:

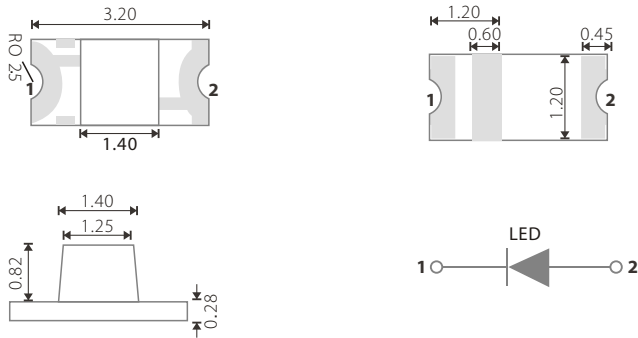
| Part No.           | Color        | IF (mA) | $\lambda$ D (nm) | VF (V)  | IV (mcd) | $2\theta_{1/2}$ (°) |
|--------------------|--------------|---------|------------------|---------|----------|---------------------|
| RF-P1S191TS-B47    | Amber        | 5       | 600-610          | 1.8-2.4 | 8-100    | 140                 |
|                    | Yellow-green | 5       | 565-575          | 1.8-2.4 | 5-65     | 140                 |
| RF-P1S191TS-B47-E0 | Amber        | 20      | 600-610          | 1.8-2.6 | 70-200   | 140                 |
|                    | Yellow-green | 20      | 565-570          | 1.8-2.6 | 30-80    | 140                 |
| RF-P1S191TS-B51    | Yellow-green | 5       | 565-575          | 1.8-2.4 | 5-65     | 140                 |
|                    | Yellow       | 5       | 585-595          | 1.8-2.4 | 8-100    | 140                 |
| RF-P1S191TS-B51-E1 | Yellow-green | 20      | 565-575          | 1.8-2.4 | 18-100   | 140                 |
|                    | Yellow       | 20      | 585-595          | 1.8-2.4 | 65-350   | 140                 |
| RF-P1S191TS-B53    | Yellow-green | 5       | 565-575          | 1.8-2.4 | 5-65     | 140                 |
|                    | Red          | 5       | 615-630          | 1.8-2.4 | 8-100    | 140                 |
| RF-P1S191TS-B59-E1 | Green        | 20      | 520-530          | 2.6-3.6 | 280-800  | 140                 |
|                    | Red          | 20      | 620-630          | 1.6-2.2 | 100-300  | 140                 |
| RF-P1S191TS-B61-E0 | Amber        | 20      | 600-610          | 1.8-2.6 | 4-17     | 140                 |
|                    | Yellow-green | 20      | 565-575          | 1.8-2.6 | 8-28     | 140                 |
| RF-P1S191TS-B62-E0 | Yellow       | 20      | 585-595          | 1.6-2.4 | 70-230   | 140                 |
|                    | Blue         | 20      | 465-475          | 2.6-3.6 | 70-230   | 140                 |



# R150 Series

Dimension(L\*W\*H):3.2\*1.25\*1.1mm

Package Outline Drawing:



Parameter:

| Part No.          | Color        | IF (mA) | $\lambda$ D (nm)                   | VF (V)  | IV (mcd) | $2\theta_{1/2}$ (°) |
|-------------------|--------------|---------|------------------------------------|---------|----------|---------------------|
| RF-AUR150TS-BF-E1 | Amber        | 20      | 600-615                            | 1.8-2.4 | 90-260   | 140                 |
| RF-BUR150TS-BF-E1 | Blue         | 20      | 460-470                            | 2.8-3.4 | 80-230   | 140                 |
| RF-GUR150TS-BF-E1 | Yellow-green | 20      | 565-575                            | 1.8-2.4 | 18-65    | 140                 |
| RF-OUR150TS-BF-E1 | Orange       | 20      | 620-630                            | 1.8-2.3 | 100-250  | 140                 |
| RF-RUR150TS-BF-E1 | Red          | 20      | 625-640                            | 1.8-2.4 | 20-200   | 140                 |
| RF-TUR150TS-CE-E1 | Green        | 20      | 517.5-530                          | 2.8-3.5 | 260-900  | 140                 |
| RF-WUR150DS-EC-E1 | Blue         | 20      | X:0.2565-0.2833<br>Y:0.2644-0.2982 | 2.6-3.4 | 150-530  | 140                 |
| RF-YUR150TS-CA-E1 | Yellow       | 20      | 585-595                            | 1.8-3.0 | 90-260   | 140                 |

