



Features

- Resistance value as low as 0.001 ohm
- High power density
- Inductance less than 5 nH
- RoHS compliant*
- AEC-Q200 qualified, automotive grade

Applications

- Power supplies
- Stepper motor drives
- Input amplifiers

CRF Series - High Power Current Sense Chip Resistor

Electrical Characteristics

| Rating | CRF0805 | CRF1206 | CRF2512 |
|-----------------------------|----------------------|---|--|
| Power Rating @ 70 °C | 0.5 W | 1 W | (0.001 to 0.010 Ω) 2 W (0.011 to 0.050 Ω) 1 W |
| Operating Temperature Range | -55 °C to +170 °C | | |
| Derated to Zero Load at | +170 °C | | |
| Maximum Working Voltage | $(P \times R)^{1/2}$ | | |
| Resistance | 0.005 ~ 0.020 Ω | 0.001 ~ 0.030 Ω | 0.001 ~ 0.050 Ω |
| Resistance Tolerance | 1 %, ±5 % | | |
| Temperature Coefficient | ±100 PPM/°C | (0.001 Ω) ±275 PPM/°C (0.002 to 0.010 Ω) ±100 PPM/°C (>0.010 Ω) ± 75 PPM/°C | |

Performance Characteristics

| Test | Conditions | Specification | | |
|---------------------------|--|--|--|---------|
| | | CRF0805 | CRF1206 | CRF2512 |
| Thermal Shock | -55 °C to +150 °C, 300 Cycles, 15 minutes | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Short Time Overload | 5 X Rated Power for 5 seconds | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Low Temperature Storage | -55 °C for 1000 hours | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| High Temperature Exposure | 1000 hours @ + 170 °C | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Bias Humidity | + 85 °C, 85 % RH, 10 % Bias, 1000 hours | N/A | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | |
| Mechanical Shock | 100 g for 6 milliseconds, 5 pulses | N/A | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Vibration | Frequency varied 10-2000 KHz in one minute, 3 directions, 12 hours | N/A | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Load Life | 1000 hours at rated power at +70 °C, 1.5 hours on, 0.5 hours off | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | |
| Resistance to Solder Heat | +260 °C, 10-12 second dwell, 25 mm/second emergence | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |
| Moisture Resistance | MIL-STD-202 Method 106, 0 % power (7a and 7b not required) | $\Delta R \pm(1 \% + 0.0005 \Omega)$ | $\Delta R \pm(0.5 \% + 0.0005 \Omega)$ | |

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

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Product Dimensions



| Dim. | CRF0805 | CRF1206 | CRF2512 |
|------|---|--|---|
| A | $\frac{2.0 \pm 0.10}{(0.079 \pm 0.004)}$ | $\frac{3.20 \pm 0.20}{(0.126 \pm 0.008)}$ | $\frac{6.40 \pm 0.20}{(0.252 \pm 0.008)}$ |
| B | $\frac{1.25 \pm 0.10}{(0.049 \pm 0.004)}$ | $\frac{1.65 \pm 0.20}{(0.064 \pm 0.008)}$ | $\frac{3.20 \pm 0.20}{(0.126 \pm 0.008)}$ |
| C | $\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$ | $\frac{0.50 \pm 0.30}{(0.0197 \pm 0.012)}$ | $\frac{0.95 \pm 0.30}{(0.037 \pm 0.012)}$ |
| T | $\frac{0.60 \pm 0.20}{(0.024 \pm 0.008)}$ | $\frac{0.60 \pm 0.20}{(0.024 \pm 0.008)}$ | $\frac{0.60 \pm 0.20}{(0.024 \pm 0.008)}$ |

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

Recommended Solder Pad Layout



| Dim. | CRF0805 | CRF1206 | | CRF2512 | |
|------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 0.005 ~ 0.020 Ω | 0.001 Ω | 0.002 ~ 0.030 Ω | 0.001 ~ 0.003 Ω | 0.004 ~ 0.050 Ω |
| A | $\frac{1.4}{(0.055)}$ | $\frac{1.8}{(0.070)}$ | $\frac{1.8}{(0.070)}$ | $\frac{4.0}{(0.157)}$ | $\frac{4.0}{(0.157)}$ |
| B | $\frac{1.15}{(0.045)}$ | $\frac{2.3}{(0.090)}$ | $\frac{1.7}{(0.066)}$ | $\frac{3.1}{(0.122)}$ | $\frac{2.1}{(0.083)}$ |
| L | $\frac{1.2}{(0.047)}$ | $\frac{1.0}{(0.039)}$ | $\frac{1.6}{(0.062)}$ | $\frac{1.3}{(0.051)}$ | $\frac{4.1}{(0.161)}$ |

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

Construction



Resistance Value Tables

CRF0805

| Code | R Value | Code | R Value |
|------|---------|------|---------|
| R005 | 0.005 | R010 | 0.010 |
| R009 | 0.009 | R020 | 0.020 |

CRF2512 (1W)

| Code | R Value | Code | R Value |
|------|---------|------|---------|
| R011 | 0.011 | R030 | 0.030 |
| R012 | 0.012 | R033 | 0.033 |
| R015 | 0.015 | R035 | 0.035 |
| R018 | 0.018 | R040 | 0.040 |
| R020 | 0.020 | R050 | 0.050 |
| R025 | 0.025 | | |

CRF1206

| Code | R Value | Code | R Value |
|------|---------|------|---------|
| R001 | 0.001 | R010 | 0.010 |
| R002 | 0.002 | R012 | 0.012 |
| R004 | 0.004 | R014 | 0.014 |
| R005 | 0.005 | R015 | 0.015 |
| R006 | 0.006 | R020 | 0.020 |
| R007 | 0.007 | R022 | 0.022 |
| R008 | 0.008 | R025 | 0.025 |
| R009 | 0.009 | R030 | 0.030 |

CRF2512 (2W)

| Code | R Value | Code | R Value |
|------|---------|------|---------|
| R001 | 0.001 | R006 | 0.006 |
| R002 | 0.002 | R007 | 0.007 |
| R003 | 0.003 | R008 | 0.008 |
| R004 | 0.004 | R010 | 0.010 |
| R005 | 0.005 | | |

Derating Curve



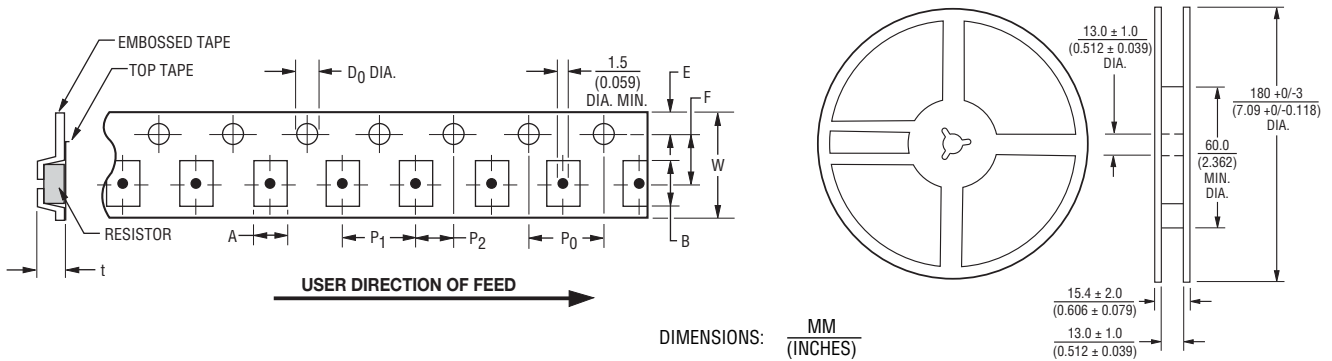
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Packaging Dimensions (Conforms to EIA RS-481A)



| Packing | Model | A | B | W | F | E | P1 | P2 | P0 | D0 | t |
|---------------|---------|------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------------------|
| Paper Tape | CRF0805 | 1.6 ± 0.15 (0.063 ± 0.006) | 2.4 ± 0.20 (0.094 ± 0.008) | 8.0 ± 0.20 (0.315 ± 0.008) | 3.5 ± 0.05 (0.138 ± 0.002) | 1.75 ± 0.10 (0.069 ± 0.004) | 4.0 ± 0.10 (0.157 ± 0.004) | 2.0 ± 0.1 (0.079 ± 0.004) | 4.0 ± 0.1 (0.157 ± 0.004) | $1.5+0.1/-0$ (0.059+0.004/-0) | 0.84 ± 0.10 (0.033 ± 0.004) |
| Paper Tape | CRF1206 | 2.0 ± 0.15 (0.079 ± 0.006) | 3.6 ± 0.20 (0.142 ± 0.008) | 8.0 ± 0.20 (0.315 ± 0.008) | 3.5 ± 0.05 (0.138 ± 0.002) | 1.75 ± 0.10 (0.069 ± 0.004) | 4.0 ± 0.10 (0.157 ± 0.004) | 2.0 ± 0.05 (0.079 ± 0.002) | 4.0 ± 0.05 (0.157 ± 0.002) | $1.5+0.1/-0$ (0.059+0.004/-0) | 0.85 ± 0.15 (0.033 ± 0.006) |
| Embossed Tape | CRF2512 | 3.60 ± 0.20 (0.142 ± 0.008) | 6.9 ± 0.20 (0.272 ± 0.008) | 12.0 ± 0.20 (0.472 ± 0.008) | 5.5 ± 0.05 (0.217 ± 0.002) | 1.75 ± 0.10 (0.069 ± 0.004) | 4.0 ± 0.10 (0.157 ± 0.004) | 2.0 ± 0.05 (0.079 ± 0.002) | 2.0 ± 0.05 (0.079 ± 0.002) | $1.5+0.1/-0$ (0.059+0.004/-0) | 0.85 ± 0.15 (0.033 ± 0.006) |

How to Order

CRF 0805 - F X - R020 E LF

Model _____
(CRF = Precision Chip Resistor)

Size _____
0805 = 0805 Size
1206 = 1206 Size
2512 = 2512 Size

Resistance Tolerance _____
• F = ±1 %
• J = ±5 %

TCR (PPM/°C) _____
• Z = ± 75 PPM/°C (>0.010 ohm)
• X = ±100 PPM/°C (0.002 ohm ~ 0.010 ohm & Model CRF0805 only)
• V = ±275 PPM/°C (0.001 ohm)

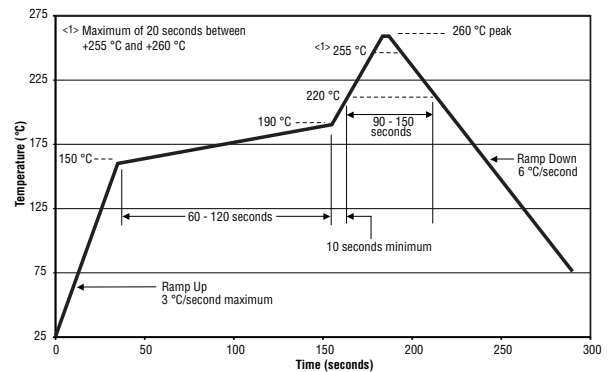
Resistance Value _____
"R" (decimal point) followed by three significant digits
(example: R020 = 0.020 ohm)

Packaging _____
• E = 5,000 pcs./180 mm (7-inch) reel (CRF0805 & CRF1206)
or 4,000 pcs./180 mm (7-inch) reel (CRF2512)

Termination _____
• LF = Tin-plated (RoHS compliant)

Soldering Profile

Can be soldered in accordance with IPC/JEDEC-J-STD-020.



REV. 07/15

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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.



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