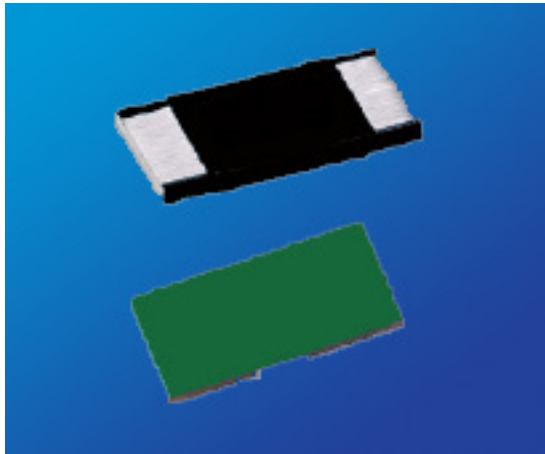


RESISTOR METAL ELEMENT CURRENT SENSE SMT

RNC SERIES



KEY FEATURES

- Resistances from 0.5 mOhms to 15 mOhms
- Resistance Tolerances to $\pm 1\%$
- Customized Resistance available
- Power Rating up to 3 Watts
- TCR's to ± 50 ppm/°C
- Available in sizes 1206 / 2010 / 2512

APPLICATIONS

- Engine Sensors
- Surge Protection
- Data Recorders
- Temperature Sensors

PRODUCT SUMMARY

| PRODUCT SERIES (RNC) | PACKAGE SIZE | POWER RATING (W) at 80°C | RESISTANCES (mΩ) | TCR (ppm/°C) | TOLERANCES | TEMPERATURE RANGE |
|----------------------|--------------|--------------------------|--|--------------------------------|----------------|-------------------|
| RNC18A | 1206 | 1 | 0.5 - 10 | ± 50 ± 200 (0.5 mΩ) | 1% 3% 5% | -55°C to +170°C |
| RNC19B | 2010 | 1.5 | 0.5 - 10 | ± 50 ± 100 (0.5 mΩ) | | |
| RNC20A ¹ | 2512 | 1 | 0.5, 0.75, 1, 1.5, 2, 11, 12, 13, 14, 15 | ± 50 | | |
| | | | 6, 6.5, 7 | ± 75 | | |
| | | | 4, 5, 10 | ± 100 | | |
| | | | 2.5, 3 | ± 150 | | |
| RNC20C ² | 2512 | 2 | 0.5, 0.75, 1, 1.5, 2, 6.5, 7, 8, 9, 10 | ± 50 | | |
| | | | 6, 6.5, 7 | ± 75 | | |
| | | | 4, 5, 10 | ± 100 | | |
| | | | 2.5, 3 | ± 150 | | |
| RNC20D ³ | 2512 | 2.5 | 4, 4.5, 5, 6 | ± 50 | | |
| RNC20E ³ | 2512 | 3 | 0.5, 0.75 | ± 100 | | |
| | | | 1, 1.5, 2, 2.5, 3, 3.5 | ± 50 | | |

Maximum Operating Voltage = $\sqrt{\text{Power} \times \text{Resistance}}$

¹ 11, 12, 13, 14, 15 mΩ - coating is green
² 6.5, 7, 8, 9, 10 mΩ at 50ppm - coating is green
³ All values contain green coating

HOW TO ORDER

| RNC | 20 | E | N | R00075 | F | E |
|--|-------------------------------------|--|--|--|---|--------------------------|
| Resistor Metal Element Current Sense SMT | PACKAGE CODE | POWER RATING, WATTS | TEMPERATURE COEFFICIENT OF RESISTANCE (TCR) | RESISTANCE | TOLERANCE | PACKING |
| | 18 = 1206 19 = 2010 20 = 2512 | A = 1.0W B = 1.5W C = 2.0W D = 2.5W E = 3.0W | Q = ± 50 ppm/°C P = ± 75 ppm/°C N = ± 100 ppm/°C M = ± 150 ppm/°C L = ± 200 ppm/°C | R00075 = 0.00075Ω (0.75mΩ) 0R0005 = 0.0005Ω (0.5mΩ) 00R001 = 0.001Ω (1mΩ) 0R0015 = 0.0015Ω (1.5mΩ) Letter denotes decimal place. R = decimal., "K" 10 ³ , "M" 10 ⁶ Remaining 5 digits are significant or placeholders. | F = $\pm 1.0\%$ H = $\pm 3.0\%$ J = $\pm 5.0\%$ | E = Embossed Tape & Reel |

Standard Termination Finish: Nickel Tin Alloy

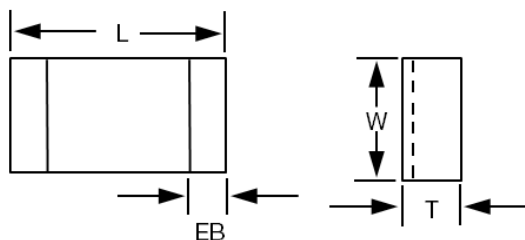
Example P/N: RNC20ENR00075FT is Resistor Metal Element Current Sense SMT, size 2512, 3.0W, ± 100 ppm/°C, 0.00075Ω (0.75mΩ), $\pm 1.0\%$, embossed tape & reel



RESISTOR METAL ELEMENT CURRENT SENSE SMT RNC SERIES

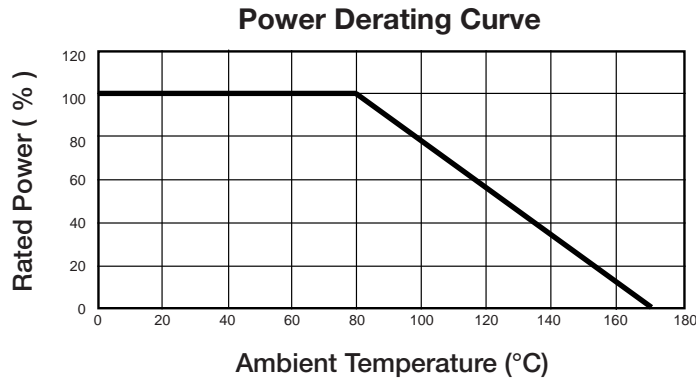


ELECTRICAL & MECHANICAL CHARACTERISTICS



| Package Code | Power Rating (W) | Resistance Value (Ω) | L (Length) [mm] | W (Width) [mm] | T (Thickness) [mm] | EB (End Band) [mm] |
|---|------------------|-------------------------------|------------------|------------------|--------------------|--------------------|
| RNC18 (Size 1206) | 1 | 0.5 | 3.20 \pm 0.25 | 1.60 \pm 0.10 | 0.60 \pm 0.20 | 1.35 \pm 0.25 |
| | | 0.75 | 3.20 \pm 0.25 | 1.60 \pm 0.10 | 0.60 \pm 0.20 | 1.23 \pm 0.25 |
| | | 1, 4, 5, 6 | 3.20 \pm 0.25 | 1.60 \pm 0.10 | 0.60 \pm 0.20 | 1.10 \pm 0.25 |
| | | 2, 3, 10 | 3.20 \pm 0.25 | 1.60 \pm 0.10 | 0.60 \pm 0.20 | 0.60 \pm 0.25 |
| | | 7, 8, 9 | 3.20 \pm 0.25 | 1.60 \pm 0.10 | 0.60 \pm 0.20 | 0.90 \pm 0.25 |
| RNC19 (Size 2010) | 1.5 | 0.5 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 2.17 \pm 0.25 |
| | | 0.75 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 2.04 \pm 0.25 |
| | | 1 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 1.84 \pm 0.25 |
| | | 2, 6, 7, 8 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 1.54 \pm 0.25 |
| | | 3 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 1.04 \pm 0.25 |
| | | 4, 5 | 5.08 \pm 0.25 | 2.54 \pm 0.15 | 0.60 \pm 0.20 | 1.84 \pm 0.25 |
| RNC20 (Size 2512) | 1 | 0.5 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 1.25 \pm 0.20 | 1.30 \pm 0.38 |
| | | 0.75 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.75 \pm 0.20 | 1.30 \pm 0.38 |
| | | 1 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.65 \pm 0.20 | 1.30 \pm 0.38 |
| | | 1.5 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.45 \pm 0.20 | 1.30 \pm 0.38 |
| | | 2 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.35 \pm 0.20 | 1.30 \pm 0.38 |
| | | 2.5 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.65 \pm 0.20 | 1.30 \pm 0.38 |
| | | 3 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.55 \pm 0.20 | 1.30 \pm 0.38 |
| | | 4 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.45 \pm 0.20 | 1.30 \pm 0.38 |
| | | 5 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.35 \pm 0.20 | 1.30 \pm 0.38 |
| | | 6 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.32 \pm 0.20 | 1.30 \pm 0.38 |
| | | 6.5 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.30 \pm 0.20 | 1.30 \pm 0.38 |
| | | 7 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.27 \pm 0.20 | 1.30 \pm 0.38 |
| 10 | 6.35 \pm 0.254 | 3.18 \pm 0.254 | 0.25 \pm 0.20 | 1.30 \pm 0.38 | | |
| RNC20 w/Green Coating (Size 2512) | 1 to 3 | 0.5 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 2.68 \pm 0.25 |
| | | 0.75 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 2.48 \pm 0.25 |
| | | 1, 5, 6 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 1.93 \pm 0.25 |
| | | 1.5, 6.5, 7 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 1.43 \pm 0.25 |
| | | 2, 3 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 1.18 \pm 0.25 |
| | | 4, 4.5 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 2.18 \pm 0.25 |
| | | 8 to 15 | 6.35 \pm 0.25 | 3.00 \pm 0.20 | 0.60 \pm 0.20 | 1.18 \pm 0.25 |

RESISTOR METAL ELEMENT CURRENT SENSE SMT RNC SERIES



SPECIFICATIONS

| Test | Specification | | Test Method |
|--|-------------------|------------------|--|
| | Black Coating | Green Coating | |
| Solderability | 95% min. coverage | | 245 ±5°C for 3 seconds |
| Temperature Coefficient of Resistance | As Spec. | | +25/-55/+25/+125/+25°C |
| Dry Heat | ± 1.0% | ± 1.0% | at +170°C for 1000 hrs |
| Load Life | ± 1.0% | ± 1.0% | 70 ±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Short Time Overload | ± 0.5% | ± 1.0% | 5x rated power for 5 seconds |
| Resistance to Soldering Heat | ± 0.5% | ± 1.0% | 260 ±5°C for 10 seconds |
| Thermal Shock | ± 0.5% | ± (0.5% + 0.05Ω) | -55°C ~ 150°C, 100 cycles |

Note: Green coating cannot be used in solder bath

PACKAGING INFORMATION

| Package Code | RNC18 (Reel Size 1206) | RNC19 (Reel Size 2010) | RNC20 (Reel Size 2512) |
|-----------------|---------------------------|---------------------------|---------------------------|
| Quantity | 2000 | | |
| Type | Embossed Tape | | |

Moisture Sensitivity Level: MSL-1

AVAILABLE OPTIONS (Consult Factory)

- Special Testing Requirements

This datasheet is subject to change without notice.



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