

# RESISTOR THIN FILM CURRENT SENSE 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  $\pm 50$  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	$\pm 50$ $\pm 200$ (0.5 mΩ)	1% 3% 5%	-55°C to +170°C
RNC19B	2010	1.5	0.5 - 10	$\pm 50$ $\pm 100$ (0.5 mΩ)		
RNC20A <sup>1</sup>	2512	1	0.5, 0.75, 1, 1.5, 2, 11, 12, 13, 14, 15	$\pm 50$		
			6, 6.5, 7	$\pm 75$		
			4, 5, 10	$\pm 100$		
RNC20C <sup>2</sup>	2512	2	2.5, 3	$\pm 150$		
			0.5, 0.75, 1, 1.5, 2, 6.5, 7, 8, 9, 10	$\pm 50$		
			6, 6.5, 7	$\pm 75$		
RNC20D <sup>3</sup>	2512	2.5	4, 5, 10	$\pm 100$		
			2.5, 3	$\pm 150$		
			4, 4.5, 5, 6	$\pm 50$		
RNC20E <sup>3</sup>	2512	3	0.5, 0.75	$\pm 100$		
			1, 1.5, 2, 2.5, 3, 3.5	$\pm 50$		

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

<sup>1</sup> 11, 12, 13, 14, 15 mΩ - coating is green

<sup>2</sup> 6.5, 7, 8, 9, 10 mΩ at 50ppm - coating is green

<sup>3</sup> All values contain green coating

## HOW TO ORDER

RNC	20	E	N	R00075	F	E
RESISTOR THIN FILM CURRENT SENSE	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 = $\pm 50$ ppm/°C P = $\pm 75$ ppm/°C N = $\pm 100$ ppm/°C M = $\pm 150$ ppm/°C L = $\pm 200$ 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 <sup>3</sup> , "M" 10 <sup>6</sup> Remaining 5 digits are significant or placeholders.	F = $\pm 1.0\%$ H = $\pm 3.0\%$ J = $\pm 5.0\%$	E = Embossed Tape & Reel

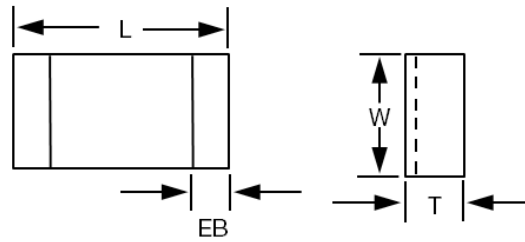
Example P/N: RNC20ENR00075FT is Resistor Thin Film Current Sense, size 2512, 3.0W,  $\pm 100$ ppm/°C, 0.00075Ω (0.75mΩ),  $\pm 1.0\%$ , embossed tape & reel



# RESISTOR THIN FILM CURRENT SENSE RNC SERIES

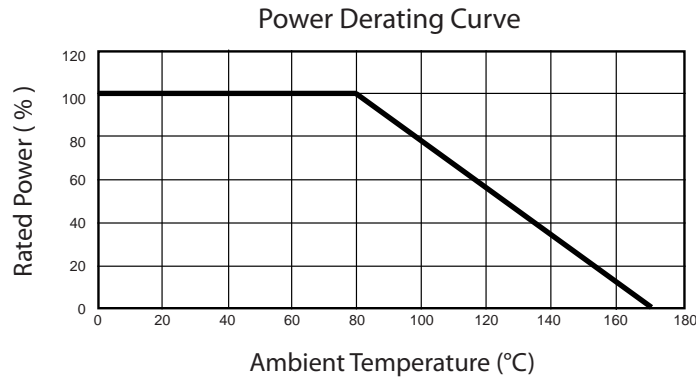


## ELECTRICAL & MECHANICAL CHARACTERISTICS



Package Code	Power Rating (W)	Resistance Value ( $\Omega$ )	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	$5.08 \pm 0.25$	$2.54 \pm 0.15$	$0.60 \pm 0.20$	$1.84 \pm 0.25$
		9, 10	$5.08 \pm 0.25$	$2.54 \pm 0.15$	$0.60 \pm 0.20$	$1.29 \pm 0.25$
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	$6.35 \pm 0.25$	$3.00 \pm 0.20$	$0.60 \pm 0.20$	$1.18 \pm 0.25$

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## 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.

