CNS 020



Vishay Sfernice

High Precision (0.01 %/10 ppm/°C) Through Hole Thin Film Conformal Coating Sil Resistor



FEATURES

- Tight TCR to 5 ppm/°C (in 0 °C; + 70 °C)
- Incorporates high stability thin film element (0.1 % at + 70 °C at Pn during 1000 h)
- Through hole (Sil)
- 100 Ω to 10 MΩ
- Tight tolerance down to 0.01 %
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

SCHEMATIC



STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	$\begin{array}{c} \text{RESISTANCE RANGE} \\ \Omega \end{array}$	RATED POWER P _{70 °C} W	P70 °C VOLTAGE IOLERANCE COEFFICIEN		TEMPERATURE COEFFICIENT ⁽¹⁾ ± ppm/°C
CNS 020	100 to 10M	0.5	300	0.01, 0.02, 0.05, 0.1, 0.25, 0.5, 1	5, 10

Note

⁽¹⁾ 15 ppm/°C for $R \ge 1.5M$

CLIMATIC SPECIFICATIONS			
Operating temperature range	- 55 °C; + 155 °C		

MECHANICAL SPECIFICATIONS		
Resistive material	Nichrome	
Substrate material	Alumina	
Terminals	Tin/silver on Cu alloy	
Protection	Conformal epoxy coating	

DIMENSIONS AND IMPRINTING CNS 020					
$C \rightarrow \downarrow C \rightarrow \downarrow L \rightarrow $					
In clear: model, \	/ishay logo and manufacturing code. On back: ohmi	c value (in Ω), tolerance (in %)			
DIMENSION	INCHES	MILLIMETERS			
A	0.318	8.10			
В	0.260	6.62			
С	0.020	0.51			
D	0.200	5.08			
E	0.120	3.17			
F	0.100	2.54			
G	0.010	0.25			



RoHS COMPLIANT GREEN (5-2008)

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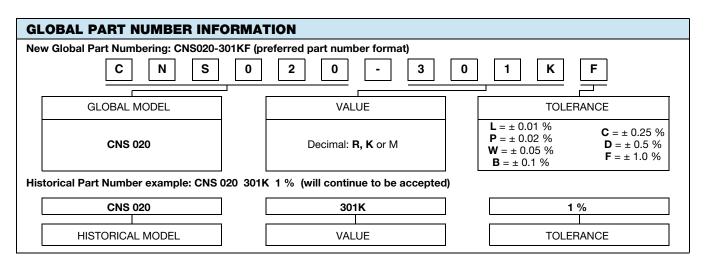
TECHNICAL SPECIFICATIONS				
TEST		SPECIFICATIONS	CONDITIONS	
MATERIAL		PASSIVATED NICHROME		
Absolute TCR	Standard (1)	± 10 ppm/°C	- 40 °C to + 125 °C	
Absolute TCh	On request	± 5 ppm/°C	0 °C to + 70 °C	
Power rating		0.5 W	at + 70 °C	
		0.3 W	at + 125 °C	
Dissipation factor (in air) 1/R _{TH} ⁽²⁾			6.7 mW/°C	

Notes

⁽¹⁾ 15 ppm/°C for $R \ge 1.5M$

⁽²⁾ For information only

ENVIRONMENTAL TEST					
	REQUIREMENTS				
TEST	NFC 83220 CECC40300	MIL-PRF DRIFTS 55182E (MAX.)		CONDITIONS	
Overload	± 0.01 %	± 0.05 %	0.01 %	2.5 Un/5 s U _{max} . < 2 Un	
Temperature cycling	± 0.01 %	± 0.05 %	0.01 %	- 55 °C/+ 155 °C 5 cycles CEI 63-2-14 Test No	
Terminal strength	± 0.01 %	± 0.02 %	0.01 %	CEI 68-2-21 Test Ua (pulling), Ub (bending), Uc (twisting)	
Resistance to solder heat	± 0.01 %	± 0.02 %	0.01 %	+ 260 °C/10 s, CEI 68-2-20A Test T6 (Met 1A)	
Vibration	± 0.01 %	± 0.02 %	0.01 %	10 Hz to 500 Hz 10 g, 6 h Met B4; CEI 68-2-6 Test Fc	
Climatic sequence	$\begin{array}{c} \pm \ 0.05 \ \% \\ \text{insulation resistance} \\ > \ 10^2 \ M\Omega \end{array}$	-	0.05 %	- 55 °C/+ 155 °C 6 cycles 95 % RH RH 85 mbar CEl68-1	
Moisture	$\begin{array}{c} \pm \ 0.05 \ \% \\ \text{insulation resistance} \\ > \ 10^2 \ M\Omega \end{array}$	-	0.02 %	56 days 95 % RH + 40 °C CEI 68-2-3	
High temperature storage	± 0.05 %	-	0.05 %	1000 h/+ 155 °C CEI 68-2-20A; Test B	



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2 For technical questions, contact: <u>sferthinfilm@vishay.com</u> Document Number: 60051



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