

Thin Film Single-Tap Chip Resistors (.020 x .020 Series)

Chip resistors provide variations in resistor material, temperature coefficient of resistance, substrate material, resistance, and tolerance.

Features

- Chip Size: .020" x .020"
- Silicon or Alumina Substrate
- Wire bond pads

Available Options Include

- Resistor Tolerance to 0.5%
- Nickel Chrome or Tantalum Nitride Resistor Materials
- Back Gold Option

APITech's **thin film single-tapped chip resistors .020 x .020 series** are available in a wide range of resistances and tolerances with values available from 1 ohm to 600 kohms. The thin film resistor layer is made of Nickel-Chromium or Tantalum Nitride (TaN), with a gold or nickel-gold conductor layer.

Applications for thin film center-tapped chip resistors include military and industrial hybrids, and medical, aerospace, and communications equipment.

Single-tapped chip resistors are available with either passivated nickel chrome or tantalum-nitride resistor metalization.

- Nickel chrome provides excellent stability and temperature coefficient in hermetic applications
- Tantalum-nitride provides superior moisture-resistance for non-hermetic applications.

Electrical Specifications

Parameter	Limit	Test conditions
Power Rating (Si with Conductive Epoxy)	250 mW	(70 C derated to 0 mW @ 150 C)
Power Rating (Si with Non-Conductive Epoxy)	125 mW	(70 C derated to 0 mW @ 150 C)
Power Rating (alumina)	62 mW	(70 C derated to 0 mW @ 150 C)
Life	+/-0.2% max	1000 hours @ 125 degrees C
Noise	-35 dB typ	MIL-STD-202 method 308
High Temp Exposure	+/-0.2% max	100 hours at 150 degrees C
TCR (Nickel Chrome)	+/-50 ppm/C	-55 to 125 degrees C for resistor values of 50 ohms or greater
TCR (Tantalum Nitride)	+/-125 ppm/C	-55 to 125 degrees C for resistor values of 50 ohms or greater
Operating voltage	100 VDC max	
Moisture resistance	+/-0.5% max	MIL-STD-202 method 106
Thermal shock	+/-0.5% max	MIL-STD-202 method 107

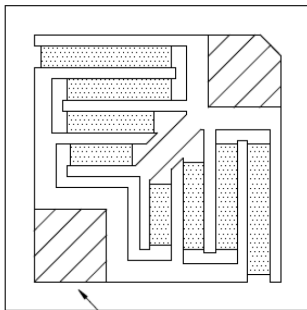
Thin Film Single-Tap Chip Resistors (.020 x .020 Series)

Mechanical Specifications

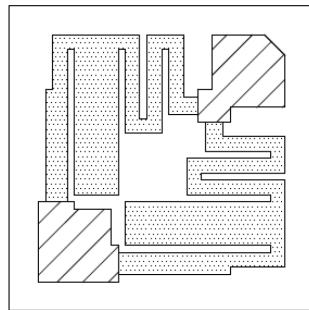
Substrate	Silicon with thermal oxide or alumina
Bond pad metalization	Bondable Gold
Size	.021 x .021 +/- 0.002" (0.533 x 0.533 +/- .051 mm)
Thickness	.012 +/- .003 " for silicon, .010 +/- 0.001" for alumina
Bond pad dimensions	.005 x 0.005" typical
Protective overcoat (passivation)	Silox glass on NiCr versions only
Back side	Lapped silicon, AF alumina or gold.

Typical Configuration

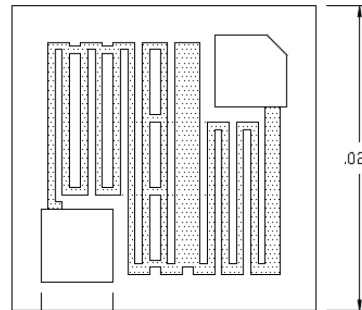
Values below 20 ohms



Values from 20 to 200 ohms



Values above 200 ohms



On Back-Contact versions, pad without bevel is connected to backside

Packaging Options

- Waffle Pack (400 resistors per pack) - standard
- Waffle Pack (50 resistors per pack)
- Waffle Pack (100 resistors per pack)
- Tape and reel

Thin Film Single-Tap Chip Resistors (.020 x .020 Series)

Ordering Information

All parts are 100% electrically tested, sample tested per MIL-STD-38534 section 3.4, and visually inspected to MIL-STD-883 requirements. Chips are supplied in standard 2"x 2" matrix tray packaging.

Base part code	Ohm value (total of both halves)	Tolerance letter
68ALN- (NiCr on Silicon)	NNNE	X
68AT- (TaN on Silicon)	NNNE	X
68BCN- (NiCr on Silicon with Back Contact)	NNNE	X
68BCR- (TaN on Silicon with Back Contact)	NNNE	X
8CBN – (NiCr on Alumina)	NNNE	X
8CBT – (TaN on Alumina)	NNNE	X

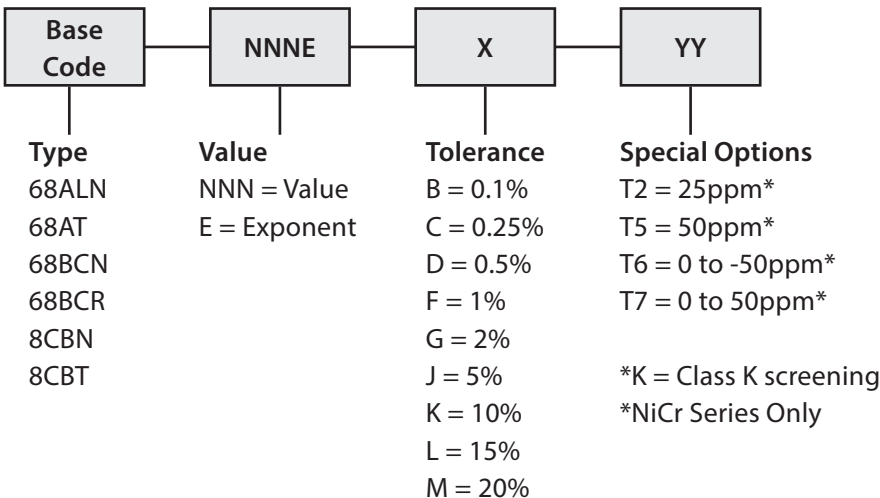
Availability

- NiCr series is available from 2 ohms to 600 kohms
- TaN series is available from 1 ohms to 300 kohms
- B tolerance available at 100 ohms and up
- C tolerance available at 40 ohms and up
- D tolerance available at 20 ohms and up
- F tolerance available at 10 ohms and up
- G tolerance available at 5 ohms and up
- J tolerance available at 2 ohms and up

Ordering Examples

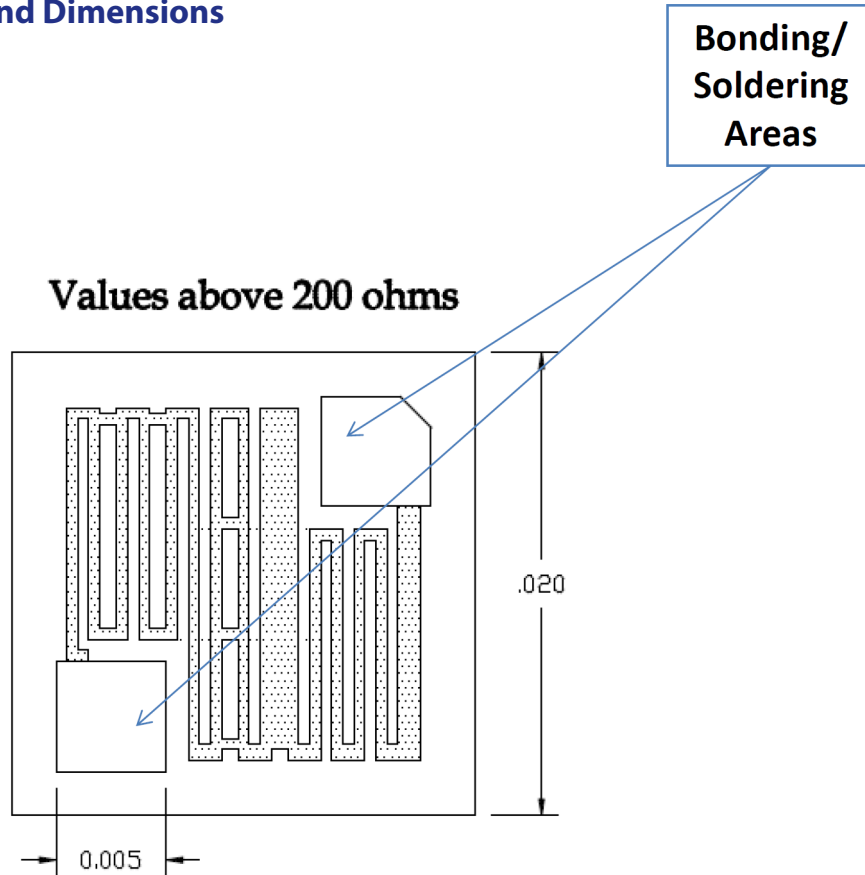
68ALN-1001B is a 1 kohm 0.1% resistor with nickel-chrome metallization on silicon.

Part Number Breakdown/Designation



Thin Film Single-Tap Chip Resistors (.020 x .020 Series)

Bonding Areas and Dimensions



On BCR and BCN versions, the corner pad is beveled as shown and the other pad is connected to the backside. On all other versions, both pads are square.