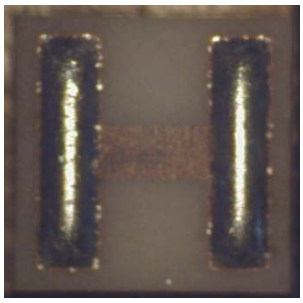
Thin Film Single-Tap Chip Resistors (.050 x .050 Series)

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



Features

- Chip Size: .050” x .050”
- Silicon or Alumina Substrate
- Wire bond or solder pads

Available Options Include:

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

API Technologies **thin film single-tap chip resistors .050 x .050 series** are available in a wide range of resistances and tolerances with values available from 3 ohms to 1200 ohms. 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-Tap chip resistors include military and industrial hybrids, and medical, aerospace and communications equipment.

Single-tap 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.

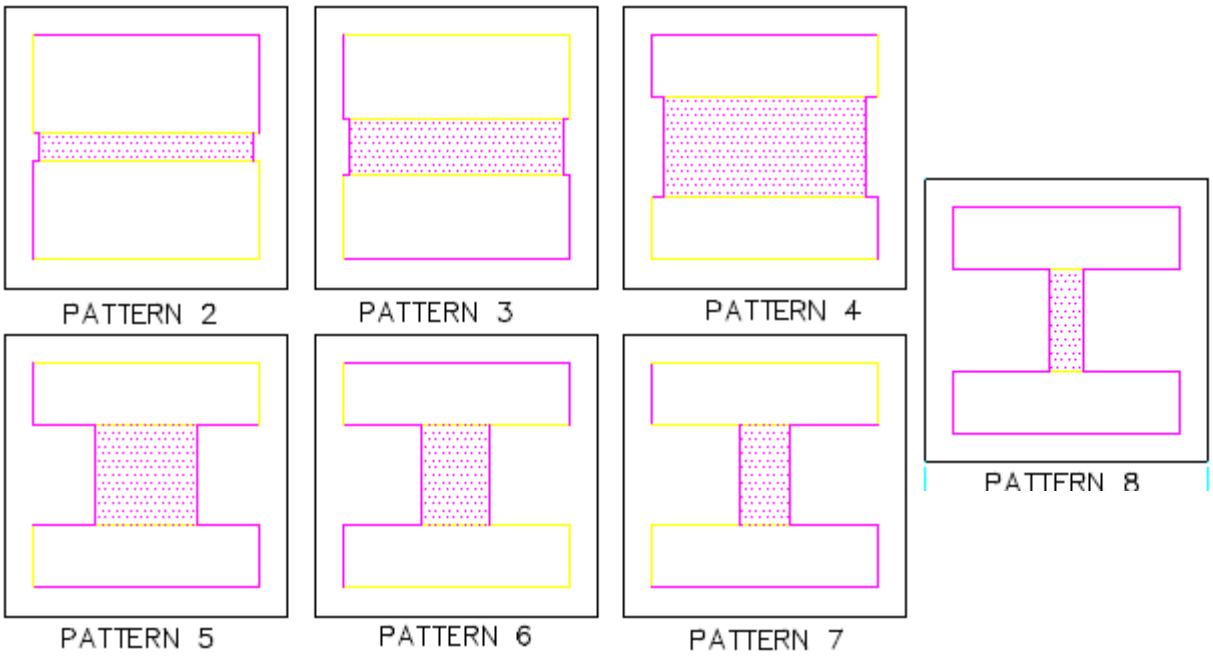
Electrical Specifications

Parameter	Limit	Test conditions
Power Rating	250 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
TCR (Tantalum Nitride)	0 to -125 ppm/C	-55 to 125 degrees C
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
VSWR (alumina substrate only)	<1.2 <1.8	From DC to 8 GHz From 8 GHz to 18 GHz

Mechanical Specifications

Substrate	Silicon with thermal oxide or alumina
Bond pad metalization	Bondable Gold or solderable Nickel Gold
Size	.050 x .050 typical (1.27 x 1.27 mm typical)
Thickness	.012 +/-.003 “ for silicon, .010 +/- 0.001 for alumina
Bond pad dimensions	Varies – 0.011 x 0.040 minimum
Protective overcoat (passivation)	Silox glass on NiCr versions only
Back side	Lapped silicon, AF alumina or gold.

Typical Configuration



Packaging Options

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

Ordering Information

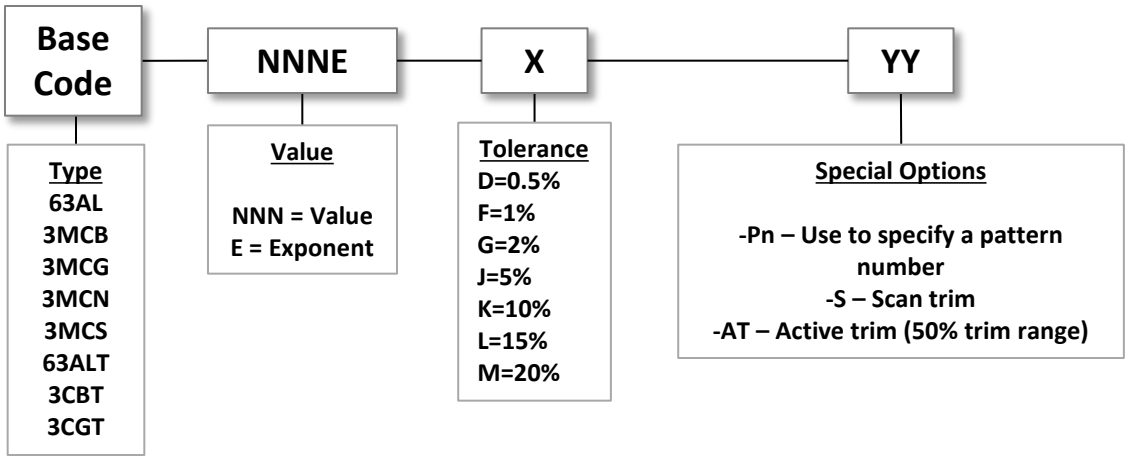
All parts are 100% electrically tested, sample tested per MIL-STD-38534 section 3.4, and visually inspected to MIL-STD-883 requirements. Chips are supplied in standard 2"x 2" matrix tray packaging.

Base part code	Ohm value (total of both halves)	Tolerance letter
63AL- (NiCr on Silicon)	NNNE	X
3MCB- (NiCr on Alumina, no back metal)	NNNE	X
3MCG- (NiCr on Alumina, gold backed)	NNNE	X
3MCN – (NiCr on Alumina, solderable)	NNNE	X
3MCS – (NiCr on Alumina, solder pads)	NNNE	X
63ALT- (TaN on Silcon)	NNNE	X
3CBT- (TaN on Alumina, no back metal)	NNNE	X
3CGT- (TaN on Alumina, gold backed)	NNNE	X

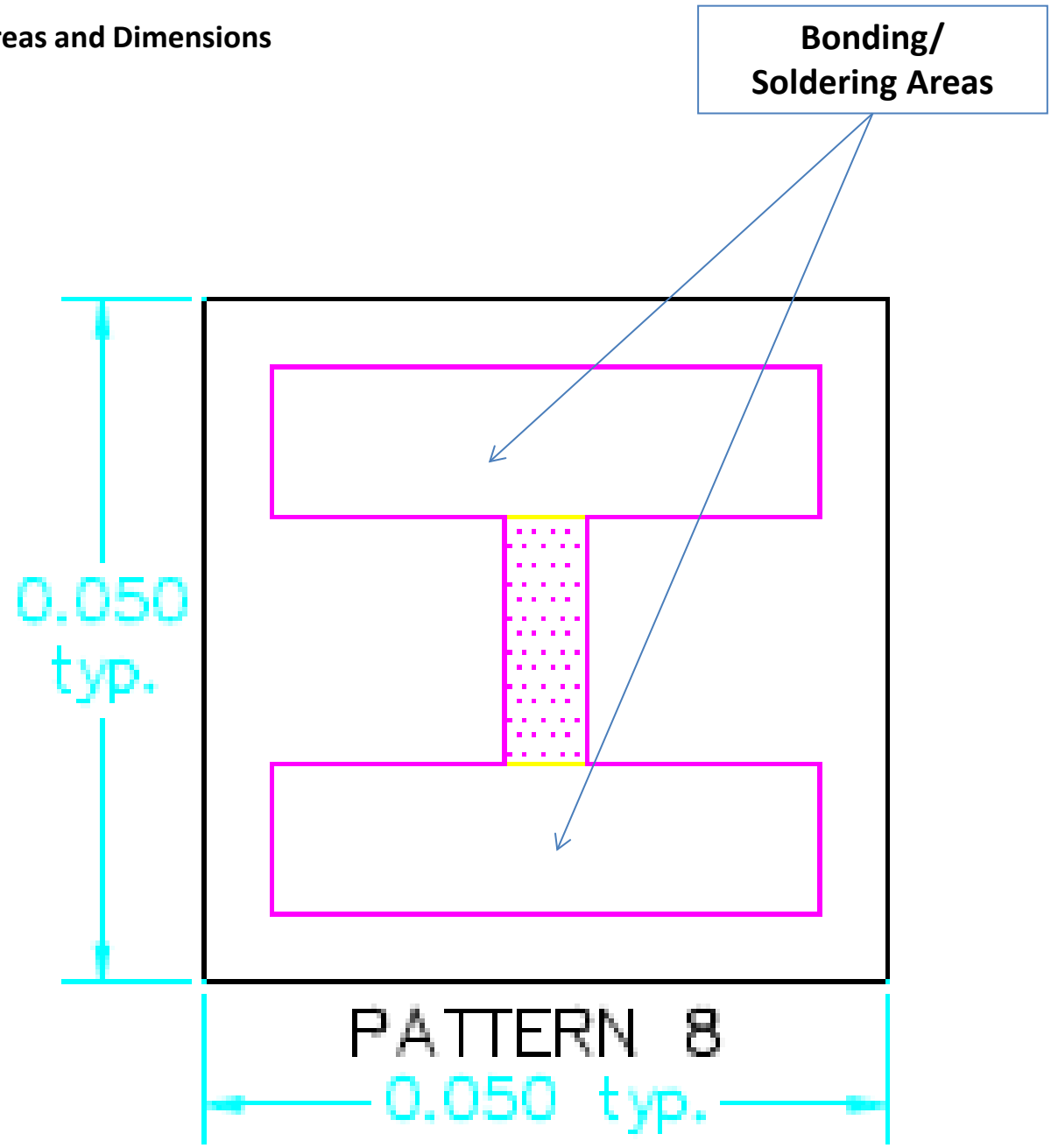
Availability

- NiCr series is available from 8 ohms to 1200 ohms
- TaN series is available from 3 ohms to 500 ohms

Part Number Breakout/Designation



Bonding Areas and Dimensions



Factory Information
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