



NIC COMPONENTS CORP.

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6/4/99

PART MARKING GUIDE

PRODUCTS: SMT THICK FILM CHIP RESISTORS AND ARRAYS SERIES: NRC AND NRSN

Please be advised NIC Component NRC series of thick film chip resistors are marked with three digit (for E-24 5% tolerance values) or four digits (for E-96 1% tolerance values) resistance value marking codes. This marking is in compliance with EIA-575, the standard for chip resistors. Section 1.2.3 "Resistance", of the EIA standard, details the coding of the 3 and 4 digit marking codes. Table III shows designation 3-digit and 4-digit codes covering resistance values from 0.1ohm to 10 Meg-ohm. Table IV identifies the industry standard 1% (F) and 5% (J) tolerance values. Unfortunately Table IV contains several typographical errors, so please refer to the attached NIC Standard Resistance Values table for correct resistance values.

COMPONENT MARKING:

Please note the following marking systems are used on all **0603** (5% tolerance) and **larger sizes** (1% and 5% tolerance) chip resistor products.

Marking is white lettering on black.

E24 Values (±5% tolerance)

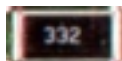


3 digit (±5% tolerance part)
470Ω example shown

3-digit codes (5% tolerances) breakdown as follows:

- First and Second digits identify the resistance value.
- The Third digit indicates the number of zeros.
- "R" is used as decimal point on values below 10 ohms.

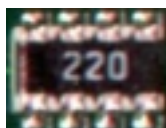
Examples: 1.5 ohm = "1R5", 33 ohm = "330", 470 ohm = "471" code, 1200 ohm = "122" code, 10,000 ohm = "103", 560,000 ohm = "564" and 1,000,000 ohm = "105"



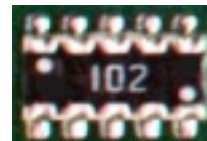
"332" = 3300Ω



"220" = 22Ω



"220" = 22Ω
8 TERMINAL
4 ELEMENT
RESISTOR ARRAY

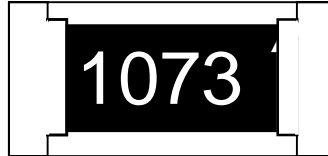


"102" = 1000Ω
10 TERMINAL
8 ELEMENT
RESISTOR ARRAY

ISO 9002 REGISTERED

Part Marking continued...

E96 Values (±1% tolerance)



4 digit (±1% tolerance part)
107,000Ω example shown.

4-digit codes (1% tolerances) breakdown as follows:

- First, Second and Third digits identify the resistance value.
- The Fourth digit indicates the number of zeros.
- "R" is used as decimal point on values below 100 ohms.

Examples: 1.15 ohm = "1R15", 33.2 ohm = "33R2", 475 ohm = "4750" code, 1270 ohm = "1271" code, 10,500 ohm = "1052", 562,000 ohm = "5623" and 1,000,000 ohm = "1004"



"1003" = 100,000Ω

Special Cases: Non-standard value ±1% (F) tolerance chip resistors.

Please be advise ±1% (F) tolerance chip resistors supplied in the following *non-standard* E96 values **will be marked with 3-digit codes:**

1. **E24** (±5% tolerance) values:
120,160,180,220,240,270,300,330,360,390,430,470,510,560,620,680,820 and 910.
2. Values **above 1 MegΩ** and **below 10Ω**.

For example:

- P/N: NRC10F1005TR (10 MegΩ±1%) is a special value and is supplied marked with 3-digit code; "**106**".
- P/N: NRC12F4702TR (47KΩ±1%) is a standard E24 value in special ±1% (F) tolerance and is supplied marked with 3-digit code; "**473**".

0603 SIZE E96 (±1% TOLERANCE):

Due to limited space special 3-digit codes, per JIS-C-5201 (see example below), are used for 0603 size (±1% tolerance) parts.



"07" is code for "115" value
"B" is code for 10¹ multiplier
"07B" is marking code for 1150Ω



"10" is JIS C 5201 code for "124" value
"C" is JIS C 5201 code for 10² multiplier
"10C" is marking code for 12,400Ω

0402 SIZE PARTS: 0402 size parts are too small to resistance value mark



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Part Marking continued...

Standard Resistance Values (PER EIA-575 & RS 460)

E12	E24	E96		
10	10	10.0	21.5	46.4
12	11	10.2	22.1	47.5
15	12	10.5	22.6	48.7
18	13	10.7	23.2	49.9
22	15	11.0	23.7	51.1
27	16	11.3	24.3	52.3
33	18	11.5	24.9	53.6
39	20	11.8	25.5	54.9
47	22	12.1	26.1	56.2
56	24	12.4	26.7	57.6
68	27	12.7	27.4	59.0
82	30	13.0	28.0	60.4
91	33	13.3	28.7	61.9
	36	13.7	29.4	63.4
	39	14.0	30.1	64.9
	43	14.3	30.9	66.5
	47	14.7	31.6	68.1
	51	15.0	32.4	69.8
	56	15.4	33.2	71.5
	62	15.8	34.0	73.2
	68	16.2	34.8	75.0
	75	16.5	35.7	76.8
	82	16.9	36.5	78.7
	91	17.4	37.4	80.6
		17.8	38.3	82.5
		18.2	39.2	84.5
		18.7	40.2	86.6
		19.1	41.2	88.7
		19.6	42.2	90.9
		20.0	43.2	93.1
		20.5	44.2	95.3
		21.0	45.3	97.6

ISO 9002 REGISTERED