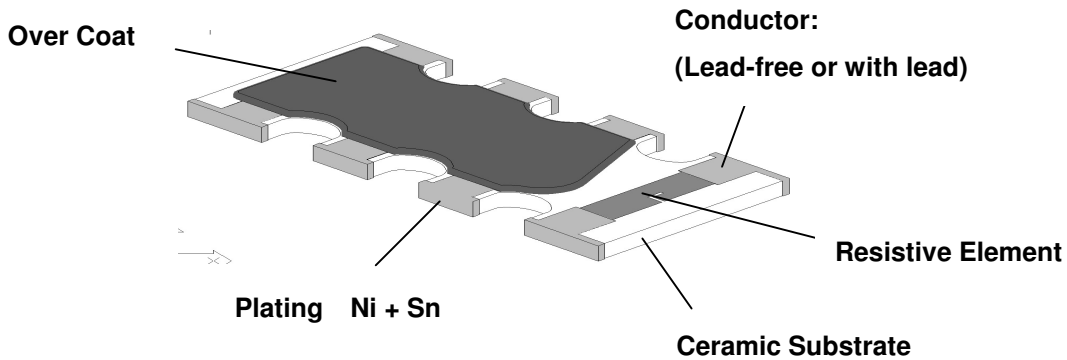


**1. Scope :**

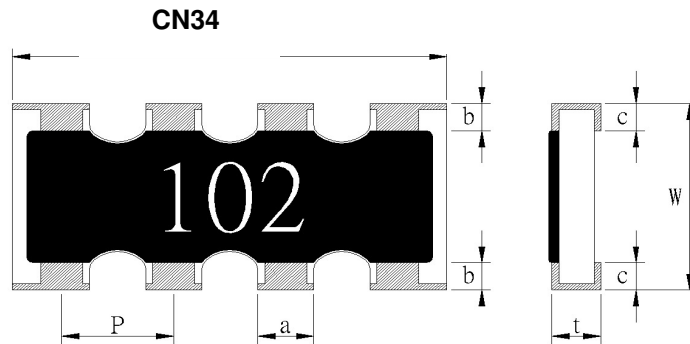
This specification applies for the CN34 series of thick film chip resistor arrays made by TA-I.

**2. Construction , Dimensions , Schematic :**

**2.1 Construction :**



**2.1.1 Chip Resistor Arrays :**

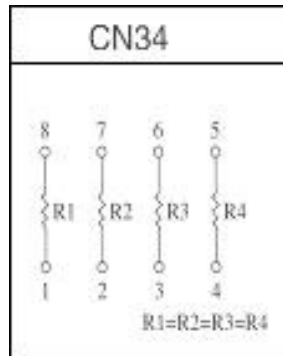


**2.2 Dimension :**

**UNIT:mm**

Type	L	W	t	P	a	b	c
CN34	3.2 ± 0.2	1.6 ± 0.15	0.5 ± 0.1	0.8 ± 0.05	0.45 ± 0.1	0.3 ± 0.2	0.3 ± 0.2

**2.3 Schematic**



**3. Type Designation:**

**3.1 Chip Resistor Arrays**

**CN**

**34**

**J**

**TN**

**103**

**Product Code**  
CN : Chip Resistor Array

**size**  
Power Rating

**Tolerance**

**Packaging**

**Nominal Resistance**

34-0603\*4

J-±5%  
G-±2%  
F-±1%

T- Paper Tape  
N : Lead-free

3 digits e.g.,:  
(E-24) 103 = 10KΩ  
5R6 = 5.6Ω  
4 digits e.g., :  
(E-96) 1540 = 154Ω  
43R2 = 43.2

**Note :**

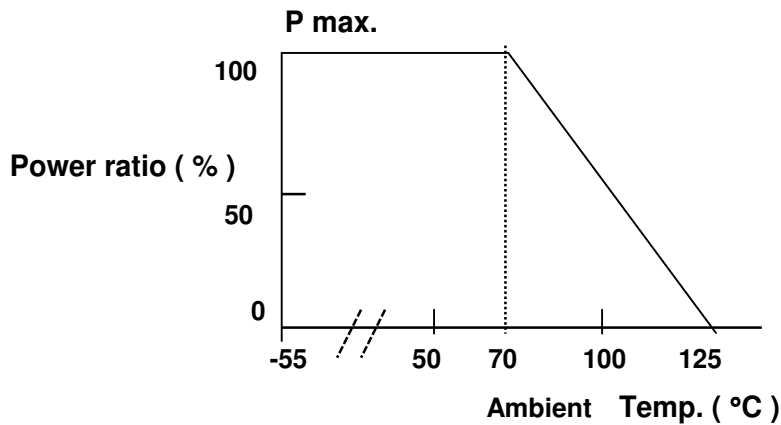
TN : Lead-Free products packaged by paper tape

**4. Ratings & Characteristics :**

Type	Power Rating at 70°C	Rating Voltage	Max. Working Voltage	Max. Over Load Voltage	Operating Temp. (°C)	Resistance Tolerance (%)	Resistance Range (Ω)	Temp Co-efficient PPM/°C
CN34	1/16W	Refer 4.2	50V	100V	-55 ∩ +125°C	±5% ±2% ±1%	10Ω ~1MΩ	±200

**4.1 Derating Curve :**

For resistors operated at ambient temperature over 70°C , power rating shall be derated in accordance with figure 1.



**Figure 1**

**4.2 Rated Voltage:**

The rated voltage is calculated by the following formula:

$$E = \sqrt{P * R}$$

E=Rated Voltage(V)  
 P=Rated Power(W)  
 R=Resistance Value(Ω)

E.G. : What is CN34JTN102 the rated voltage ?  
 CN34JTN102 P:1/16W ; R:102 = 1KΩ = 1000Ω  
 $E = \sqrt{0.0625(W) * 1000(\Omega)} = 7.9 (V)$

**5. Reliability Tests:(As specified in JIS C 5202)**

Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	JIS-C5202-5.2	-55~ +125 °C	Refer 4.0
Short Time Overload	JIS-C5202-5.5	2.5 X rated voltage for 5 sec	±(2.0%+0.1 Ω) 0 Ω : 50 mΩ or less
Intermittent Overload	JIS-C5202-5.8	2.5X rated voltage or Max Overloading Voltage , 1 sec "ON" 25 sec "OFF" , 10000 cycles	±(5.0%+0.1 Ω) 0 Ω : 50m Ω or less
Load Life	JIS-C5202-7.10	1000 hours at rated voltage , 70°C , 1.5hours "ON " , 0.5hour "OFF"	1%:±(1.0%+0.05 Ω) 5%:±(3.0%+0.1 Ω) 0 Ω :100 mΩ or less
Load Life with Humidity	JIS-C5202-7.9	1000 hours at rated voltage , 40±2°C , 90~95% RH 1.5hours "ON " , 0.5hour "OFF"	1%:±(1.0%+0.05 Ω) 5%:±(3.0%+0.1 Ω) 0 Ω :100 mΩ or less
Rapid Change of Temperature	JIS-C5202-7.4	-55°C (30 min. ) / +155 °C (30 min. ) 5 cycles	1%:±(0.5%+0.05 Ω) 5%:±(1.0%+0.05 Ω) 0 Ω :50 mΩ or less
Solderability	JIS-C5202-6.11	245±5°C solder, 2±0.5 sec dwell. Solder : Sn96.5 / Ag3.0 / Cu0.5	At least 95% of surface area of electrode shall be covered with new solder.
Core body	JIS C-5202-6.1.4	Pressure 1.0 kgf a R0.5 pressure rod for 10 sec	Without mechanical damage such as breaks. Electrical characteristics shall be satisfied
Dielectric Withstanding Voltage (Voltage Proof)	JIS-C5202-5.7	Applying voltage 100V for 1 minute.	No abnormalities such as flashover, burning dielectric breakdown shall appear.
Resistance to Solder Heat	JIS-C5202-6.10	270 ±5°C solder , 10 ±1 sec dwell .	0.5%,1%:±(1.0%+0.05 Ω) 2%,5%:±(2.0%+0.1 Ω) 0 Ω : 50m Ω or less

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Whisker	SONY SS-00254-8	<p>Component , Lead-Free Soldering part 8 : Solder Heat Resistance Test for SMD. Lead-Free Soldering “</p> <p>Temp. Cycles : -55°C (30 min.) / +155°C (30 min. ) Testing duration : 500±4 hours</p> <p>Temp. Humidity Chambers: Temperature : 85°C Humidity : 85% RH Testing duration : 500±4 hours .</p>	Whisker formation : 50 um or less .
Resistance to Solder Heat	SONY SS-00254-5	<p>Component , Lead-Free Soldering part 5 : Solder Heat Resistance Test for SMD. Lead-Free Soldering “</p> <p>Flow Solder : Pre – heat : 100 to 105 °C 30±5 sec Temperature : 260±3°C 10 +1/-0 sec The entire sample shall be dipped in solder. The specimen shall be stored at standard atmospheric conditions for 1 hour .</p> <p>Iron Solder : Bit temperature : 350 ±10°C Application time of soldering iron : 3 +1/- 0sec Apply the soldering iron to the electrode . The specimen shall be stored at standard atmospheric conditions for 1 hour , after which the measurements shall be made</p>	Electrical characteristics shall be Satisfied . Without distinct deformation in appearance

Note\* : RCWV : Rated continuous working voltage .

## 6. Marking

### 6.1 ±5% (E24)

Resistance value is expressed by 3 digits, the first two digits represent the significant figures of nominal resistance value in  $\Omega$  , and the third digit represents exponent for base of 10.

$$\text{E.G. } 472 = 47 \times 10^2 = 4700 \Omega = 4.7K \Omega$$

### 6.2 ±1% (E96 )

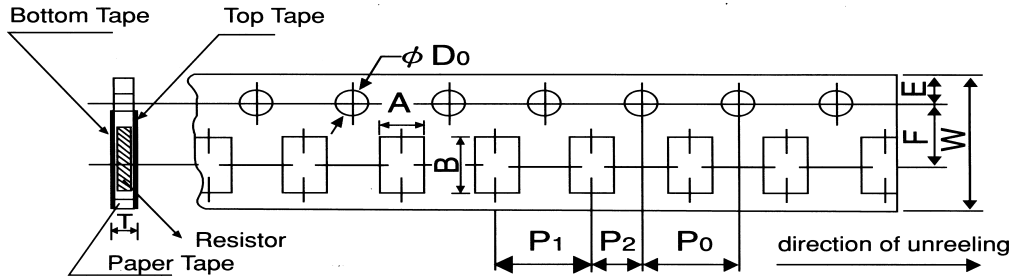
Resistance value is expressed by 3 digits, the first three digits represent the significant figures of nominal resistance value in  $\Omega$  , and the fourth digit represents exponent for base of 10.

$$\text{E.G. } 4701 = 470 \times 10^1 = 4700 \Omega = 4.7k \Omega$$

**7. Taping & Reel**

**7.1 Taping Dimensions**

**7.1.1 4 mm pitch paper**

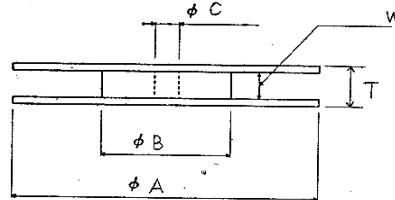
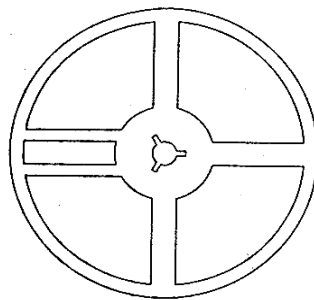


**UNIT: mm**

Type	A	B	W	F	E	P1	P2	P0	$\phi D_0$	T0
CN34	2.0±0.15	3.6±0.2	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	1.5 <sup>+0.1</sup> <sub>-0</sub>	0.84±0.1

Package Type	Paper Tape 4 mm pitch	
	178mm/R	250mm/R
CN34	5000	10000

**7.2 Reel Specifications**

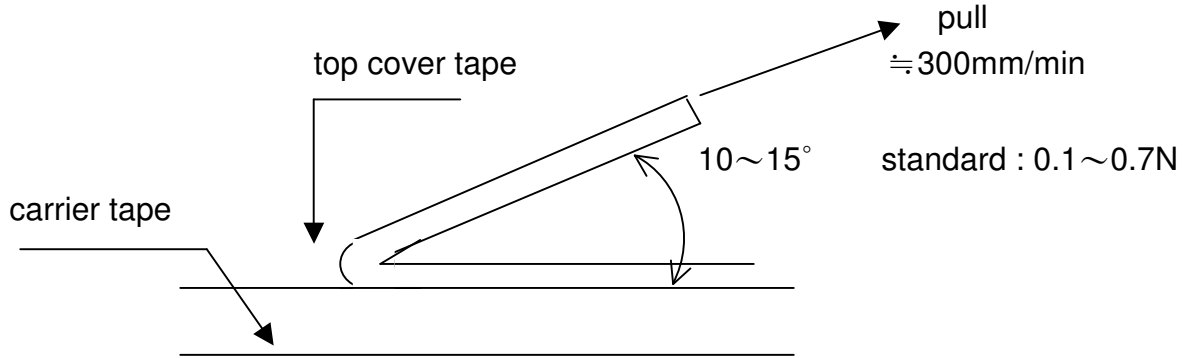


**UNIT: mm**

Type	$\phi A$	$\phi B$	$\phi C$	W	T
CN34	178.0 ± 2.0	60.0 ± 1.0	13.0 ± 1.0	9.0 ± 1.0	11.5 ± 1.0

**7.3 Peel off Strength:**

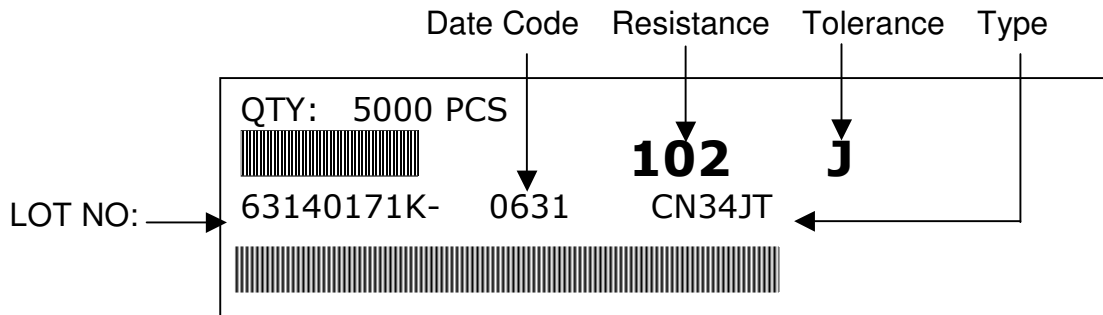
Peel-off force of paper and blister tape is in accordance with "JIS-C5202" that is , 0.1 to 0.7 N at a peel-off speed of 300 mm / minute.



**8. Label :**

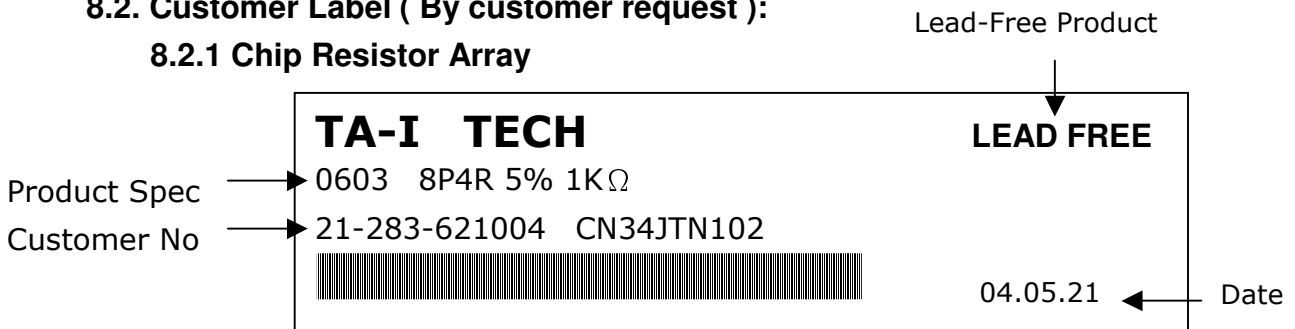
**8.1 Manufacture Label :**

**8.1.1 Chip Resistor Array**

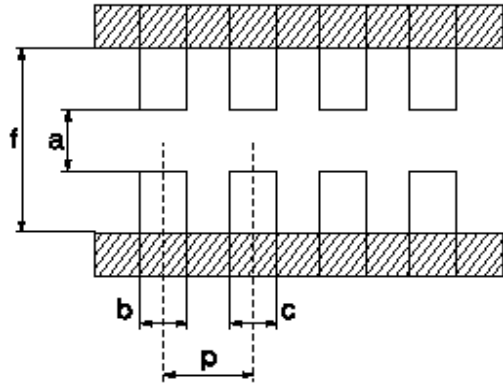


**8.2. Customer Label ( By customer request ):**

**8.2.1 Chip Resistor Array**

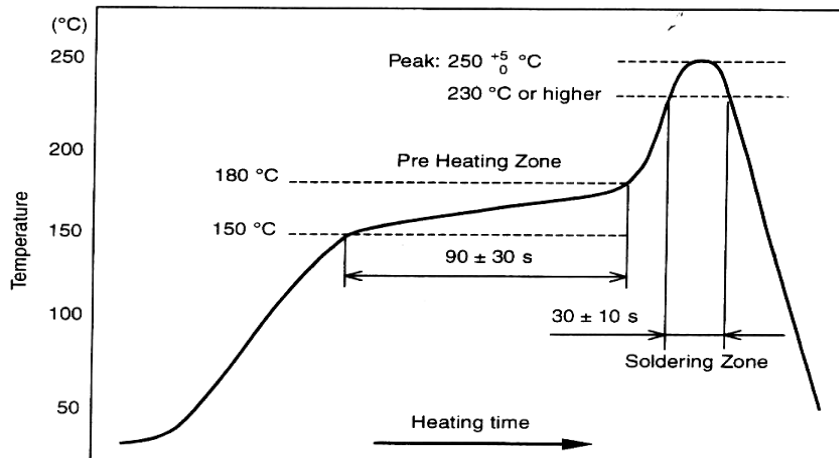


**9. Recommended land patterns**



Land pattern		Dimension ( mm )				
Type	Size	a	b	c	p	f
CN	34	0.7~0.9	0.4~0.5	0.4~0.5	0.8	2.2~2.6

**10. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)**



Peak : 250 <sup>+5</sup>/<sub>-0</sub> °C , 5 sec

Pre – heat Zone : 150 to 180 °C , 90 ± 30 sec

Soldering Zone : 230°C or higher , 30 ± 10 sec



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**11. Storage Conditions:**

Temperature : 5 to 35 °C

Related Humidity :40 to 75% RH

**12. Shelf Life :**

2 Years from manufacturing date.

**13. ECN :**

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.

**14. Manufacturing Country & City :**

TA-I TECHNOLOGY CO., LTD. ( Taiwan– Tao Yuan )

Tel: 886-3-3246169 Fax : 886-3-3246167

**Associated companies :**

(1) FORTUNE TASK RESISTOR FACTORY ( China – Dongguan )

Tel : 86-769-8339-4790~3 Fax : 86-769-8339-4794

(2) TA-I TECHNOLOGY (DONGGUAN ) CO., LTD. ( China –Dongguan )

Tel : 86-769-8339-4790~3 Fax : 86-769-8339-4794

(3) TA-I TECHNOLOGY ( SU ZHOU ) CO., LTD. ( China – Su Zhou)

Tel :86- 512-63457879 Fax : 86-512-63457869

(4) TAI OHM ELECTRONICS ( M ) SDN. BHD. ( Malaysia – Pulaupinang )

Tel :604- 3900480 Fax : 604-3901481

(5) P.T.TAI ELECTRONICS Indonesia ( Indonesia – Jakarta )

Tel :002-62-21-44820254 Fax : 002-62-21-44820256

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**Revise record**

Date	Content	Owner
Nov.25.2005	4. Ratings & Characteristics : Adding Rating Voltage 5. Reliability Tests: Adding to Whisker & Resistance to soldering heat Deleted to Robustness of Termination (Bending Strength) Adding to Core body 7.3 Storage Conditions: Deleted to Storage Conditions 8.2 Customer Label Adding to Customer Label 10. Recommend IR – Reflow profile Adding to Recommend IR – Reflow profile 11. Storage Conditions: Adding to Storage Conditions: 12. Shelf Life Adding to Shelf Life :	Hank Liu
Dec.12.2005	5. Reliability Tests: Intermittent Overload : 3X rate power changed 2.5X rated voltage Whisker : -35±5°C / 125±5°C , Keep 7 min changed -55°C (30 min.) / +155°C (30 min. )	Hank Liu
Jul.06.2006	2.1 Conductor : Adding to (Lead-free or with lead) 5. Reliability Tests: Temperature Coefficient of Resistance : Refer 5.0 changed Refer4.0 Resistance to Solder Heat : 1%:±(0.5%+0.05Ω) changed 0.5%, 1%:±(1.0%+0.05Ω) 5%:±(1.0%+0.05Ω) changed 2%, 5%:±(2.0%+0.1Ω) 8.1 Manufacture label : Series number 3 codes changed to 4 codes 14. Manufacturing Country & City: Adding TA-I TECHNOLOGY (DONGGUAN ) CO., LTD	Vincent