



**Thick Film Chip Resistors Arrays  
(Lead-Free for CN 0 ohm Series)  
Halogen-Free**

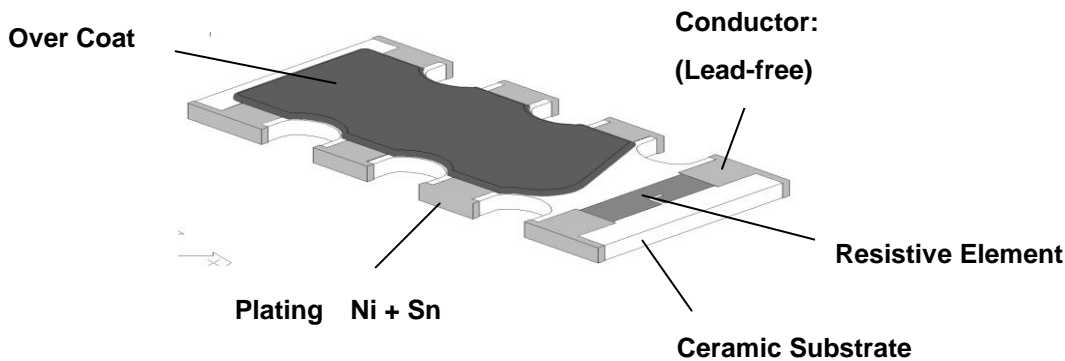
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**1. Scope :**

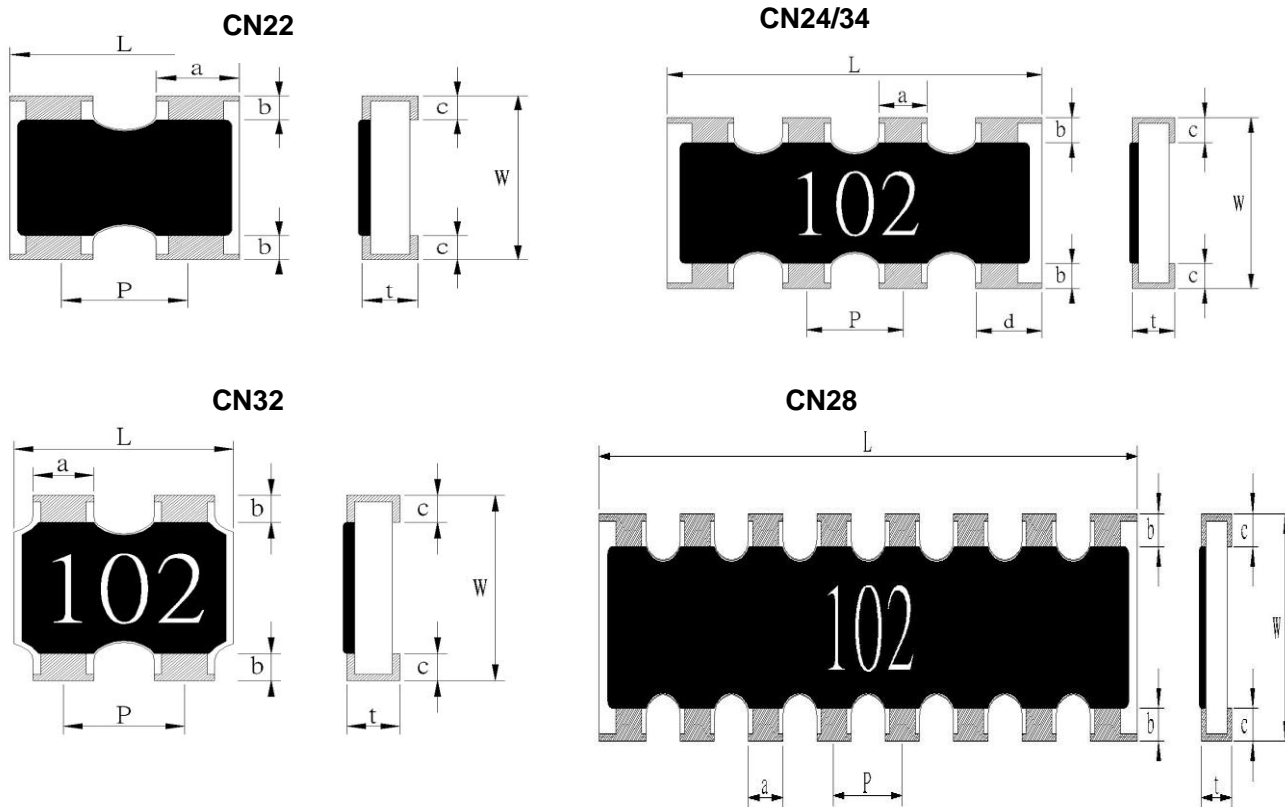
This specification applies for the CN 0 ohm series of thick film chip resistor arrays made by TA-I.

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

**2.1 Construction :**



**2.1.1 Chip Resistor Arrays :**





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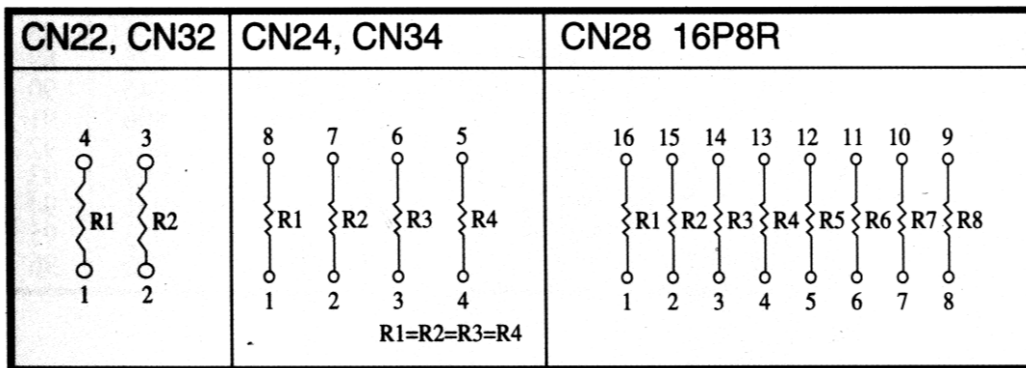
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**2.2 Dimension :**

UNIT: mm

Type	L	W	t	P	a	b	c	d
CN22	1.0 ± 0.1	1.0 ± 0.1	0.35 ± 0.1	0.65 ± 0.1	0.33 ± 0.1	0.15 ± 0.1	0.25 ± 0.1	0.33±0.1
CN24	2.0 ± 0.1	1.0 ± 0.1	0.4 ± 0.1	0.5 ± 0.05	0.3 ± 0.1	0.15 ± 0.1	0.25 ± 0.1	0.4±0.1
CN28	4.0 ± 0.2	1.6 ± 0.15	0.4 ± 0.1	0.5 ± 0.05	0.3 ± 0.1	0.25 ± 0.1	0.25 ± 0.1	0.4±0.1
CN32	1.6 ± 0.15	1.6 ± 0.15	0.45 ± 0.1	0.76 ± 0.1	0.45 ± 0.1	0.3 ± 0.2	0.3 ± 0.2	0.45±0.1
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	0.6±0.1

**2.3 Schematic :**

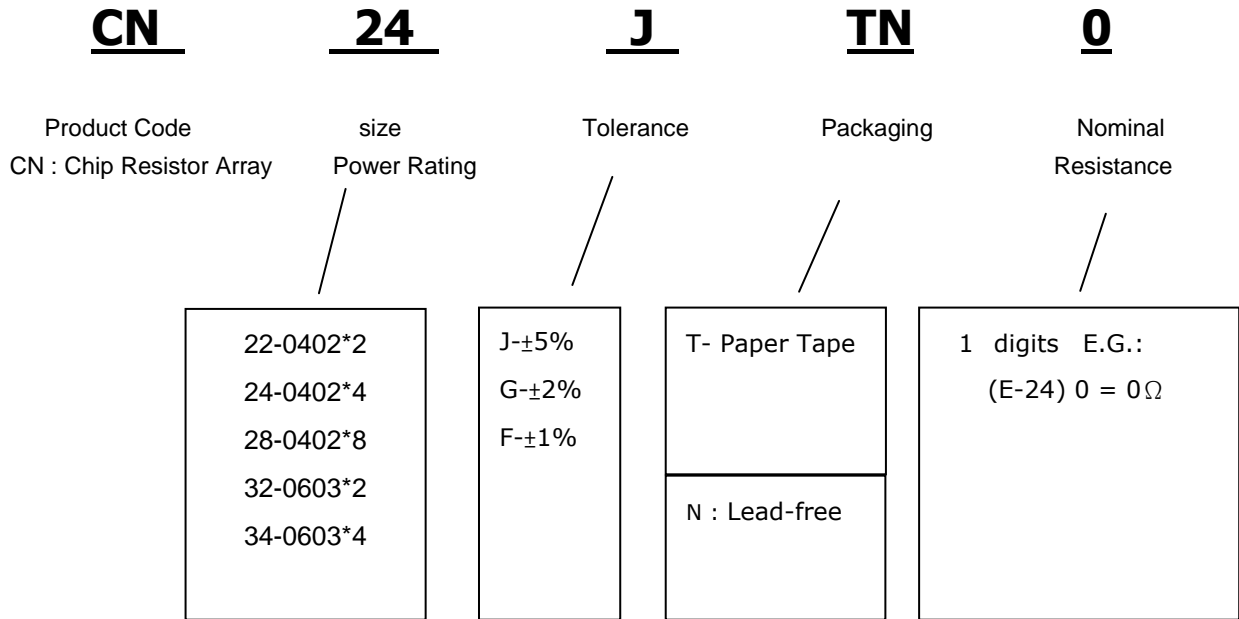




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**3. Type Designation :  
3.1 Chip Resistor Arrays**



**Note :**

TN : Lead-Free products packaged by paper tape

**4. Ratings & Characteristics :**

0Ω THICK FILE CHIP RESISTOR ARRAYS			
Type	Rate Current	Max Overload Current	Resistance Range
CN Series	1A	2.5A	50mΩ MAX



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**4.1 Derating Curve :**

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

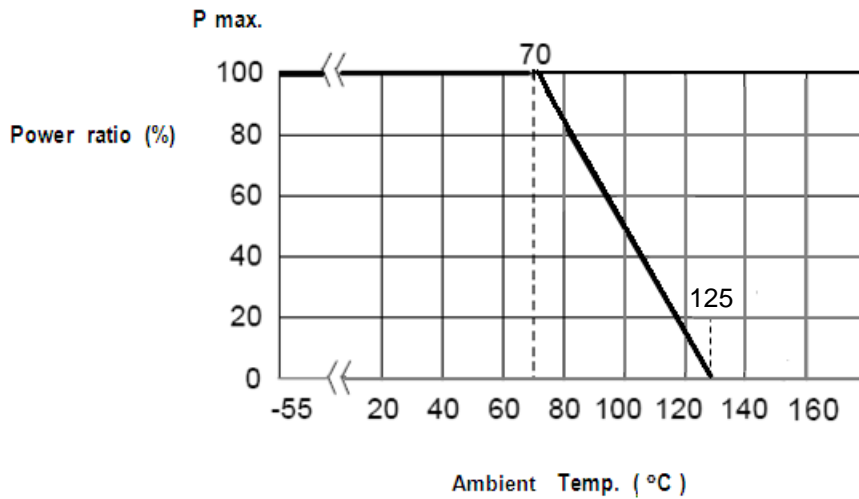


Figure 1

**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)



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**5. Reliability Tests:**

<b>Test Items</b>	<b>Reference standard</b>	<b>Condition of Test</b>	<b>Test Limits (<math>\Delta R</math>)</b>
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-1-4.8	-55~ +125 °C	Refer 4.0
Short Time Overload	IEC60115-1-4.13 JIS-C5201-1-4.13	2.5 X rated voltage for 5 sec	50 m $\Omega$ or less
Intermittent Overload	IEC60115-1-4.39 JIS-C5201-1-4.39	2.5X rated voltage or Max Overloading Voltage , 1 sec "ON" 25 sec "OFF" , 10000 cycles	50m $\Omega$ or less
Load Life	IEC60115-1-4.25.1 JIS-C5201-1-4.25.1	1000 hours at rated voltage , 70°C , 1.5hours "ON " , 0.5hour "OFF"	100 m $\Omega$ or less
Load Life with Humidity	IEC60115-1-4.24 JIS-C5201-1-4.24	1000 hours at rated voltage , 40 $\pm$ 2°C , 90~95% RH 1.5hours "ON " , 0.5hour "OFF"	100 m $\Omega$ or less
Rapid Change of Temperature	IEC60115-1-4.19 JIS-C5201-1-4.19	-55°C (30 min. ) / +155 °C (30 min. ) 5 cycles	50 m $\Omega$ or less
Solderability	IEC60115-1-4.17 JIS-C5201-1-4.17	245 $\pm$ 5°C solder, 2 $\pm$ 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	IEC60115-1-4.15 JIS-C5201-1-4.15	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)	IEC60115-1-4.7 JIS-C5201-1-4.7	Applying voltage 100V for 1 minute.	No abnormalities such as flashover, burning dielectric breakdown shall appear.
Resistance to Solder Heat	IEC60115-1-4.18 JIS-C5201-1-4.18	270 $\pm$ 5°C solder , 10 $\pm$ 1 sec dwell .	50m $\Omega$ or less

Note\* : RCWV : Rated continuous working voltage .



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**6. Marking**

**6.1 1 digit, e.g.,:(E-24)**  
0 = 0Ω.

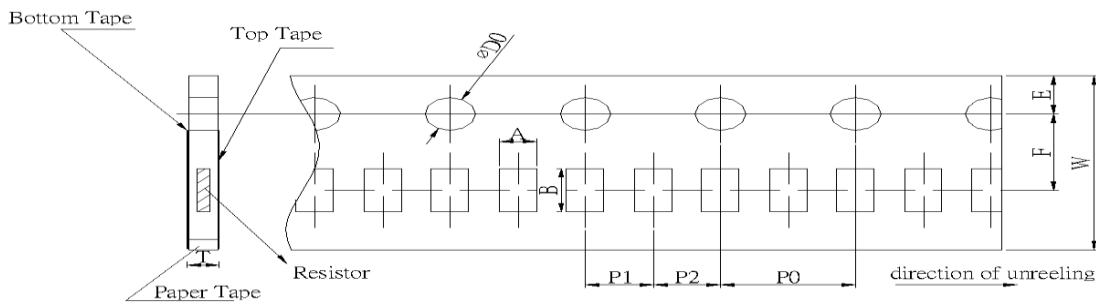
**6.2 No Marking for CN22**

**7. Taping & Reel**

**7.1 Taping Dimensions**

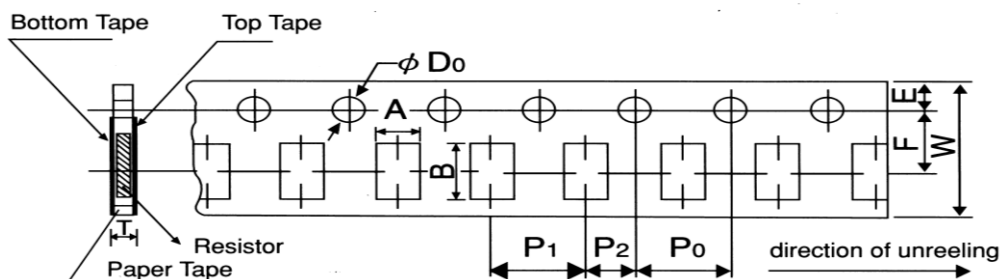
**7.1.1 2 mm pitch paper**

UNIT: mm



Type	A	B	W	F	E	P1	P2	P0	φ D0	T0
CN22	1.2±0.15	1.2±0.1	8.0±0.2	3.5±0.05	1.75±0.1	2.0±0.1	2.0±0.05	4.0±0.1	1.5	0.45±0.1
CN24		2.2±0.2								0.64±0.1

**7.1.2 4 mm pitch paper**



UNIT: mm

Type	A	B	W	F	E	P1	P2	P0	φ D0	T
CN28	1.9±0.2	4.3±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	0.84±0.1
CN32	1.8±0.2	1.8±0.2								
CN34	2.0±0.15	3.6±0.2								

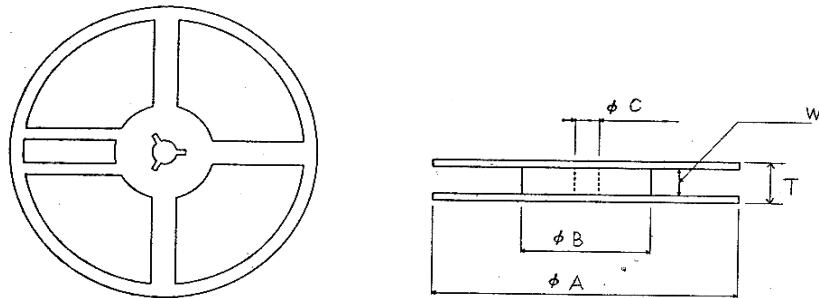


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Package Type	Paper Tape			
	4 mm pitch		2 mm pitch	
	178mm/R	250mm/R	178mm/R	250mm/R
CN22			10000	20000
CN24			10000	20000
CN28	5000			
CN32	5000			
CN34	5000	10000		

**7.2 Reel Specifications**

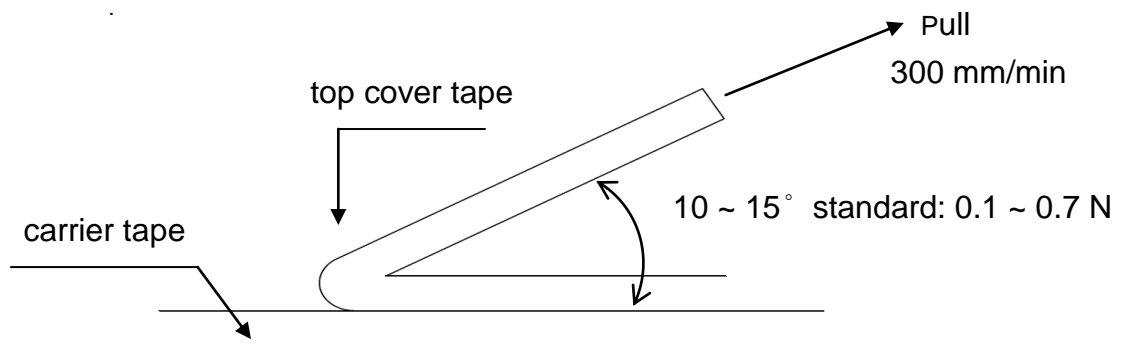


UNIT: mm

Type	$\phi A$	$\phi B$	$\phi C$	W	T
CN22/24/28 CN32/34	$178.0 \pm 2.0$	$60.0 \pm 1.0$	$13.0 \pm 1.0$	$9.0 \pm 1.0$	$11.5 \pm 1.0$

**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.





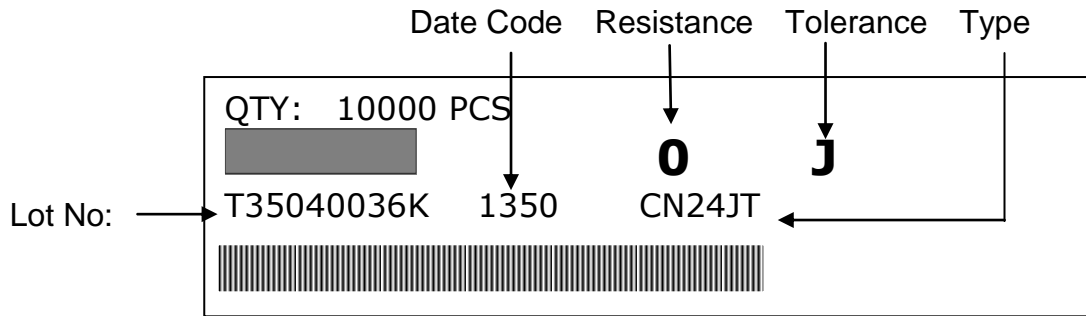
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**8. Label**

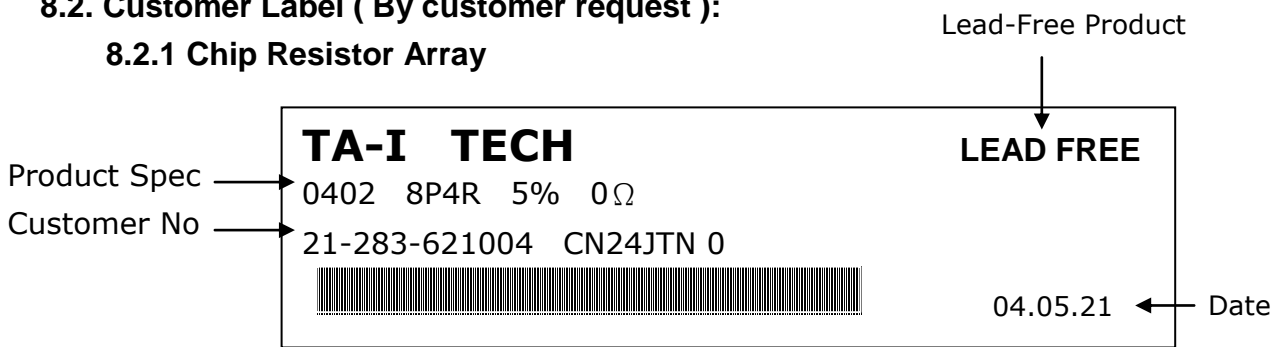
**8.1 Manufacture Label :**

**8.1.1 Chip Resistor Array**



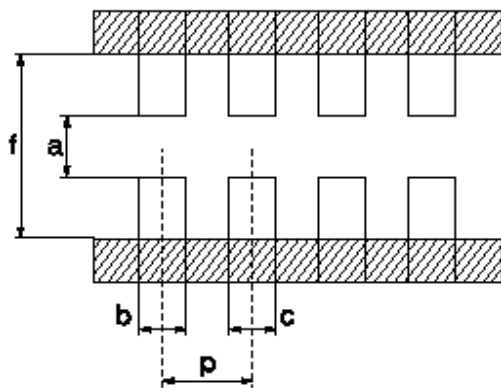
**8.2. Customer Label ( By customer request ):**

**8.2.1 Chip Resistor Array**



**9. Recommended land patterns :**

**9.1 CN22,CN32,CN34**



Type	Size	Land pattern	Dimension ( mm )				
			a	b	c	p	f
CN	22		0.5	0.35~0.4	0.35~0.4	0.65	1.4~1.5
CN	32		0.7~0.9	0.4~0.5	0.4~0.5	0.8	2.2~2.6
CN	34		0.7~0.9	0.4~0.5	0.4~0.5	0.8	2.2~2.6

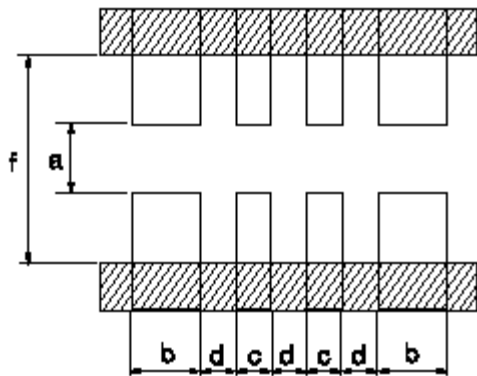




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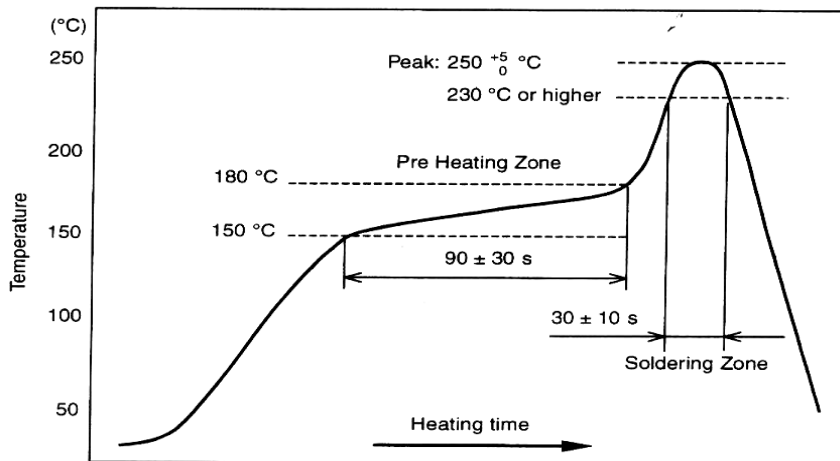
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**9.2 CN24 , CN28**



Type	Size	Land pattern	Dimension ( mm )				
			a	b	c	d	f
CN	24		0.4	0.525	0.25	0.25	1.4
CN	28		1.0	0.425	0.25	0.25	2.0

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



Peak :  $250 \begin{matrix} +5 \\ -0 \end{matrix} ^\circ\text{C}$  , 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 :62-21-89830123 Fax : 62-21-89830703