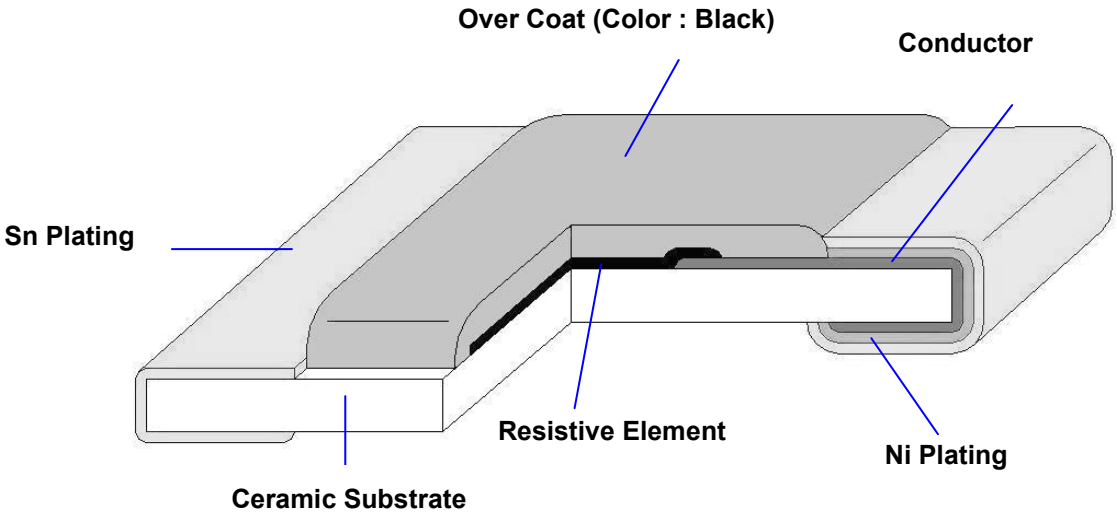
1. Scope :

This specification applies for the RMD series of alloy film chip resistors made by TA-I.

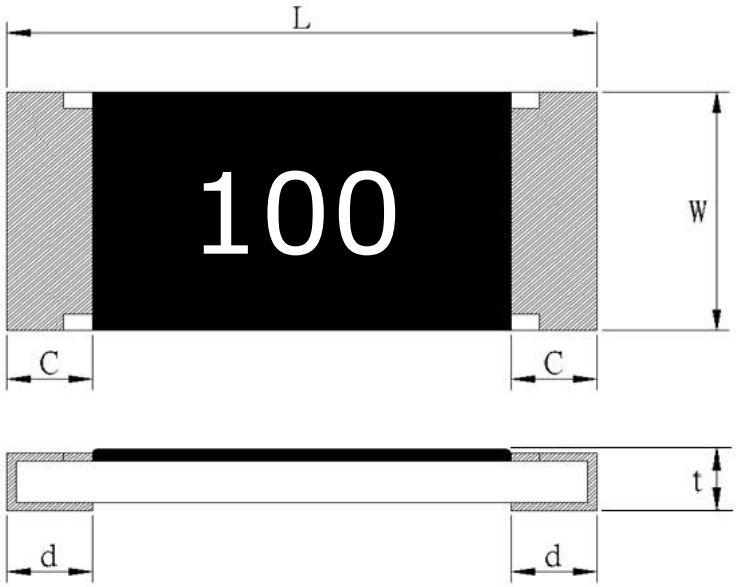
2. Construction:



3. Type Designation:

RMD	10	J	T	100
Product Code RMD : Chip Resistor	Size Power Rating	Tolerance	Packaging	Nominal Resistance
06-0603(1608) 1/10W 10-0805(2012) 1/8W 12-1206(3216) 1/4W		J-±5% G-±2% F-±1% D-±0.5%	T-Paper Tape E-Embossed Tape B-Bulk Cassette Special L : 06 – 2mm pitch paper Tape	3 digits, e.g.,: (E-24) 100 = 10Ω 0 = 0Ω 4 digits, e.g., : (E-96) 10R0 = 10Ω

4. Dimensions :



UNIT: mm

Type	L	W	C	d	t
RMD06	1.60±0.10	0.80±0.10	0.30±0.20	$0.30^{+0.2}_{-0.1}$	0.45±0.10
RMD10	2.00±0.10	1.25±0.10	0.40±0.20	0.40±0.20	0.50±0.10
RMD12	3.10±0.10	1.55±0.10	0.50±0.30	0.40±0.20	0.55±0.10

5. Ratings & Characteristics :

Type	Power Rating at 70℃	Rating Voltage	Max. Working Voltage	Max. Over-Load Voltage	T.C.R (PPM/℃)	Resistance Range(Ω)			
						D(±0.5%) E-96&E-24	F(±1%) E-96&E-24	G(±2%) E-24	J(±5%) E-24
RMD06	1/10W	Refer 5.2	50V	100V	±100	1~10Ω	1~10Ω	1~10Ω	1~10Ω
RMD10	1/8W	Refer 5.2	150V	300V	±100	1~10Ω	1~10Ω	1~10Ω	1~10Ω
RMD12	1/4W	Refer 5.2	200V	400V	±100	1~10Ω	1~10Ω	1~10Ω	1~10Ω
Operating Temp(℃): : -55℃ ～ +155℃									

Note : Except for the above standardized products, we also provide the customized products.

5.1 Derating Curve :

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

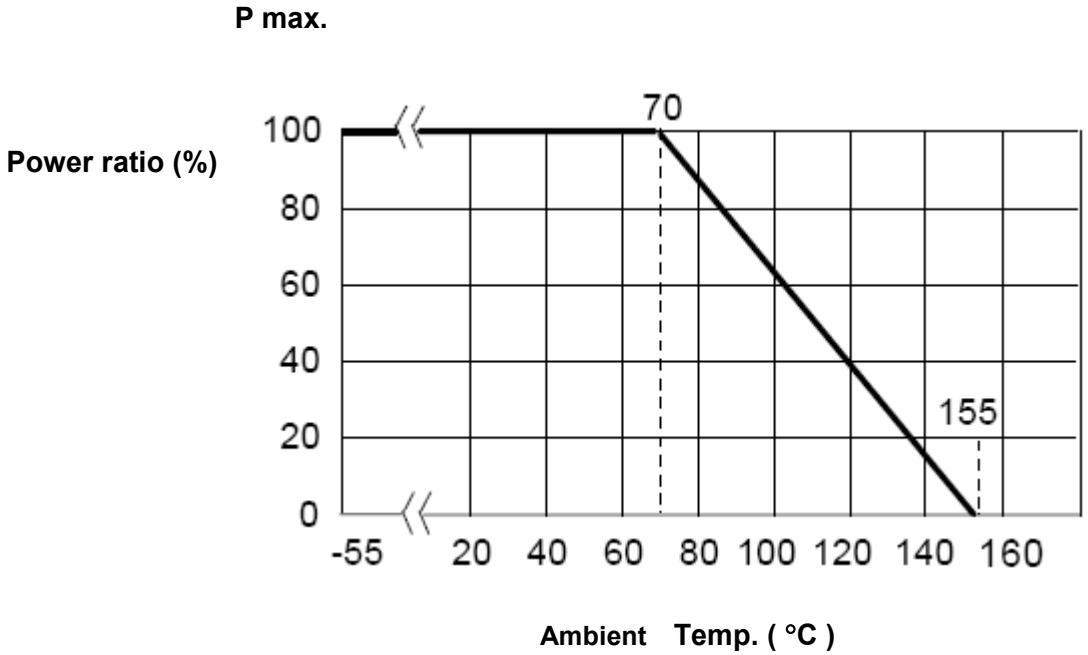


Figure 1

5.2 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 RMD06JT100 the rated voltage ?
RMD06JT100 P:1/10W ; R:100 = 10Ω = 10Ω

$$E = \sqrt{0.1(W) * 10(\Omega)} = 0.32\ (V)$$

6. Reliability Tests:

Test Items	Reference standard	Condition of Test	Test Limits △R
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-1-4.8	-55～ +125 ℃	Refer 5.0
Short Time Overload	IEC60115-1-4.13 JIS-C5201-1-4.13	2.5 X rated voltage for 5 sec	±(1% + 0.05Ω)
Intermittent Overload	EC60115-1-4.39 JIS-C5201-1-4.39	3.0 X rated voltage or Max Overloading voltage ,1sec “ON” , 25sec “OFF” , 10000 cycles)	± (5.0% + 0.1Ω)
Endurance (Load Life)	IEC60115-1-4.25.1 JIS-C5201-1-4.25.1	1000 hours at rated voltage, 70℃ , 1.5hours “ON “, 0.5hour “OFF”	0.5%,1%:±(1.0%+0.05Ω) 2%,5%:±(3.0%+0.1Ω)
Load Life with Humidity	IEC60115-1-4.24 JIS-C5201-1-4.24	1000 hours at rated voltage , 40±2℃, 90~95% RH 1.5hours “ON “, 0.5hour “OFF”	0.5%,1%:±(1.0%+0.05Ω) 2%, 5%:±(3.0%+0.1Ω)
Rapid Change of Temperature	IEC60115-1-4.19 JIS-C5201-1-4.19	-55℃ (30 min.) / +155 ℃(30 min.) 5 cycles	0.5%,1%:±(0.5%+0.05Ω) 2%, 5%:±(1.0%+0.05Ω)
Solderability	IEC60115-1-4.17 JIS-C5201-1-4.17	245±5℃ 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.
Robustness of Termination (Bending)	IEC60115-1-4.33 JIS-C5201-1-4.33	3mm deflection	0.5%,1%:±(0.5%+0.05Ω) 2%,5%:±(1.0%+0.05Ω)
Dielectric Withstanding Voltage (Voltage Proof)	IEC60115-1-4.7 JIS-C5201-1-4.7	Applying voltage : 0603 : 300V The other 500V for a minute .	No abnormalities such as flashover, burning dielectric breakdown shall appear.
Insulation Resistance	IEC60115-1-4.6 JIS-C5201-1-4.6	Applying voltage 100V for 1 minute.	≧1GΩ
Resistance to Dry Heat	IEC60115-1-4.23.2 JIS-C5201-1-4.23.2	155±5℃ for 96±4Hrs	0.5%,1%:±(1.0%+0.05Ω) 2%,5%:±(2.0%+0.1Ω)
Resistance to Solder Heat	IEC60115-1-4.18 JIS-C5201-1-4.18	270 ±5℃ solder , 10 ±1 sec dwell .	0.5%,1%:±(0.5%+0.05Ω) 2%, 5%:±(1.0%+0.05Ω)

Note* : RCWV : Rated continuous working voltage .

7. Marking

7.1 ±2% & ±5%(E24) : RMD06 / RMD10 / RMD12

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

E.G. :, 100 = 10×10^0 = 10Ω



7.2 ±0.5% , ±1% (E96) : RMD10 / RMD12

Resistance value is expressed by 4 digits , the first three digits represent the significant figures of nominal resistance value in Ω, and the fourth digit represents exponent for base of 10.

E.G. : 10R0 = 10Ω



7.3 ±0.5% , ±1% (E96): RMD06

When the marking space is too small in such small-sized resistors as RM06, the marking can not made by 4 digits and may be made by two digits combined with one English capital.

Symbol for E96 series nominal resistance value

Symbol	E96	Symbol	E96	Symbol	E96	Symbol	E96
01	100	25	178	49	316	73	562
02	102	26	182	50	324	74	576
03	105	27	187	51	332	75	590
04	107	28	191	52	340	76	604
05	110	29	196	53	348	77	619
06	113	30	200	54	357	78	634
07	115	31	205	55	365	79	649
08	118	32	210	56	374	80	665
09	121	33	215	57	383	81	681
10	124	34	221	58	392	82	698
11	127	35	226	59	402	83	715
12	130	36	232	60	412	84	732
13	133	37	237	61	422	85	750
14	137	38	243	62	432	86	768
15	140	39	249	63	442	87	787
16	143	40	255	64	453	88	806

17	147	41	261	65	464	89	825
18	150	42	267	66	475	90	845
19	154	43	274	67	487	91	866
20	158	44	280	68	499	92	887
21	162	45	287	69	511	93	909
22	165	46	294	70	523	94	931
23	169	47	301	71	536	95	953
24	174	48	309	72	549	96	976

Symbol for multipliers

Symbol	A	B	C	D	E	F	G	H	X	Y	Z
multipliers	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

E.G : 01X = $100 \times 10^{-1} = 10\Omega$



Notes :

When the resistance value is not in the list of E96 , 3 digitals with underline in E-24 series is used as mark .

E.G. : 0603 , 9.1Ω , 1% Marking is 9・1



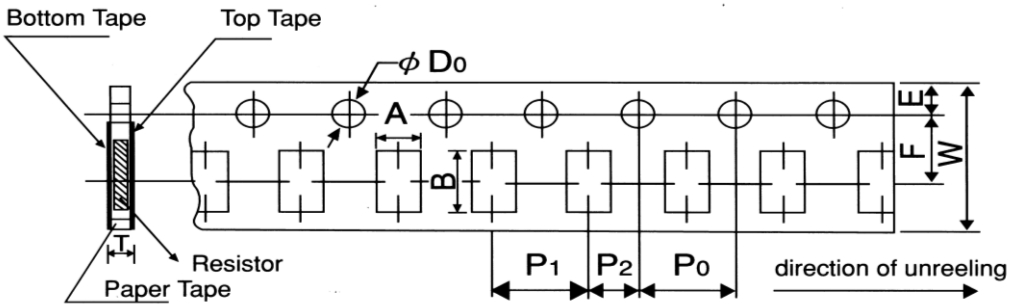
7.4 ±0.5% , ±1%(E96/3digitals)

The resistance value by 3 digits is requirement for customer.

8. Taping & Reel :

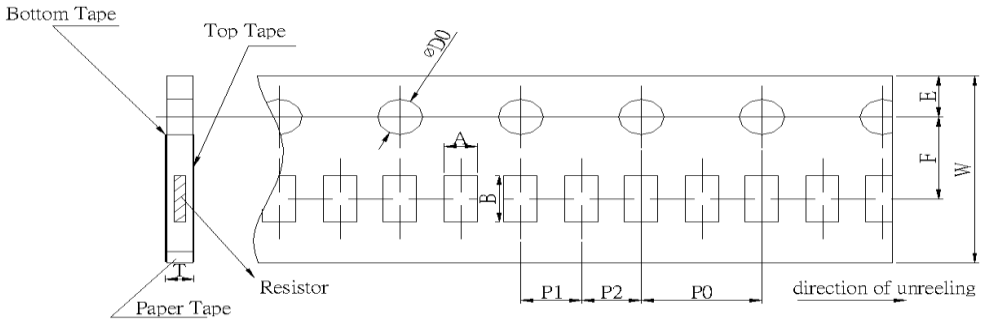
8.1 Taping Dimensions

8.1.1 4 mm pitch paper:



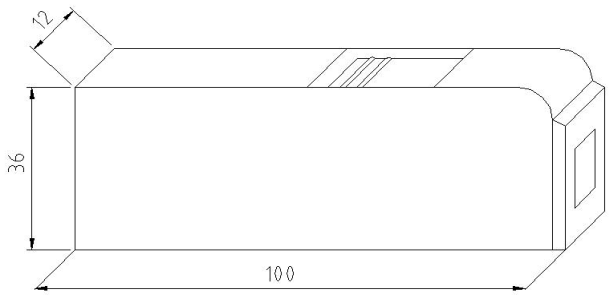
Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	T
Paper	RMD06	1.1±0.1	1.9±0.1	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	φ 1.5 +0.1 -0	0.64±0.1
	RMD10	1.6±0.15	2.4±0.2								0.84±0.1
	RMD12	2.0±0.15	3.6±0.2								

8.1.2 2 mm pitch paper :



Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	T
Paper	RMD06	1.1±0.1	1.9±0.1	8.0±0.2	3.5±0.05	1.75±0.1	2.0±0.1	2.0±0.1	4.0±0.1	φ 1.5 +0.1 -0	0.64±0.1

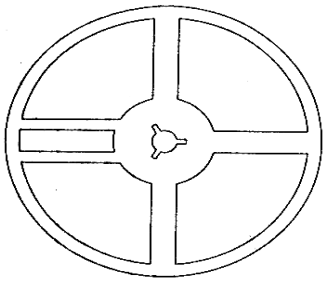
8.1.3. Bulk Case Specifications:

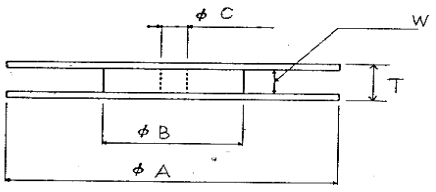


UNIT: mm

Package / Type	Size	Paper Tape				Emboss Plastic Tape 4 mm pitch	Bulk
		4 mm pitch		2 mm pitch			
		178mm/R	250mm/R	178mm/R	250mm/R		
RMD	06	5000	10000	10000	20000		20000
RMD	10	5000	10000				10000
RMD	12	5000	10000				5000

8.2 Reel Specifications:



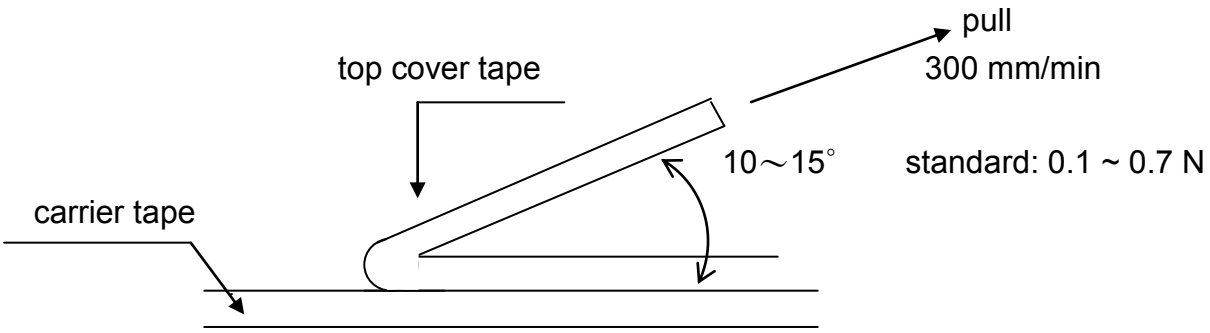


UNIT: mm

Type	ϕA	ϕB	ϕC	W	T
RMD 06/10/12	178.0 ± 2.0	60.0 ± 1.0	13.0 ± 1.0	9.0 ± 1.0	11.5 ± 1.0

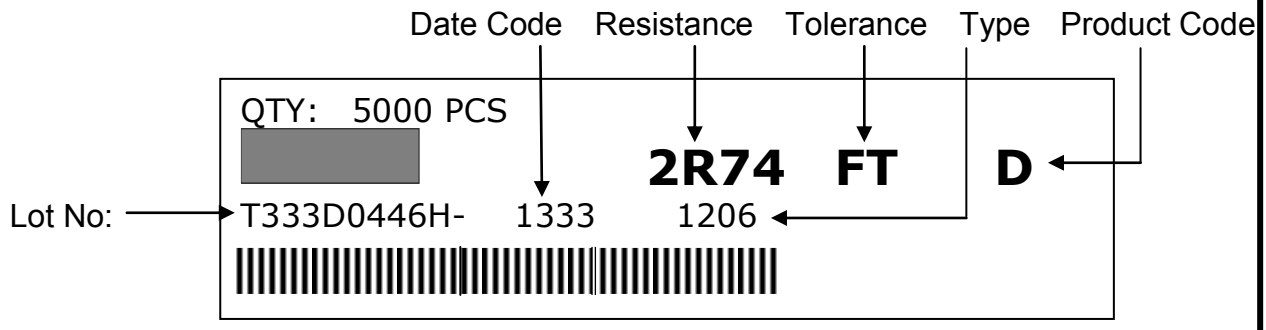
8.3. Peel –off force :

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.

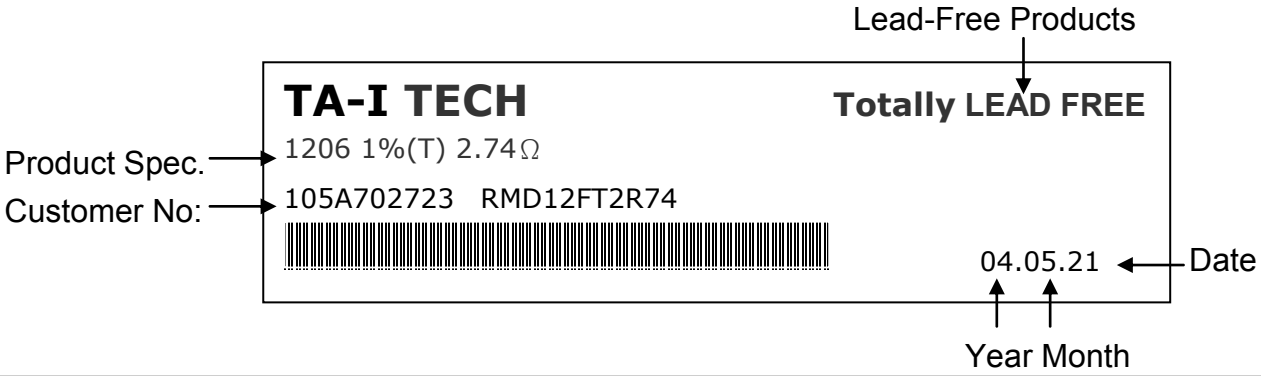


9. Label :

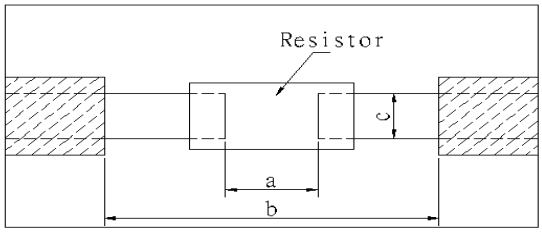
9.1 Manufacture Label :



9.2 Customer Label (By customer request):

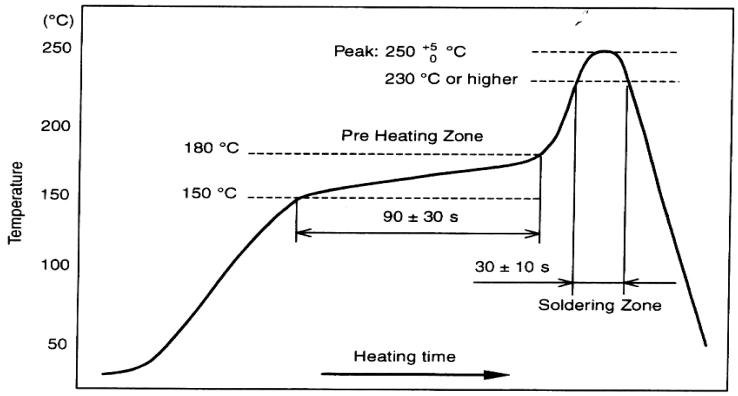


10. Recommended land patterns :



Type \ Land pattern Size		Dimension (mm) a	b	c
RMD	06 (0603)	0.7~0.9	2.0~2.2	0.8~1.0
RMD	10 (0805)	1.0~1.4	3.2~3.8	0.9~1.4
RMD	12 (1206)	2.0~2.4	4.4~5.0	1.2~1.8

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



Peak : 250 $^{+5}_{-0}$ ℃ , 5 sec

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

Soldering Zone : 230℃ or higher , 30±10 sec

12. Storage Conditions:

Temperature: 5℃~35℃,Humidity:40%~75%

13. Shelf Life:

2 years from manufacturing date.

14. 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.

15. Manufacturing Country & City :

TA-I TECHNOLOGY CO., LTD. (Taiwan– Tao Yuan)
Tel: 886-3-3246169 Fax : 886-3-3246167

TA-I TECHNOLOGY (SU ZHOU) CO., LTD. (China – Su Zhou)
Tel :86- 512-63457879 Fax : 86-512-63457869

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) TAI OHM ELECTRONICS (M) SDN. BHD. (Malaysia – Pulaupinang)
Tel :604- 3900480 Fax : 604-3901481

(4) P.T.TAI ELECTRONICS Indonesia (Indonesia – Jakarta)
Tel :62-21-89830123 Fax : 62-21-89830703