



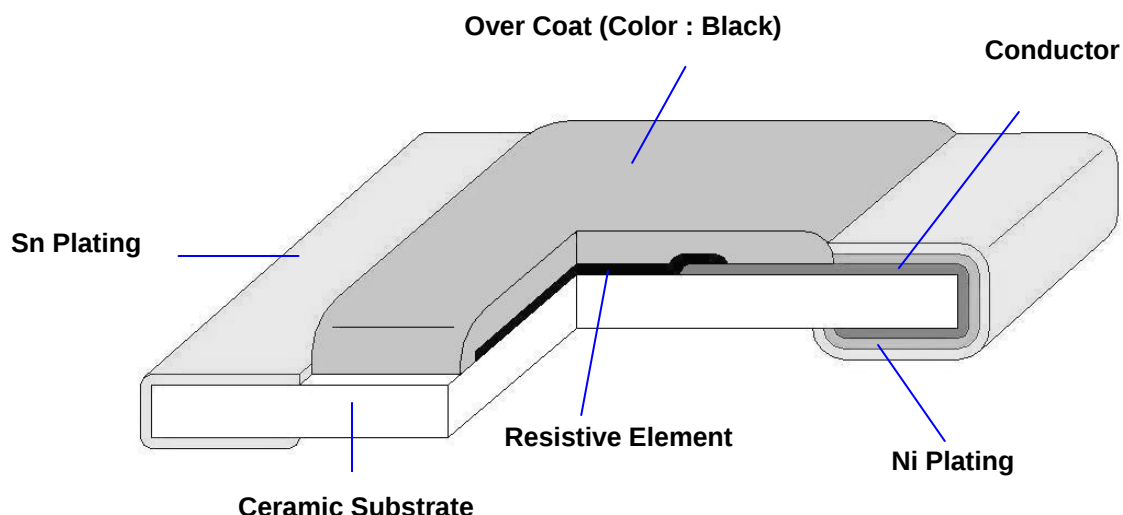
**Anti-Sulfurated Thick Film Chip Resistors  
( RMS series standard )  
Halogen-Free  
AEC-Q200 qualified**

|              |               |
|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 1/13          |

## 1. Scope :

This specification applies for the RMS series of Anti-Sulfurated thick film chip resistors made by TA-I.

## 2. Construction :



## 3. Type Designation :

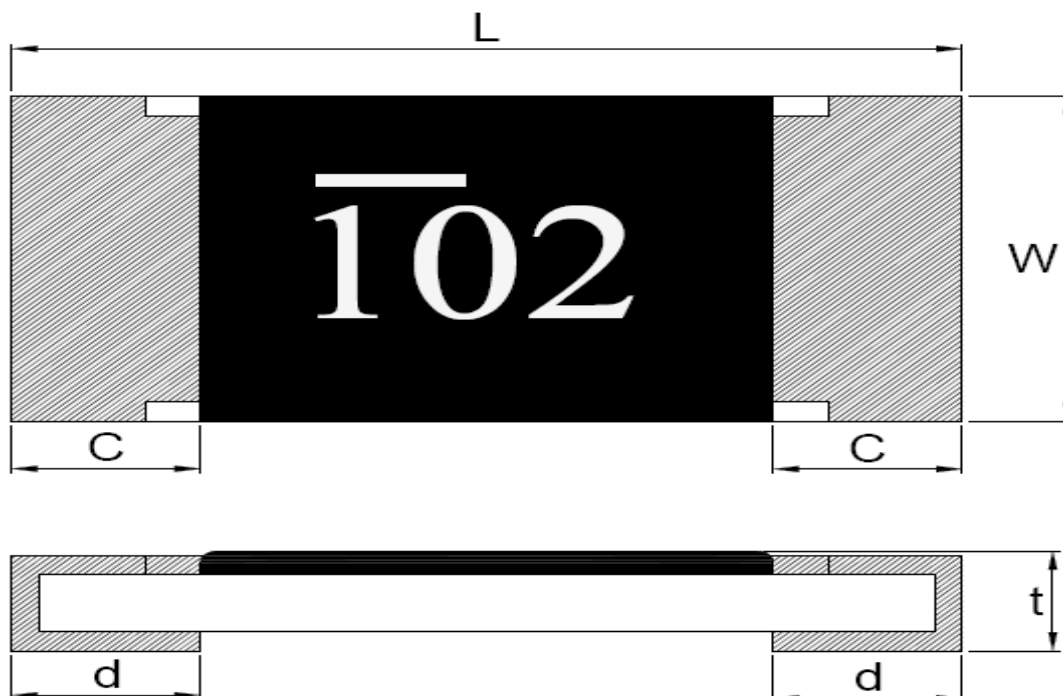
| <u><b>RMS</b></u>                      | <u><b>10</b></u> | <u><b>J</b></u> | <u><b>I</b></u>    | <u><b>103</b></u>  |
|----------------------------------------|------------------|-----------------|--------------------|--------------------|
| Product Code                           | Size             | Tolerance       | Packaging          | Nominal            |
| RMS : Anti-Sulfurated<br>Chip Resistor | Power Rating     |                 |                    | Resistance         |
| 02-0201(0603)                          | 1/20W            | J-±5%           | T-Paper Tape       | 3 digits, e.g.,:   |
| 04-0402(1005)                          | 1/16W            | G-±2%           | E-Embossed Tape    | (E-24) 103 = 10kΩ  |
| 06-0603(1608)                          | 1/10W            | F-±1%           |                    | 0 = 0Ω             |
| 10-0805(2012)                          | 1/8W             | D-0.5%          |                    | 4 digits, e.g., :  |
| 12-1206(3216)                          | 1/4W             |                 | Special            | (E-96) 1540 = 154Ω |
| 13-1210(3226)                          | 1/3W             |                 | L : 06 – 2mm pitch | 43R2 = 43.2Ω       |
| 20-2010(5025)                          | 1/2W             |                 | paper Tape         |                    |
| 25-2512(6432)                          | 1 W              |                 |                    |                    |



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|              |               |
|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 2/13          |

#### 4. Dimensions :



UNIT: mm

| Type  | L                     | W         | C         | d                    | t          |
|-------|-----------------------|-----------|-----------|----------------------|------------|
| RMS02 | 0.6 ±0.03             | 0.3 ±0.03 | 0.1 ±0.05 | 0.15 ±0.05           | 0.23 ±0.03 |
| RMS04 | $1.00^{+0.1}_{-0.05}$ | 0.50±0.05 | 0.20±0.10 | 0.25±0.10            | 0.32±0.05  |
| RMS06 | 1.60±0.10             | 0.80±0.10 | 0.30±0.20 | $0.30^{+0.2}_{-0.1}$ | 0.45±0.10  |
| RMS10 | 2.00±0.10             | 1.25±0.10 | 0.40±0.20 | 0.40±0.20            | 0.50±0.10  |
| RMS12 | 3.10±0.10             | 1.55±0.10 | 0.50±0.30 | 0.40±0.20            | 0.55±0.10  |
| RMS13 | 3.10±0.10             | 2.55±0.10 | 0.50±0.30 | 0.40±0.20            | 0.60±0.10  |
| RMS20 | 5.00±0.15             | 2.50±0.15 | 0.60±0.30 | 0.50±0.25            | 0.60±0.10  |
| RMS25 | 6.30±0.20             | 3.20±0.20 | 0.60±0.30 | 0.50±0.25            | 0.60±0.10  |

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| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 3/13          |

## 5. Ratings & Characteristics :

| Type  | Power Rating at 70°C | Rating Voltage | Max. Working Voltage | Max. Over- Load Voltage | T.C.R (PPM/°C) | Resistance Range(Ω)   |                          |                |                        |
|-------|----------------------|----------------|----------------------|-------------------------|----------------|-----------------------|--------------------------|----------------|------------------------|
|       |                      |                |                      |                         |                | D(±0.5%)<br>E-96&E-24 | F(±1%)<br>E-96&E-24      | G(±2%)<br>E-24 | J(±5%)<br>E-24         |
| RMS02 | 1/20W                | Refer 5.2      | 25V                  | 50V                     | ±200           | 100Ω~10KΩ             | 10Ω~3MΩ                  | 10Ω~3MΩ        | 10Ω~10MΩ               |
|       |                      |                |                      |                         | +600<br>-200   |                       | 1-9.1Ω                   | 1-9.1Ω         | 1-9.1Ω                 |
| RMS04 | 1/16W                | Refer 5.2      | 50V                  | 100V                    | ±100           | 100Ω~1MΩ              | 100Ω~1MΩ                 |                |                        |
|       |                      |                |                      |                         | ±200           | 10Ω≤R<100Ω            | 10Ω≤R<100Ω<br>1MΩ<R≤10MΩ | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | +500<br>-200   |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω                |
|       |                      |                |                      |                         | ±400           |                       |                          |                | 10MΩ≤R≤20MΩ            |
| RMS06 | 1/10W                | Refer 5.2      | 50V                  | 100V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |
| RMS10 | 1/8W                 | Refer 5.2      | 150V                 | 300V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |
| RMS12 | 1/4W                 | Refer 5.2      | 200V                 | 400V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |
| RMS13 | 1/3W                 | Refer 5.2      | 200V                 | 400V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |
| RMS20 | 1/2W                 | Refer 5.2      | 200V                 | 400V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |
| RMS25 | 1W                   | Refer 5.2      | 200V                 | 400V                    | ±100           | 10Ω~1MΩ               | 10Ω~1MΩ                  |                |                        |
|       |                      |                |                      |                         | ±200           |                       | 1MΩ<R≤10MΩ               | 10Ω~10MΩ       | 10Ω~10MΩ               |
|       |                      |                |                      |                         | ±400           |                       | 1Ω~9.1Ω                  | 1Ω~9.1Ω        | 1Ω~9.1Ω<br>10MΩ<R≤20MΩ |

### Ω THICK FILM CHIP RESISTORS

| Type  | Rated Current | Max Overload Current | Resistance Range |
|-------|---------------|----------------------|------------------|
| RMS02 | 0.5A          | 1A                   | 50mΩ MAX         |
| RMS04 | 1A            | 2.5A                 | 50mΩ MAX         |
| RMS06 | 1A            | 2.5A                 | 50mΩ MAX         |
| RMS10 | 2A            | 5A                   | 50mΩ MAX         |
| RMS12 | 2A            | 5A                   | 50mΩ MAX         |
| RMS13 | 2A            | 5A                   | 50mΩ MAX         |
| RMS20 | 2A            | 5A                   | 50mΩ MAX         |
| RMS25 | 2A            | 5A                   | 50mΩ MAX         |

Operating Temp(°C): -55°C ~ +155°C ( RMS02 : -55°C ~ +125°C )

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

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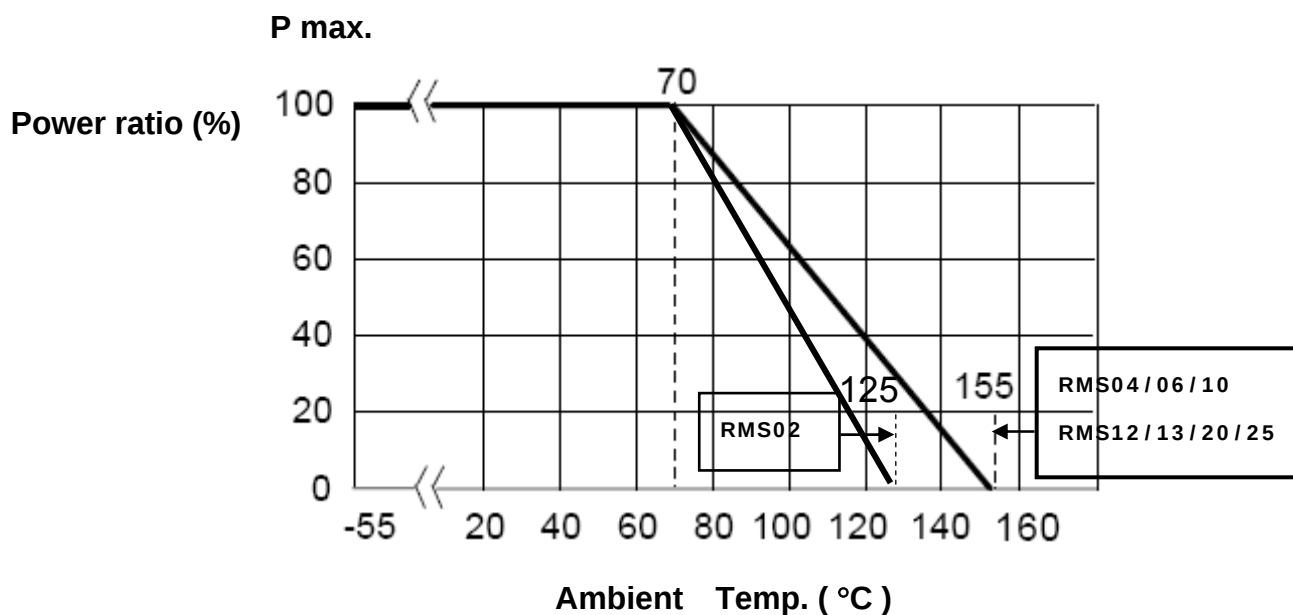


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| Revise Date  | 2019/03/11    |
| page number  | 4/13          |

### 5.1 Derating Curve :

For resistors operated at ambient temperature over 70°C , power rating shall be derated in accordance with 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( $\Omega$ )

E.G. : What is RMS06JT102 the rated voltage ?

RMS06JT102 P:1/10W ; R:102 = 1K $\Omega$  = 1000 $\Omega$

$$E = \sqrt{0.1(W) * 1000(\Omega)} = 10 (V)$$



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| Revise Date  | 2019/03/11    |
| page number  | 5/13          |

## 6. Reliability Tests:

| Test Items                            | Reference standard                               | Condition of Test                                                                                                                                                             | Test Limits $\Delta R$                                                                                                                        |
|---------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Coefficient of Resistance | IEC 60115-1 4.8                                  | -At +25/-55 °C and +25/+125 °C                                                                                                                                                | Refer 5.0                                                                                                                                     |
| Short Time Overload                   | IEC60115-1 4.13                                  | 2.5 X rated voltage for 5 sec                                                                                                                                                 | $\pm(1\% + 0.05\Omega)$<br>Remarks :<br>0201 : $\pm(3\% + 0.1\Omega)$<br>0402 : $\pm(2\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less   |
| High Temperature Exposure (Storage)   | AEC-Q200-REV D-Test 3<br>MIL-STD-202 Method 108  | 1000 hrs. @ T=125°C. Unpowered.<br>Measurement at 24±2 hours after test conclusion.                                                                                           | 0.5%, 1%: $\pm(1.0\% + 0.05\Omega)$<br>2%, 5%: $\pm(2.0\% + 0.1\Omega)$<br>0201 : $\pm(3\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less |
| Temperature Cycling                   | AEC-Q200-REV D-Test 4<br>JESD22 Method JA-104    | 1000 Cycles (-55°C to +125°C)<br>Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.       | $\pm(1\% + 0.1\Omega)$<br>0201 : $\pm(2\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less                                                  |
| Moisture Resistance                   | AEC-Q200-REV D-Test 6<br>MIL-STD-202 Method 106  | T=24 hours / Cycle , 10 Cycles . Notes : Steps 7a & 7b not required. Unpowered .                                                                                              | 0.5%, 1%: $\pm(1.0\% + 0.05\Omega)$<br>2%, 5%: $\pm(2.0\% + 0.1\Omega)$<br>0201 : $\pm(3\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less |
| Biased Humidity                       | AEC-Q200-REV D-Test 7<br>MIL-STD-202 Method 103  | 1000 hours 85°C/85%RH. Note: Specified conditions: 10% of operating power(not exceeding max working voltage).<br>Measurement at 24±2 hours after test conclusion.             | $\pm(3\% + 0.1\Omega)$<br>0201 : $\pm(5\% + 0.1\Omega)$<br>0 $\Omega$ : 100m $\Omega$ or less                                                 |
| Operational Life                      | AEC-Q200-REV D-Test 8<br>MIL-STD-202 Method 108  | 1000 hours TA=125°C at 35% rated power.<br>Measurement at 24±4 hours after test conclusion.                                                                                   | 0.5%, 1%: $\pm(1\% + 0.1\Omega)$<br>2%, 5%: $\pm(3\% + 0.1\Omega)$<br>0201 : $\pm(5\% + 0.1\Omega)$<br>0 $\Omega$ : 100m $\Omega$ or less     |
| External Visual                       | AEC-Q200-REV D-Test 9<br>MIL-STD-883 Method 2009 | Electrical test not required.<br>Inspect device construction, marking and workmanship.                                                                                        |                                                                                                                                               |
| Physical Dimension                    | AEC-Q200-REV D-Test 10<br>JESD22 Method JB-100   | Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical test not required.                                     |                                                                                                                                               |
| Resistance to Solvents                | AEC-Q200-REV D-Test 12<br>MIL-STD-202 Method 215 | a:Isopropyl Alcohol : Mineral Spirits= 1 : 3<br>b:Terpene Defluxer (Bioact EC-7R)<br>c:Deionized water : Propylene Glycol<br>Monomethyl Ether : monoethanolamine = 42 : 1 : 1 | Marking and protective layer can not be detached                                                                                              |
| Mechanical Shock                      | AEC-Q200-REV D-Test 13<br>MIL-STD-202 Method 213 | Wave Form : Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration(D) is 6(ms)                                                                            | $\pm(1\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less                                                                                   |
| Vibration                             | AEC-Q200-REV D-Test 14<br>MIL-STD-202 Method 204 | 5 g's for 20 min., 12 cycles each of 3 orientations. Note: Test from 10-2000 Hz.                                                                                              | $\pm(1\% + 0.1\Omega)$<br>0 $\Omega$ : 50m $\Omega$ or less                                                                                   |



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|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 6/13          |

|                              |                                                  |                                                                                                                        |                                                                                                                           |
|------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Resistance to Soldering Heat | AEC-Q200-REV D-Test 15<br>MIL-STD-202 Method 210 | Condition B :<br>Immerse the specimens in and eutectic solder at 260±5°C for 10±1S .                                   | 0.5%,1% : ±(0.5% + 0.05Ω )<br>2%.5% : ±(1% + 0.1Ω )<br>0201 : ±(2% + 0.1Ω )<br>0Ω : 50mΩ or less                          |
| Thermal Shock                | AEC-Q200-REV D-Test 16<br>MIL-STD-202 Method 107 | -55°C/+155°C. Note: Number of cycles required-300, Maximum transfer time-20 seconds, Dwell time-15 minutes. Air-Air.   | ±(1% + 0.1Ω )<br>0201 : ±(2% + 0.1Ω )<br>0Ω : 50mΩ or less                                                                |
| ESD                          | AEC-Q200-REV D-Test 17                           | verify the voltage setting at 500V                                                                                     | ±(1% + 0.1Ω )<br>0201 : ±(2% + 0.1Ω )                                                                                     |
| Solderability                | AEC-Q200-REV D-Test 18<br>J-STD-002              | Method B, aging 4 hours at 155 °C dry heat Lead-free solder bath at 235±3 °C Dipping time: 3±0.5 seconds               | > 95% area covered with tin                                                                                               |
| Flammability                 | AEC-Q200-REV D-Test 20<br>UL-94                  | V-0 or V-1 are acceptable. Electrical test not required.                                                               | V-0 or V-1                                                                                                                |
| Board Flex ( Bending )       | AEC-Q200-REV D-Test 21                           | The duration of the applied forces shall be 60 (+ 5) Sec<br>3mm deflection(RMS04~RMS13)<br>2mm deflection(RMS20~RMS25) | 0.5%,1% : ±(0.5% + 0.05Ω )<br>2%.5% : ±(1% + 0.1Ω )<br>0201 : ±(1% + 0.1Ω )<br>0Ω : 50mΩ or less                          |
| Terminal Strength (SMD)      | AEC-Q200-REV D-Test 22                           | Force of 1.8kg for 60 seconds<br>Remarks : 0201-NA                                                                     | ±(0.5% + 0.05Ω )<br>0Ω : 50mΩ or less                                                                                     |
| Sulfuration Test             | ASTM-B-809-95                                    | Sulfur (Humid Sulfur Vapor)<br>1,000 hours,105±2°C, unpowered                                                          | 0.5%,1%:±(1%+0.05Ω )<br>2%, 5%:±(2%+0.05Ω )<br>0201:<br>0.5%,1%:±(2%+0.05Ω )<br>2%, 5%:±(3%+0.05Ω )<br>0Ω : 100mΩ or less |

Note\* : RCWV : Rated continuous working voltage .

## 7. Marking

### 7.1 ±2% & ±5%(E24) : RMS06 / RMS10 / RMS12 / RMS13 / RMS20 / RMS25

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. :,  $\overline{102} = 10 \times 10^2 = 1000\Omega = 1K\Omega$





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|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 7/13          |

## 7.2 $\pm 0.5\%$ , $\pm 1\%$ (E96 ) : RMS10 / RMS12 / RMS13 / RMS20 / RMS25

Resistance value is expressed by 4 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.

E.G. :  $\overline{1000} = 100 \times 10^0 = 100 \Omega$



## 7.3 $\pm 0.5\%$ , $\pm 1\%$ ( E96): RMS06

When the marking space is too small in such small-sized resistors as RMS06, 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 :  $\overline{01A} = 100 \times 10^0 = 100 \Omega$



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| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 8/13          |



**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 , 120Ω , 1% Marking is 121



**7.4 ±0.5% ,±1%( E96/3digitals) :**

The resistance value by 3 digits is requirement for customer.

**7.5 RMS04 :**



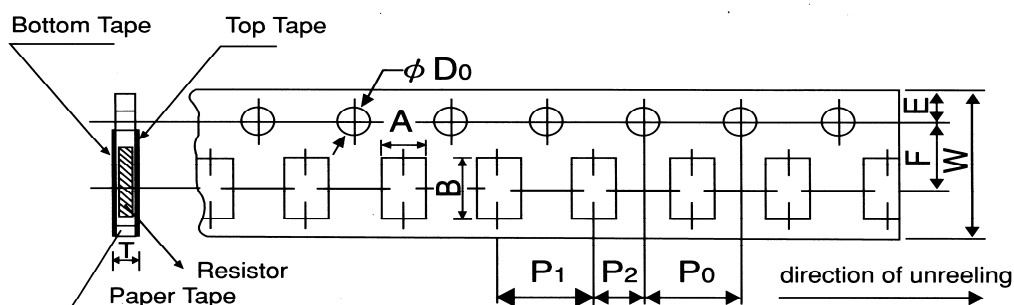
**7.6 RMS02 :**

**NO Marking**

**8. Taping & Reel :**

**8.1 Taping Dimensions**

**8.1.1 4 mm pitch paper:**



| Packing | Type  | A        | B       | W       | F        | E        | - P <sub>1</sub> | P <sub>2</sub> | P <sub>0</sub> | D <sub>0</sub>                      | T        |
|---------|-------|----------|---------|---------|----------|----------|------------------|----------------|----------------|-------------------------------------|----------|
| Paper   | RMS06 | 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 <sup>+0.1</sup> <sub>-0</sub> | 0.64±0.1 |
|         | RMS10 | 1.6±0.15 | 2.4±0.2 |         |          |          |                  |                |                |                                     | 0.84±0.1 |
|         | RMS12 | 2.0±0.15 | 3.6±0.2 |         |          |          |                  |                |                |                                     |          |
|         | RMS13 | 2.8±0.2  | 3.6±0.2 |         |          |          |                  |                |                |                                     |          |

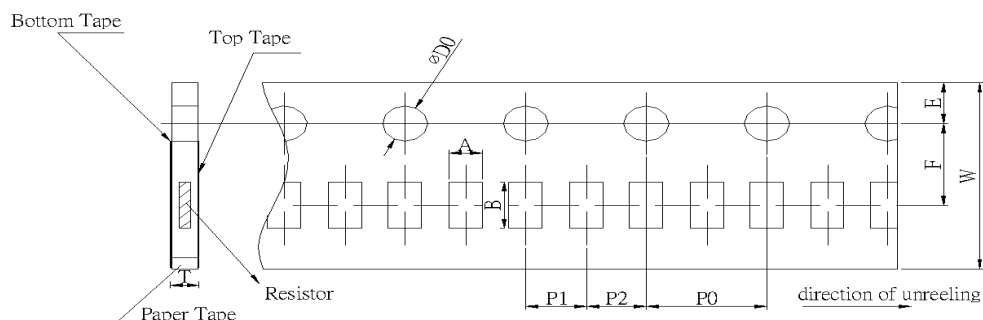
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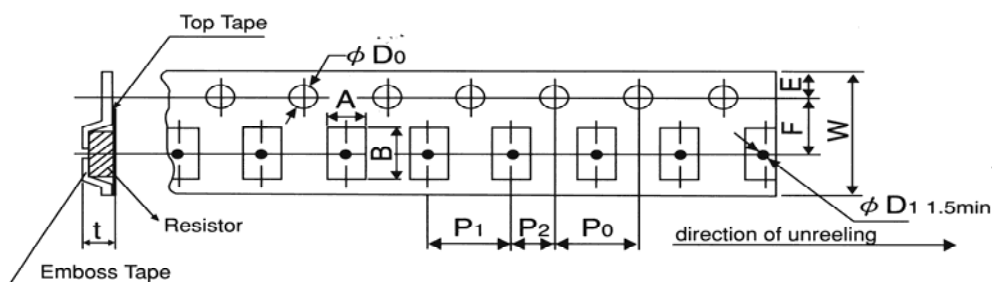
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|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 9/13          |

### 8.1.2 2 mm pitch paper :



| Packing | Type  | A         | B        | W       | F        | E        | P <sub>1</sub> | P <sub>2</sub> | P <sub>0</sub> | D <sub>0</sub>      | T        |
|---------|-------|-----------|----------|---------|----------|----------|----------------|----------------|----------------|---------------------|----------|
| Paper   | RMS02 | 0.37±0.05 | 0.67±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        | φ 1.5<br>+0.1<br>-0 | 0.37±0.1 |
|         | RMS04 | 0.7±0.05  | 1.2±0.05 |         |          |          | 2.0±0.1        | 2.0±0.1        |                |                     | 0.45±0.1 |
|         | RMS06 | 1.1±0.1   | 1.9±0.1  |         |          |          | 2.0±0.1        | 2.0±0.1        |                |                     | 0.64±0.1 |

### 8.1.3 4 mm pitch Emboss :



| Packing | Type  | A       | B       | W        | F        | E        | P <sub>1</sub> | P <sub>2</sub> | P <sub>0</sub> | D <sub>0</sub>      | T         |
|---------|-------|---------|---------|----------|----------|----------|----------------|----------------|----------------|---------------------|-----------|
| Emboss  | RMS20 | 2.8±0.2 | 5.3±0.2 | 12.0±0.2 | 5.5±0.05 | 1.75±0.1 | 4.0±0.1        | 2.0±0.05       | 4.0±0.05       | φ 1.5<br>+0.1<br>-0 | 0.85±0.15 |
|         | RMS25 | 3.6±0.2 | 6.9±0.2 |          |          |          |                |                |                |                     |           |

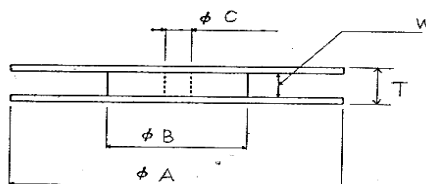
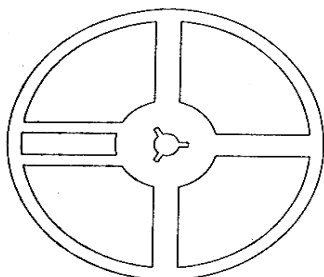
| Package<br><br>Type    Size |    | Paper Tape |         |            |         | Emboss Plastic Tape<br>4 mm pitch |
|-----------------------------|----|------------|---------|------------|---------|-----------------------------------|
|                             |    | 4 mm pitch |         | 2 mm pitch |         |                                   |
|                             |    | 178mm/R    | 250mm/R | 178mm/R    | 250mm/R |                                   |
| RMS                         | 02 |            |         | 10000      |         |                                   |
| RMS                         | 04 |            |         | 10000      | 20000   |                                   |
| RMS                         | 06 | 5000       | 10000   | 10000      | 20000   |                                   |
| RMS                         | 10 | 5000       | 10000   |            |         |                                   |
| RMS                         | 12 | 5000       | 10000   |            |         |                                   |
| RMS                         | 13 | 5000       |         |            |         |                                   |
| RMS                         | 20 |            |         |            |         | 4000                              |
| RMS                         | 25 |            |         |            |         | 4000                              |



**Anti-Sulfurated Thick Film Chip Resistors  
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Halogen-Free  
AEC-Q200 qualified**

|              |               |
|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 10/13         |

## 8.2 Reel Specifications:

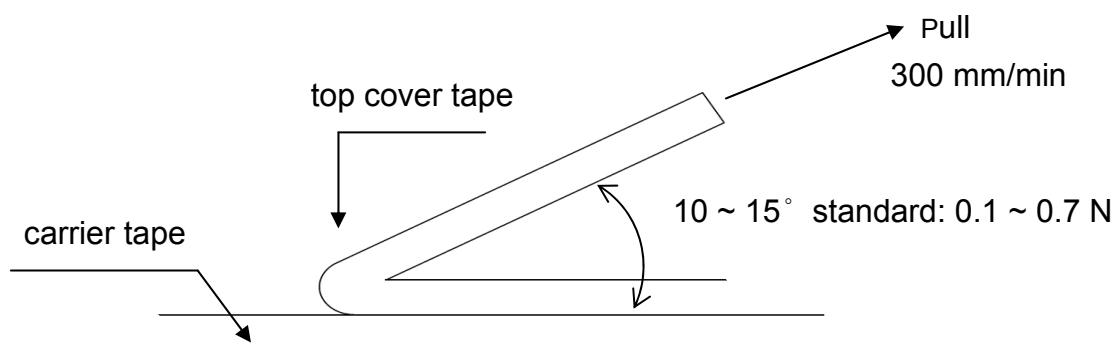


UNIT: mm

| Type                            | $\phi A$        | $\phi B$       | $\phi C$       | W              | T              |
|---------------------------------|-----------------|----------------|----------------|----------------|----------------|
| RMS02 /04 / 06<br>RMS10 /12 /13 | $178.0 \pm 2.0$ | $60.0 \pm 1.0$ | $13.0 \pm 1.0$ | $9.0 \pm 1.0$  | $11.5 \pm 1.0$ |
| RMS20 / 25                      |                 |                |                | $13.0 \pm 1.0$ | $15.5 \pm 1.0$ |

## 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.



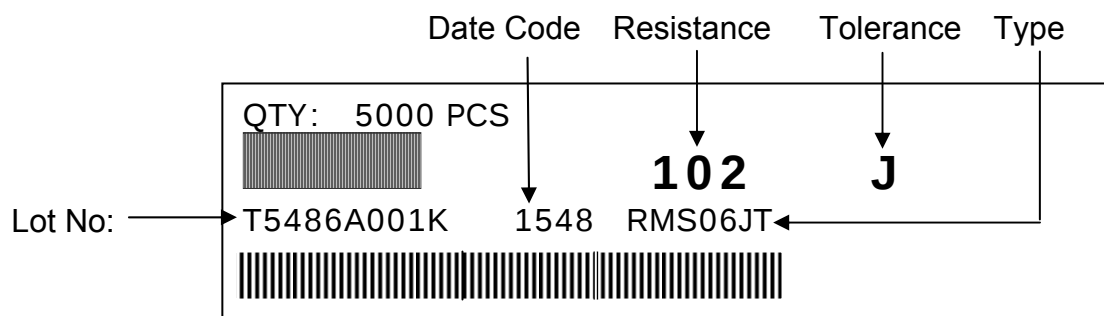


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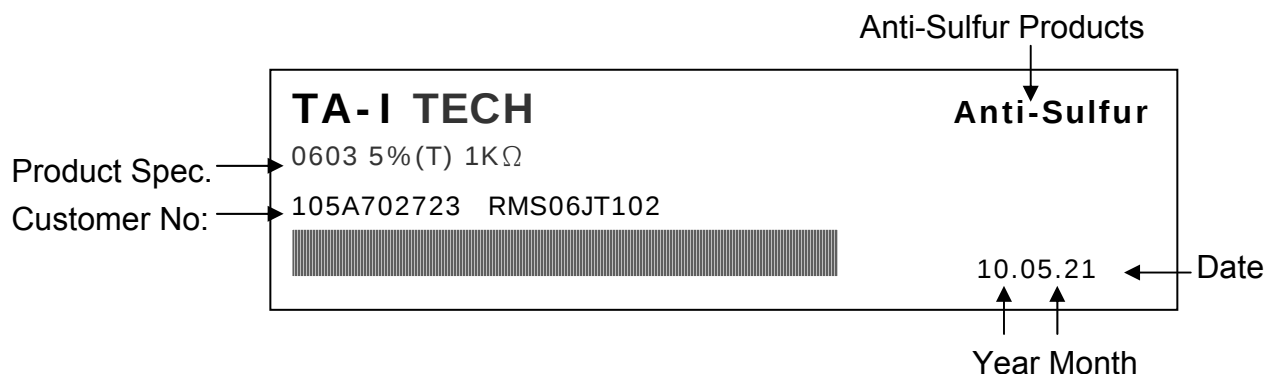
|              |               |
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| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 11/13         |

## 9. Label :

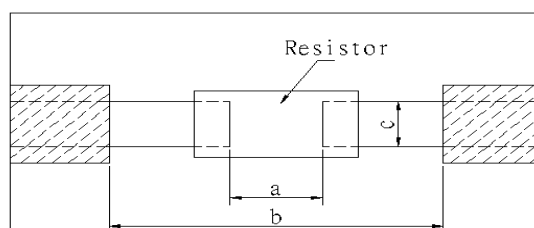
### 9.1 Manufacture Label :



### 9.2 Customer Label ( By customer request ):



## 10. Recommended land patterns :



| Type | Size      | Land pattern     |         |         |
|------|-----------|------------------|---------|---------|
|      |           | Dimension ( mm ) |         |         |
|      |           | a                | b       | c       |
| RMS  | 02 (0201) | 0.25~0.3         | 0.7~0.9 | 0.3~0.4 |
| RMS  | 04 (0402) | 0.50~0.6         | 1.4~1.6 | 0.4~0.6 |
| RMS  | 06 (0603) | 0.7~0.9          | 2.0~2.2 | 0.8~1.0 |
| RMS  | 10 (0805) | 1.0~1.4          | 3.2~3.8 | 0.9~1.4 |
| RMS  | 12 (1206) | 2.0~2.4          | 4.4~5.0 | 1.2~1.8 |
| RMS  | 13 (1210) | 2.0~2.4          | 4.4~5.0 | 2.3~3.5 |
| RMS  | 20 (2010) | 3.3~3.7          | 5.7~6.5 | 2.3~3.5 |
| RMS  | 25 (2512) | 3.6~4.0          | 7.6~8.6 | 2.3~3.5 |

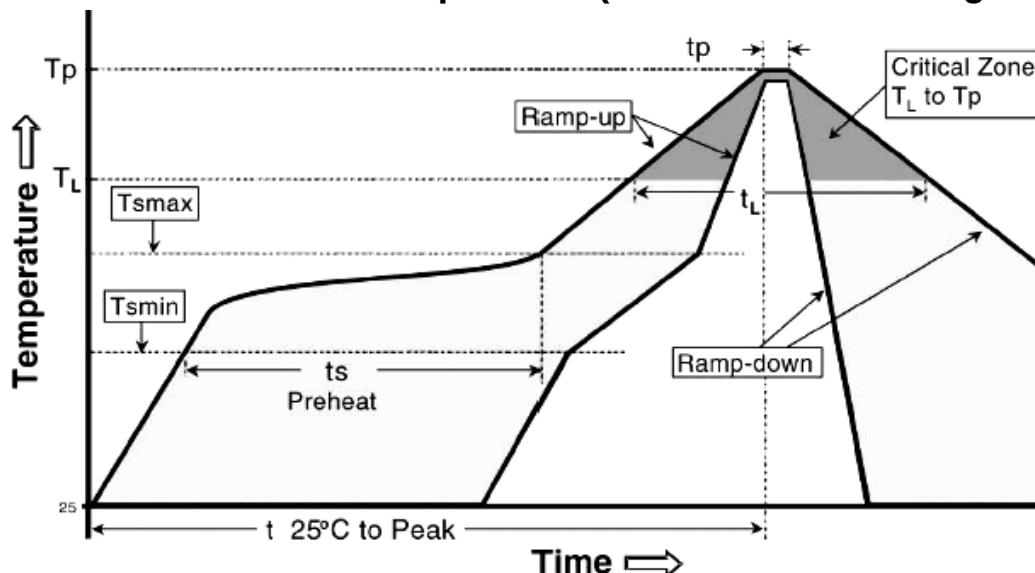
**TA-I TECHNOLOGY CO., LTD**



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|              |               |
|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 12/13         |

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



| Profile Feature                                                                                   | Lead (Pb )-Free Assembly          |
|---------------------------------------------------------------------------------------------------|-----------------------------------|
| Average ramp-up rate<br>(Tsmax to Tp)                                                             | 3°C / second max.                 |
| Preheat<br>- Temperature Min (Tsmin)<br>- Temperature Max (Tsmax)<br>- Time (Tsmin to Tsmax) (ts) | 150°C<br>200°C<br>60 -150 seconds |
| Time maintained above :<br>- Temperature (Tl)<br>- Time (tL)                                      | 217°C<br>60-120 seconds           |
| Peak Temperature (Tp)                                                                             | 260°C                             |
| Time within $\pm 5^{\circ}\text{C}$ of actual Peak<br>Temperature (tp) <sup>2</sup>               | 10 seconds                        |
| Ramp-down Rate                                                                                    | 6°C/second max.                   |
| Time 25°C to Peak Temperature                                                                     | 8minutes max.                     |

Remark : To avoid discoloration phenomena of chip on terminal electrodes,  
please use N2 Re-flow furnace.



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|              |               |
|--------------|---------------|
| Document No. | TRMS-XX0S001K |
| Revise Date  | 2019/03/11    |
| page number  | 13/13         |

## 12. Storage Conditions:

Temperature: 5°C~35°C, 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 ELECTRONIC (DONG GUAN) CO., LTD ( China – Dongguan )  
Tel : 86-769-8339-4790~3 Fax : 86-769-8339-4794

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

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

单击下面可查看定价，库存，交付和生命周期等信息

[>>TA-I \(大毅\)](#)