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香港電阻製造廠

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南充溢辉电子科技有限公司

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AN ISO 9001: 2015 CERTIFIED MANUFACTURER

AN ISO 45001 : 2018 MANUFACTURER

AN ISO 14001 : 2015 MANUFACTURER

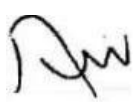
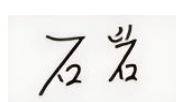
AN IATF 16949 : 2016 MANUFACTURER

SPECIFICATIONS FOR APPROVAL

Customer:

Anti Sulfurated Thick Film Chip Fixed

Name of Product: Resistors - AST Series

相关业务 Sales Executive	工程部 Engineering	品质部 Quality Control	核准 Approval
			
客户确认 Customer Approval	客户确认 Customer Approval	客户确认 Customer Approval	客户确认 Customer Approval

* A member of the Hong Kong Resistors Manufactory Group of Companies *

南充溢辉电子科技有限公司

规格书版本变更履历表
Specification Version Change Resume

版本号 Version	变更内容 Change content	变更日期 Change Date	申请人 Applicant by	批准人 Authorized by
0	初版发行	2024.12.30	杨金梅	
1	增加0201规格产品	2025.03.12	严垚	周有民

备注（Remark）：

Anti Sulfurated Thick Film Chip Fixed Resistors

本公司产品符合ROHS、REACH、TSCA、POPS、PAHS等环保标准。
The products of our company comply with environmental protection standards
such as ROHS、REACH、TSCA、POPS、PAHS etc.

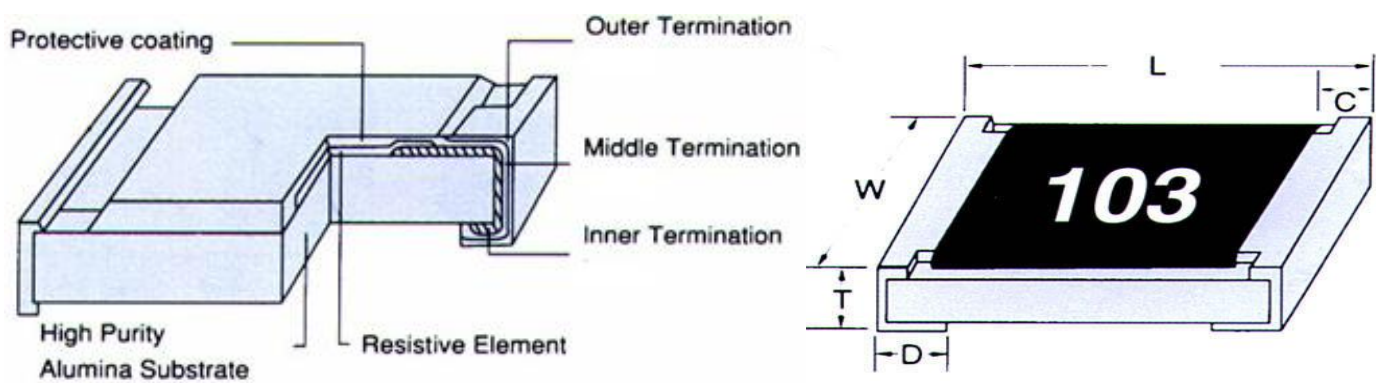
特性 (Features)

- 轻薄短小：小型轻量,大幅缩小 PC 板面积及重量。
Small size and light weight with size range per international standard
- 具有良好的抗硫化能力。
With good sulfuration-resistant performance
- 装配性佳：外观尺寸均匀精确,易于装配。
Highly stable in auto-placement surface mounting application
- 可使用于波峰焊及回流焊。
Compatible with both wave soldering and reflow soldering

料号编码 (Part Number)

AST	05	27K	J
Type 型号	Size 尺寸	Value 阻值	Tolerance 精度
	01 : 0201		F : ±1%
	02 : 0402		G : ±2%
	03 : 0603		J : ±5%
	05 : 0805		
	06 : 1206		
	10 : 1210		
	20 : 2010		
	25 : 2512		

构造图 (Configuration)

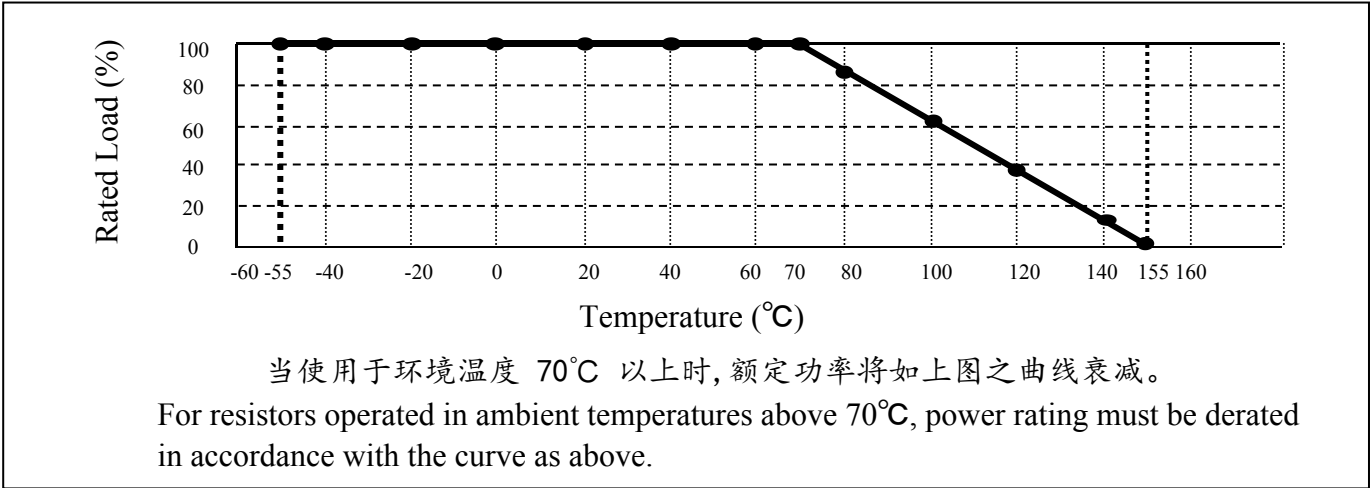


尺寸 (Dimensions)

(unit: mm)

Size	L	W	T	C	D
0201	0.60 ±0.03	0.30 ±0.03	0.23 ±0.03	0.15 ±0.05	0.15 ±0.05
0402	1.00 ±0.10	0.50 ±0.05	0.35 ±0.05	0.30 ±0.15	0.25 ±0.15
0603	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.34 ±0.15	0.30 ±0.15
0805	2.00 ±0.10	1.25 ±0.10	0.50 ±0.10	0.42 ±0.20	0.40 ±0.20
1206	3.10 ±0.10	1.55 ±0.10	0.55 ±0.10	0.59 ±0.20	0.40 ±0.20
1210	3.10 ±0.10	2.50 ±0.10	0.55 ±0.10	0.70 ±0.25	0.45 ±0.25
2010	5.00 ±0.20	2.50 ±0.15	0.55 ±0.10	0.70 ±0.25	0.50 ±0.25
2512	6.35 ±0.20	3.10 ±0.15	0.55 ±0.10	0.80 ±0.25	0.60 ±0.25

功率衰减曲线 (Power Derating Curve)



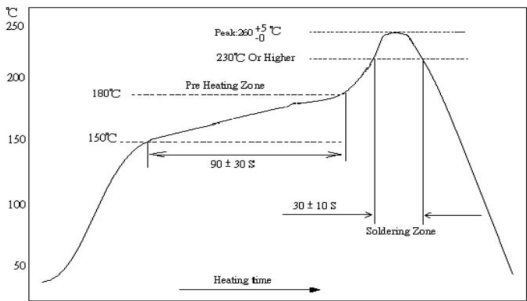
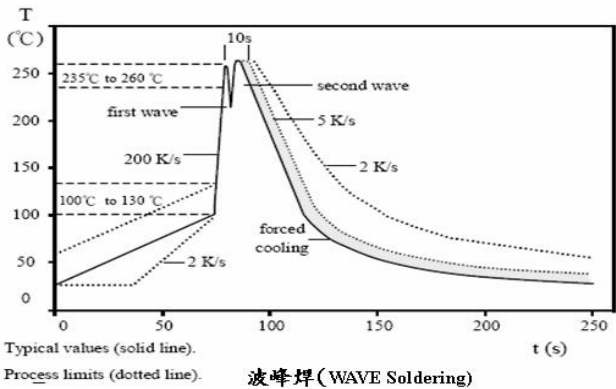
额定 (Rating)

型号 Type	AST01	AST02	AST03	AST05	AST06	AST10	AST20	AST25
尺寸 Size	0201	0402	0603	0805	1206	1210	2010	2512
额定功率 Power Rating at 70℃	1/20W	1/16W	1/10W	1/8W	1/4W	1/3W	3/4W	1W
最高使用电压 Max RCWV	25V	50V	75V	150V	200V	200V	200V	200V
最高过负荷电压 Max Overload Voltage	50V	100V	150V	300V	400V	400V	400V	400V
最高使用电流 Jumper<50mΩ	0.5A	1A	1A	2A	2A	2A	2A	2A
使用温度范围 Operating Temperature Range	-55~+155℃							
标准阻值范围 Standard Resistance Range	0Ω	0~50mΩ						
	±1% (E-96)	1Ω~10MΩ	1Ω~10MΩ					
	±5% (E-24)	1Ω~10MΩ	1Ω~22MΩ					

* 工作电压根据阻值按公式 $V=\sqrt{P \cdot R}$ 计算，或者采用上面提供的最高使用电压。
The working voltage is calculated based on the resistance value following the formula of $V=\sqrt{P \cdot R}$ or to its maximum extent as indicated above.

* 过负荷电压根据阻值按公式 $V=2.5\sqrt{P \cdot R}$ 计算，或者采用上面提供的最高过负荷电压。
The overload voltage is calculated based on the resistance value following the formula of $V=2.5\sqrt{P \cdot R}$ or to its maximum extent as indicated above.

焊接温度曲线 (Soldering Temperature Curve)



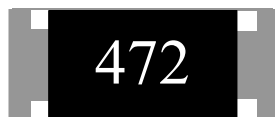
回流焊 (IR Reflow Soldering)

规格说明及测试方法 (Specifications and Test Methods)

ITEM	SPECIFICATION	TEST METHOD
焊锡性 Solderability	Over 95% of termination must be covered with solder	JIS C 5201 4.17 / MIL-STD-202G METHOD 208H / IEC 60115-1 4.17 Reflow Soldering: Bath temperature:(260±10)℃,Immersion time:(2±0.5)s WAVE Soldering: Bath temperature:(235±5)℃,Immersion time:(2±0.5)s
耐焊性 Resistance to Solder Heat	J: $\Delta R \leq \pm(1\% + 0.05\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	JIS C 5201 4.18 / MIL-STD-202G METHOD 210F / IEC 60115-1 4.18 The temperature of the solder bath shall be (260±5)℃,The immersion time shall be(5±0.5)s or(10±1)s as prescribed by the detail specification
温度系数 Temperature Coefficient of Resistance (TCR)	0402以下规格(0402 & 0201): 1Ω~10Ω;>3.3M: $\pm 400\text{ppm}/^\circ\text{C}$ 10Ω(excluding 10Ω)~3.3M: $\pm 200\text{ppm}/^\circ\text{C}$ 0603以上规格(0603 or above): 1Ω~10Ω;>1M: $\pm 200\text{ppm}/^\circ\text{C}$ 10Ω(excluding 10Ω)~1M: $\pm 100\text{ppm}/^\circ\text{C}$	JIS C 5201 4.8 / MIL-STD-202G METHOD 304 / IEC 60115-1 4.8 The temperature characteristic or temperature coefficient of resistance is not specified for resistance values of less than 5R owing to difficulty of accurate measurement
短时间过负荷 Short Time Overload	J: $\Delta R \leq \pm(2\% + 0.05\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	JIS C 5201 4.13/IEC 60115-1 4.13 2.5×Rated voltage or Max. Overload Voltage for 5 sec. measure resistance after 30 minutes
恒温恒湿寿命 试验 Load Life Humidity	J: $\Delta R \leq \pm(3\% + 0.05\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	JIS C 5201 4.24/MIL-STD-202G Method 106G / IEC 60115-1 4.24 Maintain the temperature of the resistor at 40±2℃ and 90~95% RH with the rated voltage applied.Cycle ON for 1.5 hours and OFF for 0.5 hour for1000+48/-0 hours. After 1~4 hour, measure the resistance value.
耐久性 Load Life	J: $\Delta R \leq \pm(3\% + 0.05\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	JIS C 5201 4.25/MIL-STD-202G Method 108A / IEC 60115-1 4.25 70±2℃, Max. working voltage for 1000 hrs with 1.5 hrs “ON” and 0.5 hrs “OFF”.
高低温试验 Temperature Cycle	J: $\Delta R \leq \pm(1\% + 0.05\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	JIS C 5201 4.19/MIL-STD-202G Method 107G / IEC 60115-1 4.19 Repeat 5 cycles as follows -55℃(30 min.)+25℃(2~3 min.)+125℃(30 min.)+25℃(2~3 min.)
绝缘阻抗 Insulation Resistance	Between termination and coating must be over 1000MΩ	JIS C 5201 4.6 / MIL-STD-202G Method 302 / IEC 60115-1 4.6 Test voltage: 100±15V
弯曲强度 Bending Strength	J: $\Delta R \leq \pm(1\% + 0.05\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	JIS C 5201 4.33 / MIL-STD-202G Method 211A / IEC 60115-1 4.33 Resistance change after bended on the 90mm PCB. Bend: 3mm for 0201、0402、0603、0805、1206、1210 2mm for 2010、2512
抗硫化性能 Sulfuration Resistance	$\Delta R \leq \pm(4\% + 0.05\Omega)$ No mechanical damage	ASTM-B-809-95 Put the tested resistor in sulfur vapor, at a temperature of 105±3℃ for 500hrs.

*客户对VCR电压系数、高电压、高脉冲、高功率等特殊参数有任何要求时，请选用我们对应系列的电阻产品。

字码编码说明 (Markings)



1.1. $\pm 5\%$ (IEC E-24系列 Series)0603、0805、1206及以上规格(0201/0402无字码)均用三字码表示。

No markings on 0402. Markings on the other sizes are expressed by a 3-digit code in its exact value.

E. G. : $6R8=6.8\Omega$; $100=10\times 10^0=10\Omega$; $472=47\times 10^2=4700\Omega=4.7K\Omega$ 。

1.2. $\pm 1\%$ 阻值表示规则 ($\pm 1\%$ Resistance value markings)

a. 0805、1206及以上规格 $\pm 1\%$ 阻值均用四字码表示。

Markings on sizes 0805, 1206 and above are expressed by a 4-digit code.

E. G. : $82R5=82.5\Omega$; $1000=100\times 10^0=100\Omega$; $2212=221\times 10^2=22100\Omega=22.1K\Omega$ 。

b. 0603 $\pm 1\%$ (IECE-96系列)阻值均采用三代码表示。前两位为阻值的数字代码; 后一位为英文大写字母, 表示倍率(10^n 次幂)。

Markings on 0603 $\pm 1\%$ (IECE-96 Series) are expressed by a 3-digit code; the first two digits represent the value code and the last capital letter represents the multiplier.

E-96系列阻值的数字代码如下表: The coding system of the E-96 series is as follows :

阻值	代码	阻值	代码	阻值	代码	阻值	代码	阻值	代码	阻值	代码	阻值	代码	阻值	代码
100	01	133	13	178	25	237	37	316	49	422	61	562	73	750	85
102	02	137	14	182	26	243	38	324	50	432	62	576	74	768	86
105	03	140	15	187	27	249	39	332	51	442	63	590	75	787	87
107	04	143	16	191	28	255	40	340	52	453	64	604	76	806	88
110	05	147	17	196	29	261	41	348	53	464	65	619	77	825	89
113	06	150	18	200	30	267	42	357	54	475	66	634	78	845	90
115	07	154	19	205	31	274	43	365	55	487	67	649	79	866	91
118	08	158	20	210	32	280	44	374	56	499	68	665	80	887	92
121	09	162	21	215	33	287	45	383	57	511	69	681	81	909	93
124	10	165	22	221	34	294	46	392	58	523	70	698	82	931	94
127	11	169	23	226	35	301	47	402	59	536	71	715	83	953	95
130	12	174	24	232	36	309	48	412	60	549	72	732	84	976	96

倍率字母代码如下表: (Multiplier code)

Code	A	B	C	D	E	F	G	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^{-1}	10^{-2}	10^{-3}

E. G. : $01Y=100\times 10^{-2}=1\Omega$; $68A=68\times 10^0=68\Omega$; $02D=102\times 10^3=102K\Omega$

c. 任何1%电阻其阻值不在 E-96 范围系列中, 则其字码表示与E-24系列 $\pm 5\%$ 字码相同。仅用标签注明误差。

Any resistance values of 1% tolerance but not included in the E-96 series, the value markings are the same as $\pm 5\%$ tolerance with labelling identification.

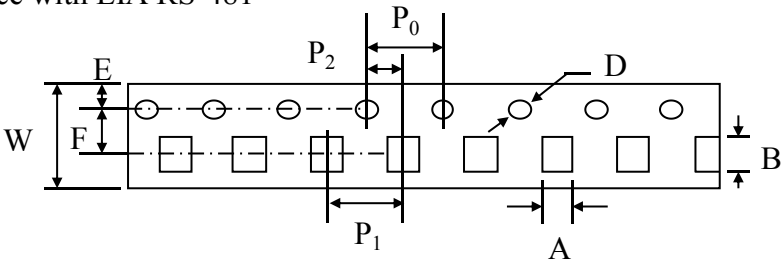
E. G.: $120=12\times 10^0=12\Omega$; $475=47\times 10^5=4.7M\Omega$ 。

1.3 零欧姆晶片电阻字码均用一个“0”表示, 其阻值在0~50m Ω 范围内, 并无误差之分, 所以我司标签上无注明误差值。

Marking of the 0 Ohm resistor is a "0" with its value range from 0-50m Ω . No tolerance shown on the product label.

包装及卷包规格 (Tape and Reel Package)

Taping is in accordance with EIA RS-481

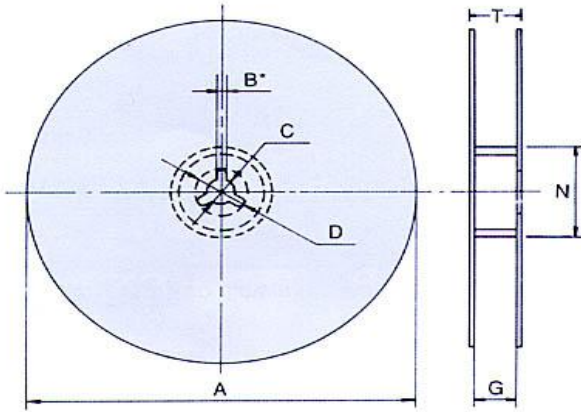


Accumulated dimensional tolerance 40±0.2mm

Size	A	B	W	F	E	P ₁	P ₂	P ₀	D
0201	0.36 ±0.02	0.66 ±0.02	8.00 ±0.10	3.50 ±0.05	1.75 ±0.05	2.00 ±0.05	2.00 ±0.05	4.00 ±0.10	1.55 ±0.05
0402	0.65 ±0.10	1.15 ±0.10	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	2.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
0603	1.10 ±0.20	1.90 ±0.20	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
0805	1.65 ±0.20	2.40 ±0.20	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
1206	2.00 ±0.20	3.50 ±0.20	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
1210	2.85 ±0.20	3.50 ±0.20	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
2010	2.80 ±0.20	5.50 ±0.20	12.0 ±0.30	5.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10
2512	3.50 ±0.20	6.70 ±0.20	12.0 ±0.30	5.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10

unit: mm

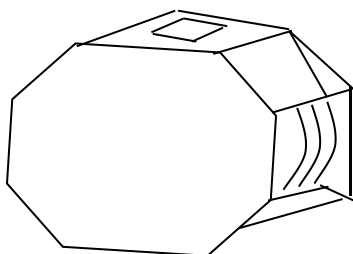
Size	Packaging Q'ty
0201	10Kpcs/Reel
0402	10Kpcs/Reel
0603	5Kpcs/Reel
0805	
1206	
1210	
2010	4Kpcs/Reel
2512	



Symbol	A	N	C	D	B	G	T
Dimensions	178 ± 3.0	60.0 ± 2.0	13.0 ± 1.0	19.5 ± 1.0	2.30 ± 0.5	10.0 ± 1.5	14.9 max.
	178 ± 3.0	60.0 ± 2.0	13.0 ± 1.0	19.5 ± 1.0	2.30 ± 0.5	13.8 ± 1.5	16.7 max.

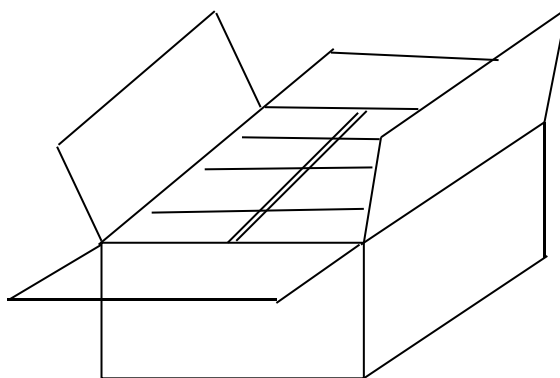
贮存环境 Storage Condition	温度 Temp	湿度 Humidity	储存期 Storage Time	1年 1 year
	5~35℃	20%-70%		

外包装 (*Outer Packaging*)



第一次包装：1~10卷

First inner box packing: 1~10 reels



第二次包装：最多80卷

Second carton packing : 80 reels max.

■当包装数量不能达到最大时，剩余空隙部位采用辅助材料填满。

When carton quantity does not meet up the standard packing pieces, the remaining empty space will be filled up with buffer materials.

■当包装数量为最小时，使用其它方法包装，确保运输过程中无问题是至关重要的。

When the quantity is less, alternative packing method may be used. It is important to ensure safety of products during transportation.