

承 认 书
Approval Sheet for
固定电阻器
Fixed Resistors

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制程说明书

Specifications sheets for products

艺美达电子有限公司

AUTOMATIC MANUFAC TURING LTD.

二 00 四年十二月十 七日

Decl. 17. 2004

谨提出固定电阻器之承认书, 恭请检讨提出, 并惠以承认为禱.

We prudently put forward our fixed resistors' booklet of acknowledgement for your inspection & discussion, and your kind acknowledgement.

承认栏

Acknowledgement column

部品规格 Specifications :

CR1/4W $\pm$ 5%

B TYPE

系列 Series

MF1/4W $\pm$ 1%

B TYPE

系列 Series

批准 Approved		审核 Checked		承认 Admited	
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CR

CARBON FILM FIXED RESISTOR

碳膜固定电阻器

碳膜固定电阻器

CR(1/4W)

CARBON FILM FIXED RESISTOR

STANDARD TYPE CR(1/4W)

品名 (PART NUMBER)

依据其种类，分别注明额定功率、容许差率、公称电阻值和形状。

ACCORDING TO THE TYPES OF RESISTORS, THE POWER RATED, RESISTANCE TOLERANCE, RESISTANCE VALUE, SHAPES.

例：	CR	1/4W	J(±5%)	15Ω	B
	种类	额定功率(P)	容许差	公称值(R)	形状
e.g,	CR	1/4W	J(±5%)	15Ω	B
	TYPE	RATED POWER	TOLERANCE	RESISTANCE	SHAPE

● FEATURES

HIGH QUALITY.

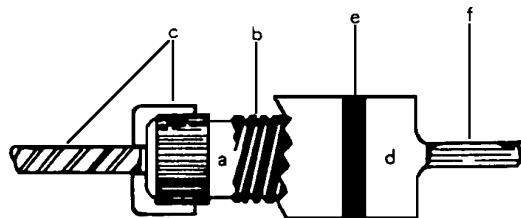
MEET PERFORMANE REOUIREMENT OF JIS 6402

STANDARD TOLERANCE: ±5%

VARIETY OF PACKAGING-BULK,TYPE AND RELL,CUT AND FOMED SUPPLIED.

HIGH RESISTANCE RANGE(1Ω ~ 10MΩ)

● CONSTRUCTION 结构图



A) CERAMIC CORE(HIGH CONDUCTIVITY).

B) CARBON FILM (HIGH STABILITY).

C) END CAP(HIGH RELIABILITY FITTING BY ORIGINAL CAP-PRESSING METHOD).

D) EPOXY RESIN(INSULATIVE LACQUER, SOLVENT-PROOF).

PAINT COLOR STANDARD TYPE IS GROUND YELLOW; MINI TYPE IS BROWN.

E) COLOR CODE (PER MIL & EIA STANDARDS PERMANENT).

F) LEAD WIRE(99%).

● 特点

高品质。

符合 JIS 6402 之各项准则。

±5%之标准误差。

散装,带状,轴装及各种成型剪脚供应。

可制作极高阻抗。

A) 高热传导瓷心。

B) 高稳定性碳化皮膜。

C) 压合度良好之高信赖性端帽。

D) 高绝缘及耐溶剂之环氧树脂涂漆。

涂漆颜色本体为土黄色，小型化为棕色。

E) 符合 MIL&EIA 规定之标准色码带。

F) 99%镀锡导线。

CR

CARBON FILM FIXED RESISTOR

碳膜固定电阻器

电力特性(POWER CHARACTERISTIC)

项目 ITEM	额定功率 POWER RATED	1/4W
最高使用电压 MAX WORKING VOLTAGE		250V
最高过负荷电压 MAX OVERLOAD VOLTAGE		500V
最高断续过负荷 MAX INTERMITTENCE OVERLOAD VOLTAGE		750V
耐电压 DIELECTRIC WITHSTANDING VOLTAGE		500V
阻抗误差值 RESISTANCE TOLERANCE		J ± 5%
阻抗值范围 RESISTANCE RANGE (Ω)	MIN	10
	MAX	5.1M

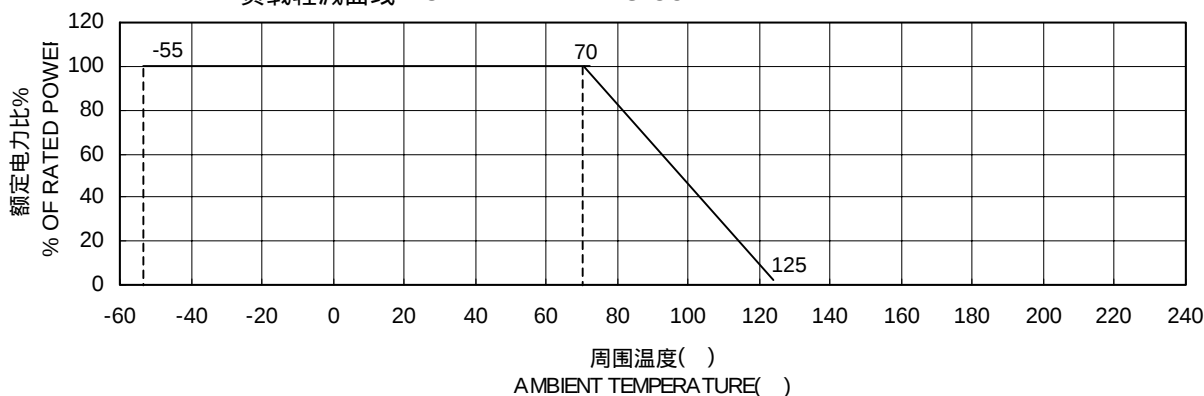
注解:1.额定电压= $\sqrt{\text{额定功率} \times \text{公称阻抗}}$ 2. 此范围之外的阻值亦可协商提供。

NOTE: 1.RATED CONTINUOUS WORKING VOLTAGE(RCWV) SHALL BE DETERMINED FROM

$RCWV = \sqrt{\text{POWER RATED} \times \text{RESISTANCE VALUE}}$

2. RESISTANCE BEYOND THIS RANGE COULD BE SUPPLIED WITH NEGOTIATION.

负载轻减曲线 POWER DERATING CURVE



性能 CHARACTERISTICS

项目 CHARACTERISTICS	规格值 SPECIFICATIONS	测试方法 TEST METHODS JIS 5202
温度系数 TEMPERATURE COEFFICIENT	-1000PPM/ $\leq \alpha \leq$ +350PPM/	5.2
短时间过负荷 SHORT TIME OVERLOAD	$R \leq \pm (1\%R_0 + 0.05 \Omega)$	5.5 条件 A
断续过负荷 PULSE OVERLOAD	$R \leq \pm (2\%R_0 + 0.05 \Omega)$	5.8
焊接耐热性 RESISTANCE TO SOLDERING HEAT	$R \leq \pm (1\%R_0 + 0.05 \Omega)$	6.4
温度循环 TEMPERATURE CYCLING	$R \leq \pm (1\%R_0 + 0.05 \Omega)$	7.4 -55 /85
耐湿负荷寿命 LOAD LIFE IN HUMIDITY	$R \leq \pm (5\%R_0 + 0.1 \Omega)$	7.9
耐温负荷寿命 LOAD LIFE	$R \leq \pm (5\%R_0 + 0.1 \Omega)$	7.10

MF

METAL FILM FIXED RESISTOR

金属皮膜固定电阻器

金属皮膜固定电阻器

MF(1/4W)

METAL FILM FIXED RESISTOR

STANDARD TYPE MF(1/4W)

品名 (PART NUMBER)

依据其种类，分别注明额定功率、容许差率、公称电阻值和形状。

ACCORDING TO THE TYPES OF RESISTORS, THE POWER RATED, RESISTANCE TOLERANCE, RESISTANCE VALUE, SHAPES.

例：	MF	1/4W	F(±1%)	75Ω	B
	种类	额定功率(P)	容许差	公称值(R)	形状
e.g,	MF	1/4W	F(±1%)	75Ω	B
	TYPE	RATED POWER	TOLERANCE	RESISTANCE	SHAPE

● FEATURES

HIGH QUALITY.

LOW NOISE AND T.C.R

STANDARD TOLERANCE: ± 5%, ± 2%, ± 1%,

± 0.5%, ± 0.1% CLEAR STAMP-MARKING.

HIGHT STABILITY AT EXTEND OVER A LONG PERIOD OF TIME.

VARIETY OF PACKAGING-BULK, TAPE AND REEL,CUT AND FORMED SUPPLIED.

METAL FILM NON-INDUCTIVE TYPE

RESISTOR (NMF) ALSO AVAILABL

● 特点

高品质。

低杂讯与温度系数。

标准误差: ± 5%, ± 2%, ± 1%, ± 0.5%, ± 0.1%。

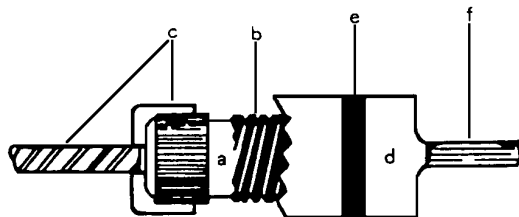
颜色表示鲜明。

长期耐久性。

散装,带状,轴装及各种成型剪脚供应。

金属膜无感电阻 (NMF) 亦可提供。

● CONSTRUCTION 结构图



A) CERAMIC CORE(HIGH CONDUCTIVITY).

B) METAL FILM (HIGH STABILITY).

C) END CAP (HIGH RELIABILITY FITTINGE BY ORIGINAL CAP-PRESSING METHOD).

D) EPOXY RESIN (INSULATIVE LACQUER, SOLVENTPROOF).

PAINT COLOR STANDARD TYPE IS LAKE GREEN; MINI TYPE IS BOTTLE GREEN.

E) COLOR CODE (PER MIL & EIA STANDARDS PERMANENT).

F) LEAD WIRE (99%).

A) 高热传导瓷心。

B) 高稳定性金属皮膜。

C) 压合度良好之高信赖性端帽。

D) 高绝缘及耐溶剂之环氧树脂涂漆。

涂漆颜色本体为湖绿色 ,小型化为深绿色。

E) 符合 MIL&EIA 规定之标准色码带。

F) 99%镀锡导线。

MF

METAL FILM FIXED RESISTOR

金属皮膜固定电阻器

电力特性(POWER CHARACTERISTIC)

项目 ITEM	额定功率 POWER RATED	1/4W
最高使用电压 MAX WORKING VOLTAGE		250V
最高过负荷电压 MAX OVERLOAD VOLTAGE		500V
最高断续过负荷 MAX INTERMITTENCE OVER LOAD VOLTAGE		500V
耐电压 DIELECTRIC WITHSTANDING VOLTAGE		500V
阻抗误差值 RESISTANCE TOLERANCE		F ± 1%
阻抗值范围 RESISTANCE RANGE (Ω)	MIN	10
	MAX	2.2M

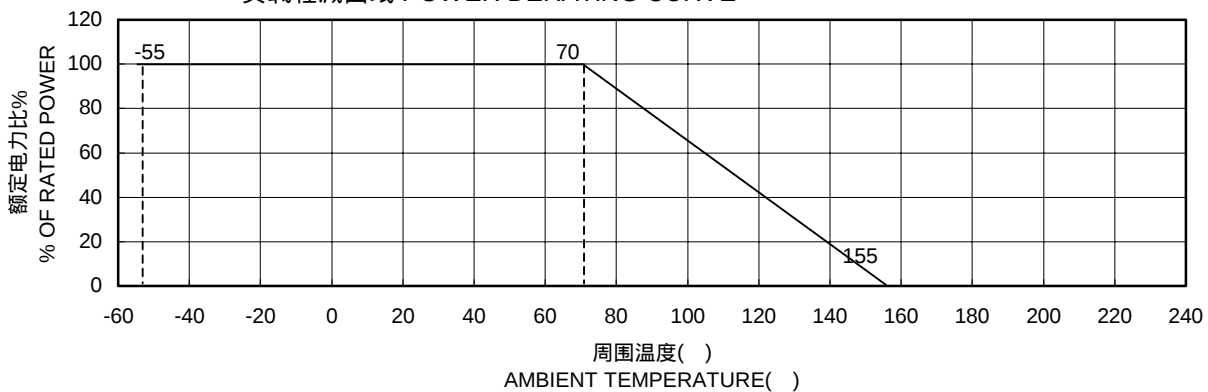
注解: 1. 额定电压 = $\sqrt{\text{额定功率} \times \text{公称阻抗值}}$ 2. 此范围之外的阻值亦可协商提供。

NOTE: 1. RATED CONTINUOUS WORKING VOLTAGE (RCWV) SHALL BE DETERMINED FROM

$$RCWV = \sqrt{\text{POWER RATED} \times \text{RESISTANCE VALUE}}$$

2. RESISTANCE BEYOND THIS RANGE COULD BE SUPPLIED WITH NEGOTIATION.

负载轻减曲线 POWER DERATING CURVE



性能 CHARACTERISTICS

项目 CHARACTERISTICS	规格值 SPECIFICATIONS	测试方法 TEST METHODS JIS 5202
温度系数 TEMPERATURE COEFFICIENT	± 25PPM/ 、 ± 50PPM/ 、 ± 100PPM/	5.2
短时间过负荷 SHORT TIME OVERLOAD	$R \leq \pm (0.5\%R_0 + 0.05\Omega)$	5.5 条件 A
断续过负荷 PULSE OVERLOAD	$R \leq \pm (1\%R_0 + 0.05\Omega)$	5.8
焊接耐热性 RESISTANCE TO SOLDERING HEAT	$R \leq \pm (0.5\%R_0 + 0.05\Omega)$	6.4
温度循环 TEMPERATURE CYCLING	$R \leq \pm (0.5\%R_0 + 0.05\Omega)$	7.4
耐湿负荷寿命 LOAD LIFE IN HUMIDITY	$R \leq \pm (2\%R_0 + 0.1\Omega)$	7.9
耐温负荷寿命 LOAD LIFE	$R \leq \pm (2\%R_0 + 0.1\Omega)$	7.10

RESISTORS CHARACTERISTIC

电阻器特性

特性项目 CHARACTERISTICS	规格值 SPECIFICATIONS		测试方法 TEST METHODS														
直流阻抗值 DC RESISTANCE JIS-C-5202 5.1	<table><tr><td>J</td><td>± 5%</td></tr><tr><td>G</td><td>± 2%</td></tr><tr><td>F</td><td>± 1%</td></tr><tr><td>D</td><td>± 0.5%</td></tr><tr><td>B</td><td>± 0.1%</td></tr></table>	J	± 5%	G	± 2%	F	± 1%	D	± 0.5%	B	± 0.1%	室温 25 AT 25					
J	± 5%																
G	± 2%																
F	± 1%																
D	± 0.5%																
B	± 0.1%																
温度特性 TEMPERATURE COEFFICIENT JIS-C-5202 5.2	CR : -1000PPM/ ≤ α ≤ +350PPM/ MF : ± 100PPM/ $\frac{R_2-R_1}{R_1(T_2-T_1)} \times 10^6(PPM/ \quad)$ R1:常温(T1)阻抗值 RESISTANCE VALUE AT ROOM TEMPERATURE(T1) R2:常温+100 (T2)阻抗值 RESISTANCE VALUE AT ROOM TEMPERATURE +100 (T2)																
耐电压 DIELECTRIC WITHSTANDING VOLTAGE JIS-C-5202 5.7	涂装不可烧损,绝缘不可破坏 NO EVIDENCE OF FLASHOVER MECHANICAL DAMAGE,ARCING OR INSULATION BREAKDOWN.	电阻两端导线置于金属 V 型槽上依特性表 之电压规定印加 60 秒 RESISTORS SHALL BE CLAMPED IN THE TROUGH OF A 90 ⁰ METALLIC V-BLOCK AND SHALL BE TESTED AT SPECIFIED IN THE ABOVE LIST FOR 60 SECONDS.															
温度循环 TEMPERATURE CYCLING JIS-C-5202 7.4	依下表所规定之温度连续 5 次 FIVE TIMES ON THE TEMPERATURE AS THE TABLE. <table><tr><th>步骤 STEP</th><th>温度 TEMPERATURE</th><th>放置时间 TIME(MIN)</th></tr><tr><td>1</td><td>-25 ±3</td><td>30</td></tr><tr><td>2</td><td>ROOM TEMP</td><td>10-15</td></tr><tr><td>3</td><td>85 ±2</td><td>30</td></tr><tr><td>4</td><td>ROOM TEMP</td><td>10-15</td></tr></table>		步骤 STEP	温度 TEMPERATURE	放置时间 TIME(MIN)	1	-25 ±3	30	2	ROOM TEMP	10-15	3	85 ±2	30	4	ROOM TEMP	10-15
步骤 STEP	温度 TEMPERATURE	放置时间 TIME(MIN)															
1	-25 ±3	30															
2	ROOM TEMP	10-15															
3	85 ±2	30															
4	ROOM TEMP	10-15															
	CR : R ≤ ± (1%R ₀ +0.05Ω) MF : R ≤ ± (0.5%R ₀ +0.05Ω)																

RESISTORS CHARACTERISTIC

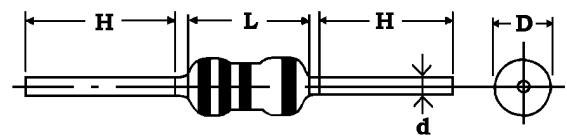
电阻器特性

特性项目 CHARACTERISTICS	规格值 SPECIFICATIONS	测试方法 TEST METHODS						
短时间过负荷 SHORT TIME OVERLOAD JIS-C-5202 5.5	CR : $R \leq \pm (1\%R_0+0.05\Omega)$ MF : $R \leq \pm (0.5\%R_0+0.05\Omega)$	额定电压 × 2.5 倍,5 秒 PERMANENT RESISTANCE CHANGE AFTER THE APPLICATION OF A POTENTIAL OF 2.5 TIME RCWV FOR 5 SECONDS.						
断续过负荷 PULSE OVERLOAD JIS-C-5202 5.8	CR : $R \leq \pm (2\%R_0+0.05\Omega)$ MF : $R \leq \pm (1\%R_0+0.05\Omega)$	额定电压 × 4 倍(交流电压)测试 1 秒,停止 25 秒,来回 10000 次. RESISTANCE CHANGE AFTER 10000 CYCLES (1 SECOND ON, 25 SECONDS OFF) AT 4 TIME RCWV.						
耐湿负荷寿命 LOAD LIFE IN HUMIDITY JIS-C-5202 7.9	CR : $R \leq \pm (5\%R_0+0.1\Omega)$ MF : $R \leq \pm (2\%R_0+0.1\Omega)$	温度 40 ± 2 ,相对湿度 90-95%于恒温箱中, 加额定直流电压测试 1.5 小时, 停止 0.5 小 时连续 1000 小时. RESISTANCE CHANGE AFTER 1000 HRS (1.5 HRS ON, 0.5 HRS OFF)AT RCWV IN A HUMIDITY CHAMBER CONTROLLED AT 40 ± 2 AND 90-95% RELATIVE HUMIDITY.						
耐温负荷寿命 LOAD LIFE JIS-C-5202 7.10	CR : $R \leq \pm (5\%R_0+0.1\Omega)$ MF : $R \leq \pm (2\%R_0+0.1\Omega)$	温度 70 ± 2 ,恒温箱中,以额定电压测试 1.5 小时,停止 0.5 小时测试 1000 小时. PERMANENT RESISTANCE CHANGE AFTER 1000 HOURS OPERATING AT RCWV,WITH DUTY CYCLE OF 1.5 HOURS ON,0.5 HOURS OFF AT 70 ± 2 .						
耐热性 RESISTANCE TO SOLDERING HEAT JIS-C-5202 6.4	CR : $R \leq \pm (1\%R_0+0.05\Omega)$ MF : $R \leq \pm (0.5\%R_0+0.05\Omega)$	将电阻两端导线浸入锡炉约 3.2 到 4.8MM 依 下表规定实施. DIP THE LEADS OF THE RESISTOR INTO SN STOVE THE DEPTH IS 3.2~4.8MM,THE TEMPERATURE AND THE TIME AS THE TABLE. <table><tr><td>TEMPERATURE</td><td>DIP TIME</td></tr><tr><td>350 ± 10</td><td>3.0 ± 0.5 SEC</td></tr><tr><td>260 ± 5</td><td>10 ± 1SEC</td></tr></table>	TEMPERATURE	DIP TIME	350 ± 10	3.0 ± 0.5 SEC	260 ± 5	10 ± 1 SEC
TEMPERATURE	DIP TIME							
350 ± 10	3.0 ± 0.5 SEC							
260 ± 5	10 ± 1 SEC							
焊锡性 SOLDERABILITY JIS-C-5202 6.5	焊锡覆盖面积 95%以上 95% COVERAGE MIN.	锡炉温度: 235 ± 5 浸炉时间: 3 ± 0.5 SEC TEST TEMPERATURE OF SOLDER: 235 ± 5 DWELL TIME IN SOLDER: 3 ± 0.5 SEC						

RESISTOR DIMENSIONS

电阻器尺寸图

B 型尺寸 (B TYPE DIMENSIONS)

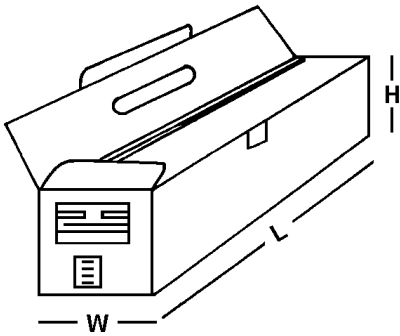


品名 PART NO.	尺寸 (DIMENSIONS MM)			
	L ± 0.5	D ± 0.5	d ± 0.05	H ± 1
1/4W	6	2.3	0.54	26

PACKING

包装方式

UNIT : mm



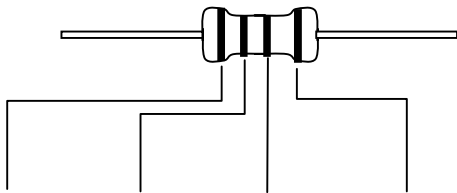
PACKAGE STYLE	TYPE	QTY/BOX	W	L	H
T26	1/6W (1/4Ws)	2000	50 ± 2	254 ± 5	30 ± 2
		5000	48 ± 2	255 ± 5	68 ± 2
	1/4W (1/2Ws)	2000	50 ± 2	256 ± 5	50 ± 2
		5000	48 ± 2	254 ± 5	100 ± 2
T52	1/6W (1/4Ws)	2000	78 ± 3	260 ± 5	28 ± 2
		5000	74 ± 3	252 ± 5	68 ± 2
	1/4W (1/2Ws)	2000	78 ± 3	260 ± 5	50 ± 2
		5000	78 ± 3	260 ± 5	100 ± 2
	1/2W(1Ws)	2000	82 ± 3	254 ± 5	92 ± 2
T71	1W(2Ws)	1000	96 ± 3	261 ± 5	91 ± 2
	2W(3Ws)	1000	96 ± 3	261 ± 5	91 ± 2
	3W(5Ws)	250	96 ± 3	261 ± 5	91 ± 2

品名 PART NO.	BULK 散装			TAPE 带状	
	塑胶袋 POLYBAG	SHIPP LING CARTON		SHIPP LING CARTON	
	Q' TY (KPCS)	Q'TY (KPCS)	WEIGHT kg	Q' TY (KPCS)	WEIGHT kg
1/6W (1/4Ws)	1	200	22	75	9.5
1/4W (1/2Ws)	1	100	19	50	10.5
1/2W (1Ws)	0.5	50	18	20	8
1W (2Ws)	0.2	20	17	8	7.5
2W (3Ws)	0.2	20	21	8	10
3W (5Ws)	0.05	5	20		
	0.1	2			

COLOR CODE

色码

CARBON (METAL OXIDE AND WIREWOUND
NONFLAME) FILM RESISTOR



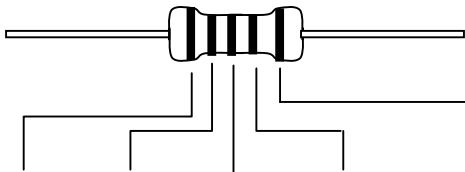
颜色	COLOR	NO.1	NO.2	NO.3	NO.4
黑	BLACK	0	0	10^0	
棕	BROWN	1	1	10^1	
红	RED	2	2	10^2	$\pm 2\%$
橙	ORANGE	3	3	10^3	
黄	YELLOW	4	4	10^4	
绿	GREEN	5	5	10^5	
蓝	BLUE	6	6	10^6	
紫	VIOLET	7	7	10^7	
灰	GRAY	8	8	10^8	
白	WHITE	9	9	10^9	
金	GOLD			10^{-1}	$\pm 5\%$
银	SILVER			10^{-2}	$\pm 10\%$

保险丝电阻在精度色码后加一道白色区别环;

Fusible resistor with a white differential ring followed accuracy color code.

绕线无感电阻在精度色码后加一道绿色区别环。

Wire-wound non-inductive resistor with a green differential ring followed accuracy color code.



颜色	COLOR	NO.1	NO.2	NO.3	NO.4	NO.5
黑	BLACK	0	0	0	10^0	
棕	BROWN	1	1	1	10^1	$\pm 1\%$
红	RED	2	2	2	10^2	
橙	ORANGE	3	3	3	10^3	
黄	YELLOW	4	4	4	10^4	
绿	GREEN	5	5	5	10^5	$\pm 0.5\%$
蓝	BLUE	6	6	6	10^6	
紫	VIOLET	7	7	7	10^7	$\pm 0.1\%$
灰	GRAY	8	8	8	10^8	
白	WHITE	9	9	9	10^9	
金	GOLD				10^{-1}	
银	SILVER				10^{-2}	

STANDARD DECADE VALUES

标准阻抗值

E24	E48	E96	E192	E24	E48	E96	E192
5%	2%	1%	0.5%, 0.1%	5%	2%	1%	0.5%, 0.1%
100	100	100	100	300	316	324	320
100	100	101	101	300	316	324	324
100	100	102	102	300	316	324	328
100	100	104	104	300	316	324	332
100	100	105	105	300	316	324	336
100	100	106	106	300	316	324	340
100	100	107	107	300	316	324	344
100	100	109	109	300	316	324	348
100	100	110	110	300	316	324	352
100	100	111	111	300	316	324	357
100	100	113	113	300	316	324	361
100	100	114	114	300	316	324	365
100	100	115	115	300	316	324	370
100	100	117	117	300	316	324	374
100	100	118	118	300	316	324	379
100	100	120	120	300	316	324	383
100	100	121	121	300	316	324	388
100	100	123	123	300	316	324	392
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