承 认 书

客户名称：

产品品名：**碳膜电阻器**

规格描述：**CF1/8W-5W ±5% 全系列承认**

客户料号：

备 注：

送样日期：**2021-11-16**

制造厂商:

核准 Approval	确认 Check By	审核 Prepared By
闵小江	邢兰兵	林学东

公 司 章	

客户承认:

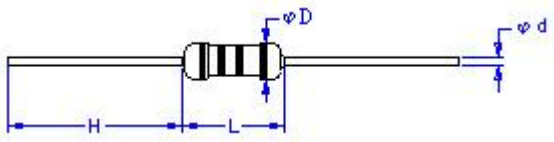
核准 Approval	确认 Check By	审核 Prepared By

公 司 章	

联系方式:陈先生 13602347376

网址:http://www.aolittel-china.com

1. General Instruction



General Specifications

Normal Type	CF-0204	CF-0207	CF-0410	CF-0414	CF-0617	CF-0718	CF-0925
Rated Power	1/8W	1/4W	1/2W	1W	2W	3W	5W
Mini Type	**CF-0207S**	**CF-0410S**	**CF-0414S**	**CF-0617S**	**CF-0718S**	**CF-0925S**	
Rated Power	1/4WS	1/2WS	1WS	2WS	3WS	5WS	
Standard Dimensions (mm)							
Body Length (L)	3.5 ± 1.0	6.5 ± 1.0	9.0 ± 1.0	11 ± 1.0	15 ± 1	17 ± 1	24 ± 1
Body Diameter (D)	1.7 ± 1.0	2.3 ± 1.0	3.2 ± 1.0	4.5 ± 1.0	5.0 ± 0.5	6 ± 0.5	8 ± 1
Lead Length (H) ± 2	27±2.0	26±2.0	25±2.0	30±2.0	28±2.0	32±2.0	33±2.0
Lead Diameter (d) ± 0.05	0.40±0.05	0.40±0.05	0.50±0.05	0.60±0.05	0.70±0.05	0.70±0.05	0.75±0.05
Electrical Specification							
Din Size	**0204**	**0207**	**0410**	**0414**	**0617**	**0718**	**0925**
Maximum Working Voltage (V)	250	350,	350	500	500	600	600
Maximum Overload Voltage (V)	500	600	700	1000	1000	1000	1000
Resistance Range (±2%(G))	0.1Ω-1MΩ	0.1Ω-1MΩ	0.1Ω-1MΩ	0.1Ω-1MΩ	0.1Ω-1MΩ	0.1Ω-1MΩ	0.1Ω-1MΩ
(±5%(J))	0.1Ω-22MΩ	0.1Ω-22MΩ	0.1Ω-10MΩ	0.1Ω-10MΩ	0.1Ω-10MΩ	0.1Ω-10MΩ	0.1Ω-10MΩ

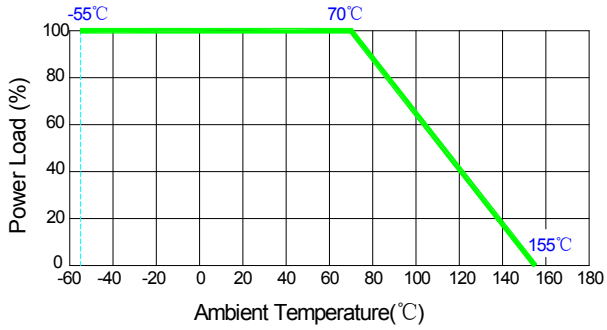
*Lesser of $\sqrt{PR}$ or maximum working voltage.

☛Operating Temperature. Range: -55℃~ +155℃.

☛S=Miniature Type. For Example:0207S the body size of 1/8W but with rated power of 1/4W.

☞ The taping dimension other than the standard is also available as per our taping specifications.
☞ The resistance range of lower than 10Ω and higher than 1MΩ and / or the tolerance is lower than 0.5% are available on special request.
☞ Color of Body: Normal type is Yellow..
☞ Packaging: Taped / Box and Bulk.
☞ Forming: P / M / MB / MK / F / FK1 / FK2 & FKK .
☞ Standard: JIS-C-5202

Power Derating Curve



2. Performance Specifications

Characteristics	Standard	Test Methods

ISO9001:2015

1. **Resistance Temperature Coefficient (PPM/℃)**	±500 PPM/℃	Natural resistance change per temperature degree centigrade. $\frac{R2-R1}{R1(T2-T1)}\times 10^6$ (PPM/℃) R1: Resistance value at reference temperature. (T1) R2: Resistance value at reference temperature. (T2) T1: Room Temperature T2 : T1±100℃
2. **Dielectric Withstanding Voltage**	No evidence of flashover, mechanical damage or arcing or, insulation break down.	Resistors shall be subjected to an approximately sinusoidal test potential (as below) 60Hz applied between both terminals connected together and a 90° V-Block extending beyond the end of the resistor.

Resistor Wattage	DC Volts
1/8W (1/4WSi)	150
1/4W (1/2WS)	350
1/2W 1W,2W Above	600

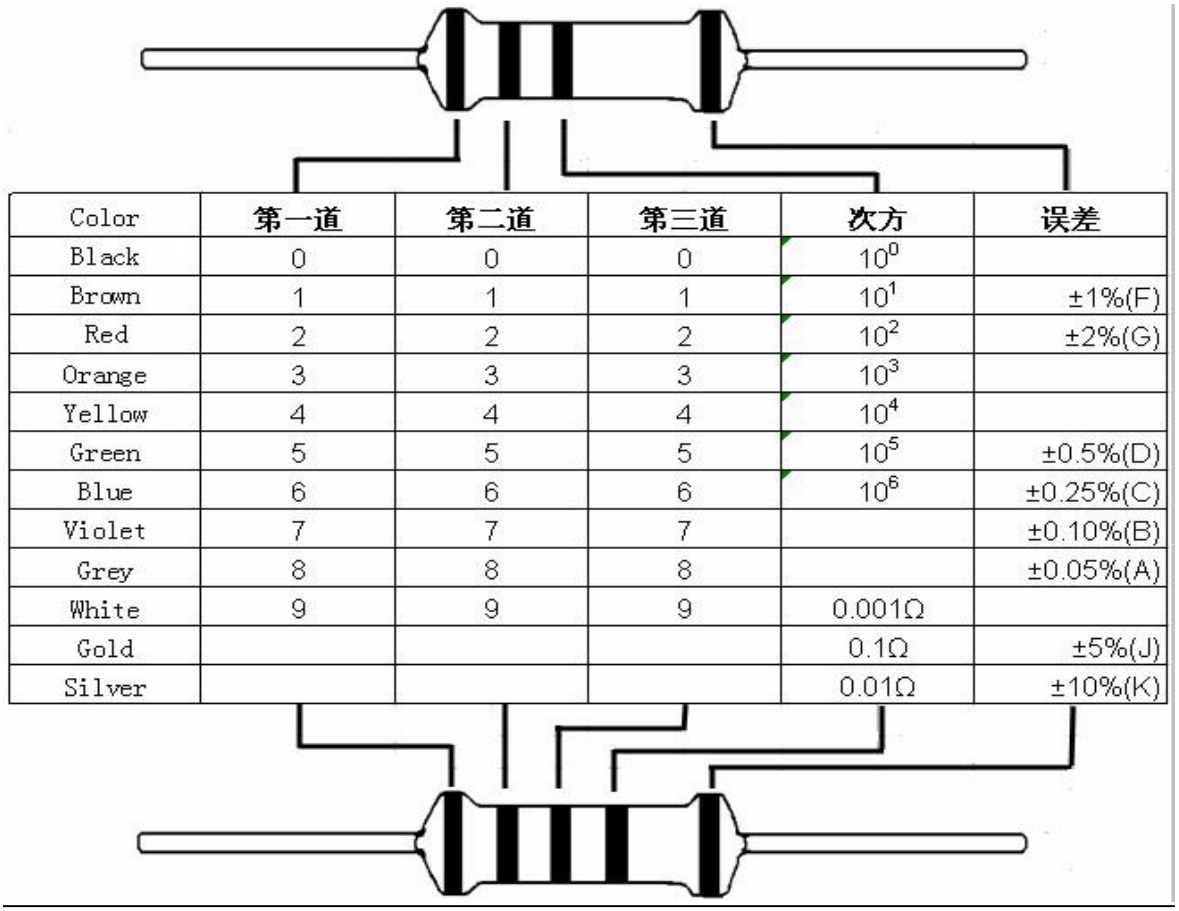
3. **Solderability**	90% Covered min.	The terminal lead shall be dipped into molten solder s at 3.2 to 4.8mm from the body of resistor. The temp. and time as below: a. 235±5℃ for 2±0.5 seconds b. 270±10℃ for 2±0.5 seconds
4. **Resistance to Soldering**	No evidence of mechanical damage △R/R at ±0.5% Max	The terminal of the resistor is dipped into the molten solder of 350±10℃ for 3±0.5 seconds. Then put the resistor in the room temperature. For min.3 hours.
5. **Humidity Load Life**	±1% Max/1000Hours	Resistance change after 1000 hours (1.5 hours on 0.5 hours off)at rated continuous working voltage in a humidity chamber controlled at 40 ± 2 ℃ and 90~95% relative humidity .
6. **Load Life**	±1% Max /1000Hours	Permanent resistance change after 1000 hours operating at rated continuous working voltage with a duly cycle of 1.5 hours on 0.5 hours off at 70 ± 2℃ ambient .
7. **Temperature Cycling**	±1% Max with no evidence of mechanical damage	Resistance change after continuous five cycles for duty cycle as specified below.

Step	Temperature	Time
1	-30℃	30 Minutes
2	+25℃	10~15 Minutes
3	+85℃	30 Minutes
4	+25℃	10~15 Minutes

Characteristics	Standard	Test Methods

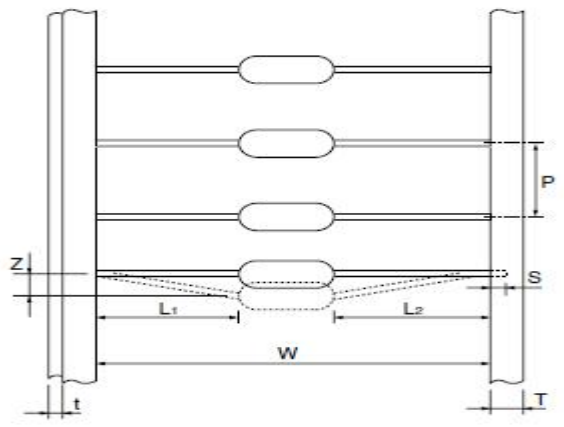
8. **Short Time Overload**	△ R/R at ±0.5% Max. with no evidence of arcing burning, or charring	Permanent resistance change after the application of a potential of 2.5 times rated continuous working voltage for 5 seconds at room temperature.
9. **Terminal Strength**	No evidence of mechanical damage or loosening terminals	Direct load resistance to 2.5kg direct load 30±5 seconds twist test, for axial leads unit only. Terminal lead shall be bent through at a right angle at a point of 6.35mm from the body edge of resistor and shall be rotated through at a right angle about the original axis of the bent terminal in alternating direction for a total 3 rotations.

3. Marking



Color	第一道	第二道	第三道	次方	误差
Black	0	0	0	10^0	
Brown	1	1	1	10^1	±1%(F)
Red	2	2	2	10^2	±2%(G)
Orange	3	3	3	10^3	
Yellow	4	4	4	10^4	
Green	5	5	5	10^5	±0.5%(D)
Blue	6	6	6	10^6	±0.25%(C)
Violet	7	7	7		±0.10%(B)
Grey	8	8	8		±0.05%(A)
White	9	9	9	0.001Ω	
Gold				0.1Ω	±5%(J)
Silver				0.01Ω	±10%(K)

4.Taping Dimension

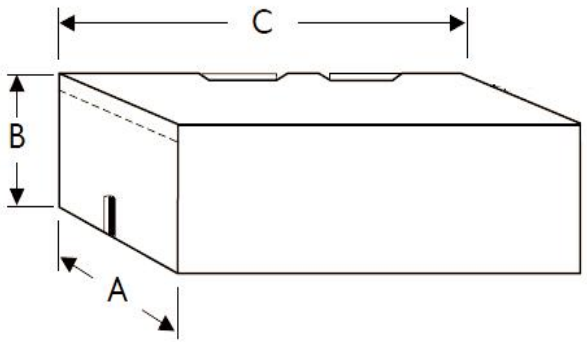


ISO9001:2015

Type	W±1.0	P±0.5	T±0.5	L1-L2	S	t	Z
T52	52	5	6	1.0 Max	3.2 Min	0.8 Max	1.2 Max

5.Packing

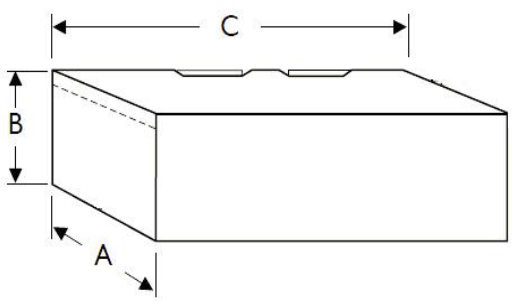
Taping Type:



Unit:mm/pcs

Type	Watts	A	B	C	Q'ty
T52	1/6W / 1/8W 1/16W 1/4WS	76	70	255	5000
	1/4W/ 1/2WS	76	100	255	5000
	1/2W/ 1WS	76	57	255	1000

Bulk Type:



Unit:mm

Watts	A	B	C
1/8W,1/4W,1/2W	125	75	243
1W,2W,3W,5W	50	100	255

6.Part Number

CF - 0207 - J - 105 - T

1 - 2 - 3 - 4 - 5

1. Type	CF = Carbon Film Resistor CFC = Carbon Film Resistor and Lead Wire used Tinned copper **Wire**

2. Power/Size	Type	0204	0207s	0207	0410S	0410	……	0925
	Power	1/8W	1/4WS	1/4W	1/2WS	1/2W	……	5W

3. Tolerance	Code	J	D	B
	%	±5%	±0.5%	±0.1%

4. Value	E96	R15	1R54	1540	1541	1542	1543	1544	1545	1546
	Value	0.15Ω	1.54Ω	154Ω	1.54KΩ	15.4KΩ	154KΩ	1.54MΩ	15.4MΩ	154MΩ

5. Shape	Code	T	P	M	MB	MK	F	FK1	FK2	FKK
	Type	Taping	P Type	M forming	MB forming	MK forming	F forming	FK1 forming	FK2 forming	FKK forming