



# Lead Free Metal Foil Chip Fuse

## AEC-Q200 Tested



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IEC 60127-7  
EN 60127-1  
IEC 60127-1  
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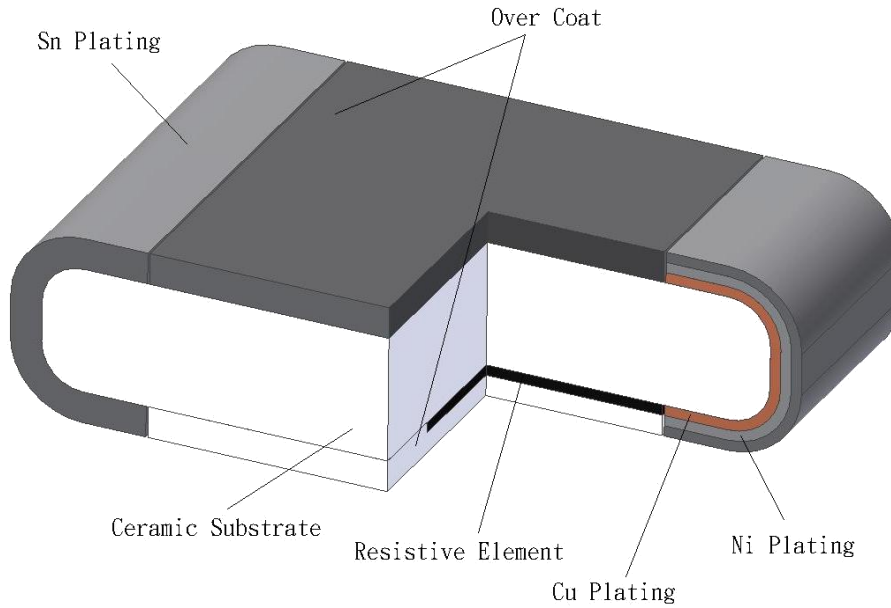


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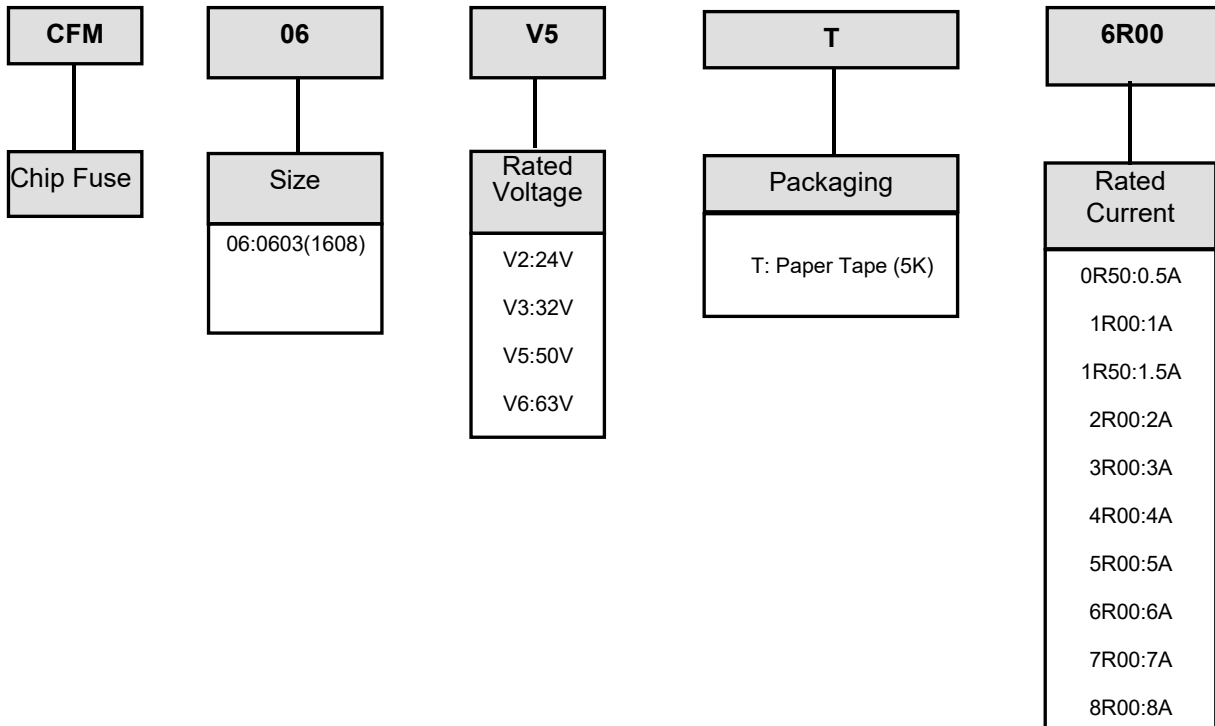
### 1. Scope

This specification applies for the fuse series of surface mount fuse made by TA-I.

### 2. Construction



### 3. Type Designation





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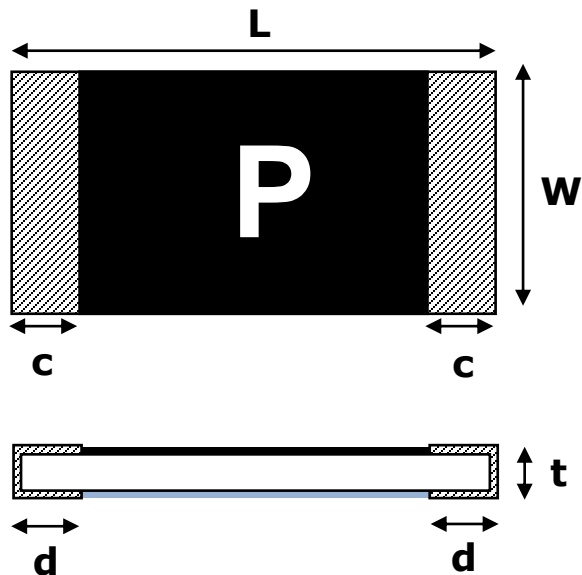


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### 4. Dimensions



Series	L	W	C	d	t
CFM06	1.6±0.1	0.80±0.1	0.3±0.2	0.3±0.1	0.6±0.10

### 5. Applications and ratings

Part Designation	Marking	Rated Current	Resistance (mΩ) Tolerance ±25%	Typical I <sup>2</sup> t (A <sup>2</sup> s)	Fusing Time	Rated Voltage	Breaking Capacity	Body Temperature rising
CFM06V5T0R50	F	0.50A	450.00	0.010	Open within 1~120sec. at 200% rated current	DC 50V DC 63V	DC 50V 50A	< 75°C at 100% rate current
CFM06V5T1R00	L	1.00A	115.00	0.059				
CFM06V5T1R50	P	1.50A	59.00	0.130				
CFM06V5T2R00	S	2.00A	33.00	0.210				
CFM06V5T3R00	3	3.00A	15.90	0.710				
CFM06V5T4R00	W	4.00A	10.00	0.960				
CFM06V5T5R00	Y	5.00A	6.77	2.050				
CFM06V5T6R00	6	6.00A	6.30	3.470				
CFM06V5T7R00	7	7.00A	4.70	5.040				
CFM06V5T8R00	8	8.00A	4.30	6.500				

Note:

1. Typical I<sup>2</sup>t value is measured at 10x-rated current, Application with surge over 10x-rated current.

Please confirm with us.

2. Rate voltage 63V UL only.



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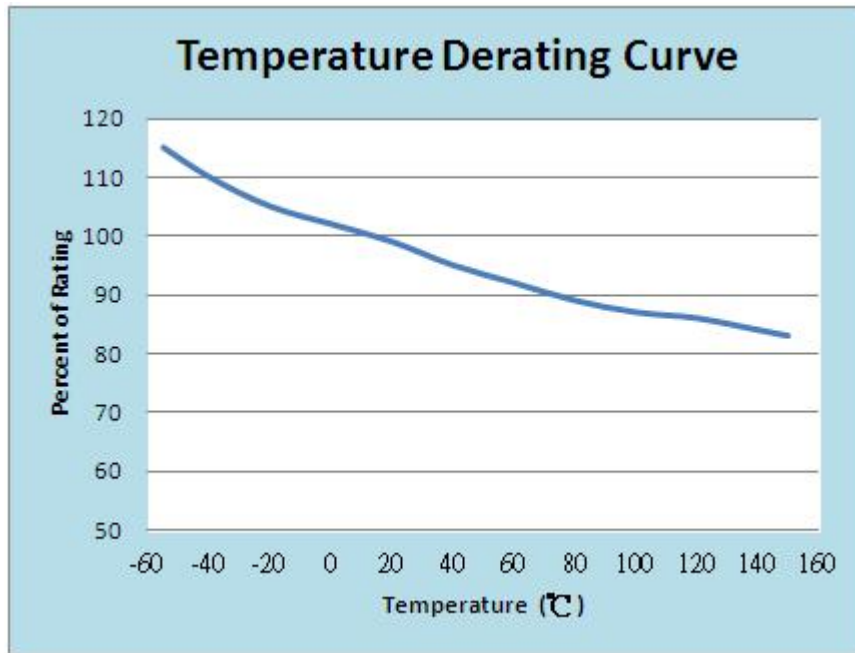
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### 6. Temperature Derating Curve

6.1 Normal Ambient Temperature: 25°C

6.2 Operating Temperature: -55°C~150°C, whit proper Derating factor as below:



### 7. Reliability Tests

Parameter	Test Method
Solderability	J-STD-002, Condition B aging 4 hours at 150 °C dry heat Lead-free solder bath at 245±3 °C for 3±0.5 seconds. 260±3 °C for 7±0.5 seconds
Resistance to solder Heat	MIL-STD-202, Method 210, Condition B Immerse the specimens in and eutectic solder at 260±5°C for 10±1S .
Moisture Resistance	MIL-STD-202, Method 106 T=24 hours / Cycle ,10Cycles . Notes: Steps 7a& 7b not required. Unpowered .
Thermal Shock	MIL-STD-202, Method 107, Condition B -55°C/+155°C. Note: Number of cycles required:300, Maximum transfer time-20 seconds, Dwell time-15 minutes. Air-Air.
Mechanical Shock	MIL-STD-202, Method 213, Condition A Wave Form : Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration(D) is 6(ms)
Vibration	MIL-STD-202, Method 201 5 g's for 20 min., 12 cycles each of 3 orientations. Note: Test from 10-2000 Hz.



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Terminal Strength	IEC 60115-1 4.32 Force of 1.8kg for 10±1 seconds.
High Temperature Storage	MIL-STD-202, Method 108 with exemptions 1000 hrs. @ T=125°C. Unpowered. Measurement at 24±2 hours after test conclusion.
Temperature Cycling	JESD22 Method JA-104, Test Conditions B and N 1000 Cycles (-40°C to +125°C) Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. Maximum transition time.
Bias Humidity	MIL-STD-202, Method 103 1000 hours 85°C/85%RH. Note: Specified conditions: 10% of operating current. Measurement at 24±2 hours after test conclusion.
Operational Life	MIL-STD-202 Method 108, Test Condition D 1000 hours TA=85°C at 70% rated current. Measurement at 24±2 hours after test conclusion
Resistance to Solvent	MIL-STD-202 Method 215 a:Isopropyl Alcohol : Mineral Spirits= 1 : 3 b:Terpene Defluxer (Bioact EC-7R) c:Deionized water : Propylene Glycol : Monomethyl Ether : monoethanolamine = 42 : 1 : 1
Board Flex (Bending)	AEC-Q200-005 3mm deflection
Carrying capacity	Rated current ,4hr
Fusing Time	200% of its rated current
Interrupting Ability	After the fuse is interrupted ,rated voltage applied for 30sec again
Temperature Rise	100% of its rated current, Measure of surface temperature
Residual Resistance	Measure DC resistance after fusing
Low Temperature Storage	1000 hrs. @ T=-55°C. Unpowered. Measurement at 24±2 hours after test conclusion.

### 8. Marking

Symbol for Rating Current

Symbol	F	L	P	S	3	W	Y	6	7	8
Rating Current(A)	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0



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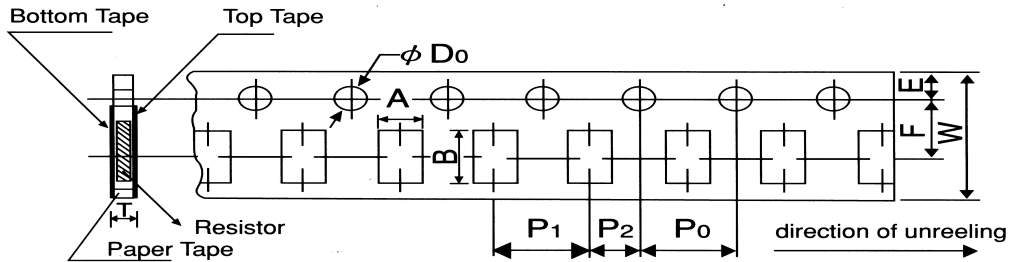


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### 9. Taping & Reel

#### 9.1 Taping Dimensions

4mm pitch paper

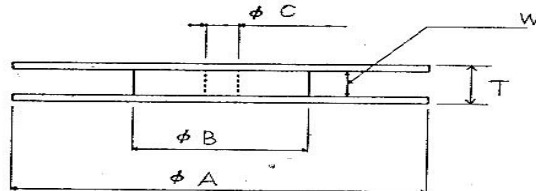
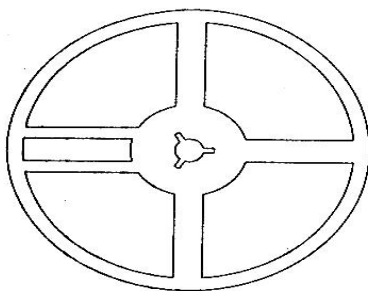


Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	T
Paper Tape	CFM06	1.1±0.1	1.9±0.1	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	φ 1.5 <sup>+0.1</sup> <sub>-0</sub>	0.64±0.1

Unit: mm

Type series		Paper Tape
		4 mm pitch
		180mm/R
CFM	06	5000

#### 9.2 Reel Specifications



Unit: mm

Series	φ A	φ B	φ C	W	T
CFM06	178±2.0	60.0±1.0	13.0±1.0	9.0±1.0	11.4±2.0



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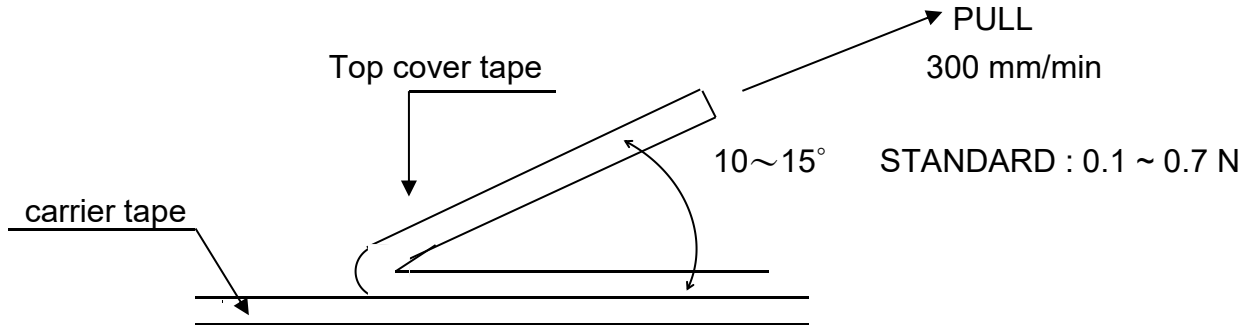


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### 9.3 Peel –off force :



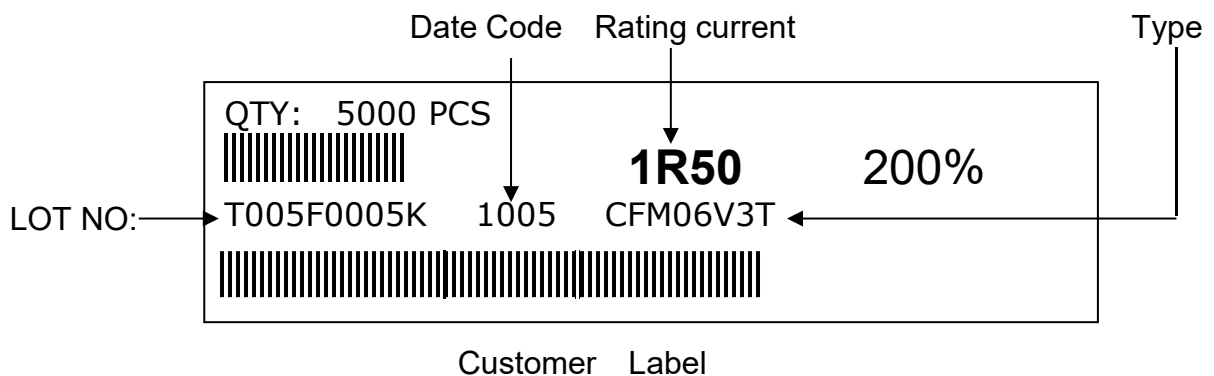
### 10. Storage Conditions:

Temperature: 5°C~35°C, Humidity:40%~75%

### 11. Shelf Life:

2 years from manufacturing date

### 12. Label





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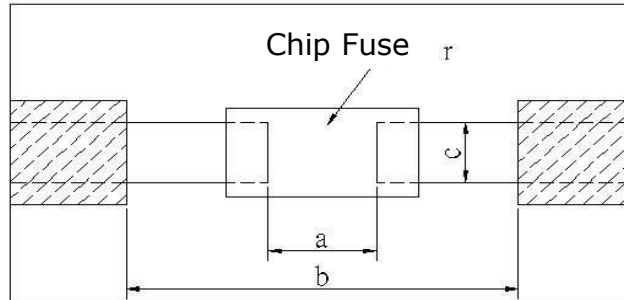


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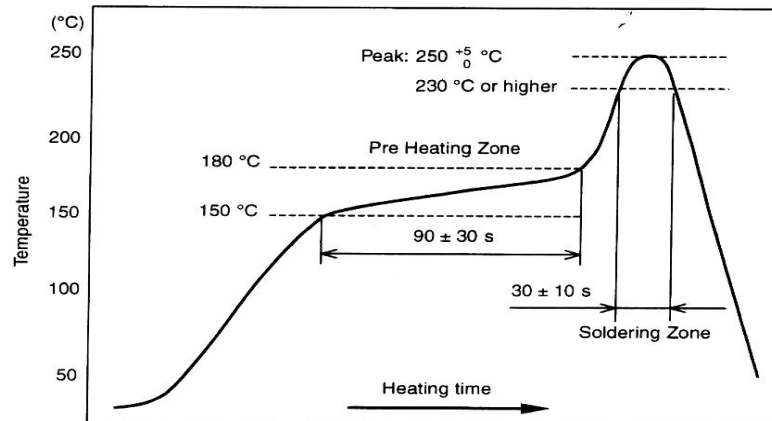
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### 13. Recommended land patterns



Type	Land pattern Size	Dimension		
		a	b	c
CFM	06 ( 0603 )	0.7~0.9	2.0~2.2	0.8~1.0

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



Peak :  $250 \begin{matrix} +5 \\ -0 \end{matrix} ^\circ\text{C}$  , 5 sec  
 Pre – heat Zone : 150 to 180 °C , 90±30 sec  
 Soldering Zone : 230°C or higher , 30±10 sec

### 15. Approval by UL248-14

The fuses have been approved by UL.  
 File No. of UL Recognition is E241710



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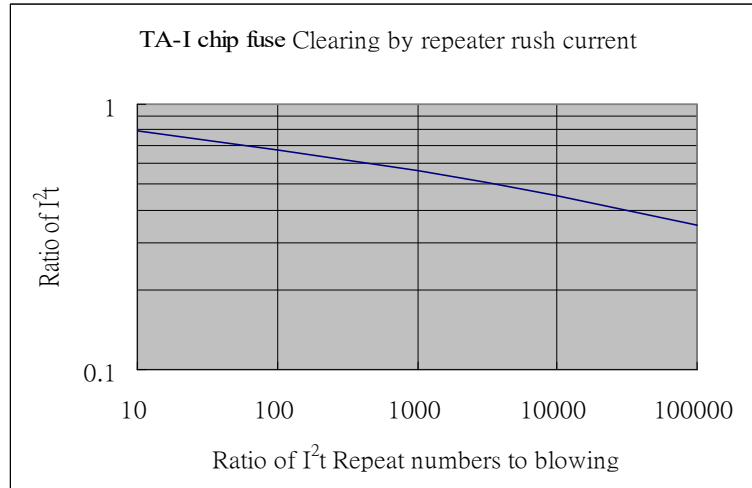


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### 16. Pulses derating curve:



### 17. 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.

### 18. Manufacturing Country & City :

TA-I TECHNOLOGY CO., LTD. ( Taiwan– Tao Yuan )

Tel: (+886) 3-3246169 Fax : (+886) 3-3246167

#### Associated companies :

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(3) FORTUNE TASK RESISTOR FACTORY ( China – Dongguan )

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(4) TAI OHM ELECTRONICS ( M ) SDN. BHD. ( Malaysia – Penang )

Tel : (+60) 4- 3900480 Fax : (+60) 4-3901481

(5) P.T.TAI ELECTRONIC Indonesia ( Indonesia – Jakarta )

Tel : (+62) 21-89830123 Fax : (+62) 21-89830703





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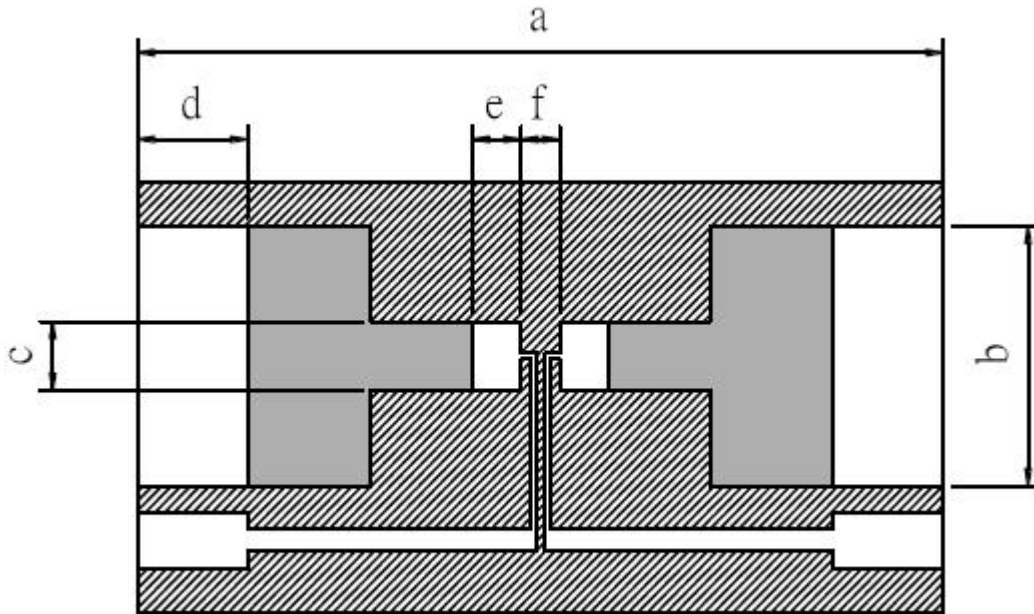


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### 19. Test Circuit Board :



Type	a	b	c	d	e	f
CFM0603	19	6	1.6	2.6	1.15	0.9



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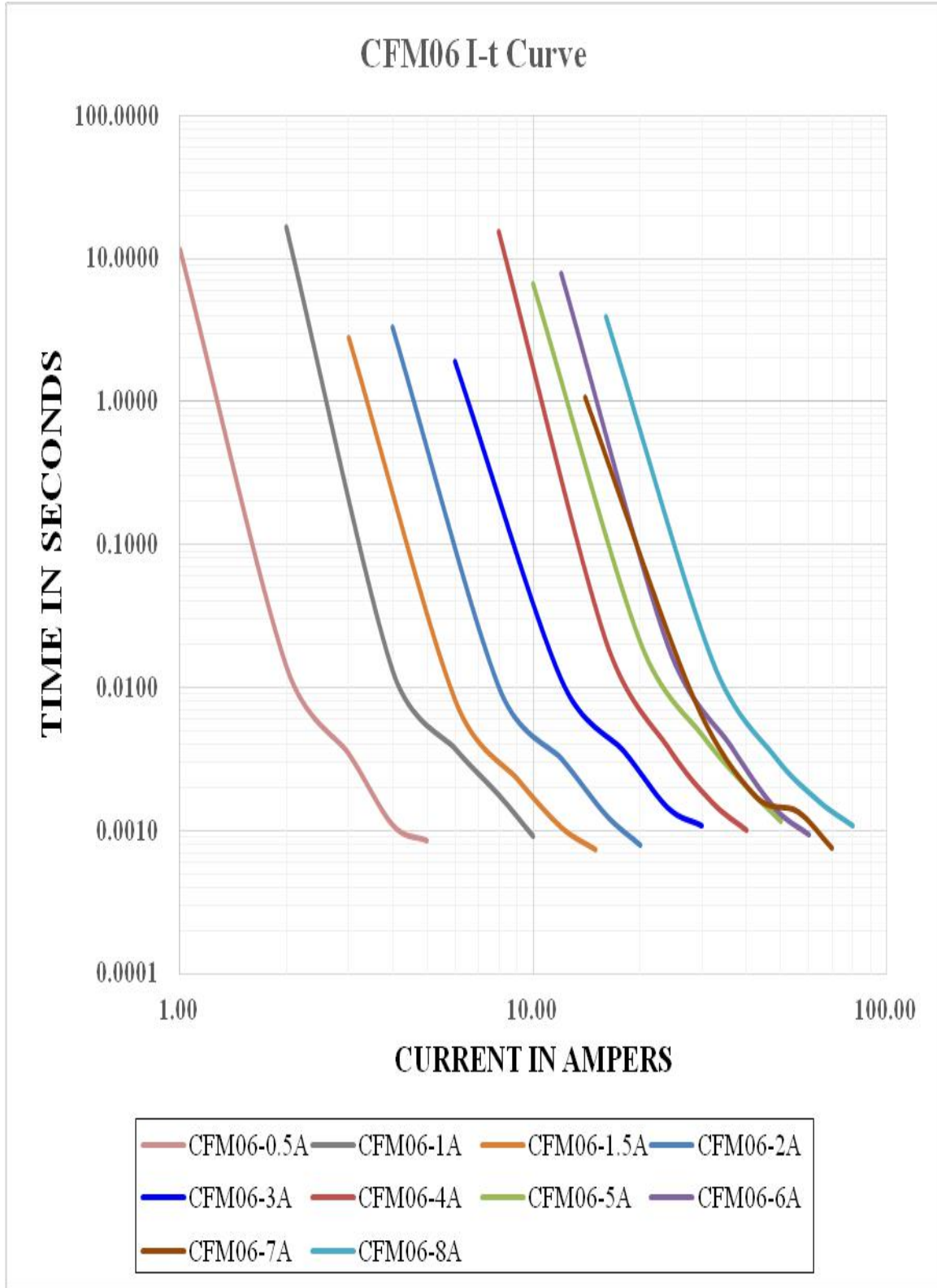


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TA-I 0603 Chip Fuse I-t Curve





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### TA-I 1206 Chip Fuse I2-t Curve

