

Engineering Product Specification

S1206 Series

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Rev. #	Revision Description	Date	Author	Appr.
A	Original	3/26'07	SEA	C. X. M.
B	Add Application;Update UL No.;Correct Interrupting Rating.	8/22'08	Jesse	SEA
C	Add Halogen-free; Update Interrupting Rating from 35A to 50A; Add p/n "S1206-6.5A"; 1000%IN: "0.6-20mS" .	9/25'08	Jesse	SEA
D	Update item 2、 item 9.	11/5'08	Jesse	SEA
E	Update I ² T data; t-C Curve & I ² T-t Curve.	11/24'08	Jesse	SEA
F	Update Electrical Characteristics	1/06'09	Jesse	Alan
G	Update Cold Resistance & Electrical Characteristics	7/15'09	Rock	Alan

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1. Scope

This Specification applies to S1206 series SMD fuses.

2. General

- Slow Blow(Time Delay),high inrush withstand capability
- RoHS compliant
- Halogen-free
- 3.1mm×1.55mm physical size
- Thick film manufacturing method,ceramic substrate, silver fusing element
- Higher temperature profiles
- Excellent environmental integrity

3. Manufacturer and Production Facility

- Manufacturer
Nanjing Sinochip Technology & development Co.,
Ltd. Qingma Road 6#
Maqun Science & Technology Park
Nanjing City, Jiangsu Province, P. R. China
Phone: 086-25-52153215
Fax: 086-25-52157065

4. Agency / Certificate Information

- UL Recognition Card:
JDYX2.E319540, JDYX8.E319540
- ISO 9001:2000, Certificate Number 10807Q10334ROS

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5. Catalog Symbol

Example S1206-1.0A

S **1206-1.0A**

① ② ③ ④

- ①. Symbol of SINOCHIP Electrical Characteristic: S = Slow blow
- ②. Size Number
- ③. Ampere Rating: 1A

6. Ordering Information

Part Number	Mark	Current Rating (A)	Voltage Rating (V)	Interrupting Rating 32V DC	Typical Cold DCR* (Ω)	Nominal I ² T** (A ² S)
S1206-0.5A	F	0.50	32	50A	1.344	0.0200
S1206-0.75A	G	0.75	32	50A	0.672	0.0358
S1206-1.0A	H	1.00	32	50A	0.358	0.1945
S1206-1.5A	K	1.50	32	50A	0.157	0.4137
S1206-2.0A	N	2.00	32	50A	0.103	0.4383
S1206-2.5A	O	2.50	32	50A	0.073	0.7343
S1206-3.0A	P	3.00	32	50A	0.041	1.5267
S1206-3.5A	R	3.50	32	50A	0.035	1.5312
S1206-4.0A	S	4.00	32	35A	0.027	2.5356
S1206-5.0A	T	5.00	32	35A	0.019	3.3999
S1206-6.0A	6	6.00	32	35A	0.015	5.7505
S1206-7.0A	U	7.00	32	35A	0.008	8.8200

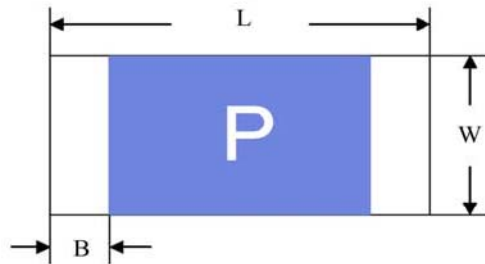
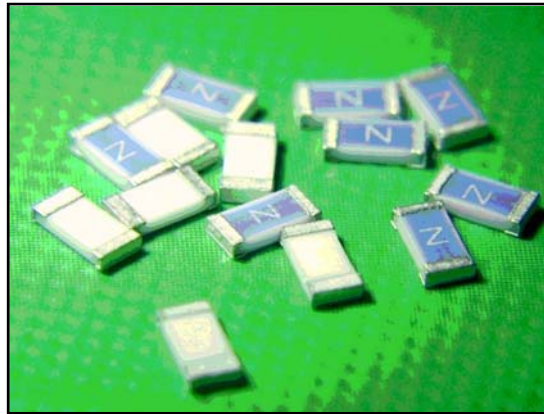
* Measured at ≤10% rated current and 25°C.

** Melting I²T at 10 times of rated current.

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7. Shape & Dimensions: (mm)

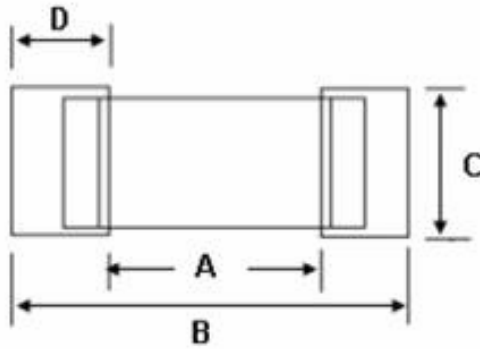


L	W	T	B
3.10±0.20	1.55±0.20	0.55±0.20	0.40±0.10

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8. Recommended Land Patterns: (mm)



A	B	C	D
2.1±0.3	4.7±0.5	1.5±0.3	1.5±0.3

9. Materials:

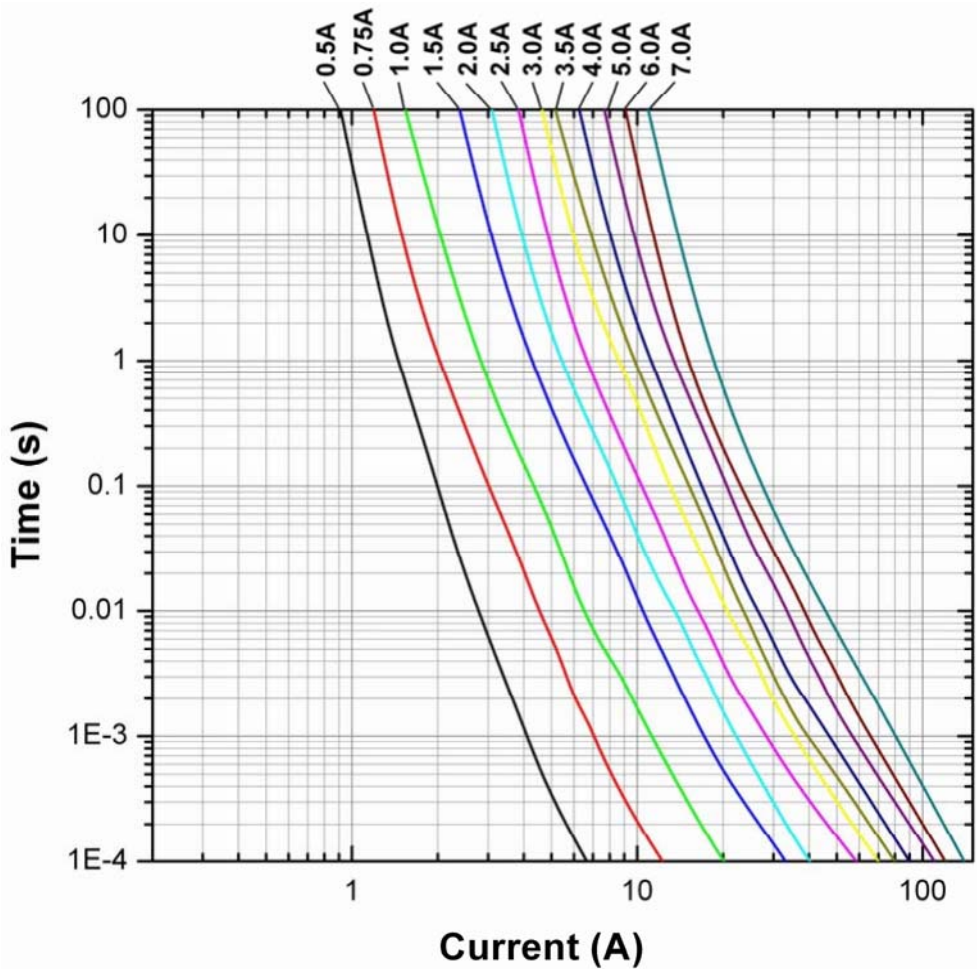
	Components	Material
1	Substrate	Ceramic
2	Terminations	Silver over-plated with tin (100%)
3	Element	Silver or Silver / Palladium

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10. Time Current Curve:

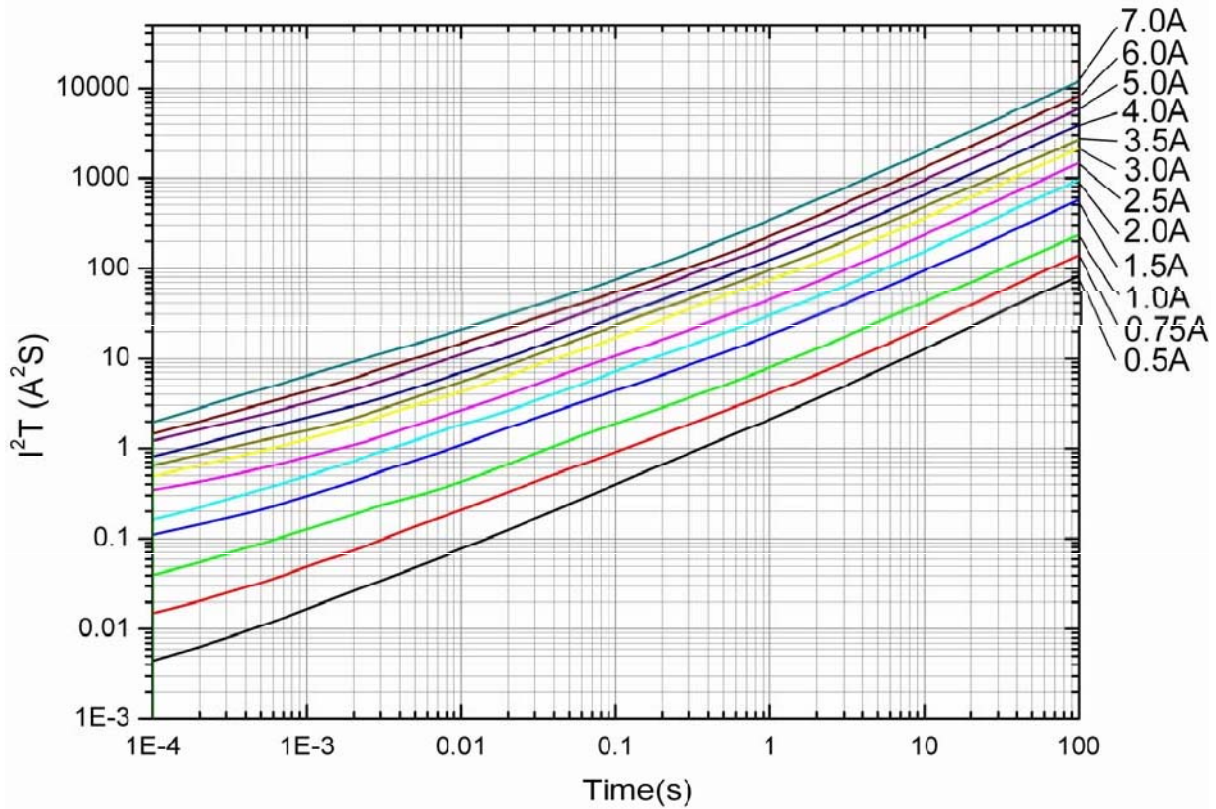
Electrical Characteristics		
Ampere Rating	% of Current Rating	Opening Time
500mA-7A	100%	4 Hours Min.
500mA-7A	200%	60 Seconds Max.
500mA-750mA	1000%	0.5~4ms
1A-7A	1000%	1-5ms



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11. I²T vs Time Curve:



12. Temperature Derating Curve: (Ambient temperature on current-carrying capacity)

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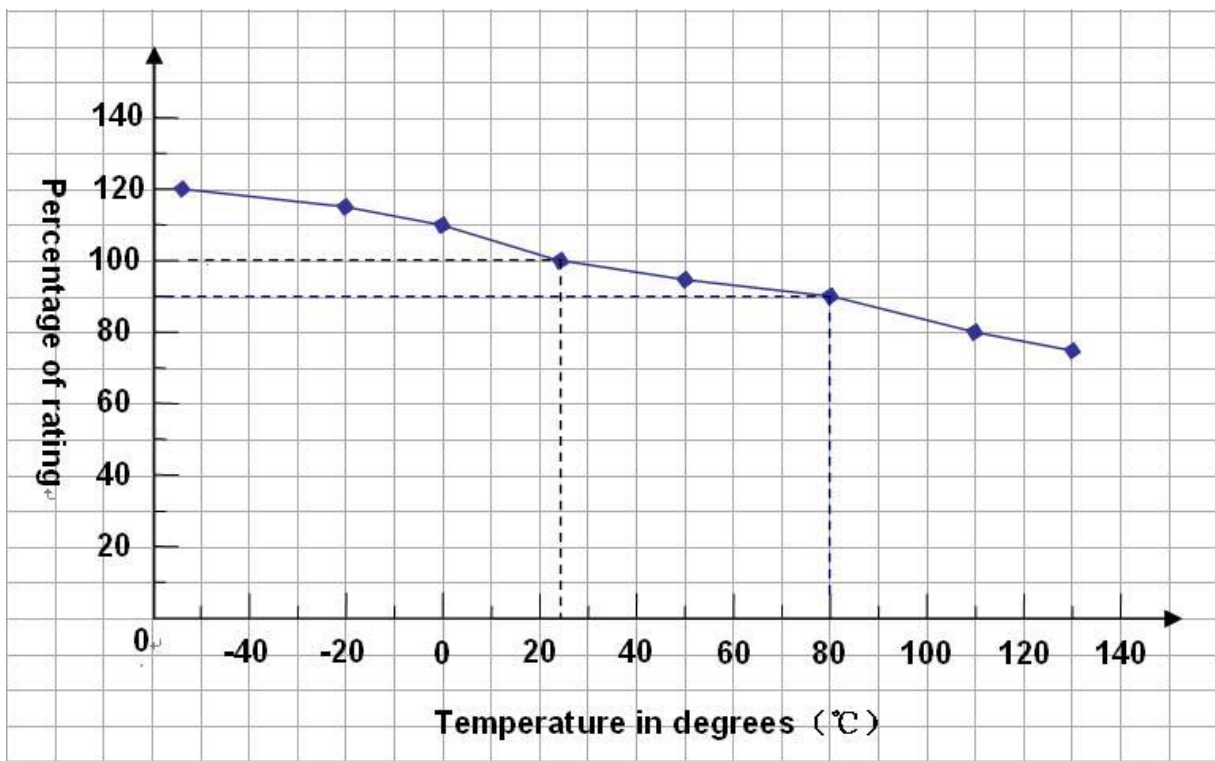
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- For Circuit,current rating shall be derated in accordance with the figure.
- This current derating curve is for fusing characteristics.

Example,

Work Temp:80°C, Temp derating factor = 90%

$$\text{Melting } I^2t_{\text{fuse}} \geq I^2t_{\text{pulse}} / Fp / 0.9$$



13. Reliability Test:

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Characteristics	Test condition / Methods	Requirement	Test Reference
Carrying capacity	100% of its rated current	No Fusing, 4hr min	Refer to SINOCHIP File
Fusing Time	200% of its rated current (500~7A)	Within 60sec	Refer to SINOCHIP File
	1000% of its rated current (500~750mA)	Within 0.0005~0.004sec	Refer to SINOCHIP File
	1000% of its rated current (1~7A)	Within 0.001~0.005sec	Refer to SINOCHIP File
Solderability	235°C±5 °C, 3s±0.5s	95% coverage min	IEC60127/A.3.3; IEC60068-2-20; MIL-STD-202 Method 208H
Resistance to soldering	260°C±5 °C, 10s±0.5s	ΔR:<10%	MIL-STD-202 Method 210
Bending test	Distance between holding points: 90mm, Bending: 1mm, 1time, 10sec	(1) No mechanical damages (2) ΔR: <10%	Refer to SINOCHIP File
High Temperature Operating Life	96hours, 125°C at 60% rated current. Measure cold resistance and Time-Current characteristics.	(1)ΔR: <10%; (2)100% of Rating Current, Opening time >4 hours (3)200% of Rating Current, Opening time <60 seconds	MIL-STD-202 Method 108
Moisture Resistance	10 Cycles. Measure cold resistance and Time-Current characteristics.	(1)ΔR: <10%; (2)100% of Rating Current, Opening time >4 hours (3)200% of Rating Current, Opening time <60 seconds	MIL-STD-202 Method 106
High Temperature Exposure	1000 hrs. @ T=125°C. Unpowered. Measure cold resistance, and Time-Current characteristics.	(1)ΔR: <10%; (2)100% of Rating Current, Opening time >4 hours (3)200% of Rating Current, Opening time <60 seconds	MIL-STD-202 Method 108
Insulation Resistance	DC resistance	0.1MΩ min	IEC60127-4
ON /OFF Cycle Test	Surge current and 100% rated current; 50s ON; 10s OFF; 100,000 Cycles	(1)No open; (2)100% of Rating Current, Opening time >4 hours (3)200% of Rating Current, Opening time	Refer to SINOCHIP File

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		<60 seconds	
Salt spray	5% salt solution, 48 hours exposure	$\Delta R: <10\%$	MIL-STD-202 Method 101
Thermal Shock	10 cycles between $-55^{\circ}\text{C}/+125^{\circ}\text{C}$, 30 minutes @each extreme	No mechanical damage; $\Delta R: <10\%$	IEC 60068-2-14
Interrupting Ability	Loading current 50A	without permanent arcing,ignition and bursting of fuse link	UL248-14

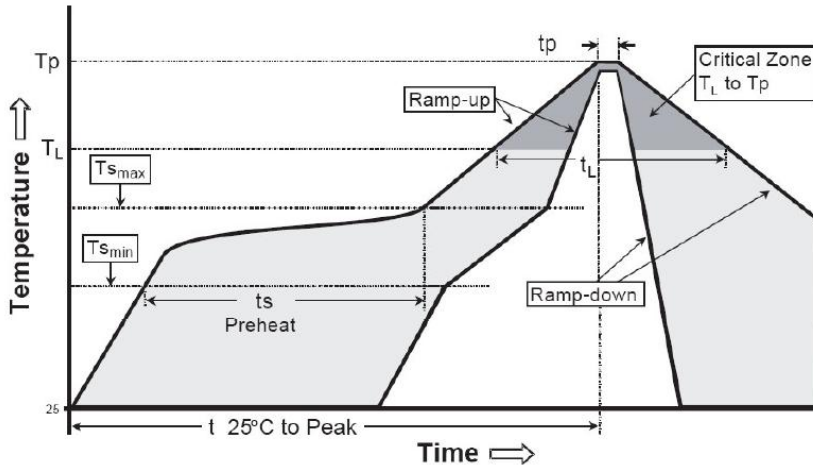
14. Recommended Solder Curve:

14.1 Infrared Reflow

14.1.1 Temperature:260°C

14.1.2 Time:30 Seconds Maximum

14.1.3 Recommend Reflow profile



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate($T_{s_{max}}$ to T_p)	3°C/second max.
Preheat	
Temperature Min($T_{s_{min}}$)	150°C
Temperature Max($T_{s_{max}}$)	200°C
Time($T_{s_{min}}$ to $T_{s_{max}}$)	60-120 seconds
Peak Temperature(T_p)	260°C
Time within 5°C of actual Peak Temperature(T_p)	20-40 seconds
Ramp-Down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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14.2 Wave soldering

14.2.1 Reservoir Temperature:260°C

14.2.2 Time in Reservoir:10 Seconds Maximum

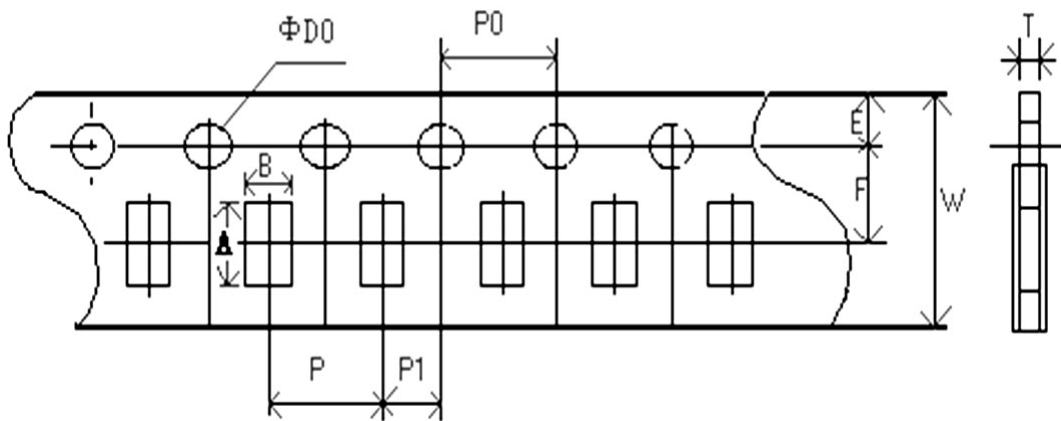
14.3 Hand Soldering

14.3.1 Temperature:380°C

14.3.2 Time:5 Seconds Maximum

15. Packaging:

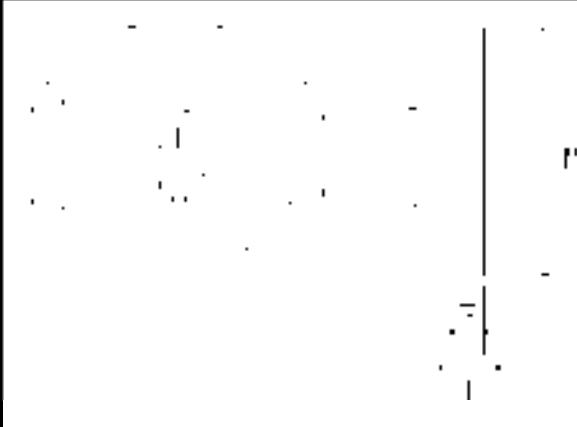
- 5,000 pieces of fuses in paper taper and reeled on a 178mm(7 inch) reel.



Type	A	B	W	F	E
S1206	3.50 ±0.20	1.90 ±0.20	8.00 ±0.20	3.50 ±0.05	1.75 ±0.10
Type	P	P0	P1	D0	T
S1206	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.50 ±0.10	0.75 ±0.10

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Type	M	W	T	A	B	C	D
S1206	178 ±2.0	10.0 ±1.5	12.0 ±2.0	2.5 ±0.5	13.0 ±0.5	31.0 ±1.0	80.0 ±1.0

16. Storage:

- The maximum ambient temperature shall not exceed 40°C. Storage temperature higher than 40°C could result in the deformation of packaging materials.
- The maximum relative humidity recommended for storage is 65%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components.
- Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.

17. Application:

- PC related equipment and peripherals(Hard drive,Printer,etc.)
- Portable devices(Mobile phone,PDA battery charger,etc.)
- Digital camera(Digital still camera)
- Game equipment
- LCD monitor,LCD modules,LCD backlight inverter,LCD panel
- Wireless basestation
- Cooling fan system
- Networking
- Industrial equipment
- Medical equipment

END

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