

INDIVIDUAL SPECIFICATION SHEET

Product Name: 1206 Slow Blow SMD Fuses

Part Number: F12Tx

Revision: A/2



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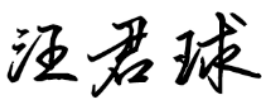
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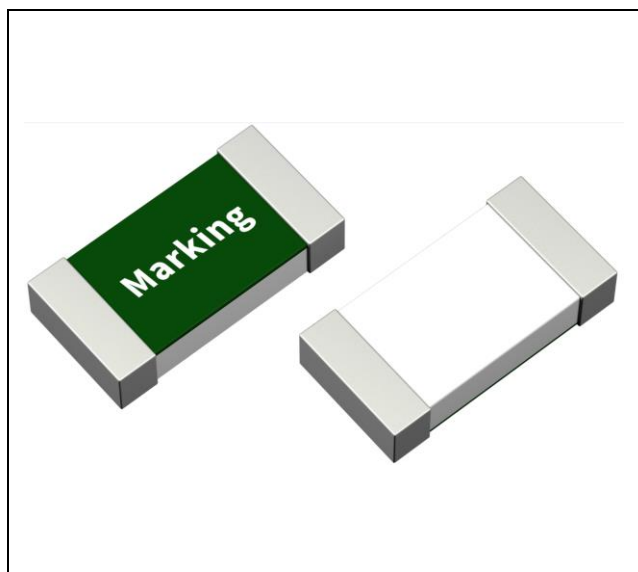
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Rev.	Effective Date	Changed Contents
A/0	2020-9-25	New Release
A/1	2021-3-11	Update Specifications
A/2	2022-9-22	Update Template

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Description

- Thick film manufacturing method, ceramic substrate.
- Slow Blow SMD Fuses for over current protection.
- Ultra small physical size, 3.20mm×1.6mm.
- Excellent heat and shock tolerant.
- -55℃~125℃ operating temperature.

Application

- Power supply and battery pack
- Lamps and LED
- Power tools
- PC related equipment and peripherals (Hard driver, Printer, etc.)
- Digital camera (Digital still camera)
- Game equipment
- LCD monitor and LCD modules
- Wireless base station
- Medical device

Electrical Characteristics

Operating Characteristics			
Model	250%In	350%In	100 %In
F12T 0.63-5	5s Max	—	4 hrs Min
F12T 6-30	—	5s Max	4 hrs Min

In : Rating Current

Specifications

Part No.	Rated Voltage	Rated Current	Breaking Capacity ¹	Typical Cold Resistance ² (mΩ)	Typical Voltage Drop (mV)	Typical Pre-Arcing I ² t (A ² Sec) ³	Marking
F12T0.63	72V DC	0.63	50A@72Vdc	1080	950	0.009	B
F12T0.75	72V DC	0.75	50A@72Vdc	850	900	0.01	.75
F12T1	72V DC	1	50A@72Vdc	480	510	0.11	H
F12T1.25	72V DC	1.25	50A@72Vdc	330	500	0.15	H
F12T1.5	72V DC	1.5	50A@72Vdc	230	367	0.17	K
F12T1.75	72V DC	1.75	50A@72Vdc	180	450	0.20	E
F12T2	72V DC	2	50A@72Vdc	135	316	0.41	N
F12T2.5	72V DC	2.5	50A@72Vdc	75	240	0.68	O

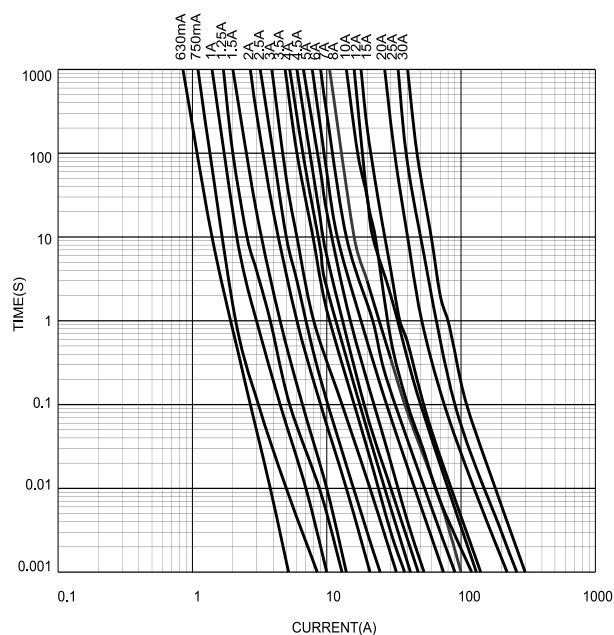
Part No.	Rated Voltage	Rated Current	Breaking Capacity ¹	Typical Cold Resistance ² (mΩ)	Typical Voltage Drop (mV)	Typical Pre-Arcing I ² t (A ² Sec) ³	Marking
F12T3	72V DC	3	50A@72Vdc	47	187	1.5	P
F12T3.5	72V DC	3.5	50A@72Vdc	38	180	2	R
F12T4	72V DC	4	50A@72Vdc	34	173	2.5	S
F12T4.5	32VDC 24VDC	4.5	50A@32Vdc 300A@24Vdc	29	164	2.65	X
F12T5	32VDC 24VDC	5	50A@32Vdc 300A@24Vdc	24	145	4	T
F12T6	32VDC 24VDC	6	50A@32Vdc 300A@24Vdc	16	140	12	F
F12T7	32VDC 24VDC	7	50A@32Vdc 300A@24Vdc	12.3	130	14	7
F12T8	32VDC 24VDC	8	300A@24Vdc 150A@32Vdc	8.3	123	16	M
F12T10	32VDC 24VDC	10	300A@24Vdc 150A@32Vdc	6.5	110	22	U
F12T12	32VDC 24VDC	12	300A@24Vdc 150A@32Vdc	5	85	11.5	12
F12T15	32VDC 24VDC	15	300A@24Vdc 150A@32Vdc	3.7	78	16.5	15
F12T20	32VDC 24VDC	20	300A@24Vdc 150A@32Vdc	3.4	69	72	Q
F12T25	32VDC 24VDC	25	300A@24Vdc 150A@32Vdc	1.6	90	60	L
F12T30	32VDC 24VDC	30	300A@24Vdc 150A@32Vdc	1.3	90	100	Z

Note

- 1.DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)
- 2.DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25℃
3. Typical Pre-arcing I²t are measured at 10In Current

Pre-Arcing Time-Current Characteristics

please refer Temperature-Current curve:



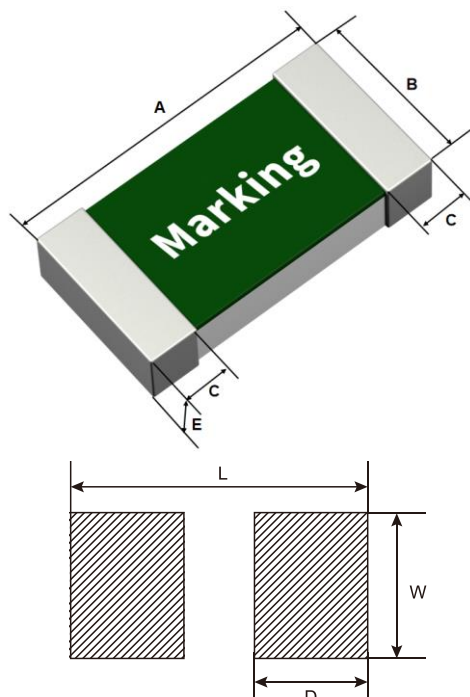
A 3D schematic diagram of a microchip structure. The chip consists of a substrate with a central green rectangular region labeled "Marking". The chip is divided into several sections by vertical lines. On the left side, there are three layers labeled Sn, Ni, and Ag. On the right side, there are five numbered labels ① through ⑤ pointing to different layers or features of the chip structure.

No.	Component	Materials
①	Terminal & pad	Ag / Ni / Sn
②	Substrate	Alumina Ceramic
③	Protective Overglaze	Glass
④	Marking	Glass
⑤	Fuse element	Silver

Diagram illustrating the structure of the product model code: F-12-T-XX-X.

- F: Product model code
- 12: Size 0.12inch and 0.06inch& 1206 Encapsulation
- T: Slow Blow Characteristic
- XX: Rated Current
- X: Internal ID Code

Shape & Dimensions



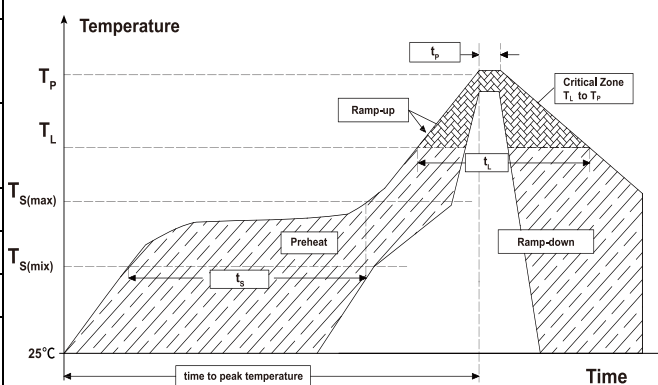
Model	F12T series
A	3.20 ± 0.20 mm
B	1.60 ± 0.20 mm
C	0.50 ± 0.20 mm
E	0.70 ± 0.20 mm

Recommended Size of the Pad			
L	W	D	t
4.56mm	2.03mm	1.52mm	$\geq 35\mu\text{m}$

t : Thickness of pad metal

Soldering Parameters

Reflow Methods		
Reflow Condition		Lead (Pb) free solder
Preheat and soak	Temperature min. T_s (min)	150°C
	Temperature max. T_s (max)	200°C
	Time (T_s min to T_s max) (t_s)	60 - 180 Seconds
Average ramp up rate T_s (max) to T_L		5 °C / Second Max.
Reflow	Liquidous temperature (T_L)	217°C
	Time at liquidous (t_L)	60 - 150 Seconds
Peak package body temperature (T_p)		260^{+0}_{-5} °C
Time within 5°C of actual peak temperature (t_p)		10-30 Seconds
Average ramp-down rate		6°C / Second Max.
Time (25°C to Peak Temperature)		8 Minutes Max.
Do not exceed		260°C



Soldering iron welding:

Soldering iron temperature: 350℃

Welding time: 3 seconds maximum

Wave solder

Reservoir temperature: 260℃

Time in reservoir: 10 seconds maximum

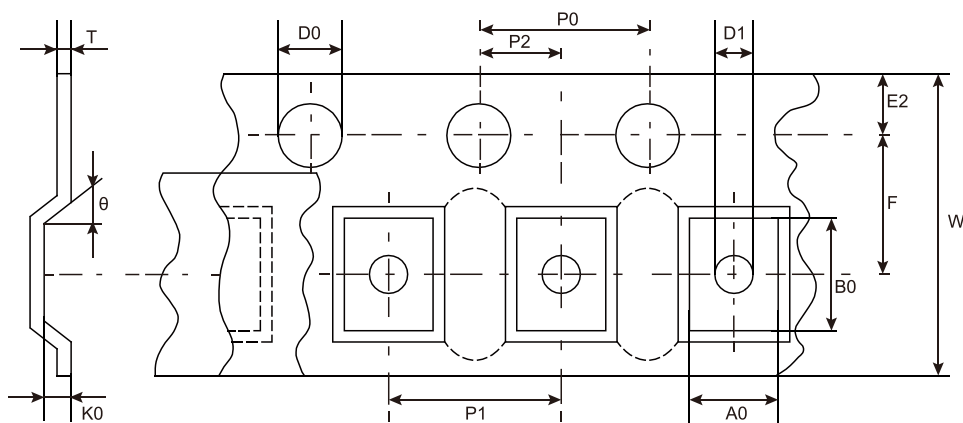
Packing Information & Storage Conditions
Quantity & Weight

Part No.	Quantity	Weight
F12Tx Series	3000pcs/Reel	97 ± 25 (g)

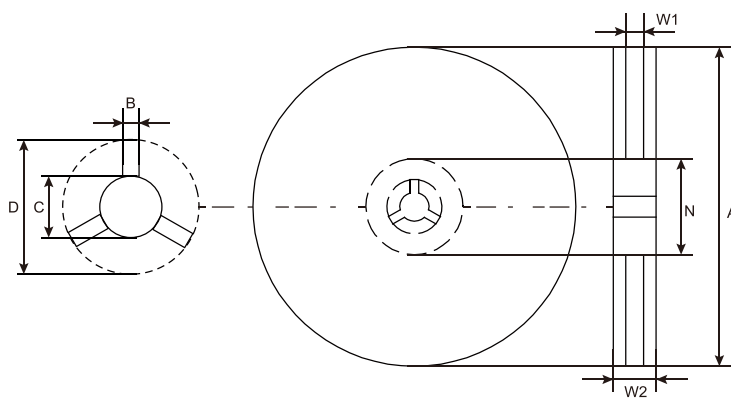
Storage Conditions

Under airtight in temperature 10℃~40℃, relative humidity ≤ 75% can store 2 years.

Without dew in temperature 10℃~40℃, relative humidity be 95% maximum value for 30 days.

Tape and Reel Specification


Item	A0	B0	D0	D1	E2	F	K0
Spec.(mm)	1.92±0.10	3.62±0.10	1.5 ^{+0.1} ₀	1.0 min	1.75 ± 0.10	3.50 ± 0.05	0.87±0.10
Item	P0	P1	P2	T	W	θ	
Spec.(mm)	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.05	8.00 ± 0.30	6° Max.	



Item	A	B	C	D	N	W1	W2
Spec.(mm)	178±5	1.6 Min.	12.8 Min.	20.8 Min.	58±2	8.4 Min.	12.4 Max.