

### Description

- Thick film manufacturing method, ceramic substrate.
- Slow Blow High Voltage SMD Fuses for over current protection.
- Ultra small physical size, 3.20mmx1.6mm .
- 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	Rated Current	250%I <sub>n</sub>	100 %I <sub>n</sub>
F12TH5	5A	5s Max	4 hrs Min

I<sub>n</sub> : Rating Current

### Specifications

Part No.	Rated Voltage	Rated Current(A)	Breaking Capacity <sup>1</sup>	Typical Cold Resistance <sup>2</sup> (mΩ)	Typical Voltage Drop (mV)	Typical Pre-Arcing I <sup>2</sup> t (A <sup>2</sup> Sec) <sup>3</sup>	Marking
F12TH5	72V DC	5	50A@72VDC 50A@63VDC 50A@32VDC	22	145	4	T

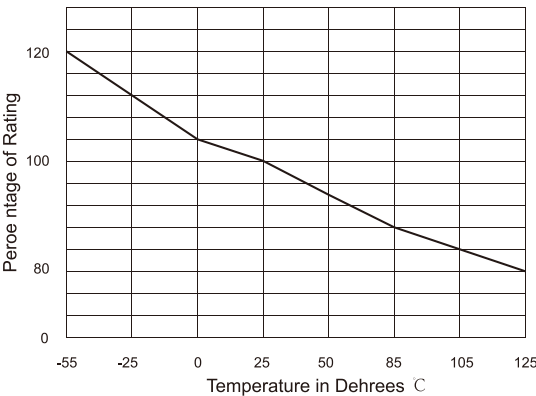
#### Note

- 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 I<sup>2</sup>t are measured at 10I<sub>n</sub> Current

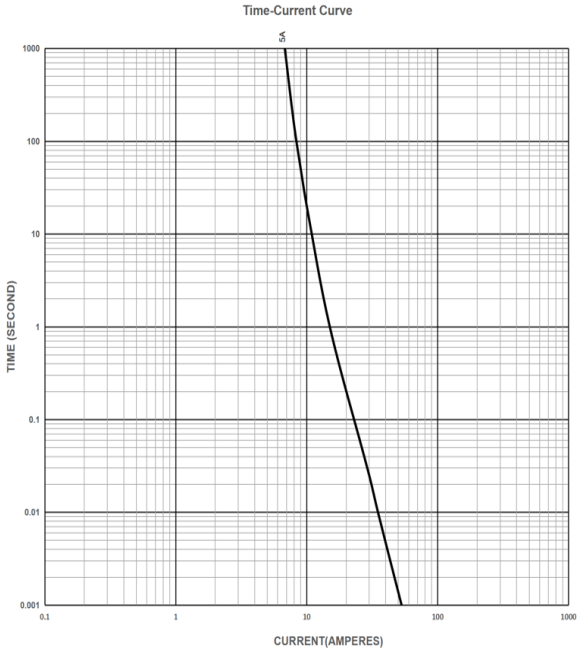
### Temperature-Current Curve

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from 20~26℃, you should consider the environmental temperature's affection to fuses.

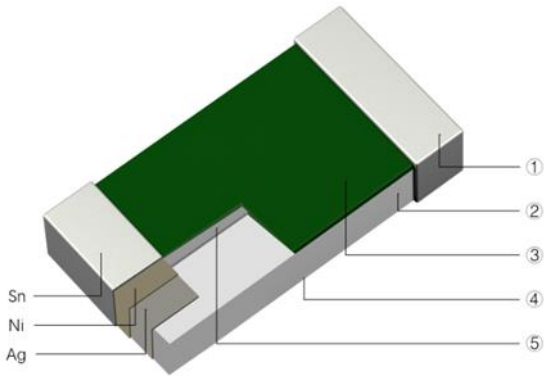
please refer Temperature-Current curve:



### Pre-Arcing Time-Current Characteristics

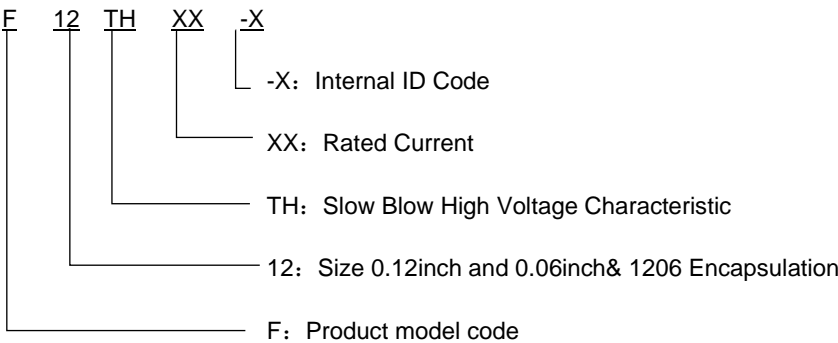


### Product structure and materials

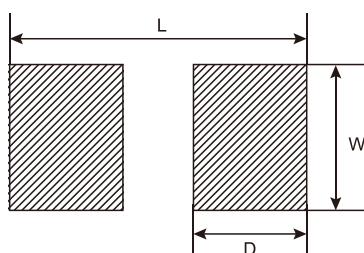
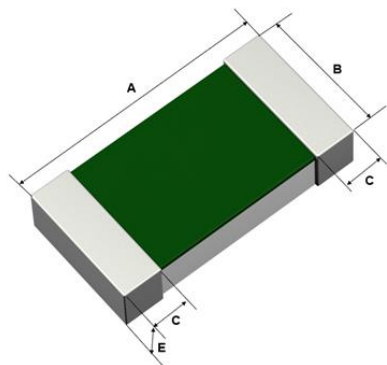


No.	Component	Materials
①	Terminal & pad	Ag / Ni / Sn
②	Substrate	Alumina Ceramic
③	Protective Overglaze	Glass
④	Marking	Glass
⑤	Fuse element	Silver

### Product Model and Code



## Shape & Dimensions



Model	F12TH series
A	$3.20 \pm 0.20$ mm
B	$1.60 \pm 0.20$ mm
C	$0.50 \pm 0.20$ mm
E	$0.70 \pm 0.20$ mm

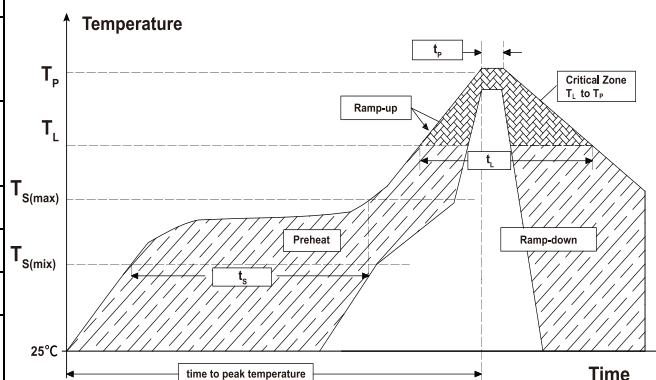
### Recommended Size of the Pad

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 ( $T_p$ )		$260 \pm 5^\circ\text{C}$
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°C

Welding time: 3 seconds maximum

### Wave solder

Reservoir temperature: 260°C

Time in reservoir: 10 seconds maximum

### Packing Information & Storage Conditions

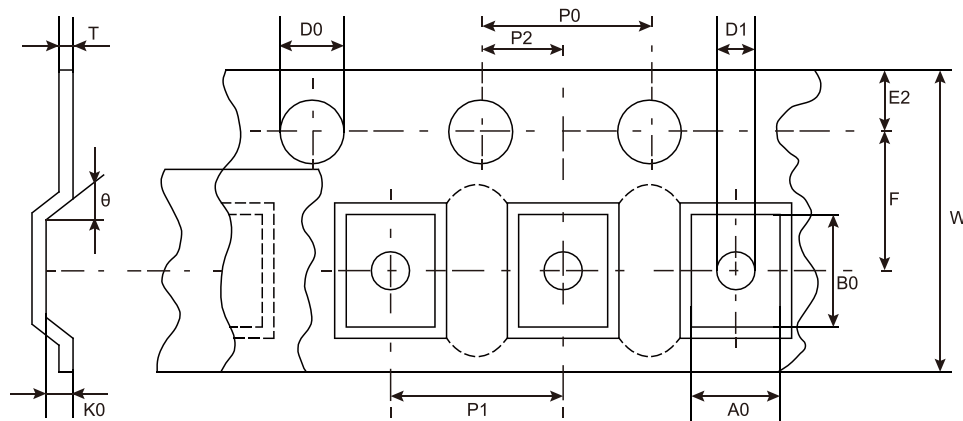
Quantity & Weight		
Part No.	Quantity	Weight
F12THx Series	3000pcs/Reel	97 ± 25 (g)

#### Storage Conditions

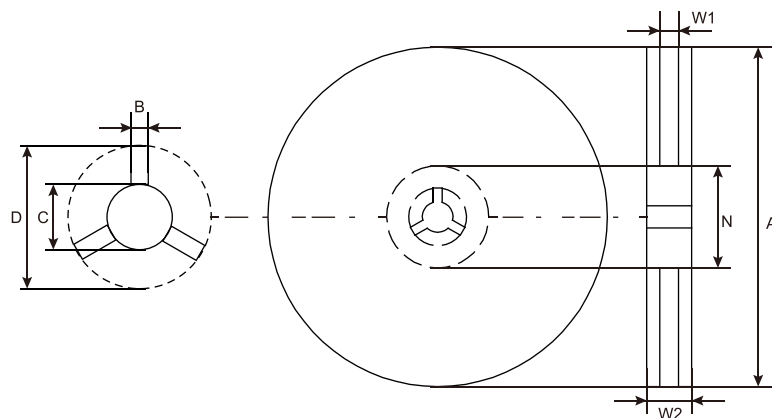
Under airtight in temperature 10℃~40℃, relative humidity  $\leq 75\%$  can store 2 years.

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 <sup>+0.1</sup> <sub>0</sub>	1.0 min	1.75 ± 0.10	3.50 ± 0.05	0.87±0.10
Item	P0	P1	P2	T	W	theta	
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.