

APPROVAL SHEET

PRODUCT **CHIP INDUCTORS (WFI2520FS)**

SERIES WFI2520FS

PART NO. _____

DESCRIPTION _____

ISSUE DATE 2023/09/23

REVISION DATE 2023/09/23

REFERENCE NO. ENS000180730

RoHS COMPLIANCE ITEM

Halogen Free

CUSTOMER APPROVAL

CUSTOMER _____

CUSTOMER PN _____

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Tel. 886-3-475-3711 www.passivecomponent.com

■ **Manufacturer:** INPAQ Technology Co., Ltd.
No.11, Ke-Yi St., Chunan, Miaoli 35059, Taiwan
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Note:

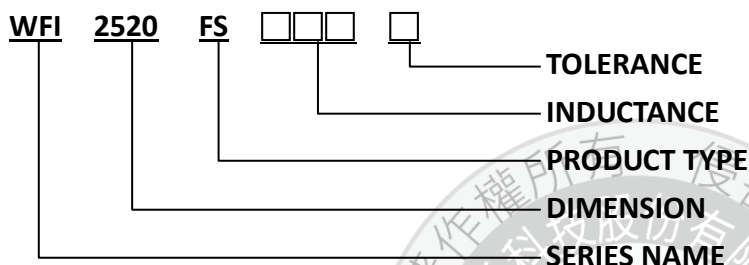
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CHIP INDUCTORS Engineering Specification

1. Scope

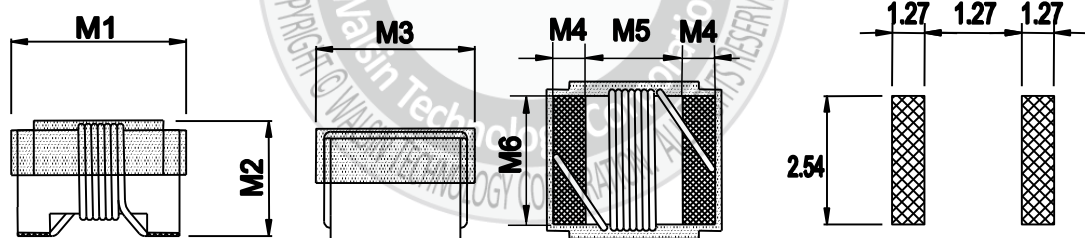
- Ferrite core wire wound construction.
- High Reliability due to wire wound type construction.
- Inductance values from 0.047 to 22 μ H.
- Application for DC power line.

2. Explanation of Part Number



3. Shapes and Dimensions

UNIT: mm



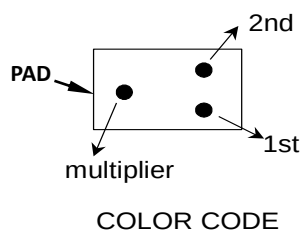
Recommended
Recommended Patterns

Series	M1	M2	M3	M4	M5	M6
WFI2520FS	2.92 MAX.	1.83 $\pm$ 0.2	2.59 $\pm$ 0.2	0.50 $\pm$ 0.1	1.51 $\pm$ 0.1	2.03 $\pm$ 0.1

4. General Technical Data

- OPERATING TEMPERATURE RANGE : -25 $^{\circ}$ C TO +125 $^{\circ}$ C
- STORAGE TEMPERATURE RANGE : COMPONENT: -25 $^{\circ}$ C TO +85 $^{\circ}$ C

5. MARKING



Marking Direction: PAD on the left and right sides, color code 1st and 2nd on the right, color code 3 multiplier on the left.

Example: WF12520FS2R7□

MARKING: Dots 1st and 2nd indicate the inductance in nano Henries.

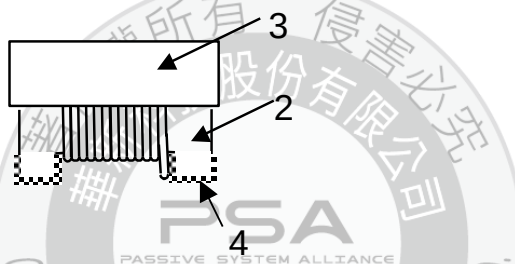
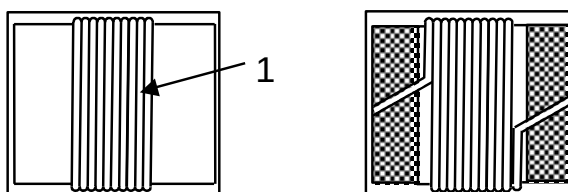
(DOTS 1st: RED , DOTS 2nd: VIOLET)

Dots 3 indicates number of zeroes to be added.

(DOTS 3multiplier: RED)

MARK COLOR CODE IN COMPOSITE ELECTRICAL SPECIFICATION.

6. Structure



7. Material List

ITEM	MATERIAL CATEGORY	MATERIAL TYPE
1	WIRE	POLYSOL
2	CORE	FERRITE
3	EPOXY	UV TYPE
4.	TERMINAL PLATING	Ag+Ni+Sn

8. Test Instrument

- Inductance 、 Q : TEST BY KEYSIGHT HP4991B or equivalent.
- SRF : TEST BY KEYSIGHT HP4991B or equivalent.
- DC Resistance : TEST BY CHROMA 16502 or equivalent.

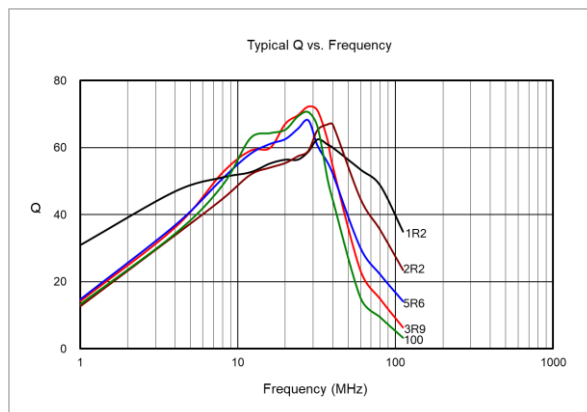
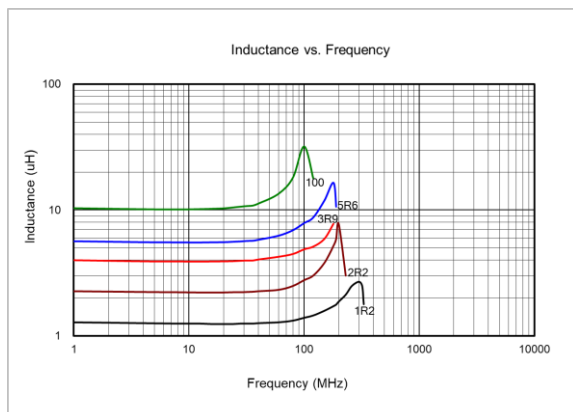
9. Electrical Specification

Part number	Inductance (μH)	Test Frequency (MHz)	Inductance Tolerance	Q MIN.	Test Frequency (MHz)	SRF (MHz) MIN.	DC Resistance (Ω) MAX.	I _{rms} (mA)	COLOR CODE		
									1st	2nd	multiplier
WFI2520FS47N□	0.047	50	K,J	50	50	1800	0.045	650	Yellow	Violet	Black
WFI2520FS68N□	0.068	50	K,J	50	50	1800	0.045	650	Blue	Gray	Black
WFI2520FS82N□	0.082	50	K,J	50	50	1800	0.035	1000	Gray	Red	Black
WFI2520FSR10□	0.10	50	K,J,H	50	50	1800	0.196	700	Brown	Black	Brown
WFI2520FSR18□	0.18	50	K,J	50	50	1000	0.290	700	Brown	Gray	Brown
WFI2520FSR20□	0.20	50	K,J	50	50	900	0.285	700	Red	Black	Brown
WFI2520FSR24□	0.24	50	K,J	50	50	900	0.135	700	Red	Yellow	Brown
WFI2520FSR56□	0.56	7.9	K,J	40	50	460	0.300	700	Green	Blue	Brown
WFI2520FSR68□	0.68	7.9	K,J	27	50	400	0.320	700	Blue	Gray	Brown
WFI2520FS1R0□	1.0	50	K,J	50	50	380	0.620	650	Brown	Black	Red
WFI2520FS1R2□	1.2	7.9	K,J	48	50	210	0.68	650	Brown	Red	Red
WFI2520FS1R5□	1.5	7.9	K,J	41	50	190	0.76	630	Brown	Green	Red
WFI2520FS1R8□	1.8	7.9	K,J	39	50	170	0.84	600	Brown	Gray	Red
WFI2520FS2R2□	2.2	7.9	K,J	34	50	150	1.10	520	Red	Red	Red
WFI2520FS2R7□	2.7	7.9	K,J	34	50	135	1.28	490	Red	Violet	Red
WFI2520FS3R3□	3.3	7.9	K,J	32	50	120	1.46	450	Orange	Orange	Red
WFI2520FS3R9□	3.9	7.9	K,J	32	7.9	105	1.56	420	Orange	White	Red
WFI2520FS4R3□	4.3	7.9	K,J	30	7.9	85	1.70	400	Yellow	Orange	Red
WFI2520FS4R7□	4.7	7.9	K,J	31	7.9	90	1.68	400	Yellow	Violet	Red
WFI2520FS5R6□	5.6	7.9	K,J	31	7.9	80	1.82	380	Green	Blue	Red
WFI2520FS6R8□	6.8	7.9	K,J	31	7.9	70	2.00	360	Blue	Gray	Red
WFI2520FS8R2□	8.2	7.9	K,J	23	7.9	65	2.65	330	Gray	Red	Red
WFI2520FS100□	10.0	7.9	K,J	31	7.9	60	2.95	300	Brown	Black	Orange
WFI2520FS120□	12.0	7.9	K,J	30	7.9	50	3.35	270	Brown	Red	Orange
WFI2520FS150□	15.0	7.9	K,J	38	7.9	50	3.04	250	Brown	Green	Orange
WFI2520FS220□	22.0	2.52	K,J	10	2.52	10	2.80	120	Red	Red	Orange

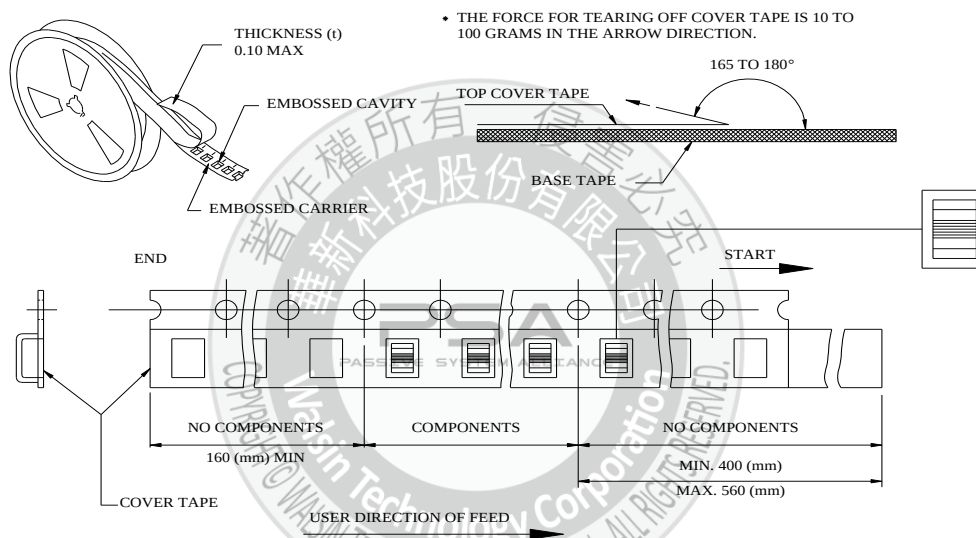
NOTE:

1. □Tolerance: K:±10%, J:±5%, H:±3%
2. MSL: Level 1

10. Electrical Curve



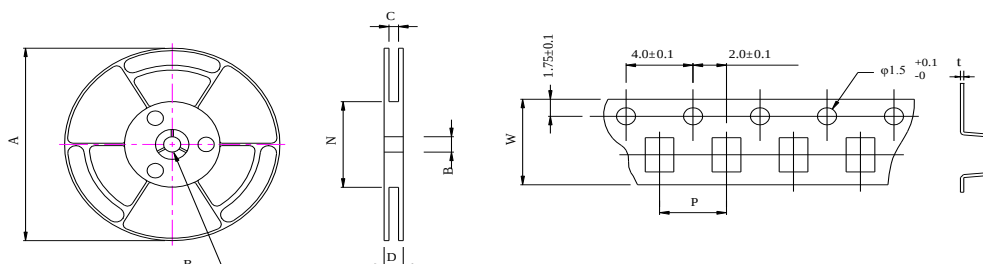
11. Packing



■ CARRIER TAPE REELS (mm)

MATERIAL: PLASTIC

■ DIMENSIONS OF CARRIER TAPE (mm)



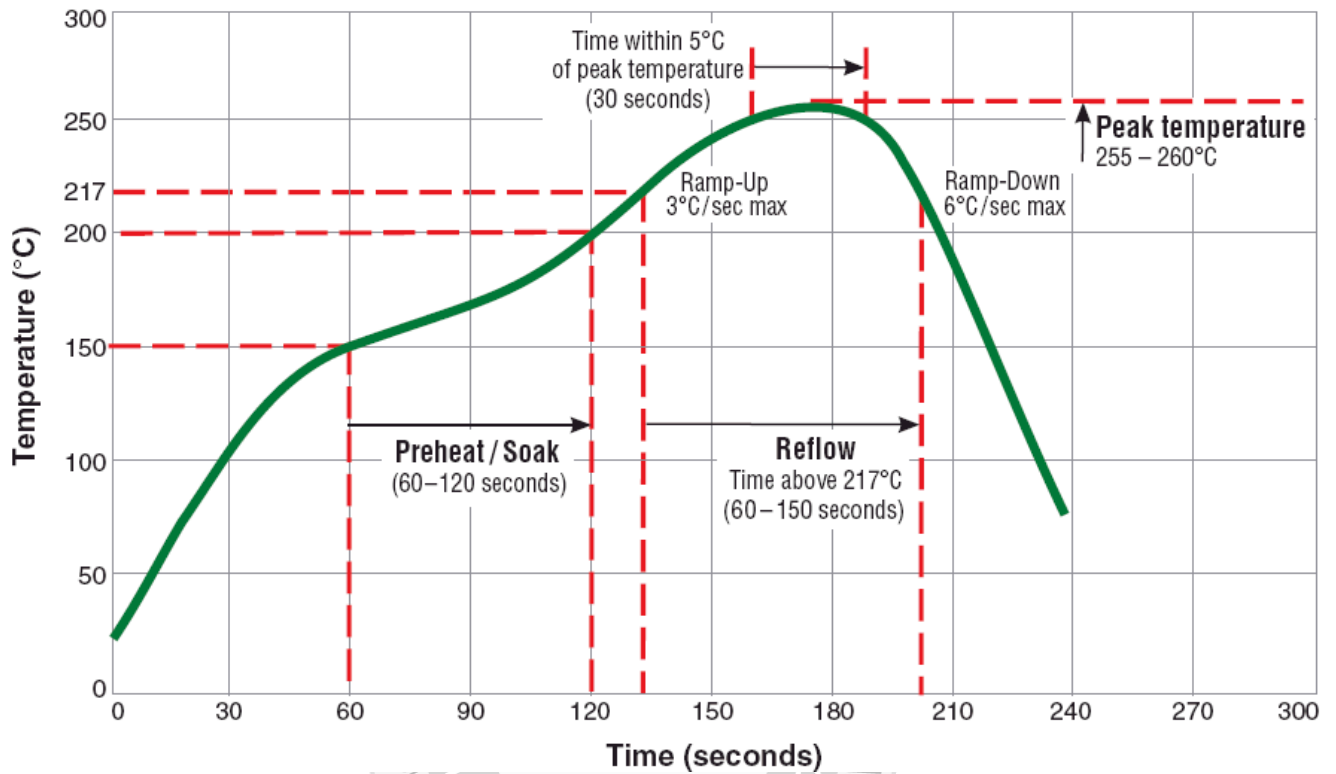
UNIT: mm

	A	B	C	D	N	P	W	t
DIM.	178	13.0	8.4	12.5	50	4.0	8.0	0.26
TOL.	±2.0	±0.8	+1.0-0	MAX.	MIN.	±0.1	±0.2	±0.05

Quantity : 2,000 Pcs/Reel

12. Recommended Soldering Conditions

Typical RoHS Reflow Profile



13. Reliability Performance

Reliability Experiment For Electrical

Test Item	Accept criteria	Test Condition	Standard Source
Humidity Test	1.Change from an initial value L:within±5% 2.no visible damage.	+40°C±2°C, humidity of 90%±5% (total 96 hours).	MIL-STD-202H Method 103 Test Condition B
High Temperature Test	1.Change from an initial value L:within±5% 2.no visible damage.	1.Temperature: +125°C±2°C. 2.Test time: 72±2hrs.	IEC 68-2 Test Condition B
Low Temperature Test	1.Change from an initial value L:within±5% 2.no visible damage.	1.Temperature: -25°C±2°C. 2.Test time: 72±2hrs.	IEC 68-2 Test Condition A
Thermal Shock	1.Change from an initial value L:within±5% 2.no visible damage.	+125°C±5°C (30 minutes) ~ -65±5°C (30 minutes), temperature switch time: 5 minutes (total 50 cycles).	Reference MIL-STD-202H Method 107 Test Condition B-2
Life Test	1.Change from an initial value L:within±5% 2.no visible damage.	+70°C±5°C (250Hours).	Reference MIL-STD-202H Method 108 Test Condition B

Reliability Experiment For Physical

Test Item	Accept criteria	Test Condition	Standard Source
Vibration Test	1.Change from an initial value L:within±5% 2.no visible damage.	10-55-10HZ, amplitude: 1.5mm, direction: X, Y, Z axes, each axis 2 hours (total 6 hours).	MIL-STD-202H Method 201
Solder Heat Resistance Test	1.no visible damage.	IR/convection reflow: Peak Temp 250±5°C for 30±5Sec. in air, Through 3 Cycle. Temperature Ramp:+1~4°C/sec.; Above 183°C, must keep 90 s - 120 s.	Reference MIL-STD-202H Method 210 Test Condition K (Reflow)
Solder Ability Test	1. Lead must have 95% above coverage.	Solder temp: 245±5°C, Immersion time: 5 second. Immersion rate: 25±6mm/sec.	J-STD-002D Test condition B1