



SPECIFICATION FOR APPROVAL



CUSTOMER: _____ FILE NO.: _____

CUSTOMER P/N: _____

DESCRIPTION: SMD TYPE MOLDING POWER INDUCTOR

PART NO: YSPI1050-101M

DATE: 2025年1月18日 REVISION: A

SPECIFICATION ACCEPTED BY:	
DRAWN BY	刘娟
CHECKED BY	薛德东
APPROVED BY	张伟波

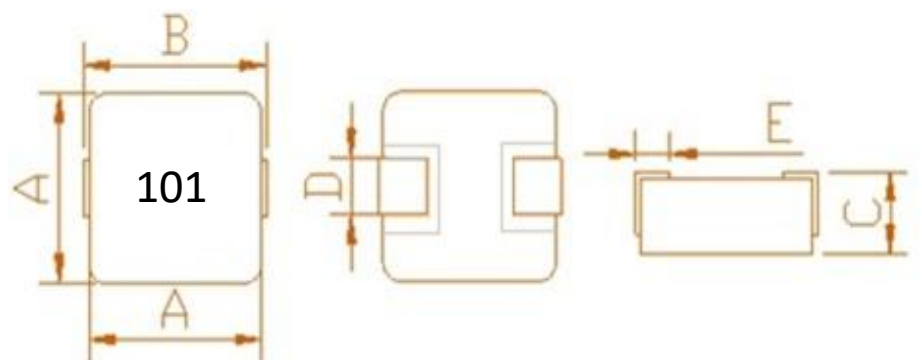
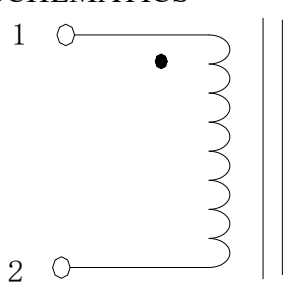
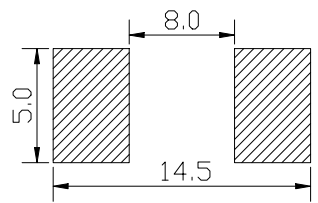
CUSTOMER CONFIRMATION	
Engineering Department	
Quality Department	
Purchasing department	

Note: if the customer does not sign back but has a formal order, it will be regarded as formal approval.

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Change Record:			
CHANGE DATE	CHANGE WRITING	MODIFY PERSON	REVISION
2025/1/18	New revision	薛德东	A
	Following Blank		A
APPROVED BY		CHECKED BY	DRAWN BY
张伟波		薛德东	刘娟

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1. DRAWING

ASSEMBLY (UNIT: mm)						SCHEMATICS
						
						SUGGESTED PCB LAYOUT
CODE	A	B	C	D	E	
DIMENSION	10.0±0.5	11.0±0.5	5.0MAX	3.0±0.3	2.5±0.5	

2. ELECTRICAL CHARACTERISTICS @25°C

ITEM	SPEC. RANGE	TEST CONDITION	TEST INSTRUMENTS
$L_0(\mu H)$	100UH(1±20%)	100KHz/1V	Microtest 6377
IDC(A)	2.2A		Microtest 6377
Isat(A)	2.8A		Microtest 6220
DCR(mΩ)	195MAX		Microtest 4210

3. GENERAL SPECIFICATION

- Rating DC current: Temperature rise(ΔT) is 40°C approximately at IDC.
- Saturation DC current: Inductance drop approximately 30% of L_0 at Isat.
- Storage temp.: -40°C ~ 85°C
- Storage R.H.: 30% ~ 70%
- Operating temp.: -25°C ~ +125°C
- Resistance to solder heat: 260°C/10 secs.

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4.1 TEST DATA OF ELECTRICAL CHARACTERISTIC

TEST ITEM	L ₀	Temperature rise	L _{Isat}	DCR	
	(μH)	(°C)	(μH)	(mΩ)	
CON.	100KHz/1V	IDC2.2A	Isat2.8A	At 25°C	
SPEC.	100UH(1±20%)	△T 40°C	Drop 30 %	195MAX	
1	96.840	27.3	70.887	174.26	
2	97.060	27.4	71.048	174.44	
3	97.090	29.03	71.070	174.14	
4	97.380	28.89	71.282	174.38	
5	96.230	28.45	70.440	174.33	
6	96.220	27.89	70.433	174.40	
7	96.270	28.7	70.470	174.30	
8	96.180	29.1	70.404	174.23	
9	96.840	29.7	70.887	174.37	
10	96.300	28.4	70.492	174.21	
X	96.641	28.49	70.741	174.306	
R	1.20	2.40	0.88	0.30	

TEST INSTRUMENTS

☐ PRECISION LCR METER	Microtest 6377
☐ BIAS CURRENT SOURCE	Microtest 6377, Microtest 6200
☐ AUTOMATIC COMPONENT ANALYZER	Microtest 7703
☐ LCR METER	Microtest 6377
☐ OHM METER	Microtest 4210

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4.2 TEST DATA OF DIMENSIONS

CODE	A	B	C	D	E		
	(mm)	(mm)	(mm)	(mm)	(mm)		
SPEC.	10.0±0.5	11.0±0.5	5.0MAX	3.0±0.3	2.5±0.5		
1	10.09	10.99	4.81	2.99	2.28		
2	10.09	10.95	4.83	2.98	2.27		
3	10.09	11.01	4.71	2.99	2.28		
4	10.09	10.98	4.70	3.01	2.22		
5	10.10	10.99	4.81	2.98	2.22		
6	10.10	10.95	4.78	3.01	2.25		
7	10.08	10.96	4.79	3.01	2.26		
8	10.10	10.99	4.78	3.00	2.27		
9	10.10	10.97	4.69	3.00	2.32		
10	10.08	10.97	4.86	3.01	2.27		
X	10.092	10.976	4.776	2.998	2.264		
R	0.02	0.06	0.17	0.03	0.10		

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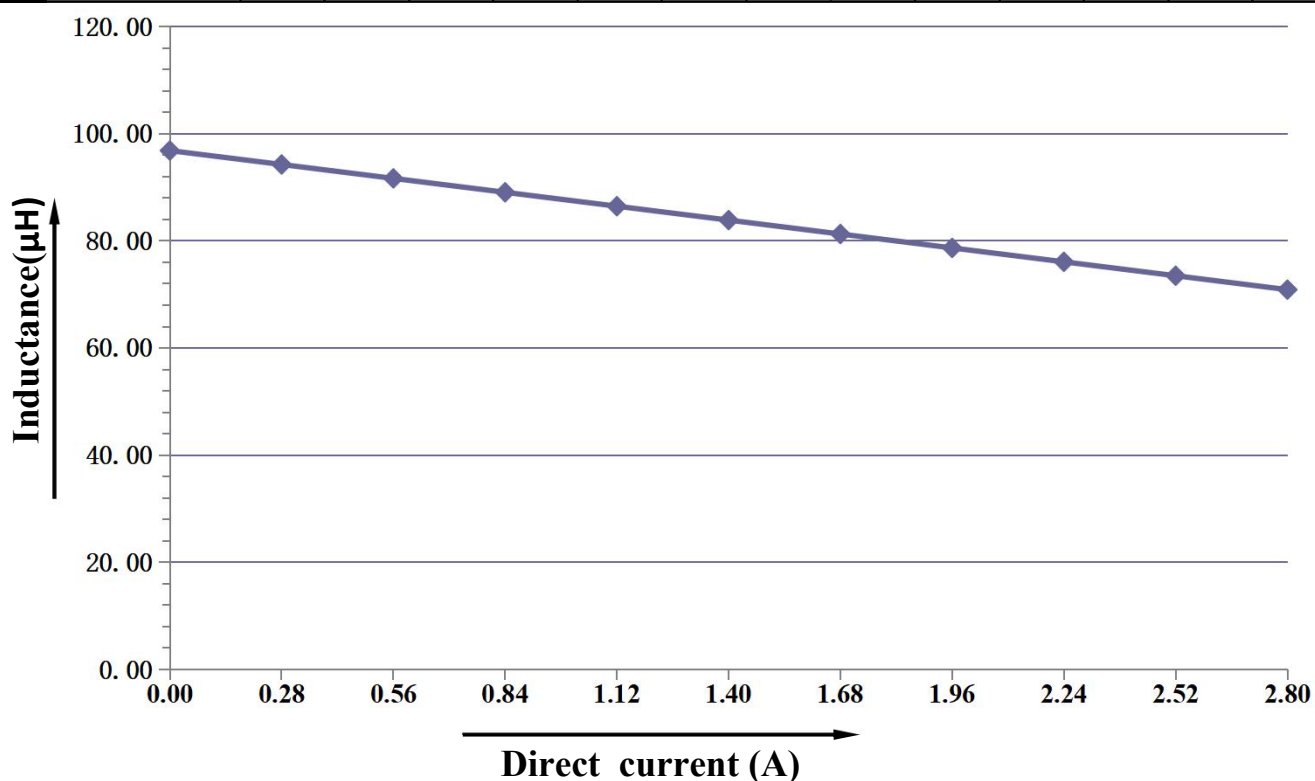
5. MATERIAL LIST

NO	ITEM	DESCRIPTION	SUPPLIER	REMARK
1	POWDER	ALLOY POWDER	TLL	
2	WIRE	ENAMELED COPPER WIRE EIW	JUNGSHING OR EQU	
3	TERMINAL	SHEET MATERIAL	ZHONGSHUN OR EQU	

6.1 ELECTRICAL CHARACTERISTIC CURVE----L vs Isat

Inductances (uH) VS Direct current (A)

CURRENT(A)	0.0	0.3	0.6	0.8	1.1	1.4	1.7	2.0	2.2	2.5	2.8		
L _I (uH)	96.84	94.25	91.65	89.06	86.46	83.87	81.27	78.68	76.08	73.49	70.89		
Drop%	0.0%	97.3%	94.6%	92.0%	89.3%	86.6%	83.9%	81.2%	78.6%	75.9%	73.2%		



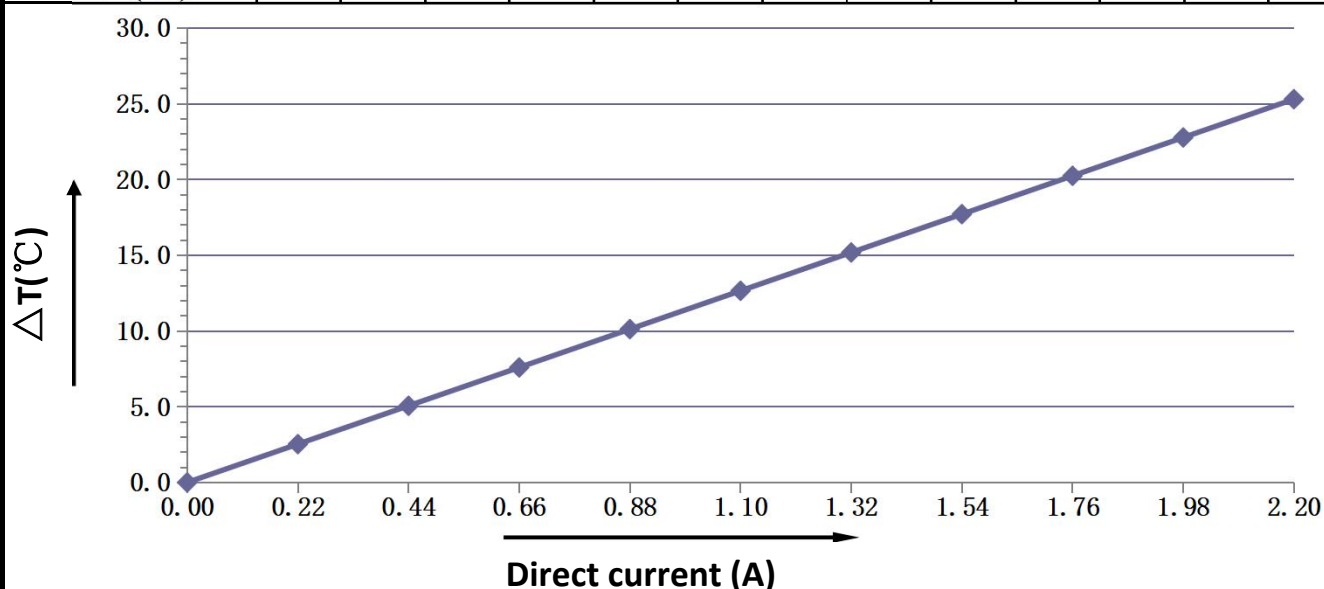
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6.2 ELECTRICAL CHARACTERISTIC CURVE---- ΔT vs IDC

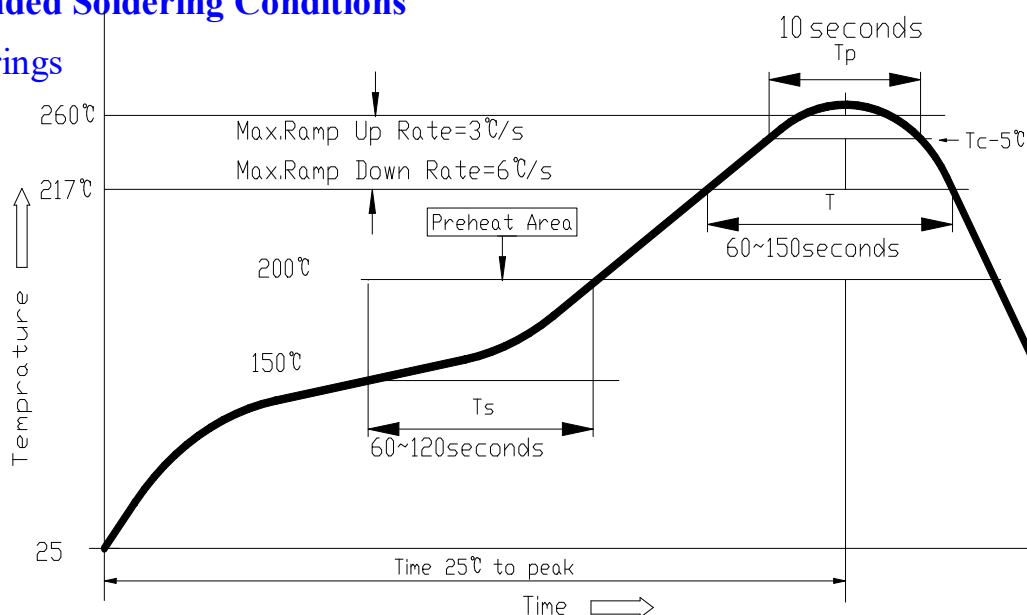
Temperature Rise($^{\circ}\text{C}$)vs Direct Current(A)

CURRENT(A)	0.0	0.2	0.4	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.2		
$\Delta T(^{\circ}\text{C})$	0.0	2.5	5.1	7.6	10.1	12.7	15.2	17.7	20.2	22.8	25.3		



7. Recommended Soldering Conditions

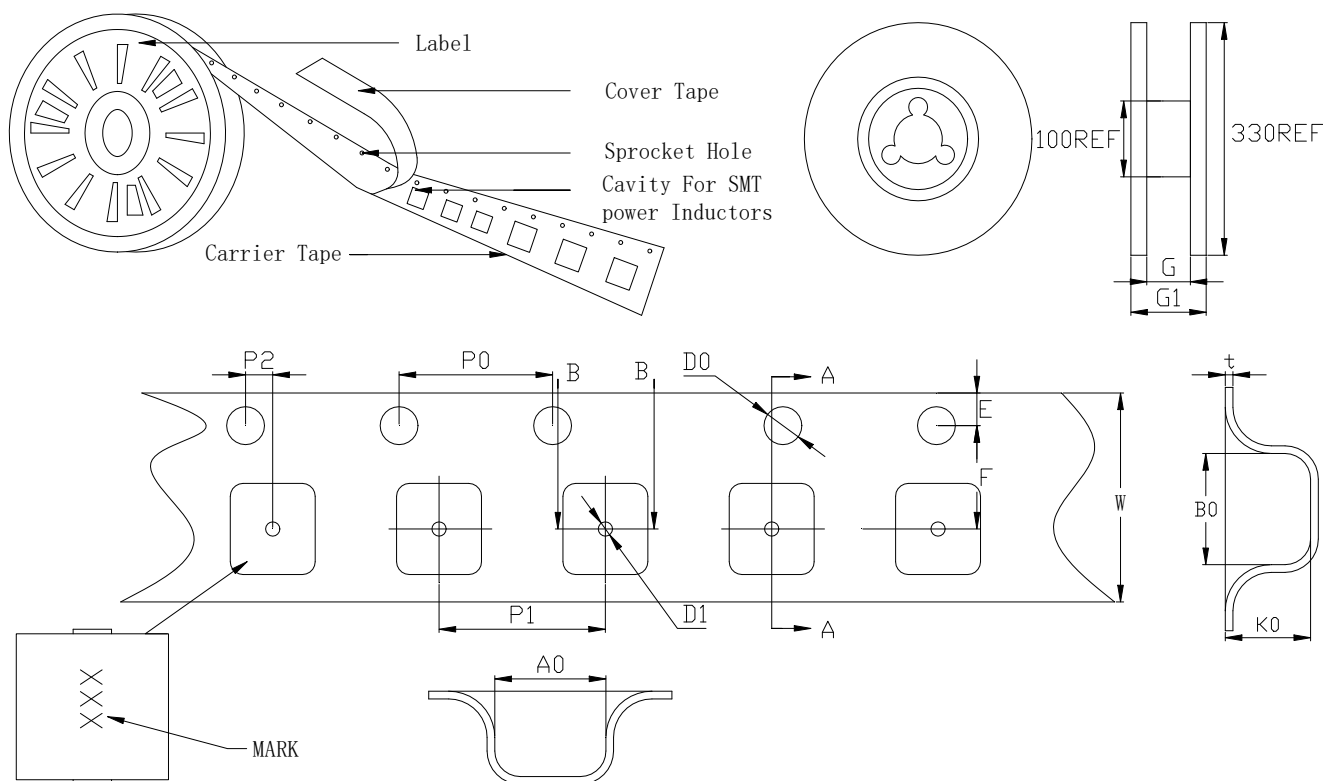
Reflow Solderings



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8. PACKAGING(unit: mm)



TYPE	DIMENSION OF REEL				PACKING UNIT
					(PCS/R)
YSPI1050	W	24.0±0.35	D1	Ø1.50MIN	Φ 330mm
	E	1.75±0.15	A0	13.5±0.15	800 PCS/R
	F	11.50±0.15	B0	14.2±0.15	
	P1	20.00±0.15	K0	6.8±0.15	
	P0	4.00±0.15	t	0.35±0.15	
	P2	2.00±0.15	G	24.8±0.5	
	D0	Ø1.50±0.15	G1	32.2±0.5	

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9.1 RELIABILITY TEST

TEST ITEM	SPECIFICATION	TEST CONDITION
Resistance to soldering heat	1. Inductor shall have no evidence of electrical and mechanical damage. 2. Inductance shall not change more than $\pm 5\%$. 3. Q shall not change more than $\pm 20\%$.	a. Temp: $260 \pm 5^{\circ}\text{C}$ b. Time: 10 ± 1.0 secs
Solderability test	The terminal shall be at least 95% covered with solder.	After fluxing, the terminal shall be dipped in a melted solder bath at $245 \pm 5^{\circ}\text{C}$ for 4 ± 1.0 secs.
High temperature & high humidity test	The anti-erosion quality of the surface and the specimen's inductance shall not change from the initial value within $\pm 10\%$	a. Test condition 1)Temp.: $60 \pm 2^{\circ}\text{C}$, R.H.:90~95% 2)Time: 500 ± 2 hours b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
Salt spray test		a. Test condition 1)Temp.: $35 \pm 2^{\circ}\text{C}$ 2)Time: 48 ± 2 hours 3)Salt solution PH:6.5~7.2 b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
Vibration test	1. Inductance shall be within $\pm 10\%$ of the initial value. 2. Appearance: no damage	a. Frequency: 10 to 55HZ b. Amplitude: 1.5mm c. Direction and time: X, Y and Z directions for 2 hours each.

We have suggested the storage period of lead-free product should not over 6 months.

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9.2 RELIABILITY TEST

TEST ITEM	SPECIFICATION	TEST CONDITION
Free fall test	No mechanical damage shall be noticed.	Drop the product from 1 meter height to 3 cm thick board, repeat 10 times。
Temperature Cycling test	1. Inductance shall be within $\pm 10\%$ of the initial value 2. Appearance: No damage	a. Test condition 1)Temp.: -55°C , time: $30 \pm 3\text{min}$ 2)Temp.: $+125^{\circ}\text{C}$, time: $30 \pm 3\text{min}$ 3)Cycles times: 10 cycles b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
High Temperature resistance test		a. Test condition 1)Applied rated current 2)Temp.: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 3)Test time: $500 + 24/-0\text{H}$ b. Measurement methods: The experimental component should be put at normal condition for 24 hours then to measure again after test.
Low temperature resistance test		a. Test condition 1)Temp.: $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2)Test time: $500 + 24/-0\text{H}$ b. Measurement methods: The experimental component should be put at normal condition for 24 hours then to measure again after test.

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