



SPECIFICATION FOR APPROVAL



CUSTOMER: _____ FILE NO.: _____

CUSTOMER P/N: _____

DESCRIPTION: SMD TYPE MOLDING POWER INDUCTOR

PART NO: CYA1050-47UH

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		
APPROVED BY		CHECKED BY	DRAWN BY
张伟波		薛德东	刘娟

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1. DRAWING

ASSEMBLY

(UNIT: mm)

SUGGESTED PCB LAYOUT

CODE	A	B	C	D	E
DIMENSION	10.0±0.3	11.0±0.3	5.0MAX	3.0±0.1	2.0±0.5

2. ELECTRICAL CHARACTERISTICS @25°C

ITEM	SPEC. RANGE	TEST CONDITION	TEST INSTRUMENTS
$L_0(\mu H)$	47*(1±20%)	100KHz/1.0V	Microtest 6377
IDC(A)	3.5A		Microtest 6377
Isat(A)	4.7A		Microtest 6220
DCR(mΩ)	95MAX		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	
	(μ H)	($^{\circ}$ C)	(μ H)	(m Ω)	
CON.	100KHz/1V	IDC3.5A	Isat4.7A	At 25 $^{\circ}$ C	
SPEC.	47*(1 $\pm$ 20%)	Δ T 40 $^{\circ}$ C	Drop 30 %	95MAX	
1	43.44	27.3	31.65	65.48	
2	49.19	25.8	34.42	66.76	
3	44.16	28.6	31.74	65.73	
4	44.20	28.4	31.66	65.52	
5	45.35	29.6	32.15	65.66	
6	44.26	28.7	31.97	65.73	
7	46.30	26.7	32.83	66.17	
8	44.58	29.4	22.25	66.39	
9	45.52	29.4	21.96	65.75	
10	46.42	27.6	22.39	65.98	
X	45.342	28.15	29.302	65.917	
R	5.75	3.80	12.46	1.28	

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±0.3	11.0±0.3	5.0MAX	3.0±0.1	2.0±0.5		
1	10.07	11.07	4.78	3.01	2.12		
2	10.10	11.10	4.75	3.01	2.17		
3	10.09	11.05	4.82	3.01	2.15		
4	10.08	11.04	4.88	3.01	2.13		
5	10.10	11.11	4.76	3.01	2.12		
6	10.07	11.07	4.75	3.01	2.14		
7	10.08	11.07	4.82	3.01	2.16		
8	10.07	11..18	4.92	3.01	2.13		
9	10.08	11.14	4.80	3.01	2.13		
10	10.07	11.09	4.79	3.01	2.16		
X	10.081	11.08	4.807	3.01	2.141		
R	0.03	0.10	0.17	0.00	0.05		
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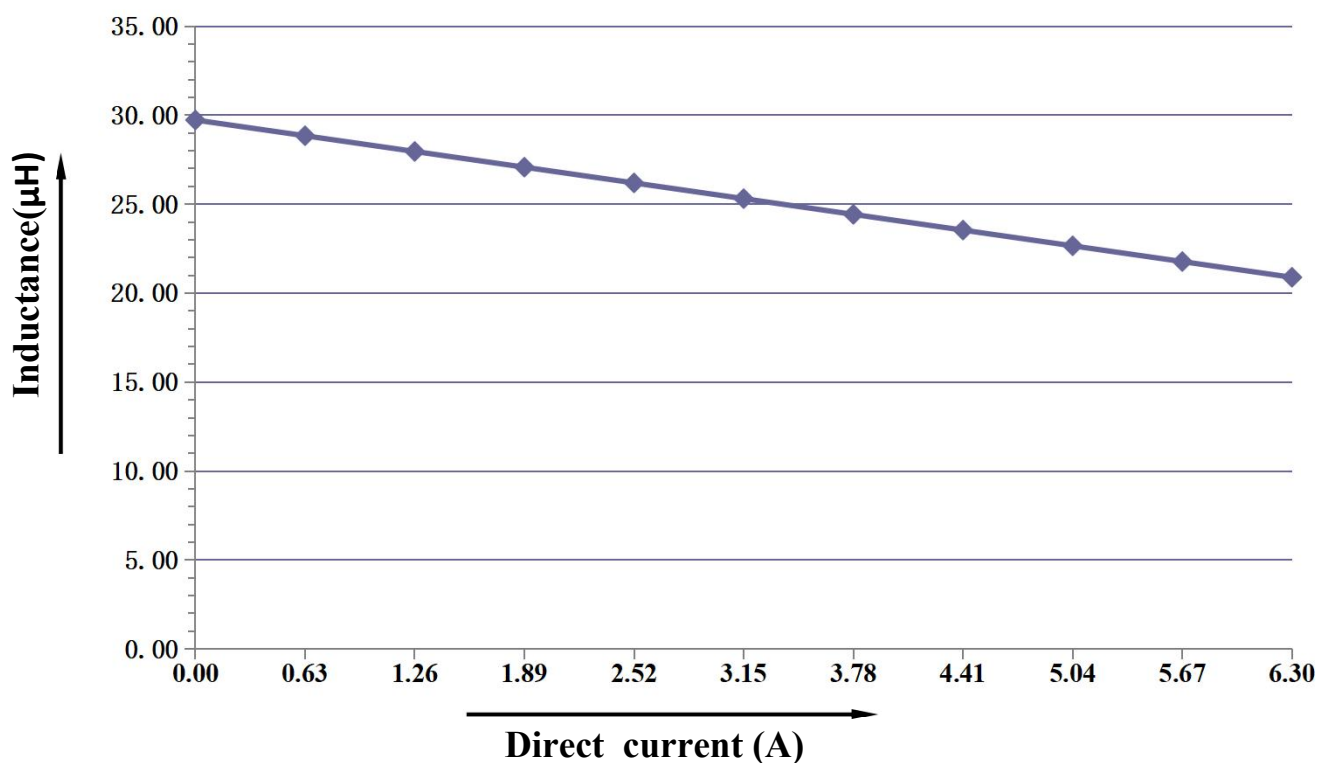
5. MATERIAL LIST

NO	ITEM	DESCRIPTION	SUPPLIER	REMARK
1	POWDER	REDUCED 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	0.6	1.3	1.9	2.5	3.2	3.8	4.4	5.0	5.7	6.3		
L _I (uH)	29.73	28.85	27.96	27.08	26.19	25.31	24.43	23.54	22.66	21.77	20.89		
Drop%	0.0%	97.0%	94.1%	91.1%	88.1%	85.1%	82.2%	79.2%	76.2%	73.2%	70.3%		



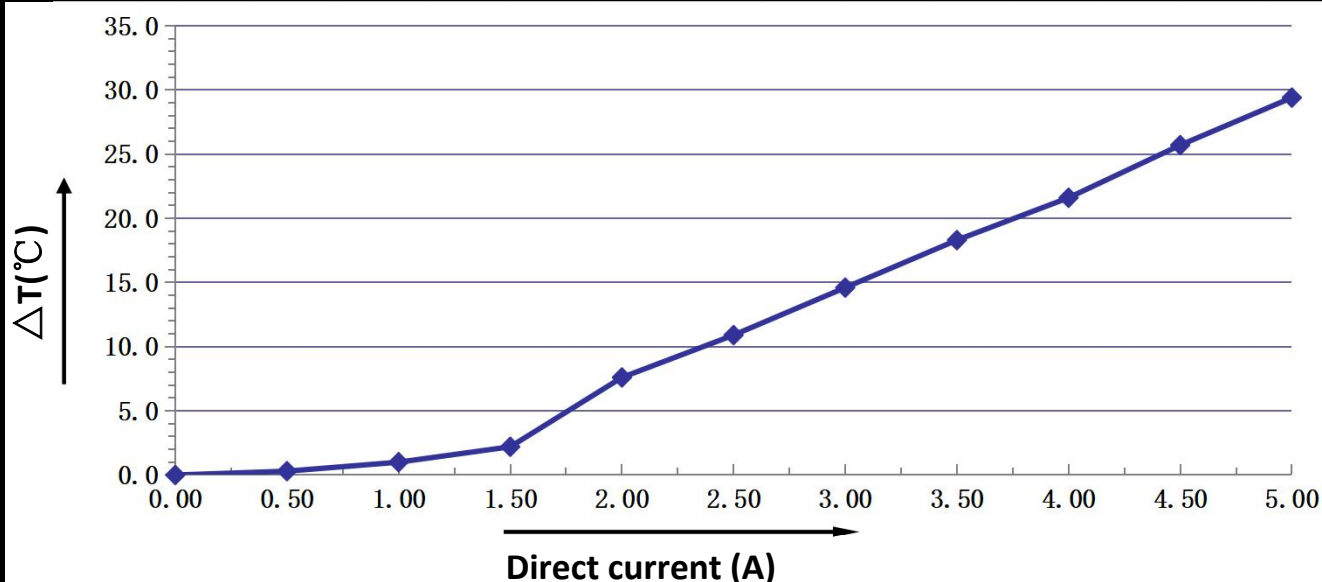
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6.2 ELECTRICAL CHARACTERISTIC CURVE---- ΔT vs IDC

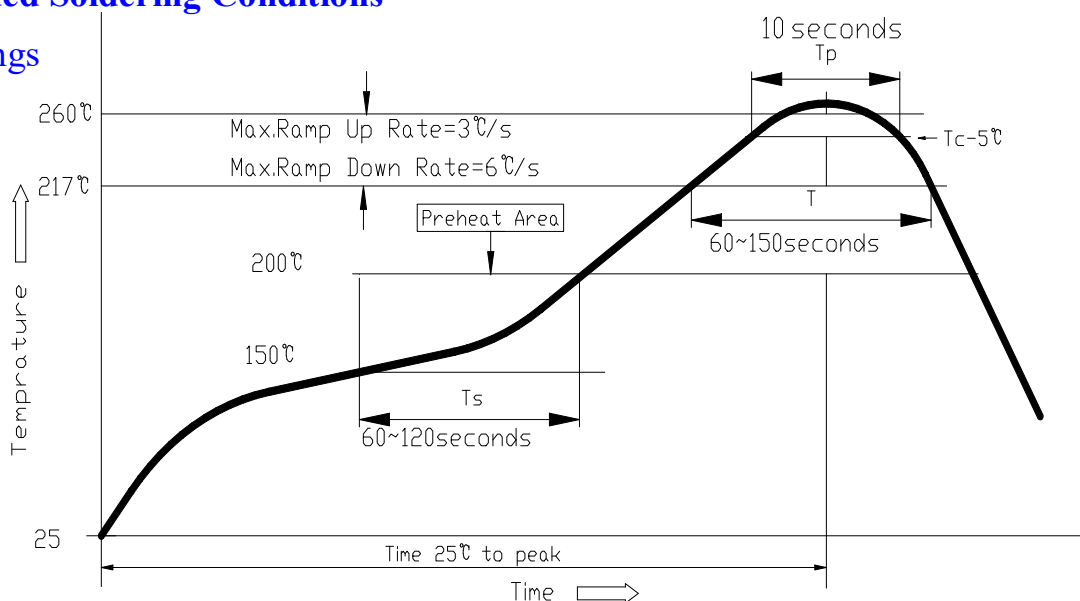
Temperature Rise($^{\circ}\text{C}$)vs Direct Current(A)

CURRENT(A)	0.00	0.50	1.00	1.50	2.00	2.5	3.0	3.5	4.0	4.50	5.00		
$\Delta T(^{\circ}\text{C})$	0.0	0.3	1.0	2.2	7.6	10.9	14.6	18.3	21.6	25.7	29.4		



7. Recommended Soldering Conditions

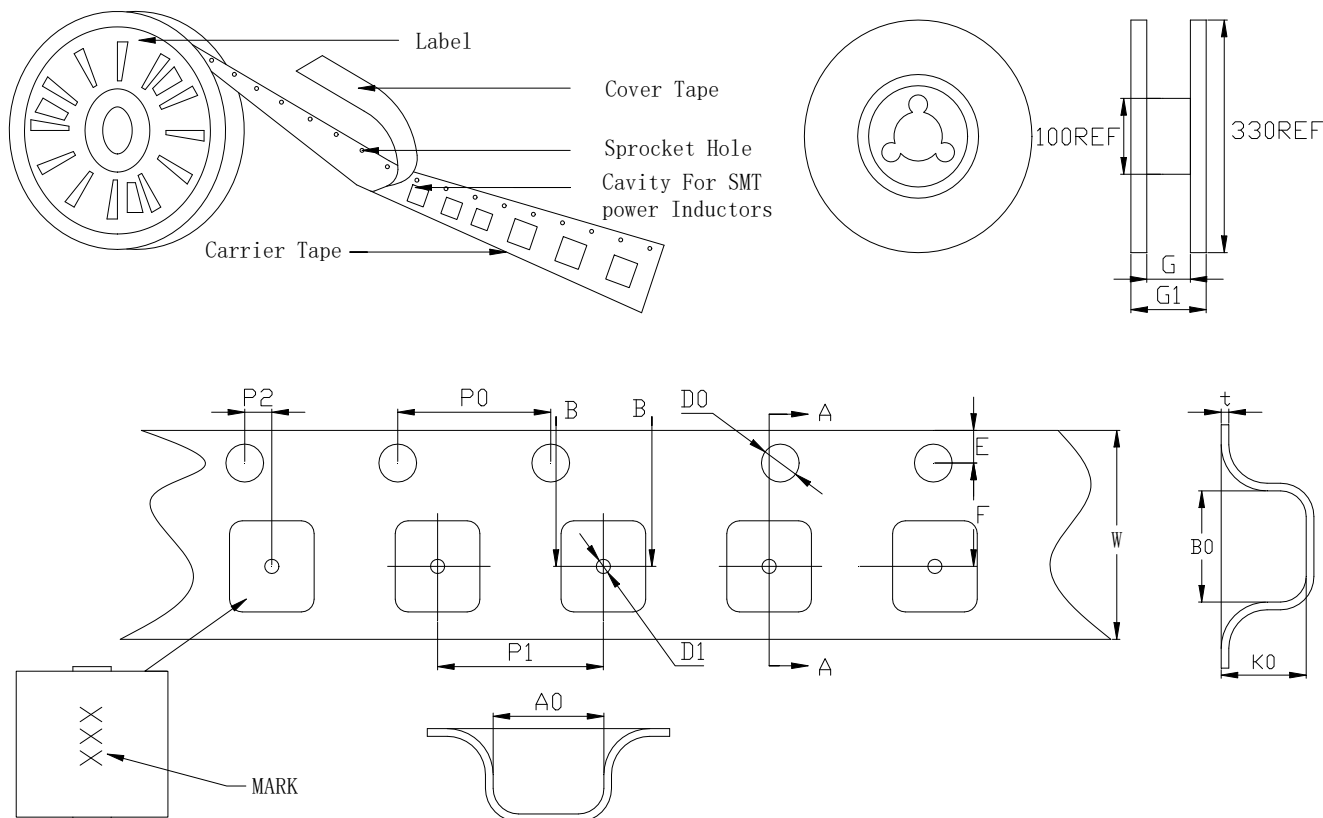
Reflow Solderings



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8. PACKAGING(unit: mm)



TYPE	DIMENSION OF REEL				PACKING UNIT
					(PCS/R)
CYA1050	W	24.0±0.35	D1	Ø1.50MIN	Φ330mm
	E	1.75±0.15	A0	10.7±0.15	800PCS/R
	F	11.50±0.15	B0	12.0±0.15	
	P1	16.00±0.15	K0	4.5±0.15	
	P0	4.00±0.15	t	0.35±0.15	
	P2	2.00±0.15	G	24.8±0.3	
	D0	Ø1.50±0.15	G1	32.2±0.3	
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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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