



SPECIFICATION FOR APPROVAL



CUSTOMER: _____ FILE NO.: _____

CUSTOMER P/N: _____

DESCRIPTION: SMD TYPE MOLDING POWER INDUCTOR

PART NO: PSPMAC1045H-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

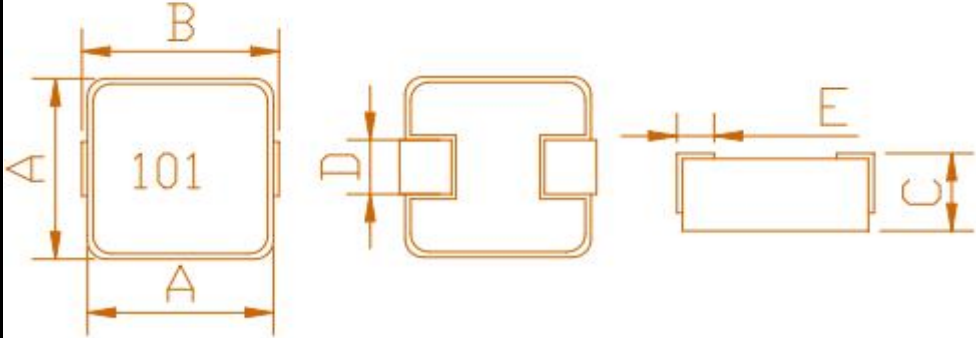
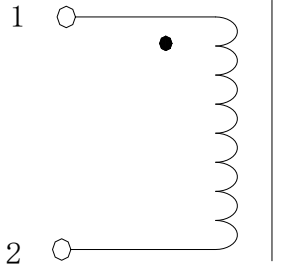
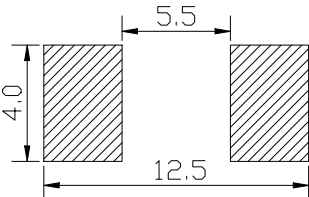
CUSTOMER CONFIRMATION	
Engineering Department	
Quality Department	
Purchasing department	

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		
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	4.5MAX	3.0±0.5	2.0±0.5	

2. ELECTRICAL CHARACTERISTICS @25°C

ITEM	SPEC. RANGE	TEST CONDITION	TEST INSTRUMENTS
$L_0(\mu H)$	$100*(1\pm 20\%)$	100KHz/1.0V	Microtest 6377
IDC(A)	1.8		Microtest 6377
Isat(A)	2.7		Microtest 6220
DCR(mΩ)	285MAX		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	IDC1.8 A	Isat 2.7A	At 25 $^{\circ}$ C	
SPEC.	100*(1 $\pm$ 20%)	Δ T 40 $^{\circ}$ C	Drop 30 %	285MAX	
1	98.23	37.1	73.65	242.23	
2	97.65	37.4	74.07	245.67	
3	96.72	37.2	74.26	246.15	
4	95.52	37.8	74.02	246.36	
5	93.25	36.4	73.35	246.12	
6	89.35	37.0	72.13	246.36	
7	85.91	36.4	72.38	246.46	
8	85.59	36.7	72.01	246.76	
9	95.91	37.9	74.25	246.63	
10	95.75	38.3	74.27	246.43	
X	93.388	37.22	73.439	245.917	
R	12.64	1.90	2.26	4.53	

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	4.5MAX	3.0±0.5	2.0±0.5		
1	10.13	11.04	4.23	2.58	2.21		
2	10.14	11.04	4.25	2.59	2.11		
3	10.19	11.15	4.35	2.65	2.20		
4	10.14	11.11	4.32	2.63	2.22		
5	10.17	11.02	4.25	2.66	2.20		
6	10.14	11.16	4.25	2.59	2.21		
7	10.13	10.99	4.26	2.58	2.11		
8	10.14	11.07	4.27	2.64	2.17		
9	10.14	11.12	4.32	2.63	2.22		
10	10.13	11.03	4.28	2.64	2.18		
X	10.145	11.07	4.278	2.619	2.1833		
R	0.06	0.17	0.12	0.08	0.11		
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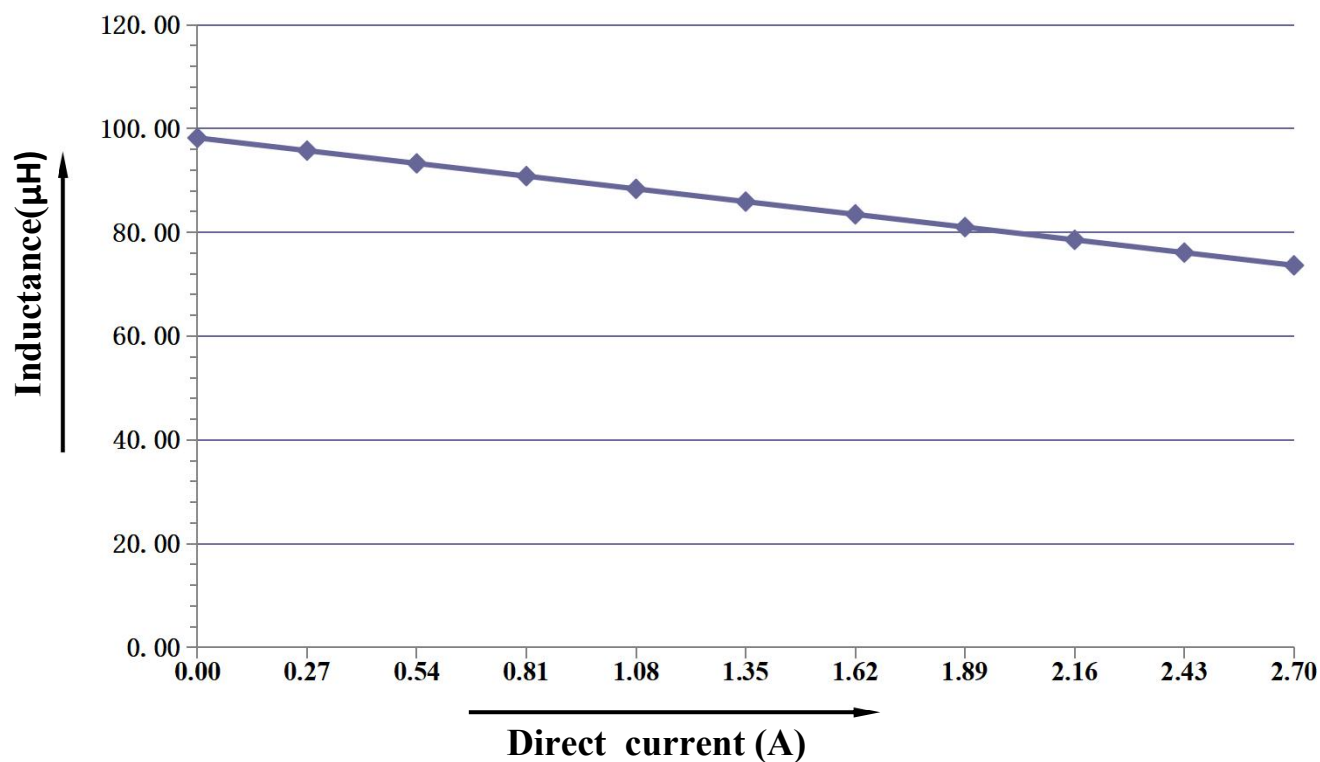
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5. MATERIAL LIST

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	0.5	0.8	1.1	1.4	1.6	1.9	2.2	2.4	2.7		
L_1 (uH)	98.23	95.77	93.31	90.86	88.40	85.94	83.48	81.02	78.57	76.11	73.65		
Drop%	0.0%	2.5%	5.0%	7.5%	10.0%	12.5%	15.0%	17.5%	20.0%	22.5%	25.0%		



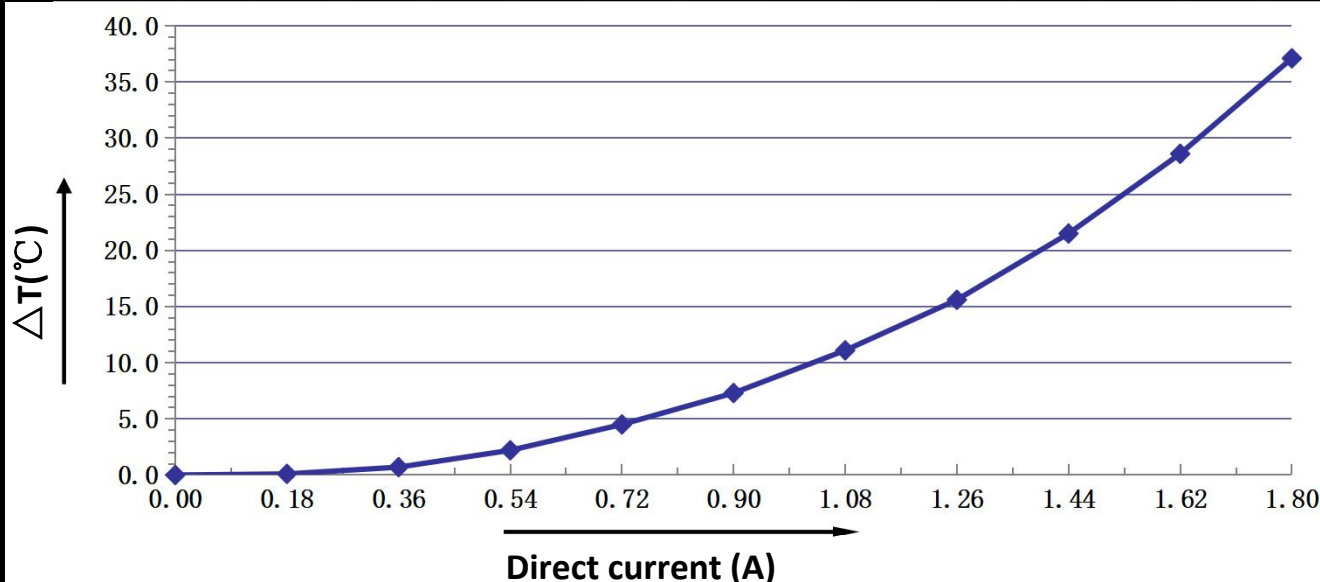
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6.2 ELECTRICAL CHARACTERISTIC CURVE---- ΔT vs IDC

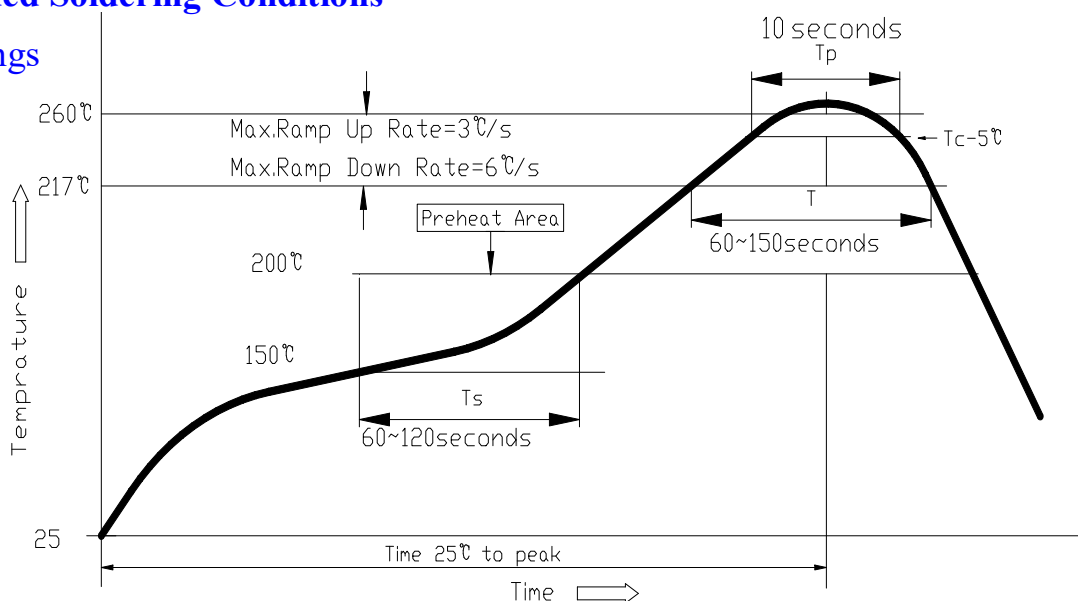
Temperature Rise($^{\circ}\text{C}$)vs Direct Current(A)

CURRENT(A)	0.00	0.18	0.36	0.54	0.72	0.9	1.1	1.3	1.4	1.62	1.80		
$\Delta T(^{\circ}\text{C})$	0.0	0.1	0.7	2.2	4.5	7.3	11.1	15.6	21.5	28.6	37.1		



7. Recommended Soldering Conditions

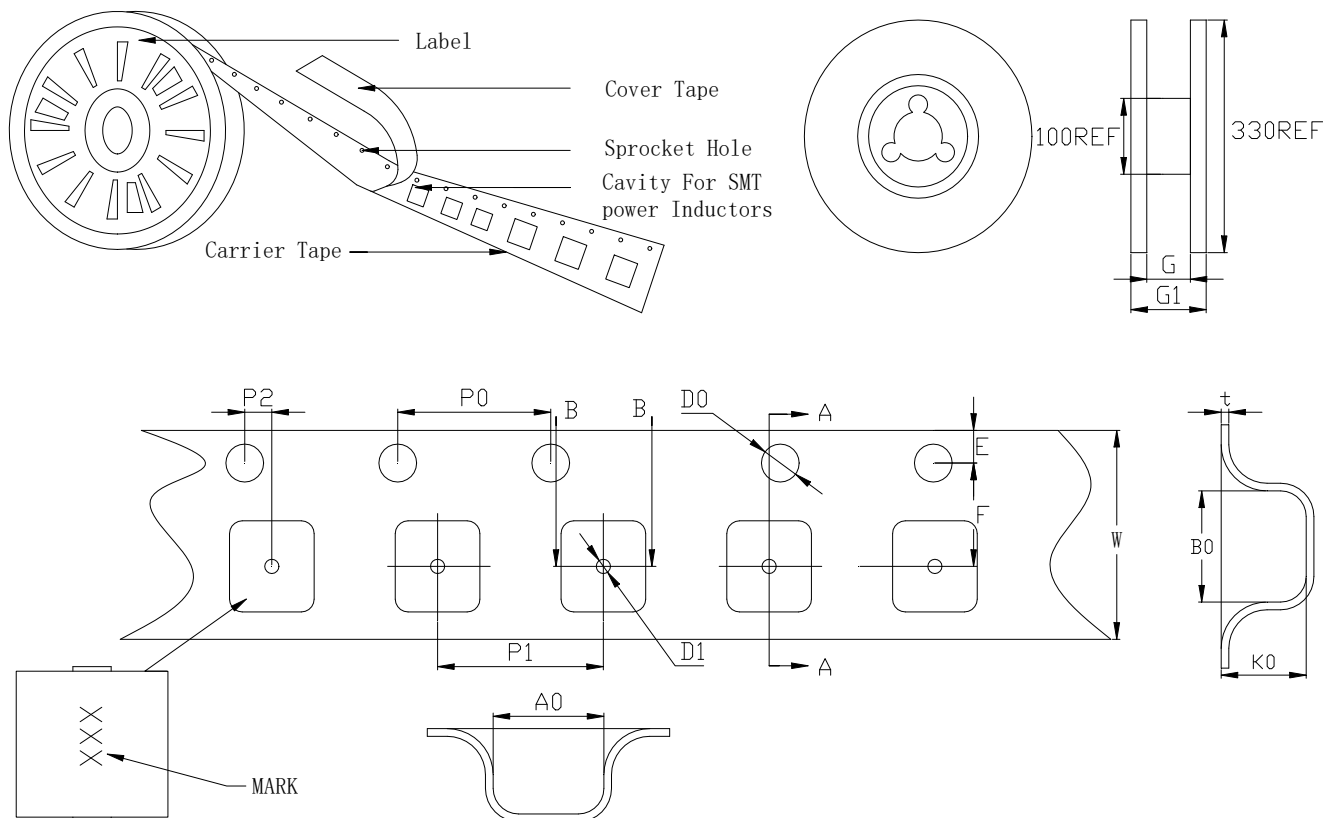
Reflow Solderings



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8. PACKAGING(unit: mm)



TYPE	DIMENSION OF REEL				PACKING UNIT
					(PCS/R)
PSPMAC 1045H	W	24.0±0.35	D1	Ø1.50MIN	Φ330mm
	E	1.75±0.15	A0	10.7±0.15	800 PCS/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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