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SPECIFICATION FOR APPROVAL

CUSTOMER: _____ FILE NO.: _____

CUSTOMER P/N: _____

DESCRIPTION: SMD TYPE MOLDING POWER INDUCTOR

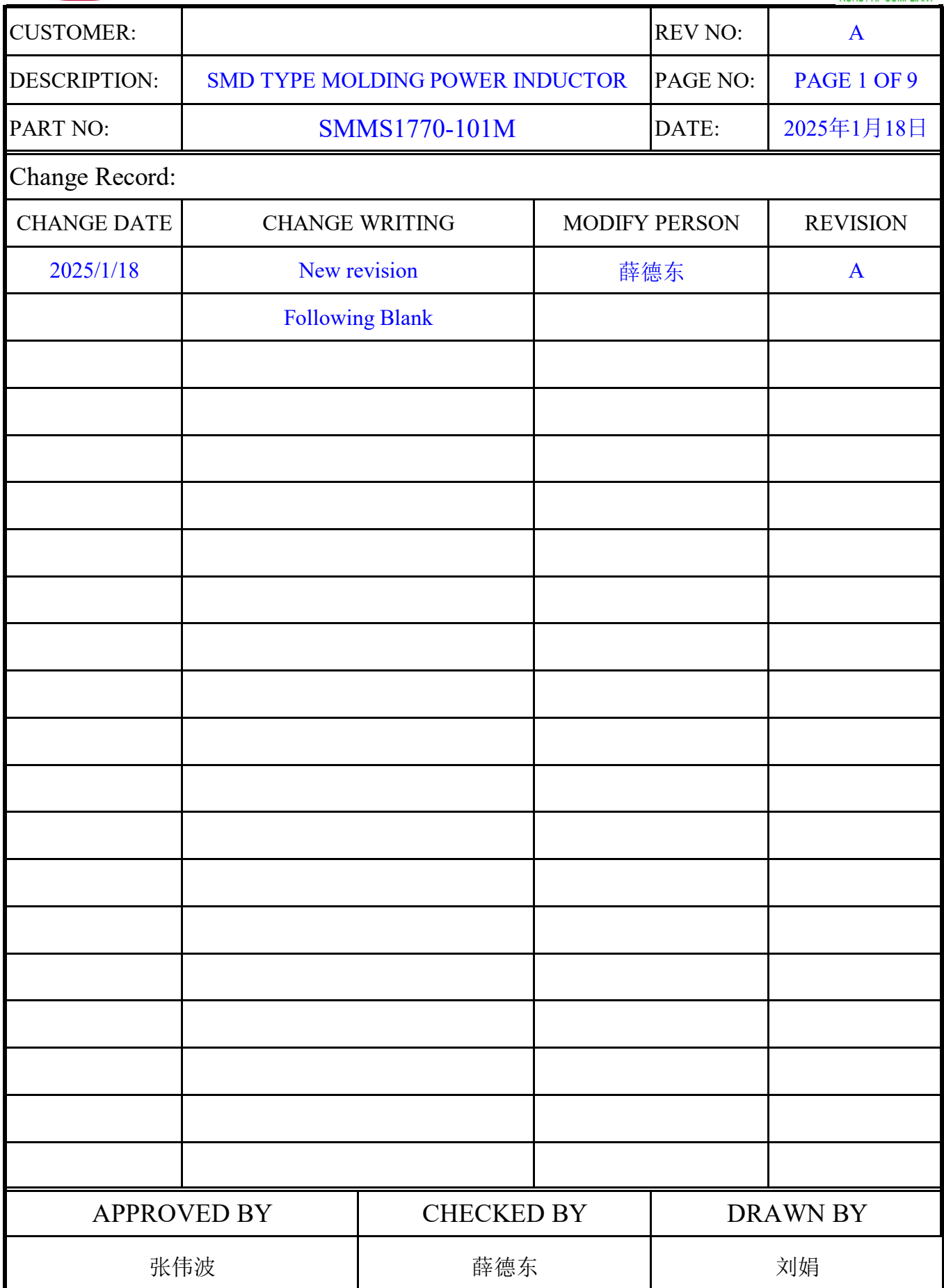
PART NO: SMMS1770-101M

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.

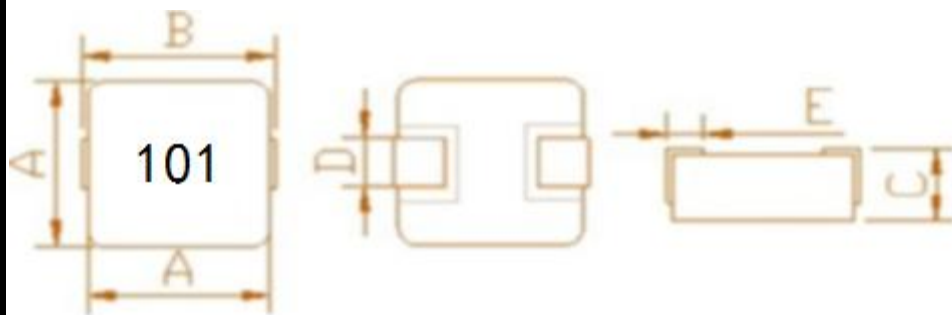


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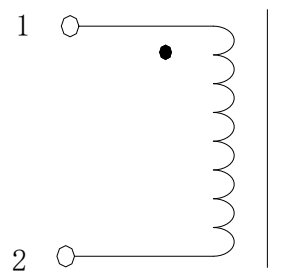
1. DRAWING

ASSEMBLY

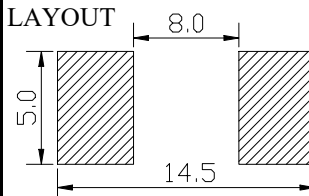
(UNIT: mm)



SCHEMATICS



SUGGESTED PCB LAYOUT



CODE	A	B	C	D	E
DIMENSION	17.8±0.5	17.2±1.0	7.0 MAX	17.0±0.5	4.0±0.5

2. ELECTRICAL CHARACTERISTICS @25°C

ITEM	SPEC. RANGE	TEST CONDITION	TEST INSTRUMENTS
$L_0(\mu\text{H})$	$100*(1\pm 20\%)$	100KHz/1.0V	Microtest 6377
IDC(A)	4		Microtest 6377
Isat(A)	8		Microtest 6220
DCR(mΩ)	135MAX		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.

APPROVED BY	CHECKED BY	DRAWN BY
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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	IDC4A	Isat 8A	At 25°C	
SPEC.	100*(1±20%)	△T 40°C	Drop 30 %	135MAX	
1	99.230	28.3	72.070	132.71	
2	97.630	29.7	71.520	133.05	
3	92.330	28.6	67.950	132.66	
4	95.880	30.1	69.950	132.74	
5	100.120	29.2	72.250	132.70	
6	99.680	27.7	71.820	133.06	
7	99.120	28	72.040	132.98	
8	95.550	27.4	69.600	133.01	
9	95.880	29.5	69.790	132.74	
10	98.880	30.6	71.710	132.45	
X	97.430	28.91	70.870	132.810	
R	7.79	3.20	4.30	0.61	

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.	17.8±0.5	17.2±1.0	7.0 MAX	17.0±0.5	4.0±0.5		
1	17.69	17.75	6.26	17.80	4.44		
2	17.73	17.70	6.34	17.80	4.37		
3	17.70	17.69	6.19	17.80	4.34		
4	17.68	17.72	6.27	17.80	4.56		
5	17.71	17.76	6.30	17.80	4.35		
6	17.75	17.74	6.28	17.80	4.46		
7	17.71	17.71	6.30	17.80	4.37		
8	17.69	17.74	6.41	17.80	4.40		
9	17.68	17.72	6.35	17.80	4.34		
10	17.70	17.74	6.18	17.80	4.41		
X	17.704	17.727	6.288	17.800	4.404		
R	0.07	0.07	0.23	0.00	0.22		

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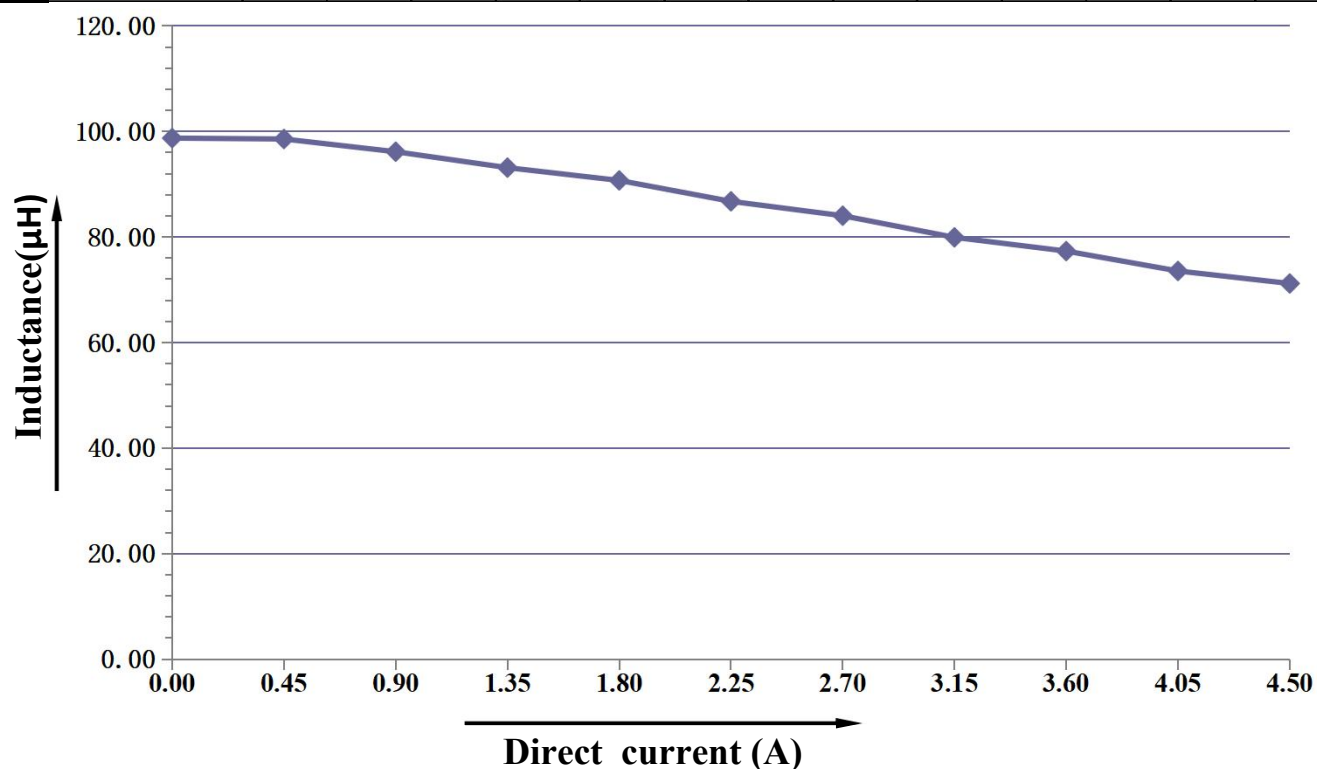
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5. MATERIAL LIST

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	0.5	0.9	1.4	1.8	2.3	2.7	3.2	3.6	4.1	4.5		
L_1 (uH)	98.74	98.57	96.16	93.14	90.72	86.76	84.03	79.93	77.33	73.56	71.19		
Drop%	0.0%	0.2%	2.6%	5.7%	8.1%	12.1%	14.9%	19.1%	21.7%	25.5%	27.9%		



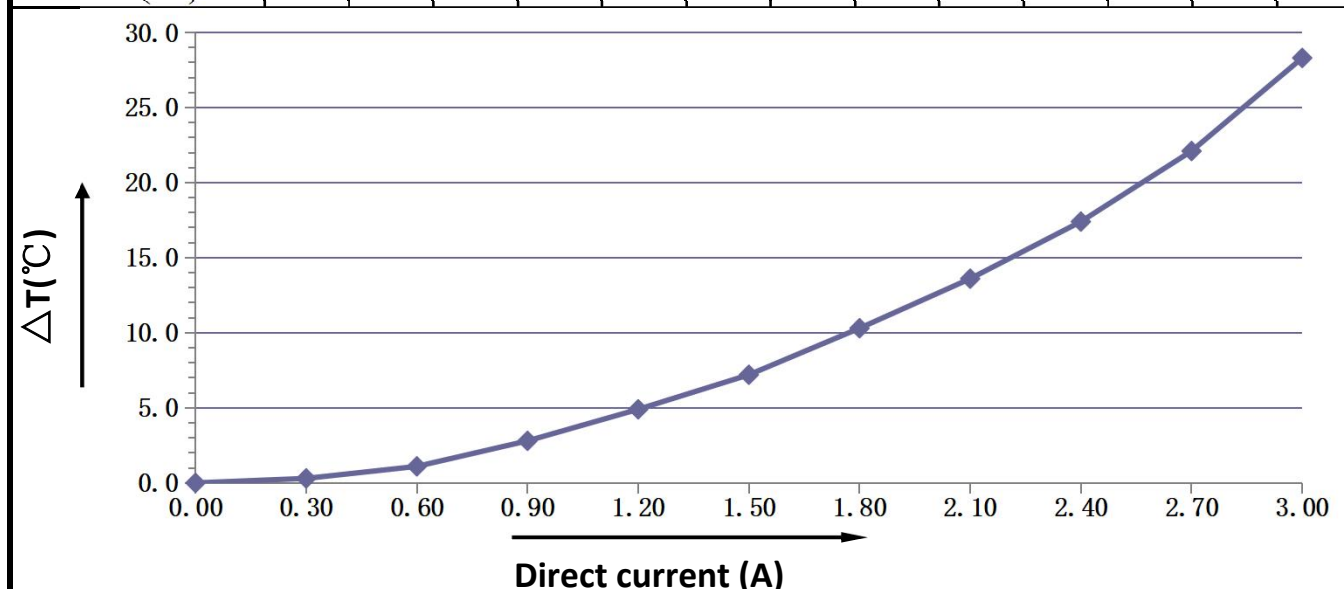
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张伟波	薛德东	刘娟

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6.2 ELECTRICAL CHARACTERISTIC CURVE---- ΔT vs IDC

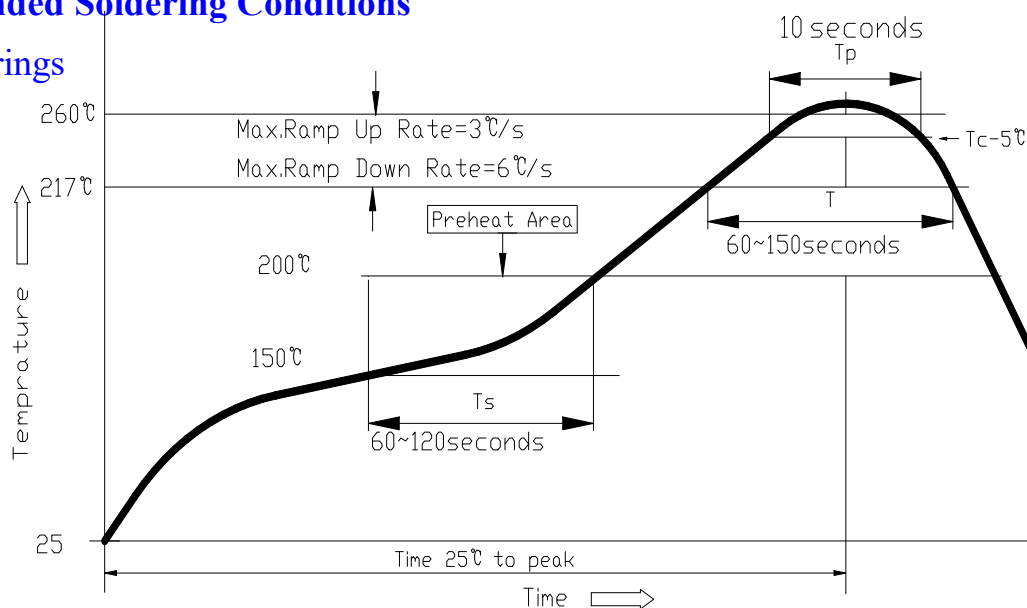
Temperature Rise($^{\circ}\text{C}$)vs Direct Current(A)

CURRENT(A)	0.0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0		
$\Delta T(^{\circ}\text{C})$	0.0	0.3	1.1	2.8	4.9	7.2	10.3	13.6	17.4	22.1	28.3		



7. Recommended Soldering Conditions

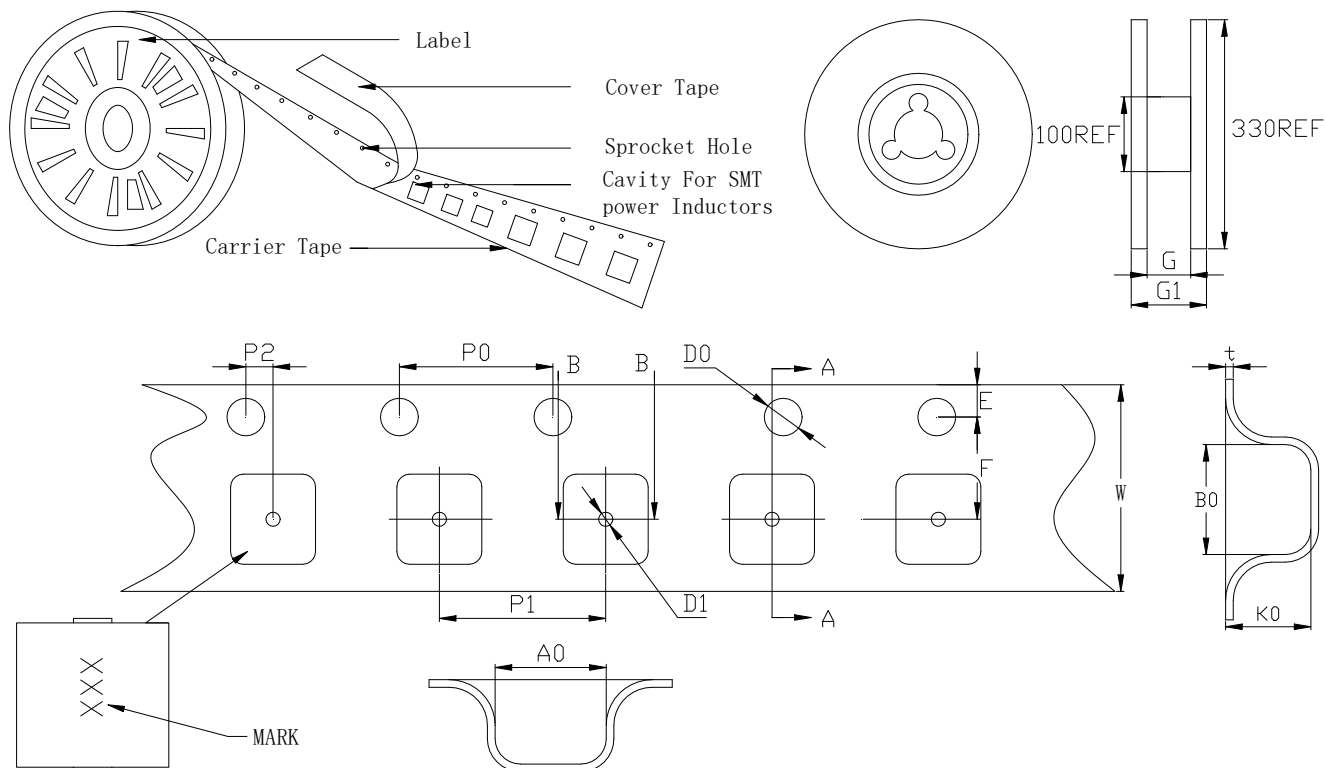
Reflow Solderings



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张伟波	薛德东	刘娟

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8. PACKAGING(unit: mm)



TYPE	DIMENSION OF REEL				PACKING UNIT
					(PCS/R)
SMMS17 70	W	24.0±0.35	D1	Ø1.50MIN	Φ 330mm
	E	1.75±0.15	A0	13.5±0.15	300 PCS/R
	F	11.50±0.15	B0	14.2±0.15	
	P1	16.00±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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张伟波	薛德东	刘娟

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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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