

SPECIFICATION FOR APPROVAL

CUSTOMER'S APPROVAL CHOP	
Approval's condition:	_____
Approved date:	_____

KINDLY RETURN A SET WITH YOUR COMPANY'S OFFICIAL STAMP ON
APPROVAL OF THIS ITEM

CUSTOMER'S NAME:

CUSTOMER'S MODEL NO. :

CUSTOMER'S PART NO. :

DESCRIPTION:

Semitel'S MODEL NO. :

SMHC252012 Series

VERSION:

A

DATE:

2023/12/19

Attachments:

☐ Product specification

☐ Sample Qty.:

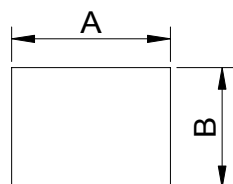
☐ Test data

Prepared By	Checked By	Approved By
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Product Specification

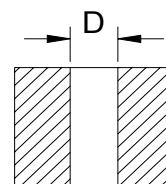
1. Physical Dimensions (Unit:mm)



Top View



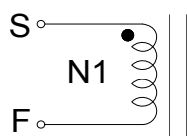
Side View



Bottom View

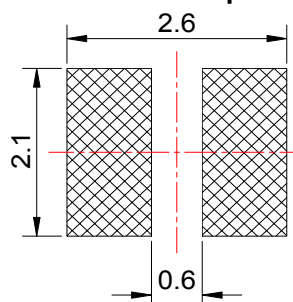
A 2.5±0.2
B 2.0±0.2
C 1.2MAX.
D 0.7TYP.

2. Connection



“●”Start of winding

3. Recommended pad layout (Unit:mm)



4. Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature (15 to 35°C)	25±5°C
Humidity	Ordinary Humidity (25 to 85% RH)	50 to 80% RH

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5. Electrical Characteristics

*Operating temperature: -40°C to +125°C

*Storage temperature range: -40°C to +125°C

Part No	Inductance (μH)	Test Freq	DCR(mΩ) Typ(Max)	Isat(A) Typ(Max)	Irms(A) Typ(Max)	Tolerance (±%)
SMHC252012-R24M	0.24	1MHz, 1V	8.0(10.5)	8.5(7.5)	8.0(7.0)	20
SMHC252012-R33M	0.33	1MHz, 1V	12.0(15.0)	7.0(6.4)	6.4(6.0)	20
SMHC252012-R47M	0.47	1MHz, 1V	15.0(19.0)	6.5(6.0)	6.0(5.6)	20
SMHC252012-R68M	0.68	1MHz, 1V	16.0(21.0)	6.0(5.5)	5.8(5.5)	20
SMHC252012-R82M	0.82	1MHz, 1V	26.0(30.0)	5.95(5.45)	5.7(5.3)	20
SMHC252012-1R0M	1.00	1MHz, 1V	26.0(30.0)	5.9(5.4)	5.7(5.2)	20
SMHC252012-1R5M	1.50	1MHz, 1V	41.0(47.0)	4.2(3.8)	4.0(3.5)	20
SMHC252012-2R2M	2.20	1MHz, 1V	64.0(70.0)	3.5(3.0)	2.5(2.1)	20
SMHC252012-3R3M	3.30	1MHz, 1V	85.0(98.0)	2.6(2.1)	2.1(1.9)	20
SMHC252012-4R7M	4.70	1MHz, 1V	145.0(160.0)	2.3(2.0)	1.9(1.7)	20

*(1). All test data is referenced to 25°C ambient.

*(2).Irms (A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25°C).

*(3).Isat(A):DC current (A) that will cause L0 to drop approximately 30%.

*(4).The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

*(5).The rated current as listed is either the saturation current or the heating current depending on which value is lower.

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6. Mechanical Performance

TEST ITEM	SPECIFICATION	TEST DETAILS
Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec
Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245 \pm 3°C Immersion Time: \leq 3sec
Resistance to solvent	There must be no change in appearance or obliteration of marking	Inductors must withstand 6 minutes of alcohol or water

7. Endurance Reliability

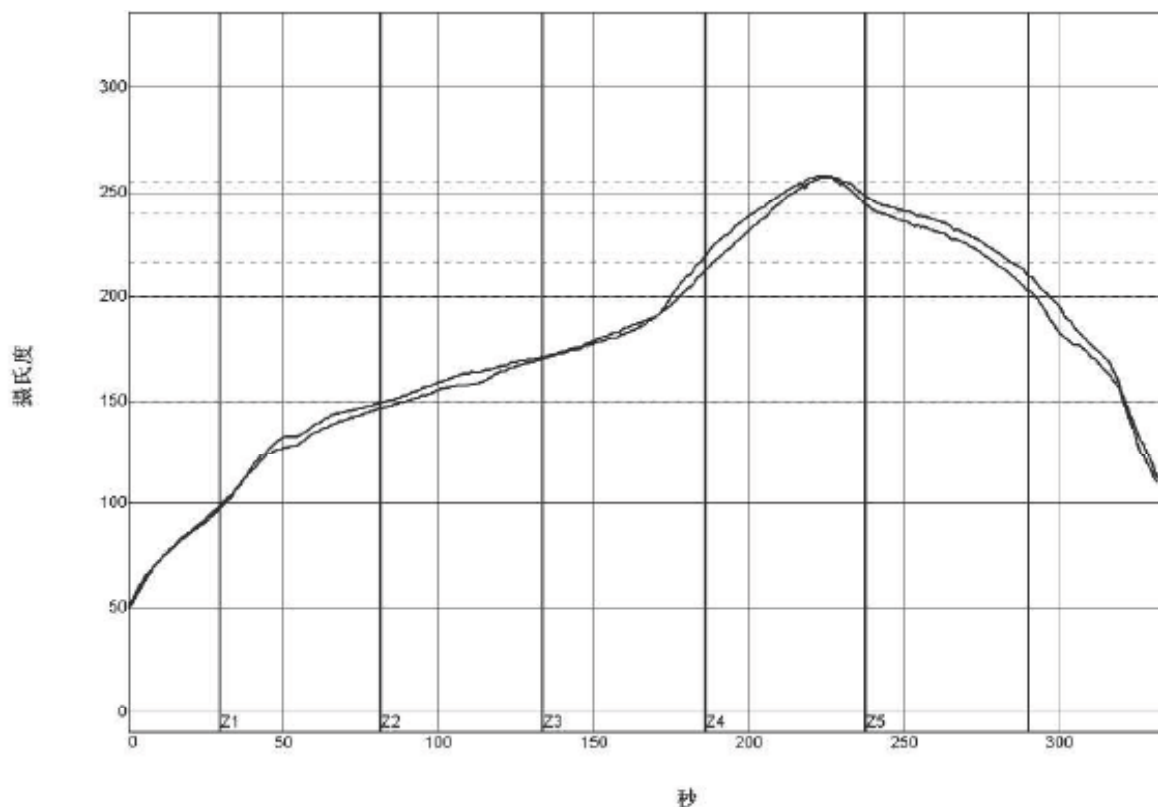
TEST ITEM	SPECIFICATION	TEST DETAILS		
Temperature Cycle	Appearance: No damage Inductance:within±10% of initial value	One cycle:		
		Step	Temperature (°C)	Time (min)
		1	-40±3	30
		2	25±2	3
		3	125±3	30
		4	25±2	3
		Total: 100cycles Measured after exposure in the room condition for 24hrs		
Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs		
High Temperature Resistance		Temperature: 125±3℃ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs		
Low Temperature Resistance		Temperature: -40±3℃ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs		

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8. For Lead-Free Application

Figure . Re-flow Soldering



PW= 85%	预热150至200C		回流时间/217C		最高温度		总共有时间/240C		总共有时间/255C-2	
<TC2>	85.69	-57%	93.87	-25%	258.05	-39%	41.51	-85%	10.84	-22%
<TC3>	94.67	-42%	95.11	-22%	257.45	-51%	46.32	-37%	11.00	-20%
蒸发	8.98		1.29		0.60		4.81		0.16	

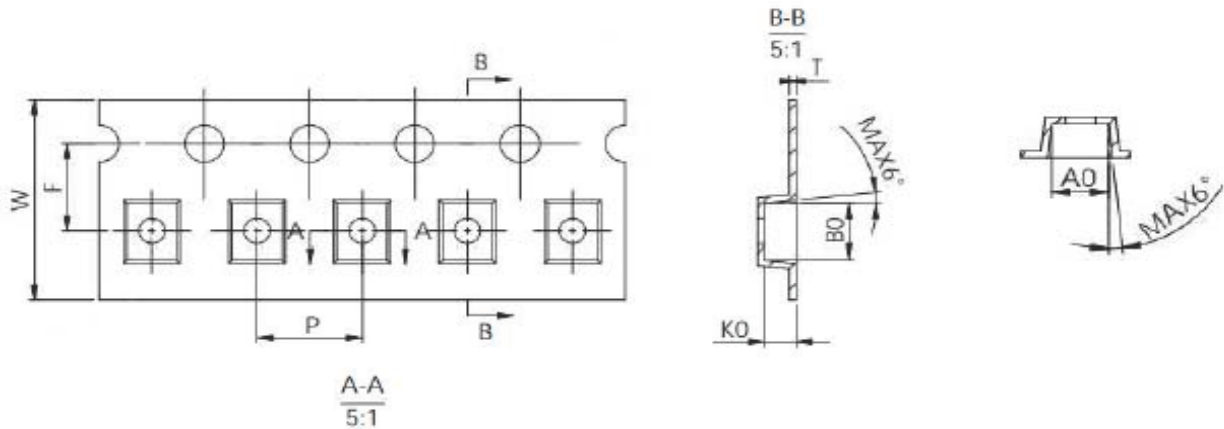
制程界限:

统计数名称	最低界限	最高界限	单位
预热时间150-200摄氏度	60	180	秒
回流以上时间 - 217摄氏度	60	150	秒
最高温度	255	265	度 摄氏度
在240摄氏度以上时间	40	60	秒
在255摄氏度以上时间 (2)	5	20	秒

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9.Packing Request



* Dimensions in mm

Tape Dimensions						
W	P	A0	B0	T	K0	F
8.00	4.00	2.30	2.80	0.23	1.20	3.50

* Packaging Quantity

Chip/Reel	Inner Box	Outer Box
3000	15000	150000

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