



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MS1360-680M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019/4/1**

\_\_\_\_\_

REVISION.

**A/0**

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<b>CUSTOMER APPROVE</b>		
<b>DATE:</b>		
<b>DRAWING</b>		
<b>DRAWN BY</b>	<b>CHECK BY</b>	<b>APPROVAL BY</b>
<b>DATE:</b>		



IATF16949 / ISO9001 / ISO14000

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CUSTOMER		MODEL NO.	MS1360-680M	REVISION	A/0
FILE NO.		PART NO.		DATE	2019/4/1

**REVISIONS**

REW	PROJECT CHANGE	DESCRIPTION	Date

CUSTOMER		MODEL NO.	<b>MS1360-680M</b>	REVISION	<b>A/0</b>
FILE NO.		PART NO.		DATE	<b>2019/4/1</b>

<p><b>1.PRODUCT DIMENSION</b></p>	UNIT:mm	
	A	<b>13.65±0.35</b>
	B	<b>12.6±0.2</b>
	C	<b>6.0 Max</b>
	D	<b>3.8±0.5</b>
	E	<b>2.5±0.5</b>

<b>2.ELECTRICAL REQUIREMENTS</b>			
PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L(uH)	<b>68.0µH±20%</b>	100KHz/1.0V	MICROTEST 6377
DCR(mΩ)	<b>125.0mΩMAX</b>	At 25°C	TH2512A
I sat(A)	<b>4.5A TYP L0A*70%</b>	100KHz/1.0V	MICROTEST 6377+6220
I rms(A)	<b>3.0A TYP ΔT≤40°C</b>	100KHz/1.0V	MICROTEST 6377+6220

**3.CHARACTERISTICS**

(1). All test data is based on 25°C ambient.

(2). DC current(A)that will cause an approximate ΔT40°C

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

(4). Operating temperature range: -55°C~+125°C

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

**4.SPECIAL REQUEST**

(1)Lettering **680** on top of the body.

CUSTOMER		MODEL NO.	MS1360-680M	REVISION	A/0
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**5.PRODUCT IDENTIFICATION**

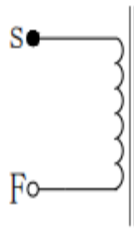
XX XXXX - XXX X X

① ② ③ ④ ⑤

①、 Product Symbol ②、 Dimensions ③、 Inductance

④、 Tolerance: M±20%, N±30%. ⑤、 Material

**6.ELECTRICAL SCHEMATICS**



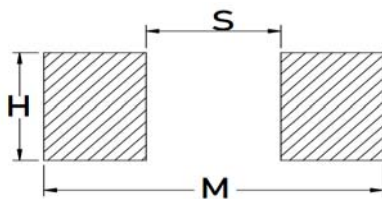
**7.APPLICATION**

- (1)Low profile,high current power supplies.
- (2)Battery powered devices.
- (3)DC/DC converters in distributed power systems.
- (5)DC/DC converters for field programmable gate array.

**8.FEATURES**

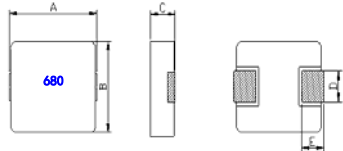
- (1)ROHS compliant.
- (2)Super low resistance,ultra high current rating.
- (3)high performance(I sat)realized by metal dust core.
- (4)Frequency Range:up to 1MHZ.

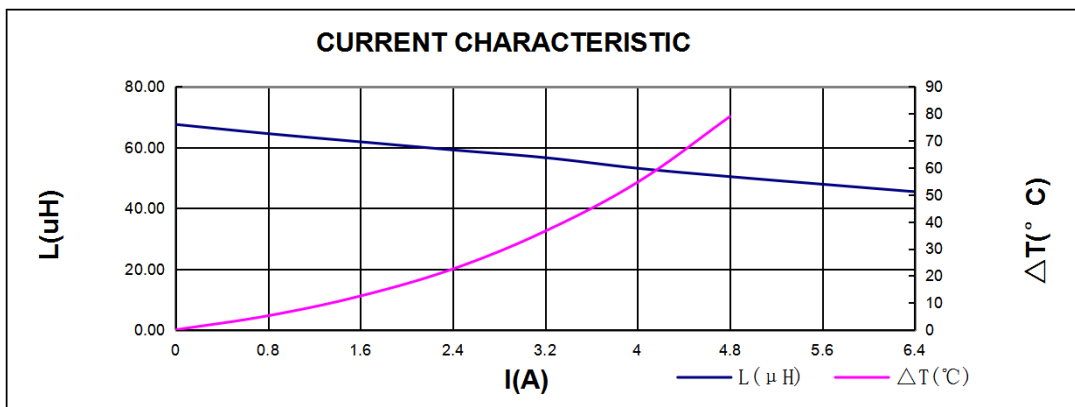
**9.RECOMMENDED PCB LAYOUT**



H	5
S	8
M	14.5

CUSTOMER		MODEL NO.	MS1360-680M		REVISION	A/0	
FILE NO.		PART NO.			DATE	2019/4/1	
SORT	ITEM	A	B	C	D	E	
PRODUCT & DIMENSION	SPEC	13.65±0.35	12.6±0.2	6.0 Max	3.8±0.5	2.5±0.5	
	1	13.61	12.64	5.91	3.84	2.53	
	2	13.60	12.64	5.89	3.82	2.50	
	3	13.58	12.63	5.86	3.83	2.52	
	4	13.56	12.64	5.88	3.82	2.51	
	5	13.63	12.64	5.83	3.83	2.50	
	X	13.60	12.64	5.87	3.83	2.51	
R	0.07	0.01	0.08	0.02	0.03		

ELECTRICAL & REQUIREMENTS	ITEM	L(μH)	DCR (mΩ)	I sat(A)	DC BIAS	Irms	SHAPE:
	SPEC	68.0μH±20%	125.0mΩ MAX	4.5A TYP L0A*70%		3.0A TYP ΔT≤40℃	
	1	67.845	105.820	50.380	-25.7%	OK	
	2	67.923	105.630	50.410	-25.8%	OK	
	3	68.004	104.870	50.520	-25.7%	OK	
	4	66.556	105.080	50.360	-24.3%	OK	
	5	66.843	105.260	50.530	-24.4%	OK	
	X	67.43	105.33	50.44	-25.2%		
	R	1.45	0.95	0.17	1.4%		



I(A)	0	0.8	1.6	2.4	3.2	4	4.8	5.6	6.4
L(μH)	67.554	64.525	61.838	59.167	56.623	53.132	50.38	47.884	45.423
ΔT(°C)	0	5.2	12.5	22.5	36.5	54.6	78.9		

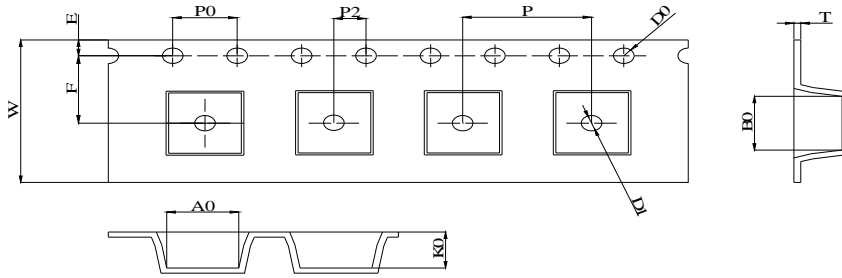
CUSTOMER		MODEL NO.	MS1360-680M	REVISION	A/0
FILE NO.		PART NO.		DATE	2019/4/1
<b>11.可靠性Reliability</b>					
项目Item	规格与需求 Specification and Requirement	测试方法Test Method			
可焊性 Solder a bility test	沾锡面积不得小于95%上锡面 Terminals area must have 95% min solder coverage	上锡升温曲线Solder heat proof: (1) 预热: 160±10℃持续90s Preheating: 160±10℃ for 90 seconds (2) 恒温时段: 245±5℃持续2±0.5s Retention time: 245±5℃ for 2±0.5 seconds			
振动测试 Vibration test	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1) 振动频率(10Hz 55Hz 10Hz)60s为一个周期 Vibration frequency: (10Hz to 55Hz to 10Hz) in 60 seconds as a period (2) 振动时间 Vibration time: 三维正交坐标系每个方向振动(周期)循环2小时 Period cycled for 2 hours in each of 3 mutual perpendicular directions (3) 振幅 Amplitude: 1.5 mm Max			
冲击测试 Shock test	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1) 最大振幅 Peak value: 100G (2) 脉冲波长 Duration of pulse: 11ms (3) 三维正交坐标系每个方向正负方向冲击3次 Times in each positive and negative direction of 3 mutual perpendicular directions			
冷热冲击 Thermal shock	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1)重复以上100个循环Repeat 100 cycle as follow (-55±2℃,30±3分钟) 室温5分钟 (-55±2℃,30±3 minutes) Room temperature,5 minutes (+125±2℃,30±3分钟) 室温5分钟 (+125±2℃,30±3 minutes) Room temperature,5 minutes (2)恢复: 测试于标准条件下恢复48+4/-0小时(参考注释1) Recovery:48+4/-0 hours of recovery under the standard condition after the test. (see Note1)			
耐高温测试 High temperature life test	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1)环境条件: 85±2℃ Environment condition : 85±2℃ 应用电流: 额定电流 Applied current: Rated current (2)持续时间: 1000+4/-0 小时(参考注释1) Duration:1000+4/-0 hours (see Note1)			
耐湿测试 Humidity Resistance	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1)环境条件: 60±2℃ Environment condition : 60±2℃ 湿度: 90~95% Humidity:90~95% 应用电流: 额定电流 Applied current: Rated current (2)持续时间: 1000+4/-0 小时(参考注释1) Duration:1000+4/-0 hours (see Note1)			
低温存放测试Low temperature life test	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1)存储温度 Store temperature -55±2℃下存放 1000+4/-0 小时 -55±2℃for total 1000+4/-0 hours			
高温存放测试High temperature life test	感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break	(1)存储温度 Store temperature +125±2℃下存放 1000+4/-0 小时 +125±2℃for total 1000+4/-0 hours			

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12、包装 Packaging

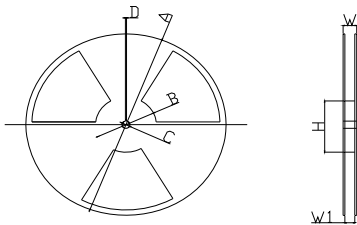
12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



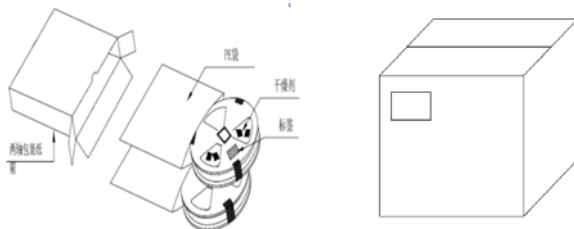
W	A0	B0	K0	P	F	E	D0	P0	T
24 ±0.30	13 ±0.15	13.9 ±0.15	6.5 ±0.10	16 ±0.10	11.5 ±0.1	1.75 ±0.10	1.50 ±0.10	4.0 ±0.10	0.35 ±0.05

12.1.2 卷轴尺寸 Reel dimensions



项目	尺寸(mm)
A	330.0 ± 2.0
B	100.0 ± 1.0
C	13.0 ± 1.0
D	1.9 ± 0.4
W	30.4 Max
W1	24.4 ± 1.0

12.1.3 外箱尺寸 Carton dimensions



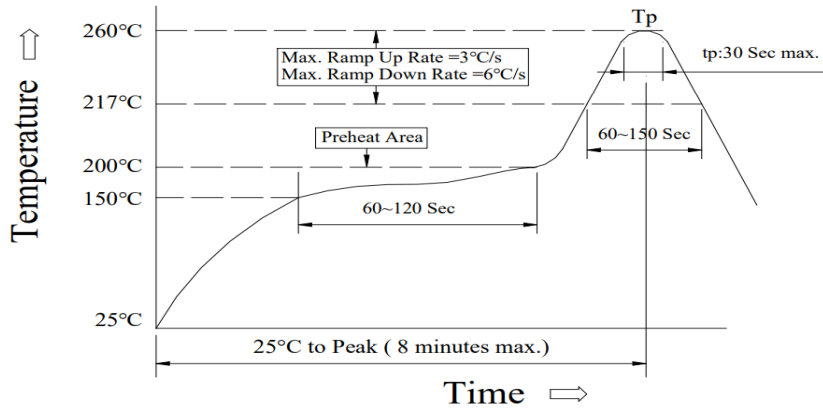
项目	数量(PCS)
1卷轴	500
1内箱	1000
1外箱	3000

CUSTOMER		MODEL NO.	MS1360-680M	REVISION	A/0
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Reflow curve

※ Reflow Profile

Power Choke Coil Type



1. Reflow Soldering Method

Reflow Soldering	Tp:255~260°C	Max.30 seconds ( tp )
	217°C	60~150 seconds
Pre-Heat	150 ~ 200°C	60~120 seconds
Time 25°C to peak temperature	8 minutes max.	

2. Soldering iron method : 350±5°C Max.3 seconds.