



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MS1360-R68M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019/3/27**

\_\_\_\_\_

REVISION.

**A/0**

\_\_\_\_\_

CUSTOMER APPROVE

\_\_\_\_\_

DATE:

DRAWING

DRAWN BY	CHECK BY	APPROVAL BY

DATE:



IATF16949 / ISO9001 / ISO14000

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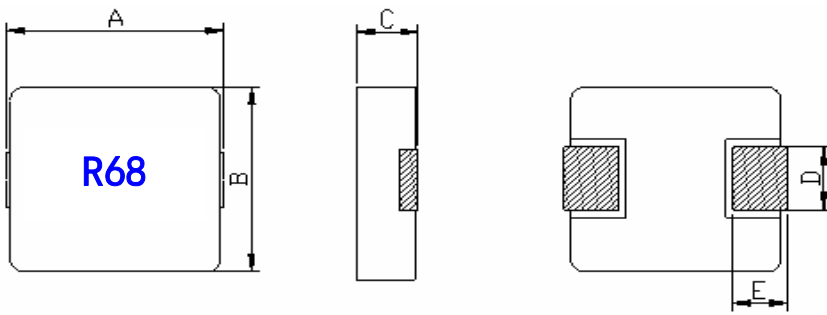
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CUSTOMER		MODEL NO.	<b>MS1360-R68M</b>	REVISION	<b>A/0</b>
FILE NO.		PART NO.		DATE	<b>2019/3/27</b>

<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>0.68µH±20%</b>	100KHz/1.0V	MICROTEST 6377
DCR(mΩ)	<b>1.4mΩMAX</b>	At 25°C	TH2512A
I sat(A)	<b>55.0A TYP L0A*70%</b>	100KHz/1.0V	MICROTEST 6377+6220
I rms(A)	<b>33.0A 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 **R68** on top of the body.

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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



**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.

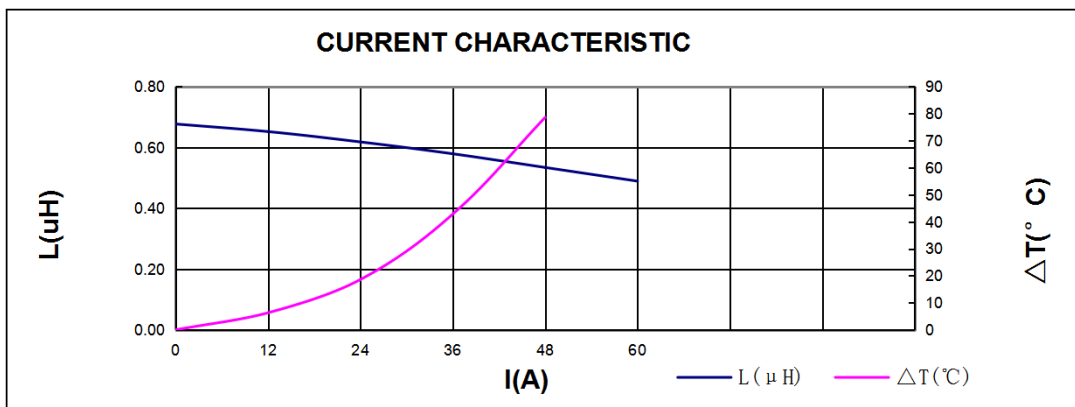
(4)Frequency Range:up to 1MHZ.

**9.RECOMMENDED PCB LAYOUT**

H	5
S	8
M	14.5

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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	0.68μH±20%	1.4mΩMAX	55.0A TYP L0A*70%		33.0A TYP ΔT≤40℃	
	1	0.681	1.210	0.512	-24.8%	OK	
	2	0.674	1.190	0.511	-24.2%	OK	
	3	0.666	1.220	0.509	-23.6%	OK	
	4	0.658	1.180	0.502	-23.7%	OK	
	5	0.677	1.160	0.508	-25.0%	OK	
	X	0.67	1.19	0.51	-24.2%		
	R	0.02	0.06	0.01	1.4%		



I(A)	0	12	24	36	48	60		
L(μH)	0.677	0.652	0.618	0.579	0.534	0.489		
ΔT(°C)	0	6.3	18.6	42.8	78.6			

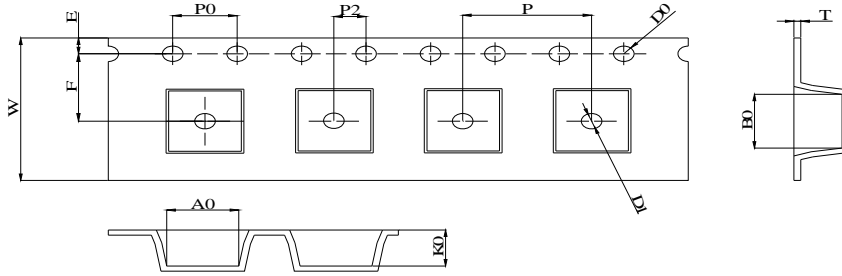
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<b>11.可靠性Reliability</b>					
项目Item	规格与需求 Specification and Requirement	测试方法Test Method			
可焊性 Solderability test	沾锡面积不得小于95%上锡面 Terminals area must have 95% min solder coverage	上锡升温曲线Solder heat proof: (1) 预热: 160±10℃持续90s Preheating: 160±10℃ for 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

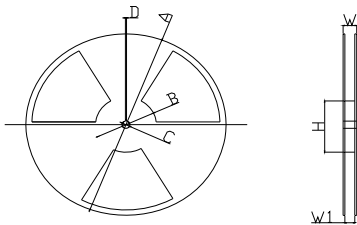
12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



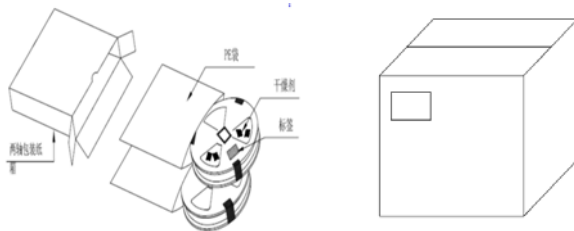
W	A0	B0	K0	P	F	E	D0	P0	T
24 ±0.30	13 ±0.15	13.9 ±0.15	6.5 ±0.10	16 ±0.10	11.5 ±0.1	1.75 ±0.10	1.50 ±0.10	4.0 ±0.10	0.35 ±0.05

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



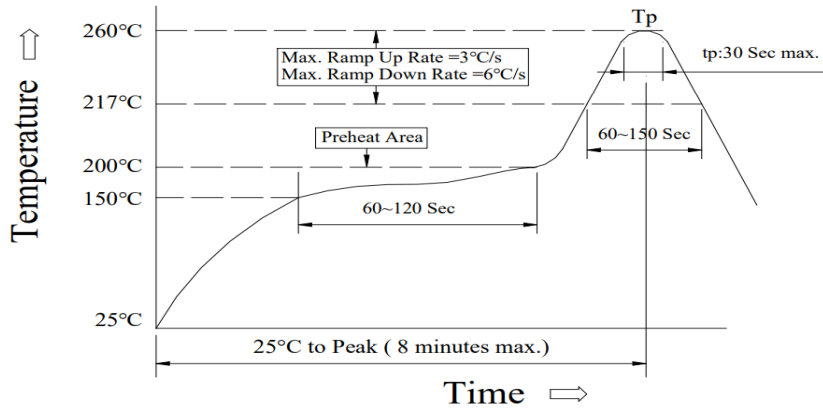
项目	数量(PCS)
1卷轴	500
1内箱	1000
1外箱	3000

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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.