



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MS1350-330M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019-5-16**

\_\_\_\_\_

REVISION.

**A/0**

\_\_\_\_\_

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



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<b>CUSTOMER</b>		<b>MODEL NO.</b>	<b>MS1350-330M</b>	<b>REVISION</b>	<b>A/0</b>
<b>FILE NO.</b>		<b>PART NO.</b>		<b>DATE</b>	<b>2019-5-16</b>

<b>1.PRODUCT DIMENSION</b>		<b>UNIT:mm</b>	
	<b>A</b>	<b>13.65±0.35</b>	
	<b>B</b>	<b>12.6±0.2</b>	
	<b>C</b>	<b>5.0 Max</b>	
	<b>D</b>	<b>3.8±0.5</b>	
	<b>E</b>	<b>2.5±0.5</b>	

<b>2.ELECTRICAL REQUIREMENTS</b>			
<b>PARAMETER</b>	<b>SPECIFICATION</b>	<b>CONDITION</b>	<b>TEST INSTRUMENTS</b>
<b>L(uH)</b>	<b>33.0µH±20%</b>	<b>100KHz/1.0V</b>	<b>MICROTEST 6377</b>
<b>DCR(mΩ)</b>	<b>75.0mΩMAX</b>	<b>At 25°C</b>	<b>TH2512A</b>
<b>I sat(A)</b>	<b>6.5A TYP L0A*70%</b>	<b>100KHz/1.0V</b>	<b>MICROTEST 6377+6220</b>
<b>I rms(A)</b>	<b>4.0A TYP ΔT≤40°C</b>	<b>100KHz/1.0V</b>	<b>MICROTEST 6377+6220</b>

**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 **330** 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

**6.ELECTRICAL SCHEMATICS**



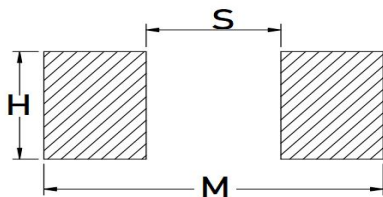
**7.APPLICATION**

- (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.

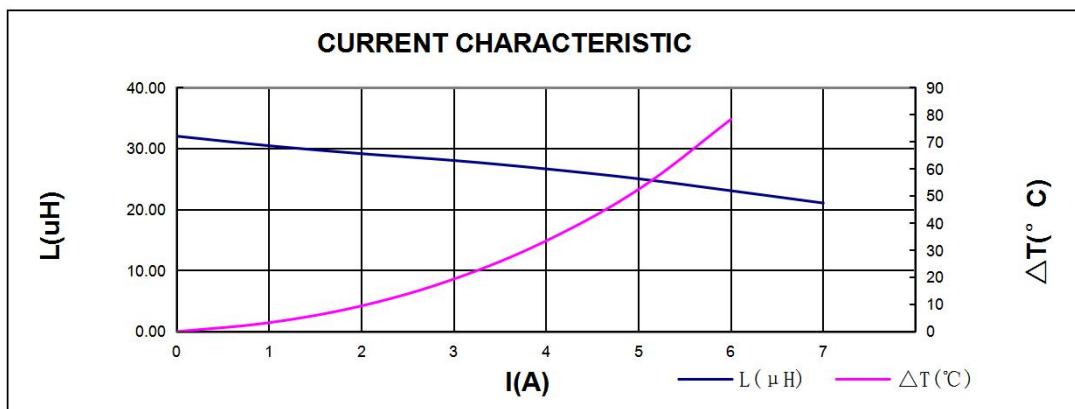
**9.RECOMMENDED PCB LAYOUT**



<b>H</b>	<b>5</b>
<b>S</b>	<b>8</b>
<b>M</b>	<b>14.5</b>

CUSTOMER		MODEL NO.	MS1350-330M		REVISION	A/0	
FILE NO.		PART NO.			DATE	2019-5-16	
SORT	ITEM	A	B	C	D	E	
PRODUCT & DIMENSION	SPEC	13.65±0.35	12.6±0.2	5.0 Max	3.8±0.5	2.5±0.5	
	1	13.46	12.64	4.86	3.84	2.53	
	2	13.46	12.64	4.88	3.82	2.50	
	3	13.45	12.63	4.87	3.83	2.52	
	4	13.43	12.64	4.85	3.82	2.51	
	5	13.46	12.64	4.89	3.83	2.50	
	X	13.45	12.64	4.87	3.83	2.51	
	R	0.03	0.01	0.04	0.02	0.03	

ELECTRICAL & REQUIREMENTS	ITEM	L(μH)	DCR (mΩ)	I sat(A)	DC BIAS	Irms	SHAPE:
	SPEC	33.0μH±20%	75.0mΩ MAX	6.5A TYP L0A*70%		4.0A TYP ΔT≤40℃	
	1	32.050	62.90	24.160	-24.6%	OK	
	2	32.110	62.64	24.180	-24.7%	OK	
	3	32.130	62.53	24.080	-25.1%	OK	
	4	32.220	62.59	24.090	-25.2%	OK	
	5	32.080	62.93	24.080	-24.9%	OK	
	X	32.12	62.72	24.12	-24.9%		
	R	0.17	0.40	0.10	0.6%		



I(A)	0	1	2	3	4	5	6	7	
L(μH)	32.050	30.48	29.18	28.06	26.68	25.06	23.1	21.08	
ΔT(°C)	0	3.3	9.5	19.4	33.5	52.5	78.3		

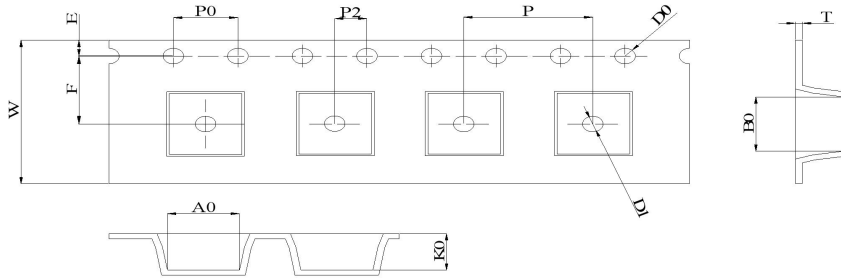
CUSTOMER		MODEL NO.	MS1350-330M	REVISION	A/0
FILE NO.		PART NO.		DATE	2019-5-16
<b>11.可靠性Reliability</b>					
项目Item	规格与需求 Specification and Requirement	测试方法Test Method			
可焊性 Solderability test	沾锡面积不得小于95%上锡面 Terminals area must have 95% min solder coverage	上锡升温曲线Solder heat proof: (1) 预热: 160±10℃持续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**



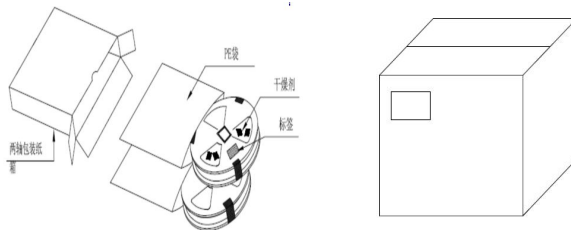
W	A0	B0	K0	P	F	E	D0	P0	T
<b>24</b> <b>±0.30</b>	<b>13</b> <b>±0.15</b>	<b>13.9</b> <b>±0.15</b>	<b>5.5</b> <b>±0.10</b>	<b>16</b> <b>±0.10</b>	<b>11.5</b> <b>±0.1</b>	<b>1.75</b> <b>±0.10</b>	<b>1.50</b> <b>±0.10</b>	<b>4.0</b> <b>±0.10</b>	<b>0.35</b> <b>±0.05</b>

**12.1.2 卷轴尺寸 Reel dimensions**



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

**12.1.3 外箱尺寸 Carton dimensions**



项目	数量 (PCS)
<b>1 卷轴</b>	<b>500</b>
<b>1 内箱</b>	<b>1000</b>
<b>1 外箱</b>	<b>3000</b>

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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.



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