



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MS0320-R47M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2020-8-28**

\_\_\_\_\_

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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<b>CUSTOMER</b>		<b>MODEL NO.</b>	<b>MS0320-R47M</b>	<b>REVISION</b>	<b>A/0</b>
<b>FILE NO.</b>		<b>PART NO.</b>		<b>DATE</b>	<b>2020-8-28</b>

<b>1.PRODUCT DIMENSION</b>		<b>UNIT:mm</b>	
	<b>A</b>	<b>3.5±0.4</b>	
	<b>B</b>	<b>3.2±0.2</b>	
	<b>C</b>	<b>2.0 Max</b>	
	<b>D</b>	<b>1.2±0.2</b>	
	<b>E</b>	<b>0.9±0.2</b>	

<b>2.ELECTRICAL REQUIREMENTS</b>			
<b>PARAMETER</b>	<b>SPECIFICATION</b>	<b>CONDITION</b>	<b>TEST INSTRUMENTS</b>
<b>L(uH)</b>	<b>0.47µH±20%</b>	<b>100KHz/1.0V</b>	<b>MICROTEST 6377</b>
<b>DCR(mΩ)</b>	<b>22mΩMAX</b>	<b>At 25°C</b>	<b>TH2512A</b>
<b>I sat(A)</b>	<b>6.0A TYP L0A*70%</b>	<b>100KHz/1.0V</b>	<b>MICROTEST 6377+6220</b>
<b>I rms(A)</b>	<b>5.0A 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 **R47** on top of the body.

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**5.PRODUCT IDENTIFICATION**

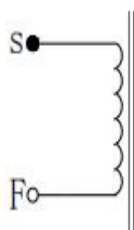
XX XXXX - XXX X X

①      ②      ③      ④      ⑤

①、 Product Symbol    ②、 Dimensions    ③、 Inductance

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

**6.ELECTRICAL SCHEMATICS**



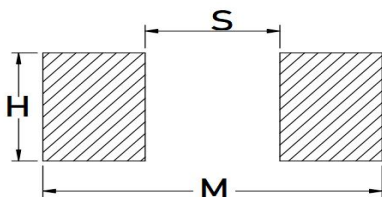
**7.APPLICATION**

- (1)Low profile,high current power supplies.
- (2)Battery powered devices.
- (3)DC/DC converters in distributed power systems.
- (4)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.

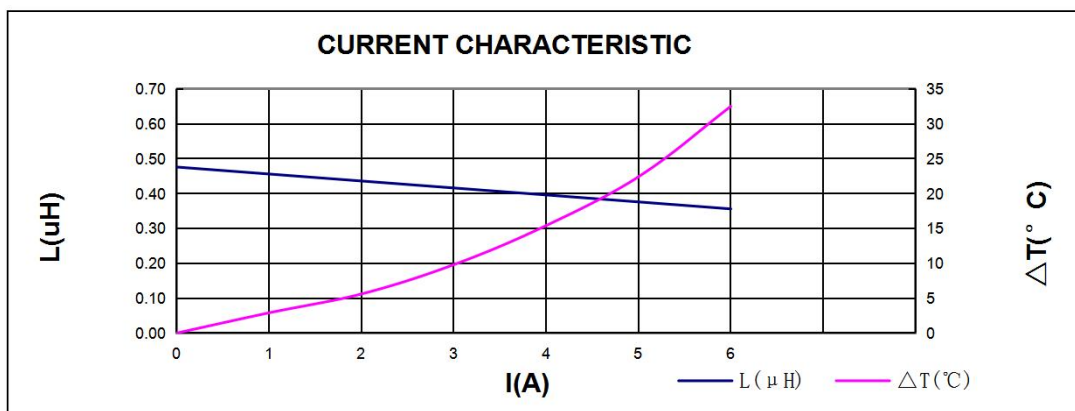
**9.RECOMMENDED PCB LAYOUT**



<b>H</b>	<b>1.45</b>
<b>S</b>	<b>1.9</b>
<b>M</b>	<b>4.1</b>

CUSTOMER		MODEL NO.	MS0320-R47M		REVISION	A/0	
FILE NO.		PART NO.			DATE	2020-8-28	
SORT	ITEM	A	B	C	D	E	
PRODUCT & DIMENSION	SPEC	3.5±0.4	3.2±0.2	2.0 Max	1.2±0.2	0.9±0.2	
	1	3.49	3.15	1.76	1.17	0.89	
	2	3.48	3.15	1.77	1.19	0.90	
	3	3.48	3.14	1.75	1.18	0.91	
	4	3.49	3.15	1.78	1.17	0.89	
	5	3.49	3.14	1.78	1.18	0.91	
	X	3.49	3.15	1.77	1.18	0.90	
	R	0.01	0.01	0.03	0.02	0.02	

ELECTRICAL & REQUIREMENTS	ITEM	L(μH)	DCR (mΩ)	I sat(A)	DC BIAS	Irms	SHAPE:
	SPEC	0.47μH±20%	22mΩMAX	6.0A TYP LOA*70%		5.0A TYP ΔT≤40℃	
	1	0.460	17.70	0.346	-24.8%	OK	
	2	0.462	17.60	0.347	-24.9%	OK	
	3	0.471	17.80	0.349	-25.9%	OK	
	4	0.465	17.70	0.346	-25.6%	OK	
	5	0.467	17.60	0.349	-25.3%	OK	
	X	0.47	17.68	0.35	-25.3%		
	R	0.01	0.20	0.00	1.1%		



I(A)	0	1	2	3	4	5	6		
L(μH)	0.476	0.456	0.436	0.416	0.396	0.376	0.356		
ΔT(°C)	0	2.9	5.6	9.8	15.4	22.4	32.5		

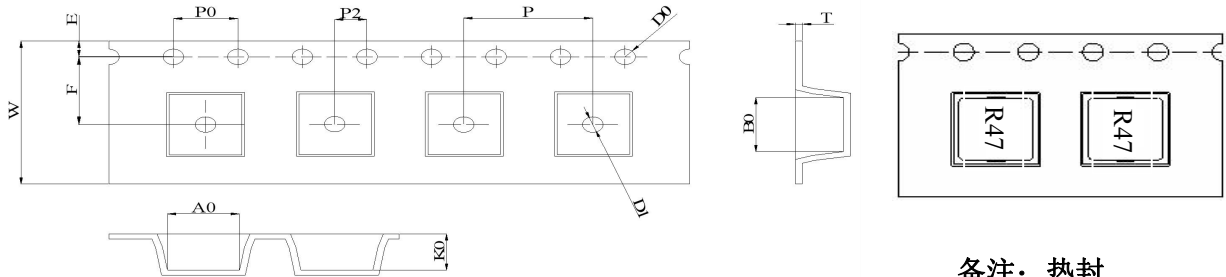
CUSTOMER		MODEL NO.	MS0320-R47M	REVISION	A/0
FILE NO.		PART NO.		DATE	2020-8-28
<b>11.可靠性Reliability</b>					
项目Item	规格与需求 Specification and Requirement	测试方法Test Method			
可焊性 Solder ability test	沾锡面积不得小于95%上锡面 Terminals area must have 95% min solder coverage	上锡升温曲线Solder heat proof: (1) 预热: 160±10℃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

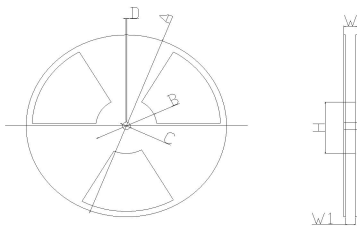
12.1.1 包装料带尺寸 Tape packaging dimensions



备注：热封

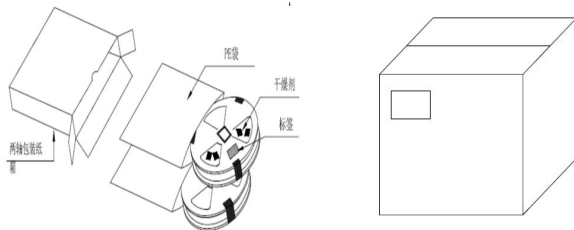
W	A0	B0	K0	P	F	E	D0	P0	T
12 ±0.30	3.5 ±0.10	3.8 ±0.10	2.2 ±0.10	8 ±0.10	5.5 ±0.1	1.75 ±0.10	1.50 ±0.10	4.0 ±0.10	0.35 ±0.05

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	3000
1内箱	12000
1外箱	36000

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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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[1206CS-471XJ](#) [HC2-R47-R](#) [HC8-1R2-R](#) [HCF1305-3R3-R](#) [1206CS-151XG](#) [RCH664NP-140L](#) [RCH664NP-4R7M](#) [RCP1317NP-391L](#)  
[RCR110DNP-331L](#) [DH2280-4R7M](#) [DS1608C-106](#) [B10TJ](#) [B82498B3101J000](#) [ELJ-RE27NJF2](#) [1812CS-153XJ](#) [1812CS-183XJ](#) [1812CS-](#)  
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