



SPECIFICATION FOR APPROVAL

CUSTOMER : AOPEN

VENDOR : MAGIC TECHNOLOGY CO.,LTD.

PRODUCTS : Shielded Molding - SMD

PART NO : SRPN1004-220M-S

CUST NO :

DATE : 2019.2.25

SALES DEP. : [Orson](#)

E-MAIL : Orson@magictec.com.tw

PURCHASER CONFIRMED		
APPROVAL NO.	APPROVAL BY	

MAGIC ENGINEER DEPT.		
APPROVAL BY	CHECK BY	DRAWN BY
TAN ZI YANG	WANG L I	CAO YANG

MAGIC TECHNOLOGY CO., LTD.

15F-3, NO. 716. CHUNG CHENG RD.,CHUNG HO DISTRICT, NEW TAIPEI CITY, TAIWAN

TEL:+886-2-8227-3366 FAX:+886-2-8227-3377

SHENZHEN FACTORY: NO.1,FOURTH INDUSTRY ZONE,HOUTING ESTATE,SHAJING BAOAN,SHENZHEN GUANGDONG C

TEL: +86-755-2722-2227 FAX: +86-755-2722-2476 E-mail:ISD@magictec.com.tw

CHONG QING FACTORY: NO.20 FUNG SHENG ROAD.JIM FENG TOWN,JIU LONG PO DISTRICT.,CHONG QING CHINA

TEL: +86-23-6574-7007 FAX: +86-23-6574-7001 E-mail:ISD@magictec.com.tw

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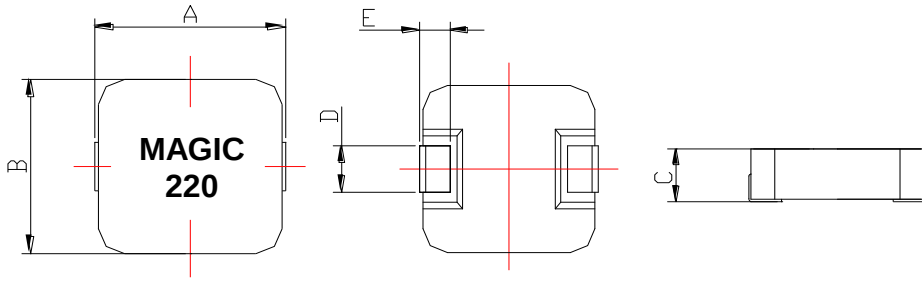
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QWRD10承認書B

SPECIFICATION FOR APPROVAL

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COMPLIANT

CUSTOMER : AOPEN
CUST P/NO :
MG PART : SRPN1004-220M-S
MG P/NO :
DATE : 2019.2.25
REV NO: : A
PAGE NO : 2 / 9
MG NO :

1.MECHANICAL & DIMENSIONS		(UNIT: mm)	
 PCB Pattern Equivalent Circuit	A	11.2 ±0.3	
	B	10.0±0.3	
	C	3.8±0.2	
	D	2.9±0.5	
	E	2.2±0.5	
	a	3.5 ref	
	b	6.0ref	
	c	4.0ref	
			REMARK
2.ELECTRICAL REQUIREMENTS:			
PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L0	22.0 ± 20% uH	100KHz/0.25V	■CH-1062A LCR METER
DCR	66.0 max mohm	@25 ± 5℃	■CH-16502BC IMPEDANCE METER
I-sat	5.5 (Typ) Amps	70% L0	■CH-3302 LCR METER + CH-1320 BIAS
I rms	5.0 (Typ) Amps	ΔT ≤ 40℃	■DIGITAL THERMOMETER: DM6801A
3.TEMPERATURE RATING:			
Operating	-40℃ ~ 125℃		
4.PRODUCT IDENTIFICATION:			
SRPN 1004 - 220 M - S A B C D E A: Series Name. D: Inductance Tolerance. (M±20% , K±10%) B: Dimensions and shape. E: Process code C: Inductance. (Exp.22uH = 220)			
DRAWN BY :		CHECKED BY :	APPROVED BY :
CAO YANG		WANG LI	TAN ZI YANG

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CUSTOMER : AOPEN _____ DATE : 2019.2.25 _____
 CUST P/NO : _____ REV NO: : A _____
 MG PART : SRPN1004-220M-S _____ PAGE NO : 3 /9 _____
 MG P/NO : _____ MG NO : _____

5.TESTING DATA:								
PARAMETER	L0		DCR		I-sat		I rms	
UNIT	uH		mohm		Amps		Amps	
SPECIFICATION	22.0 ± 20%		66.0 max		5.5 (Typ)		5.0 (Typ)	
CONDITION	100KHz/0.25V		@25 ± 5℃		70% L0		ΔT ≤ 40℃	
1	21.50		59.50		OK		OK	
2	20.90		58.90					
3	22.00		60.10					
4	22.10		59.20					
5	21.20		59.60					
6	21.30		60.20					
7	21.50		60.10					
8	22.30		58.98					
9	22.10		59.60					
10	21.50		59.80					
MEAN	21.64		59.60					
R	1.40		1.30					
6.AMBIENT CONDITION								
TEMPERATURE			25 ± 5℃		HUMIDITY		60 ± 10%	
7.TEST DATA								
NO	A	B	C	D	E			
	11.2 ±0.3	10.0±0.3	3.8±0.2	2.9±0.5	2.2±0.5			
1	11.26	10.12	3.95	2.98	2.25			
2	11.24	10.10	3.92	2.96	2.26			
3	11.28	10.09	3.89	2.96	2.28			
4	11.27	10.12	3.93	2.95	2.25			
5	11.25	10.13	3.91	2.97	2.24			
6	11.28	10.07	3.90	2.99	2.26			
7	11.26	10.12	3.92	2.95	2.28			
8	11.24	10.13	3.90	2.94	2.29			
9	11.25	10.14	3.92	2.96	2.27			
10	11.25	10.09	3.87	2.97	2.26			
MEAN	11.26	10.11	3.91	2.96	2.26			
R	0.04	0.07	0.08	0.05	0.05			
DRAW 10			CHECKED BY :			APPROVED BY :		
CAO YANG			WANG LI			TAN ZI YANG		

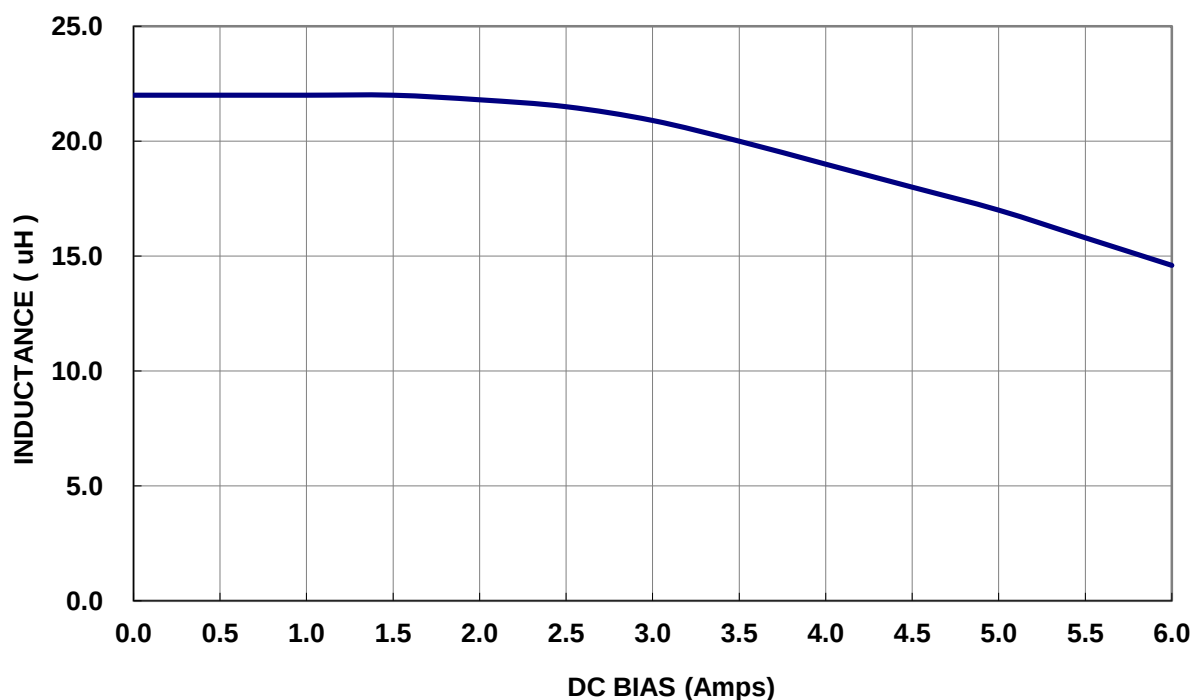
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CUST P/NO:	REV NO: : A
MG PART : SRPN1004-220M-S	PAGE NO : 4 / 9
MG P/NO :	MG NO :

INDUCTANCE (uH) VS DC BIAS (Amps)						
PART NO.	SRPN1004-220M-S					
0.0 A	22.00	% L0				
0.5 A	22.00	100.00%				
1.0 A	22.00	100.00%				
1.5 A	22.00	100.00%				
2.0 A	21.80	99.09%				
2.5 A	21.50	97.73%				
3.0 A	20.90	95.00%				
3.5 A	20.00	90.91%				
4.0 A	19.00	86.36%				
4.5 A	18.00	81.82%				
5.0 A	17.00	77.27%				
5.5 A	15.80	71.82%				
6.0 A	14.60	66.36%				

CONDITION: 100KHz , 0.25Vrms



DRAWN BY :	CHECKED BY :	APPROVED BY :
CAO YANG	WANG LI	TAN ZI YANG

MAGIC TECHNOLOGY / TAIPEI / TEL: 886-2-82273366 / FAX: 886-2-82273377

CHINA FACTORY / TEL: 86-755-27222153 / FAX: 86-755-29697997

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SPECIFICATION FOR APPROVAL

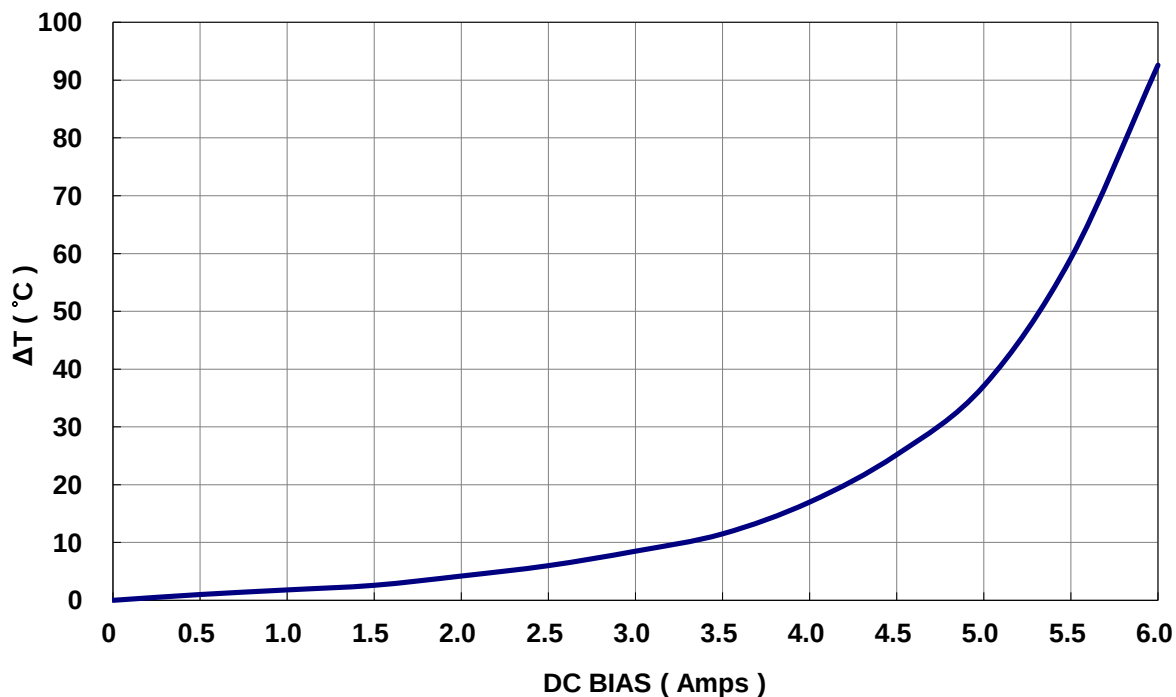
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CUSTOMER : AOPEN DATE : 2019.2.25
CUST P/NO : REV NO: A
MG PART : SRPN1004-220M-S PAGE NO : 5 /9
MG P/NO : MG NO :

TEMPERATURE RISE ΔT ($^{\circ}\text{C}$) VS DC BIAS (Amps)

PART NO.	SRPN1004-220M-S					
0 A	0	0 Minutes				
0.5 A	1.0	5 Minutes				
1.0 A	1.8	10 Minutes				
1.5 A	2.6	15 Minutes				
2.0 A	4.2	20 Minutes				
2.5 A	6.0	25 Minutes				
3.0 A	8.5	30 Minutes				
3.5 A	11.5	35 Minutes				
4.0 A	17.0	40 Minutes				
4.5 A	25.2	45 Minutes				
5.0 A	37.1	50 Minutes				
5.5 A	59.2	55 Minutes				
6.0 A	92.6	60 Minutes				

CONDITION: 100KHz , 0.25Vrms



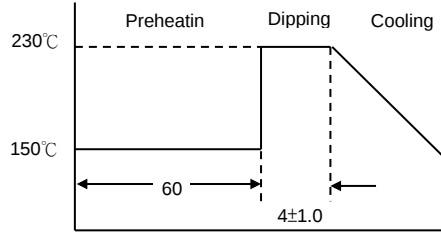
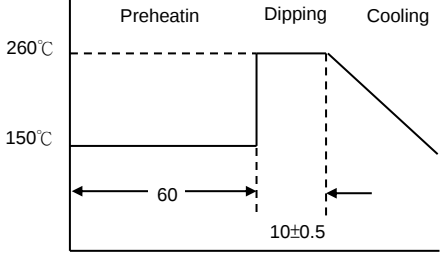
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Reliability and Testing Conditions / Pin Type Power Inductors

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Item	Specification	Conditions															
Operating temperature range	-40°C ~ +125°C																
Storage temperature and humidity range	-40°C ~ +125°C , 70% RH Max																
Solderability	More than 90% of the terminal electrode should be covered with solder.	 Unit: Second															
Solder Heat Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	 Unit: Second															
Heat resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in 125±5°C and 2 hour drying under normal condition.															
Cold resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in -40±5°C and 2 hour drying under normal condition.															
Thermal shock	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 100 cycles of following condition. <table border="1"> <thead> <tr> <th>Step</th><th>Temperature (°C)</th><th>Times (min.)</th></tr> </thead> <tbody> <tr> <td>1</td><td>-40±5°C</td><td>30</td></tr> <tr> <td>2</td><td>Room Temperature</td><td>Within 3</td></tr> <tr> <td>3</td><td>125±5°C</td><td>30</td></tr> <tr> <td>4</td><td>Room Temperature</td><td>Within 3</td></tr> </tbody> </table>	Step	Temperature (°C)	Times (min.)	1	-40±5°C	30	2	Room Temperature	Within 3	3	125±5°C	30	4	Room Temperature	Within 3
Step	Temperature (°C)	Times (min.)															
1	-40±5°C	30															
2	Room Temperature	Within 3															
3	125±5°C	30															
4	Room Temperature	Within 3															
Humidity Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in 40±2°C and 90 to 95% humidity , and 2 hour drying under normal condition.															
Vibration Test	Inductance within ±5% of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration (10~55~10Hz) with 1.52mm P-P Amplitudes.															

Recommended Soldering Conditions

■ For Lead-Free Application

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Figure 1. Re-flow Soldering

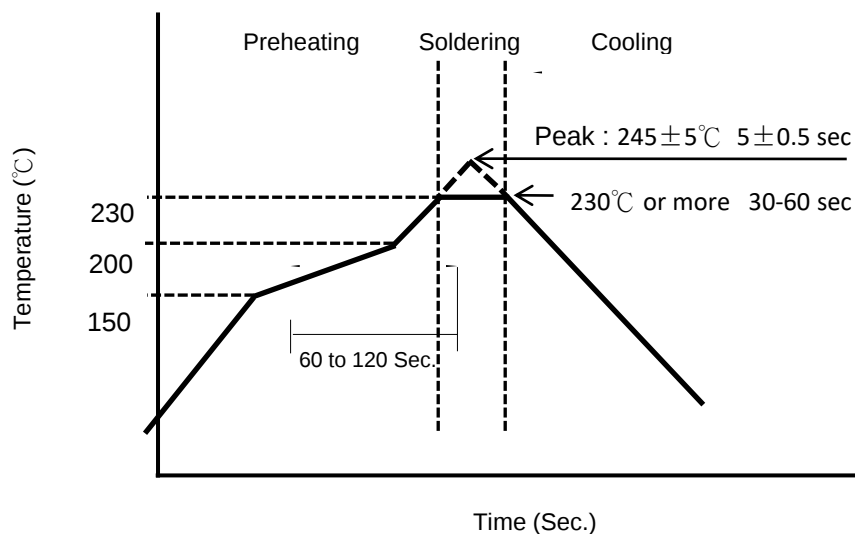
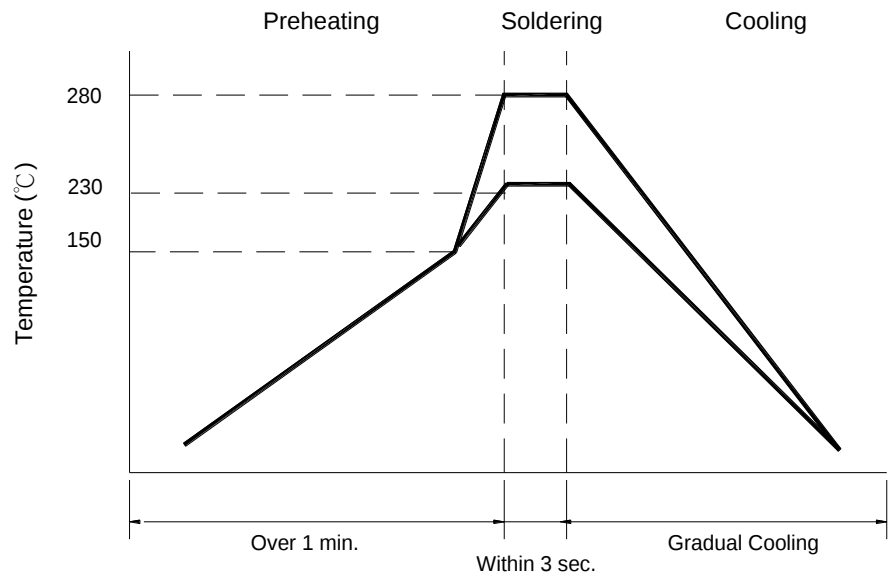
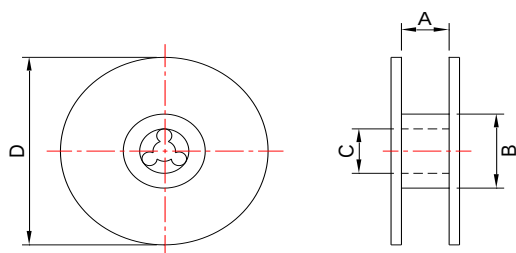


Figure 2. Hand Soldering



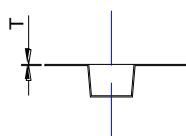
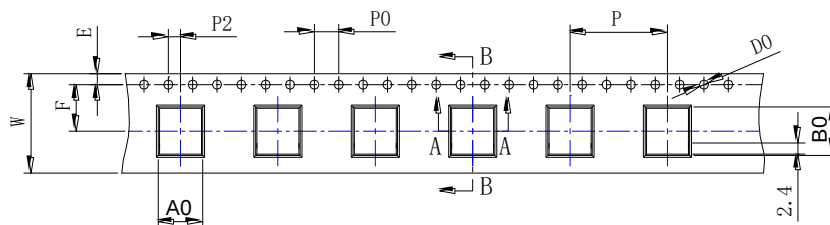
PACKAGING

Reel Dimension

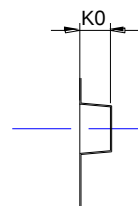


Type	A(mm)	B(mm)	C(mm)	D(mm)
13" x 24mm	24.0 ± 0.5	100 ± 2	13.5 ± 0.5	330

Tape Dimension



Section A-A



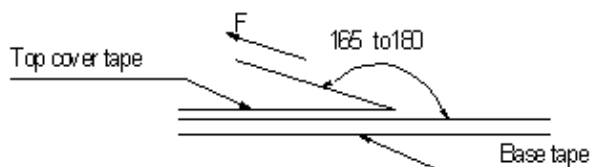
Section B-B

W	AO	BO	KO	P	F	E	PO	P2	T
24±0.3	10.4±0.1	11.6±0.1	4.1±0.1	16±0.3	11.5±0.1	1.75±0.1	4±0.1	2±0.1	0.35±0.05

Packaging Quantity

P/N	Chip/Reel	Inner Box	Carton
SRPN1004	1000pcs	2000pcs	8000pcs

Tearing Off Force



in the arrow direction under the following conditions			
Room Temp (°C)	Room Humidity (%)	Room atrn (hPa)	Teaming Speed (mm/min)
5~35	45~85	860~1060	300.0

※Storage Conditions

1. Temperature and humidity conditions: Less than 40°C and 70% RH.
2. Recommended products should be used within 6 months from the time of delivery.
3. The packaging material should be kept where no chlorine or sulfur exists in the air.

※Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

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CUST P/NO : REV NO: A
MG PART : SRPN1004-220M-S PAGE NO : 9 /9
MG P/NO : MG NO :

MATERIAL IDENTIFICATION				
ITEM	DESCRIPTION	CLASS	SGS No. UL NO.	SUPPLIERS
Powder	alloy powder			MAGIC TECHNOLOGY CO.,LTD.
WIRE	AIB			PACIFIC ELECTRONICS WIRE&CABLE CO.,LTD
Chip	ZT002			ZHENTAI INSULATION MATERIAL PRODUCT CO.,LTD
DRAWN BY :		CHECKED BY :		APPROVED BY :
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