

CUSTOMER \_\_\_\_\_

CUSTOMER' S P/N \_\_\_\_\_

DESCRIPTION SMD Power Inductor

SGTE PART NO. GPSR-AP0320-R68MS

SAMPLE NO. S18011101 REVISION NO. A0 DATE 2018/1/11

## SPECIFICATION FOR APPROVAL

FULLY APPROVED	REVISE APPROVED

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# SPECIFICATION

**RoHS  
COMPLIANT**

Customers Part Number	Item Name	Date	
	SMD Power Inductor	2018/1/11	
Gan Tong Part NO.	Sample NO.	Revision No.	A0
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Version	Change history	Before the change	After the change	Release date
A0	NEW	—	—	2018/1/11

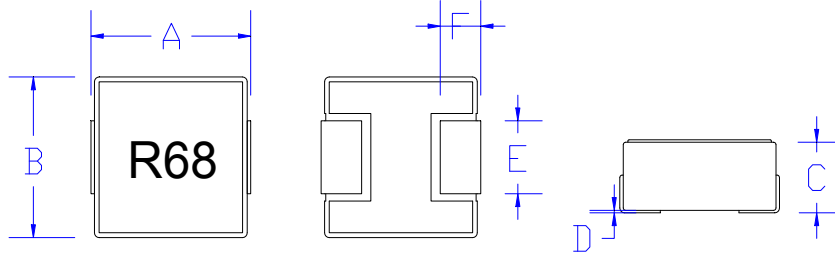
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COMPLIANT**

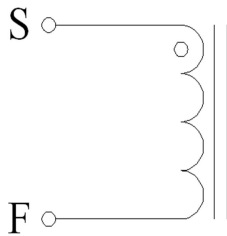
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## External Dimensions Unit (mm)

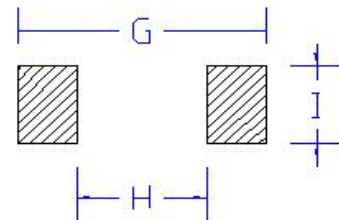


A	3.6±0.15
B	3.2±0.15
C	2.0 Max
D	≤0.15
E	1.2±0.3
F	0.6±0.3
G	4.0 REF
H	1.0 REF
I	1.2 REF

### Connection



### Recommended Land Pattern



## ELECTRICAL REQUIREMENTS:

PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L	0.68± 20% uH	100KHz/1V	■LCR Agilent4284A / Chroma 11300
DCR	30 max mΩ	@ 25°C	■CH16502 IMPEDANCE METER
I-sat	7.0 A mps	≧ 65%LOA	■A4284A+A42841A LCR METER
I rms	5.0 A mps	ΔT ≤ 40°C	■Chroma /11300+3302+1320+1320S

- I rms: Current that causes a 40°C temperature rise from 25°C ambient.
- I sat: DC current at which the inductance drops 35% from it' s value without current.
- All test Data is referenced to 25°C ambient.
- Operating Temperature Range: -25°C to +125°C.

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**Electrical Characteristic :**

PARAMETER	L	DCR	I-sat	I <sub>rms</sub>	
UNIT	uH	mΩ	A mps	A mps	
SPECIFICATION	0.68± 20%	30 max	7.0	5.0	
CONDITION	100KHz/1V	@ 25°C	≧ 65%L0A	ΔT ≧ 40°C	
1	0.74	20.10	71.6%	29°C	
2	0.68	20.40			
3	0.67	19.70			
4	0.64	19.60			
5	0.67	20.00			
6					
7					
8					
9					
10					
MEAN	0.68	20.0			
R	0.10	0.80			

**External Dimensions:**

NO	A	B	C	D	E	F		
	3.6±0.15	3.2±0.15	2.0 Max	≤0.15	1.2±0.3	0.6±0.3		
1	3.53	3.17	1.79	0.05	1.19	0.50		
2	3.58	3.20	1.87	0.02	1.16	0.65		
3	3.57	3.18	1.79	0.03	1.18	0.66		
4	3.56	3.15	1.85	0.06	1.20	0.61		
5	3.58	3.18	1.87	0.06	1.18	0.62		
6								
7								
8								
9								
10								
MEAN	3.56	3.18	1.83	0.04	1.18	0.61		
R	0.05	0.05	0.08	0.04	0.04	0.16		

Inductance measured at 100KHz/1Vrms..

Electrical specifications at 25±5°C. Humidity 60±10%

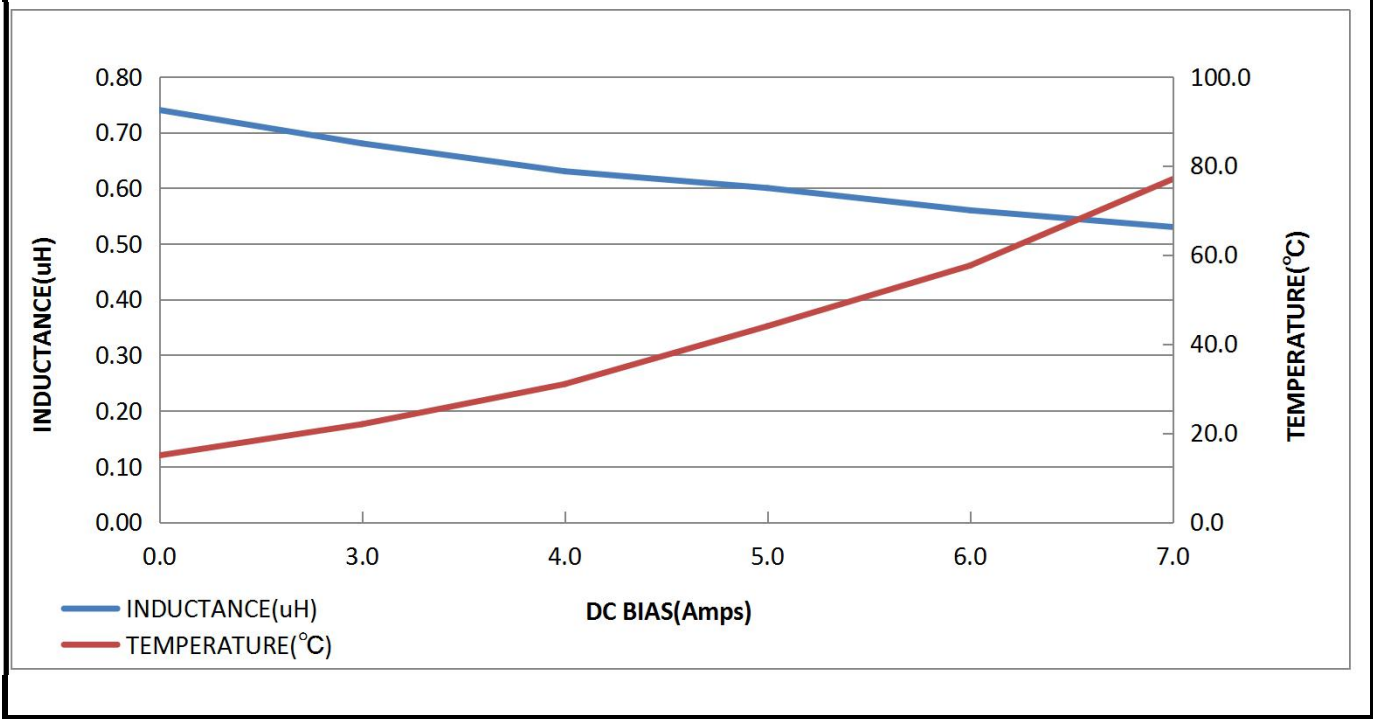
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## INDUCTANCE (uH) / TEMPERATURE RISE(°C) VS DC BIAS (Amps)

IDC	L(uH)	L/LoA (%)	T(°C)	ΔT(°C)		
0.0 A	0.74	100.00%	15.0	0.0		
3.0 A	0.68	91.89%	22.0	7.0		
4.0 A	0.63	85.14%	31.0	16.0		
5.0 A	0.60	81.08%	44.0	29.0		
6.0 A	0.56	75.68%	57.6	42.6		
7.0 A	0.53	71.62%	77.0	62.0		

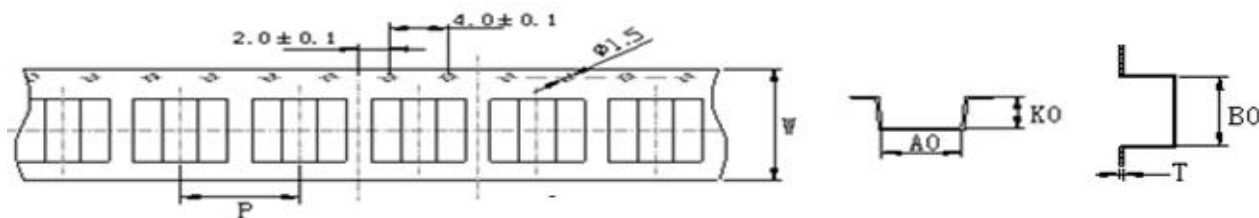


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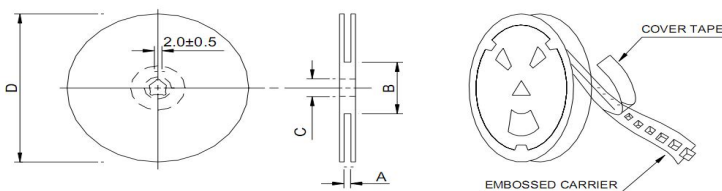
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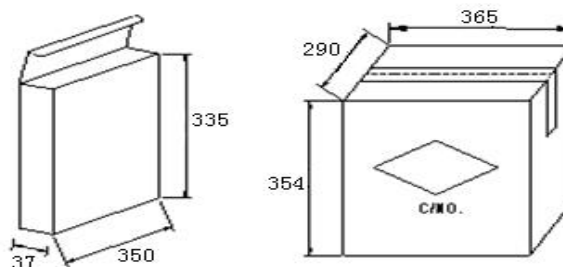
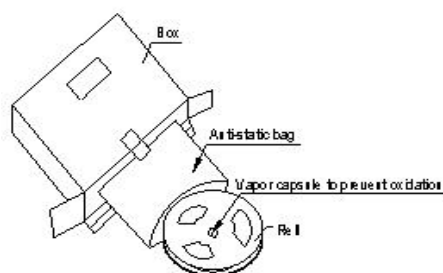
## PACKAGING



A0	B0	K0	T	P	W	Unit
3.4	3.8	2.1	0.3	8	8	mm



TYPE	A(mm)	B(mm)	C(mm)	D(mm)
7"*8mm	12.0±0.5	60±2	13.5±0.5	178



## Packaging Quantity

Unit: mm					
Inner Carton		Outer Carton			
Reel size	Quantity/Reel	Inside the box size	Quantity	Carton size	Quantity
∅ 178	1000pcs	190*190*21mm	1000pcs	395*395*200mm	24000pcs

### Storage

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

### Transportation

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

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## SOLDRING CONDITIONS

Figure 1. Re-flow Soldering

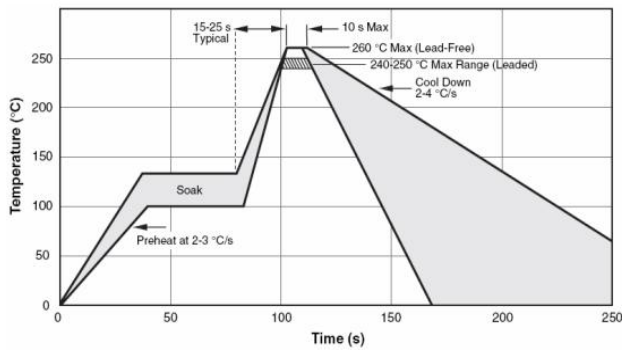
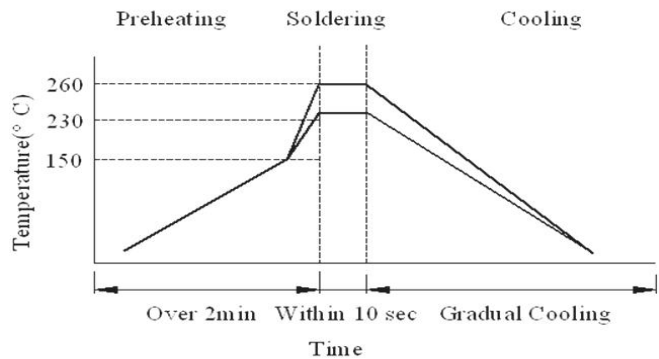


Figure 2. Wave Soldering



Soldering Iron: temperature  $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$  , dwell time shall be less than 3 sec.

## Reliability and Testing Conditions/Surface Mount Type Power Inductors

Item	Specification	Conditions															
Solderability	More than 90% of the terminal electrode should be covered with solder.																
Solder Heat Resistance	Inductance within $\pm 20\%$ of initial value and appearance shall not break.																
Heat resistance	Inductance within $\pm 20\%$ of initial value. No disconnection or short circuit. Appearance shall not break.	After $500 \pm 12$ hours in $145 \pm 5^{\circ}\text{C}$ and 2 hour drying under normal condition.															
Cold resistance	Inductance within $\pm 20\%$ of initial value. No disconnection or short circuit. Appearance shall not break.	After $500 \pm 12$ hours in $-40 \pm 2^{\circ}\text{C}$ and 2 hour drying under normal condition.															
Thermal shock	Inductance within $\pm 20\%$ of initial value. No disconnection or short circuit. Appearance shall not break.	After 10 cycles of following condition. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Step</th> <th>Temperature (<math>^{\circ}\text{C}</math>)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-40 \pm 2</math></td> <td>30</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td><math>145 \pm 5</math></td> <td>30</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>Within 3</td> </tr> </tbody> </table>	Step	Temperature ( $^{\circ}\text{C}$ )	Times (min.)	1	$-40 \pm 2$	30	2	Room Temperature	Within 3	3	$145 \pm 5$	30	4	Room Temperature	Within 3
Step	Temperature ( $^{\circ}\text{C}$ )	Times (min.)															
1	$-40 \pm 2$	30															
2	Room Temperature	Within 3															
3	$145 \pm 5$	30															
4	Room Temperature	Within 3															
Humidity Resistance	Inductance within $\pm 20\%$ of initial value. No disconnection or short circuit. Appearance shall not break.	After $500 \pm 12$ hours in $40 \pm 2^{\circ}\text{C}$ and 90 to 95% humidity , and 2 hour drying under normal condition.															
* Vibration Test	Inductance within $\pm 20\%$ of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration ( $10 \sim 55 \sim 10\text{Hz}$ ) with 1.52mm P-P Amplitudes.															

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