

CUSTOMER \_\_\_\_\_

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

DESCRIPTION SMD Power Inductor

SGTE PART NO. GPSR0850-R47M

SAMPLE NO. S16080502 REVISION NO. A0 DATE 2016/8/5

## SPECIFICATION FOR APPROVAL

FULLY APPROVED	REVISE APPROVED

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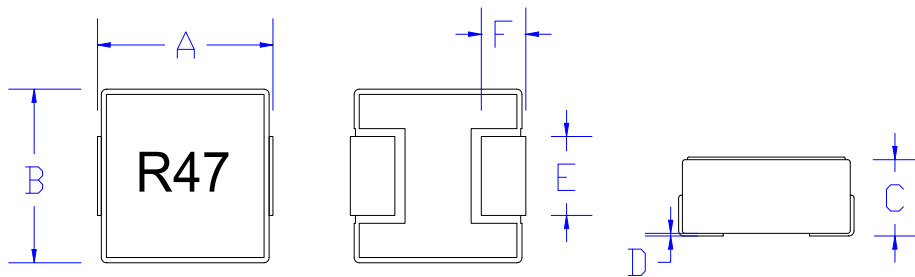


# SPECIFICATION

**RoHS  
COMPLIANT**

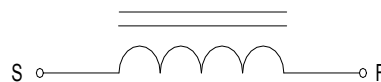
Customers Part Number	Item Name	Date	
	SMD Power Inductor	2016/8/5	
Gan Tong Part NO.	Sample NO.	Revision No.	A0
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## MECHANICAL & DIMENSIONS



(UNIT: mm)	
A	$8.1 \pm 0.5$
B	$7.2 \pm 0.5$
C	5.0 MAX
D	$\leq 0.15$
E	$3.0 \pm 0.3$
F	$1.6 \pm 0.3$

### CIRCUIT



## ELECTRICAL REQUIREMENTS:

PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L	$0.47 \pm 20\%$ uH	100KHz/1V	■ LCR Agilent4284A / Chroma 11300 ■ CH16502 IMPEDANCE METER ■ A4284A+A42841A LCR METER ■ Chroma /11300+3302+1320+1320S
DCR	4.0max mΩ	@ 25°C	
I-sat	25 A mps	$\geq 65\%L0A$	
I rms	10 A mps	$\Delta T \leq 40^\circ C$	

- 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	Irms	
UNIT	uH	mΩ	A mps	A mps	
SPECIFICATION	0.47± 20%	166	25.0	10.0	
CONDITION	100KHz/1V	@ 25°C	≧ 65%LOA	ΔT ≦ 40°C	
1	0.46	3.38	71.9%	31°C	
2	0.47	3.36			
3	0.45	3.31			
4	0.43	3.35			
5	0.46	3.37			
6	0.48	3.30			
7	0.47	3.33			
8	0.45	3.28			
9	0.45	3.39			
10	0.43	3.33			
MEAN	0.46	3.34			
R	0.05	0.11			

### External Dimensions:

NO	A	B	C	D	E	F		
	8.1± 0.5	7.2± 0.5	5.0 MAX	≤0.15	3.0± 0.3	1.6± 0.3		
1	7.99	7.25	4.81	0.08	2.97	1.63		
2	7.92	7.24	4.77	0.09	2.99	1.62		
3	7.98	7.25	4.86	0.03	2.99	1.60		
4	7.90	7.26	4.89	0.08	3.00	1.61		
5	7.95	7.25	4.85	0.08	3.01	1.58		
6	7.95	7.26	4.82	0.09	2.98	1.61		
7	7.88	7.26	4.77	0.11	3.01	1.59		
8	7.86	7.24	4.80	0.09	2.99	1.59		
9	7.82	7.26	4.76	0.10	2.97	1.60		
10	7.93	7.25	4.79	0.09	3.02	1.59		
MEAN	7.92	7.25	4.81	0.08	2.99	1.60		
R	0.17	0.02	0.13	0.08	0.05	0.05		

Inductance measured at 100KHz/1Vrms..

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

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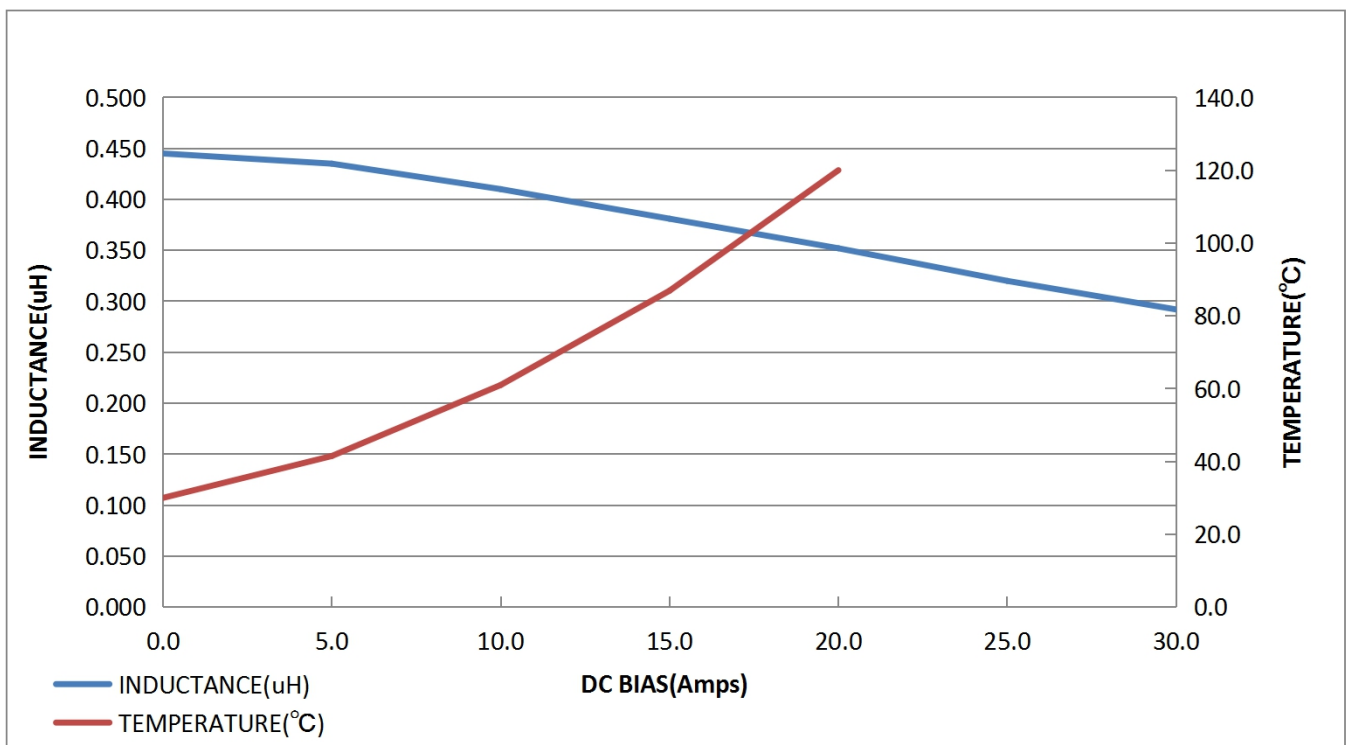
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## INDUCTANCE (uH) / TEMPERATURE RISE(°C) VS DC BIAS (Amps)

IDC	L(uH)	L/LoA (%)	T(°C)	ΔT(°C)		
0.0 A	0.445	100.00%	30.0	0.0		
5.0 A	0.435	97.75%	41.5	11.5		
10.0 A	0.410	92.13%	61.0	31.0		
15.0 A	0.381	85.62%	86.9	56.9		
20.0 A	0.352	79.10%	120.0	90.0		
25.0 A	0.320	71.91%				
30.0 A	0.292	65.62%				

CONDITION: 100KHz , 1.0Vrms

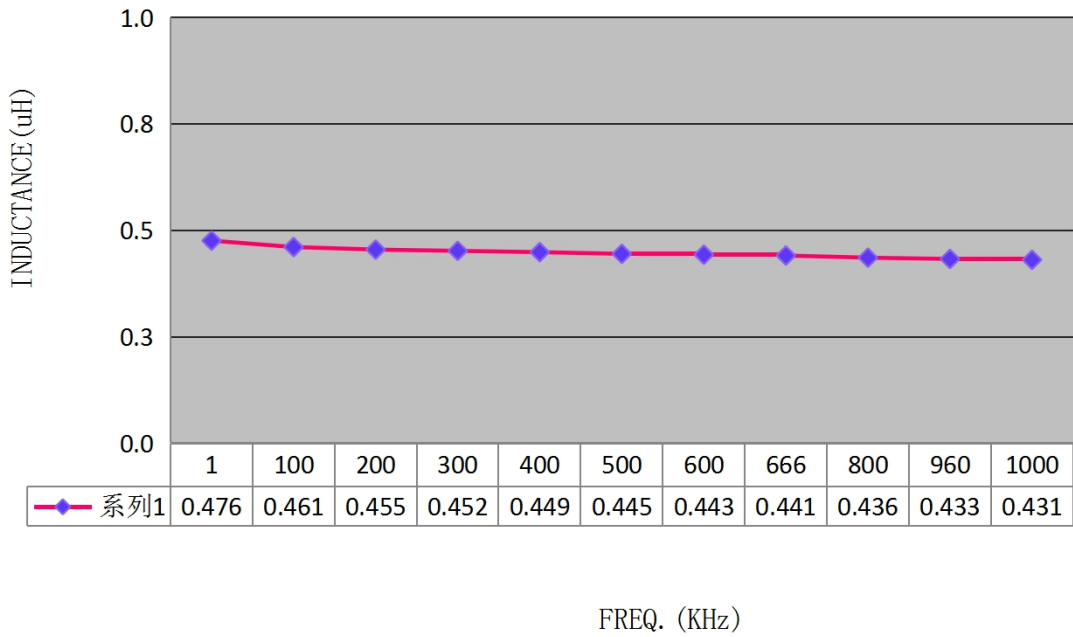


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FREQ(KHz)	L(uH)					
1	0.476					
100	0.461					
200	0.455					
300	0.452					
400	0.449					
500	0.445					
600	0.443					
666	0.441					
800	0.436					
960	0.433					
1000	0.431					

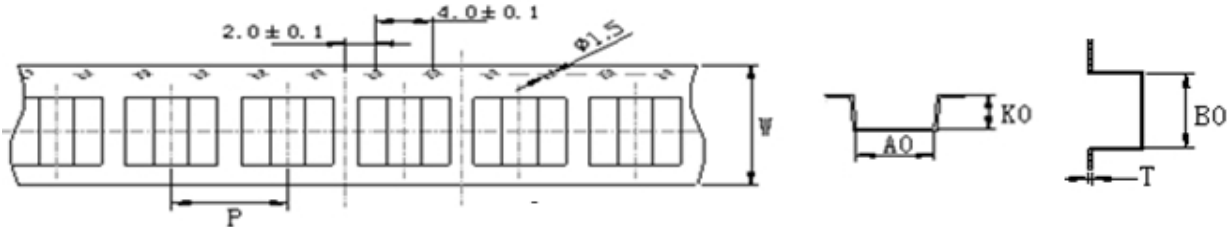


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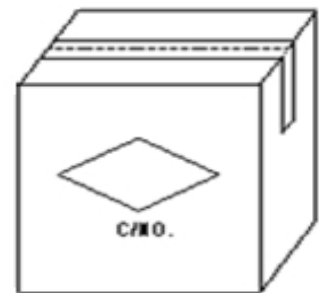
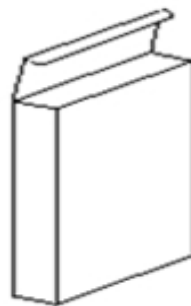
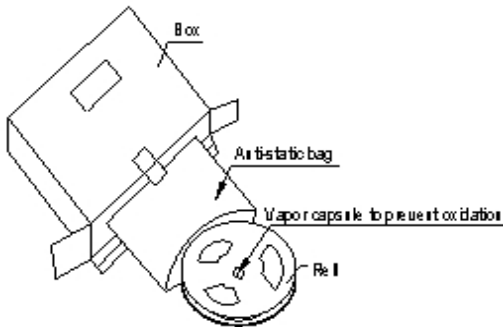
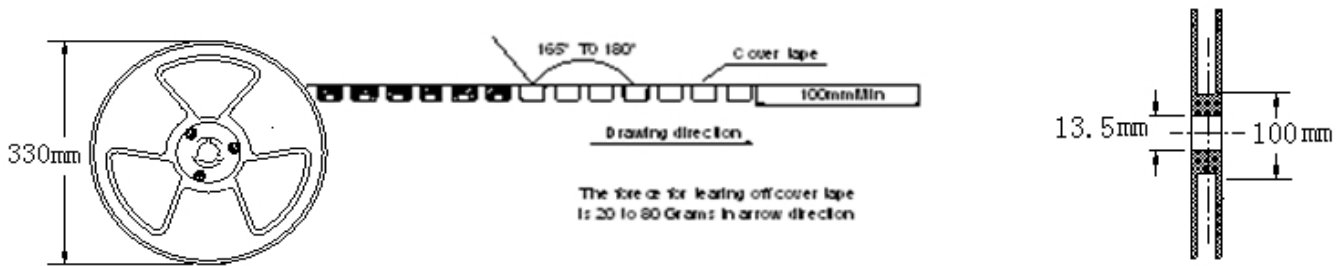
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## PACKAGING



A0	B0	K0	T	P	W	Unit
$7.7 \pm 0.1$	$8.2 \pm 0.1$	$5.1 \pm 0.1$	$0.4 \pm 0.05$	$12 \pm 0.1$	$16 \pm 0.3$	mm



## Packaging Quantity

Unit: mm					
Inner Carton		Outer Carton			
Reel size	Quantity/Reel	Inside the box size	Quantity	Carton size	Quantity
$\phi 330$	1000pcs	$350*335*37$	1000pcs	$365*345*290$	6000pcs

### Storage

1. Temperature and humidity conditions: Less than  $40^\circ\text{C}$  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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## SOLDRING CONDITIONS

Figure 1. Re-flow Soldering

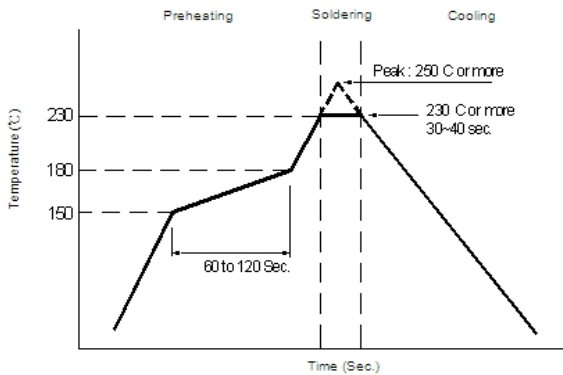
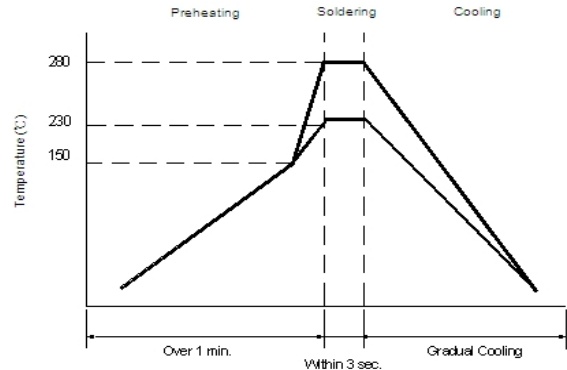


Figure 2. Hand Soldering



## 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 $^{\circ}$ 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 $^{\circ}$ 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}</math>C)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40<math>\pm</math>2</td> <td>30</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>145<math>\pm</math>5</td> <td>30</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>Within 3</td> </tr> </tbody> </table>	Step	Temperature ( $^{\circ}$ 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 ( $^{\circ}$ 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 $^{\circ}$ 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 (10~55~10Hz) with 1.52mm P-P Amplitudes.															