

CUSTOMER _____

CUSTOMER' S P/N _____

DESCRIPTION SMD Power Inductor

SGTE PART NO. GPSR1365-4R7M

SAMPLE NO. S14100701 REVISION NO. A1 DATE 2014/10/7

SPECIFICATION FOR APPROVAL

FULLY APPROVED	REVISE APPROVED

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SPECIFICATION

**RoHS
COMPLIANT**

Customers Part Number	Item Name	Date	
	SMD Power Inductor	2014/10/7	
Gan Tong Part NO.	Sample NO.	Revision No.	A1
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Version	Change history	Before the change	After the change	Release date
A1	NEW	—	—	2014/10/7

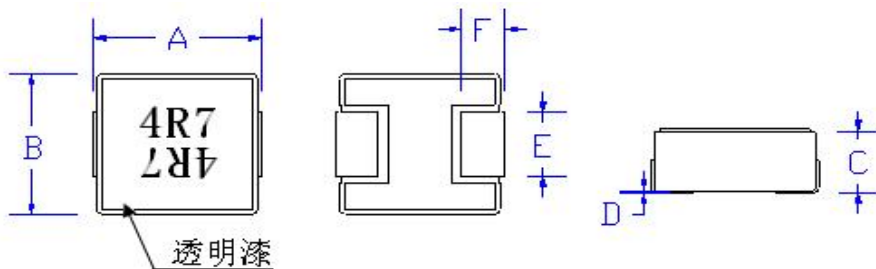
DRAWN BY	CHECKED BY	APPROVED BY
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MECHANICAL & DIMENSIONS



(UNIT: mm)	
A	13.5 ± 0.5
B	12.6 ± 0.5
C	6.5 MAX
D	≤ 0.2
E	4.0 ± 0.5
F	2.0 ± 0.5

CIRCUIT



ELECTRICAL REQUIREMENTS:

PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L	$4.7 \pm 20\%$ uH	100KHz/1V	■ LCR Agilent4284A / Chroma 11300
DCR	13 max mΩ	@ 25°C	■ CH16502 IMPEDANCE METER
I-sat	27.0 A mps	$\geq 65\%L0A$	■ A4284A+A42841A LCR METER
I rms	12.0 A mps	$\Delta T \leq 40^\circ C$	■ 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	Irms	
UNIT	uH	mΩ	A mps	A mps	
SPECIFICATION	4.7± 20%	13 max	27.0	12.0	
CONDITION	100KHz/1V	@ 25°C	≧ 65%LOA	ΔT ≦ 40°C	
1	4.69	9.10	67.80%	38°C	
2	4.72	9.20			
3	4.69	9.10			
4	4.69	9.20			
5	4.76	9.20			
6	4.72	9.10			
7	4.70	9.10			
8	4.73	9.30			
9	4.66	9.20			
10	4.72	9.20			
MEAN	4.71	9.17			
R	0.10	0.20			

External Dimensions:

NO	A	B	C	D	E	F		
	13.5± 0.5	12.6± 0.5	6.5 MAX	≤0.2	4.0± 0.5	2.0± 0.5		
1	13.58	12.65	6.35	0.11	4.02	2.34		
2	13.56	12.71	6.29	0.19	4.01	2.28		
3	13.63	12.68	6.32	0.11	4.03	2.34		
4	13.65	12.68	6.33	0.18	4.01	2.28		
5	13.59	12.70	6.31	0.15	4.00	2.28		
6	13.57	12.67	6.40	0.14	4.00	2.30		
7	13.65	12.67	6.31	0.11	4.00	2.34		
8	13.58	12.70	6.41	0.16	4.01	2.30		
9	13.58	12.68	6.34	0.11	4.00	2.28		
10	13.62	12.68	6.39	0.19	4.02	2.18		
MEAN	13.60	12.68	6.35	0.15	4.01	2.29		
R	0.09	0.06	0.12	0.08	0.03	0.16		

Inductance measured at 100KHz/1Vrms..

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

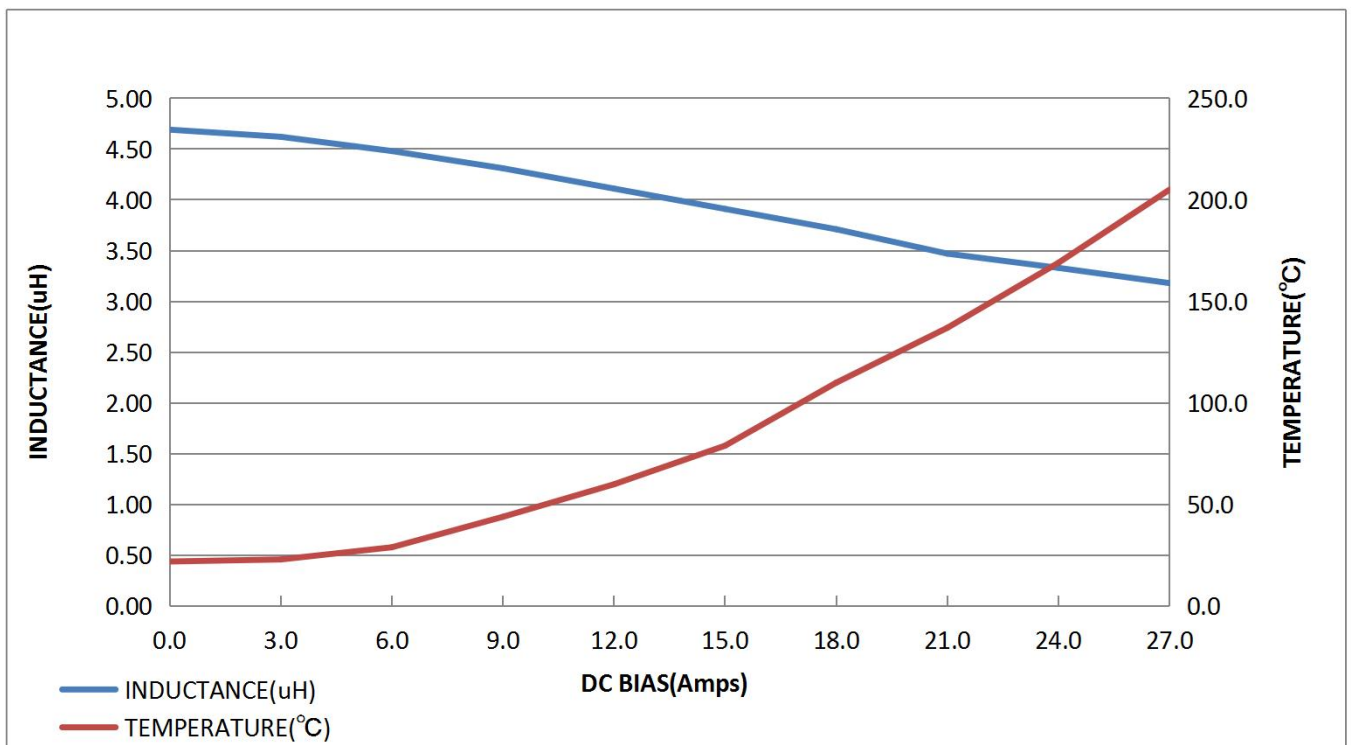
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INDUCTANCE (uH) / TEMPERATURE RISE(°C) VS DC BIAS (Amps)

IDC	L(uH)	L/LoA (%)	T(°C)	ΔT(°C)		
0.0 A	4.69	100.00%	22.0	0.0		
3.0 A	4.62	98.51%	23.0	1.0		
6.0 A	4.48	95.52%	29.0	7.0		
9.0 A	4.31	91.90%	44.0	22.0		
12.0 A	4.11	87.63%	60.0	38.0		
15.0 A	3.91	83.37%	79.0	57.0		
18.0 A	3.71	79.10%	110.0	88.0		
21.0 A	3.47	73.99%	137.0	115.0		
24.0 A	3.33	71.00%	169.0	147.0		
27.0 A	3.18	67.80%	205.0	183.0		

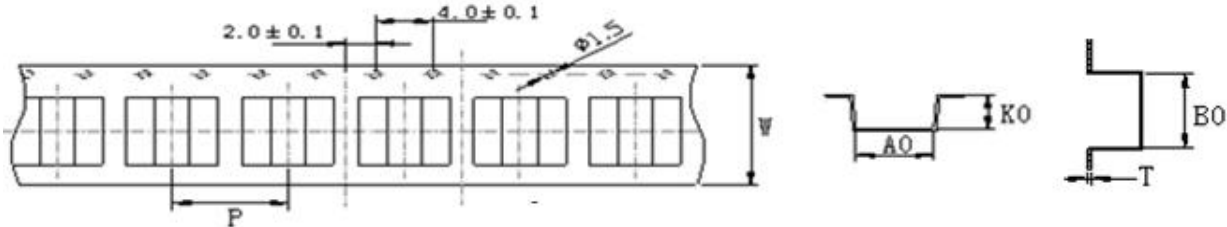


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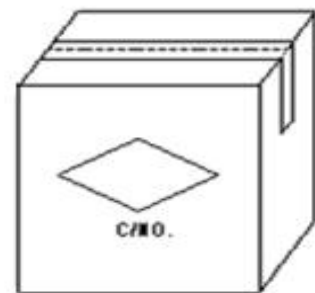
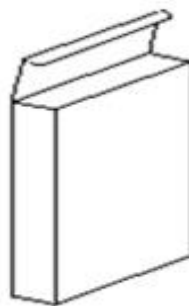
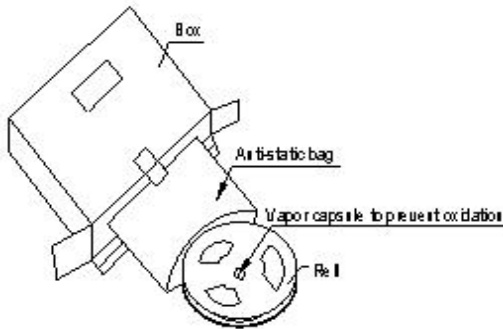
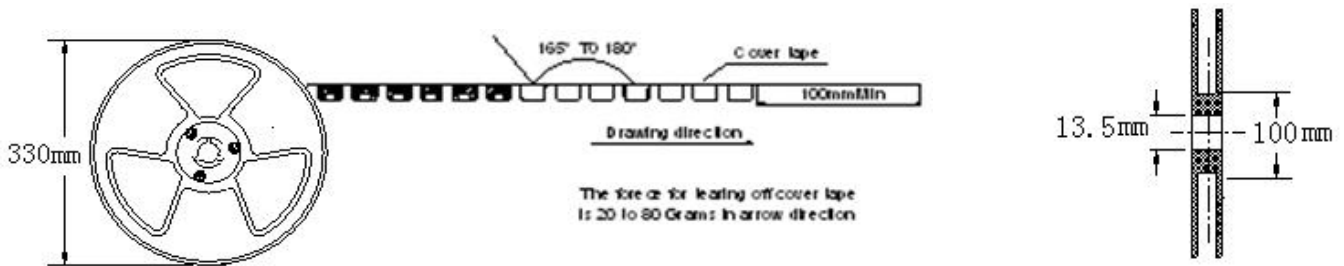
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PACKAGING



A0	B0	K0	T	P	W	Unit
12.8	13.7	3.7	0.5	20	24	mm



Packaging Quantity

Unit: mm					
Inner Carton		Outer Carton			
Reel size	Quantity/Reel	Inside the box size	Quantity	Carton size	Quantity
ϕ 330	500pcs	350*335*37	500pcs	365*345*290	3000pcs

Storage

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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SOLDRING CONDITIONS

Figure 1. Re-flow Soldering

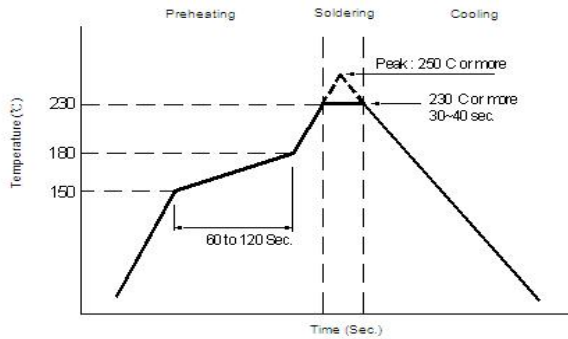
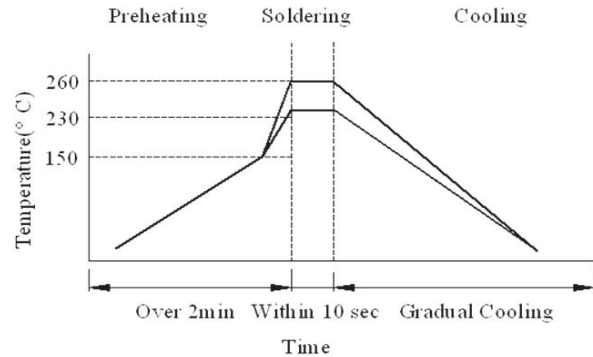


Figure 2. Wave Soldering



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															
Solderbility	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 ± 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 ± 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 ($^{\circ}\text{C}$)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 ± 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 ± 5</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 ± 2	30	2	Room Temperature	Within 3	3	145 ± 5	30	4	Room Temperature	Within 3
Step	Temperature ($^{\circ}\text{C}$)	Times (min.)															
1	-40 ± 2	30															
2	Room Temperature	Within 3															
3	145 ± 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 ± 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.															