

CUSTOMER \_\_\_\_\_

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

DESCRIPTION

SMD Power Inductor

SGTE PART NO.

GPSR-AP1770-680MS

SAMPLE NO.

S20121501

REVISION NO.

A0

DATE

2020/12/15

## SPECIFICATION FOR APPROVAL

FULLY APPROVED	REVISE APPROVED

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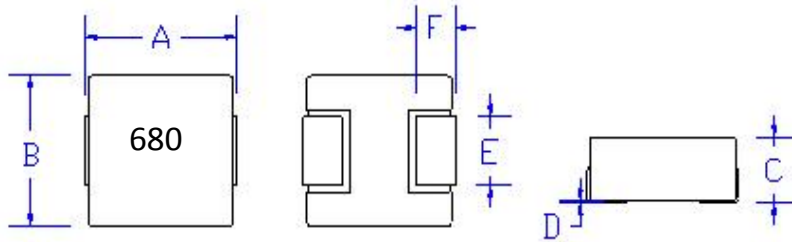


# SPECIFICATION

**RoHS  
COMPLIANT**

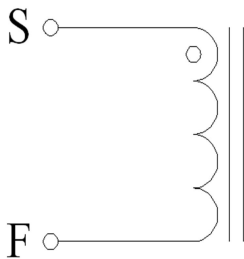
Customers Part Number	Item Name	Date	
	SMD Power Inductor	2020/12/15	
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## MECHANICAL & DIMENSIONS

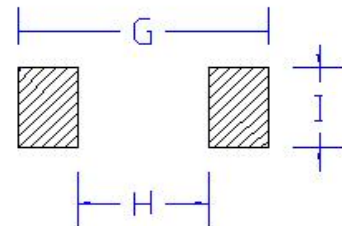


A	18.5 Max
B	17.0 ± 0.5
C	7.0 Max
D	≤ 0.3
E	12.0 ± 0.5
F	2.8 ± 1.0
G	18.8 REF
H	10.0 REF
I	12.8 REF

### Connection



### Recommended Land Pattern



## ELECTRICAL REQUIREMENTS:

PARAMETER	SPECIFICATION	CONDITION	TEST INSTRUMENTS
L	68 ± 20% uH	100KHz/1V	■ LCR Agilent4284A / Chroma 11300
DCR	95.0 Max mΩ	@ 25°C	■ CH16502 IMPEDANCE METER
I-sat	6.0 A mps	≧ 65%LOA	■ A4284A+A42841A LCR METER
I rms	4.8 A mps	ΔT ≦ 40°C	■ Chroma /11300+3302+1320+1320S

- I rms: The value of DC current when product temperature rise is ΔT40°C
- I sat: The value of DC current when the inductance decreases 35% of its initial value.
- 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	68± 20%	95.0 Max	6.0	4.8	
CONDITION	100KHz/1V	@ 25°C	≥ 65%L0A	ΔT ≤ 40°C	
1	69.7	73.8	69.8%	34.2°C	
2	68.9	73.6			
3	67.5	73.4			
4	69.2	73.6			
5	66.7	73.5			
6					
7					
8					
9					
10					
MEAN	68.40	73.6			
R	3.00	0.40			

### External Dimensions:

NO	A	B	C	D	E	F		
	18.5 Max	17.0±0.5	7.0 Max	≤0.3	12.0±0.5	2.8±1.0		
1	18.22	17.11	6.81	0.11	12.11	3.35		
2	18.24	17.09	6.79	0.09	12.05	3.31		
3	18.19	17.11	6.81	0.13	12.10	3.36		
4	18.24	17.07	6.80	0.11	12.08	3.28		
5	18.23	17.08	6.83	0.08	12.06	3.31		
6								
7								
8								
9								
10								
MEAN	18.22	17.09	6.36	0.10	12.08	3.32		
R	0.05	0.04	0.04	0.05	0.06	0.08		

Inductance measured at 100KHz/1Vrms..

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

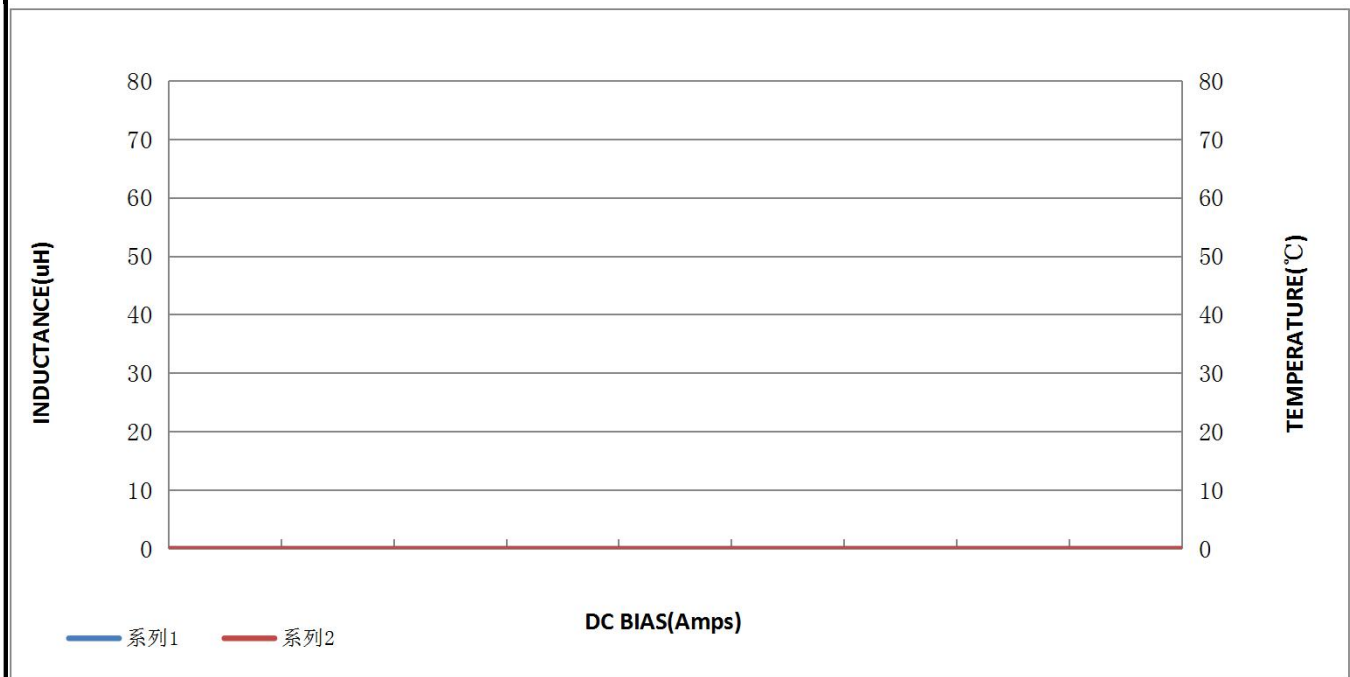
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## INDUCTANCE (uH) / TEMPERATURE RISE(°C) VS DC BIAS (Amps)

IDC	L(uH)	L/L0A (%)	T(°C)	ΔT(°C)		
0.0 A	68.6	100.00%	19.6	0.0		
1.0 A	66.7	97.23%	25.3	5.7		
2.0 A	64.7	94.31%	31.8	12.2		
3.0 A	61.8	90.09%	38.7	19.1		
4.0 A	57.7	84.11%	47.1	27.5		
5.0 A	53.4	77.84%	56.4	36.8		
6.0 A	48.7	70.99%	65.5	45.9		
7.0 A	43.8	63.85%	75.8	56.2		
8.0 A	39.2	57.14%	86.9	67.3		
9.0 A	35.1	51.17%	98.4	78.8		

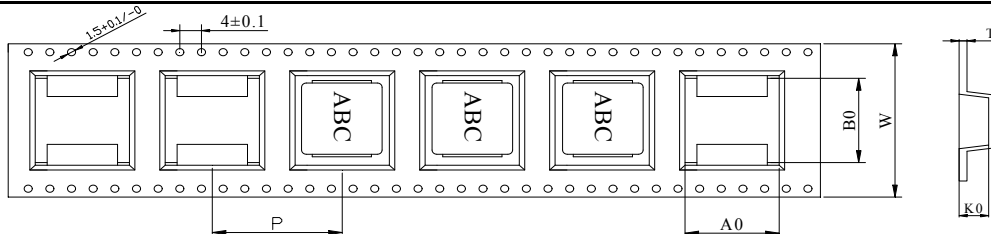


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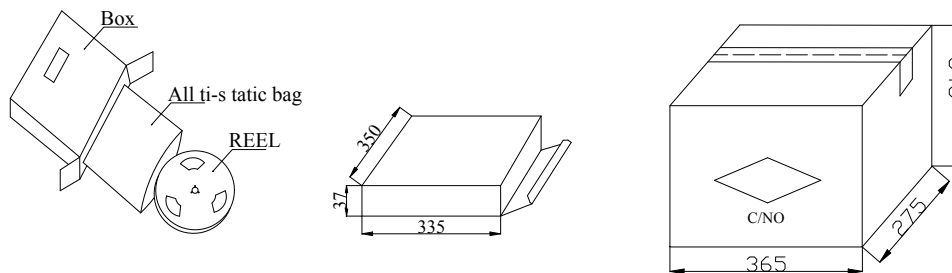
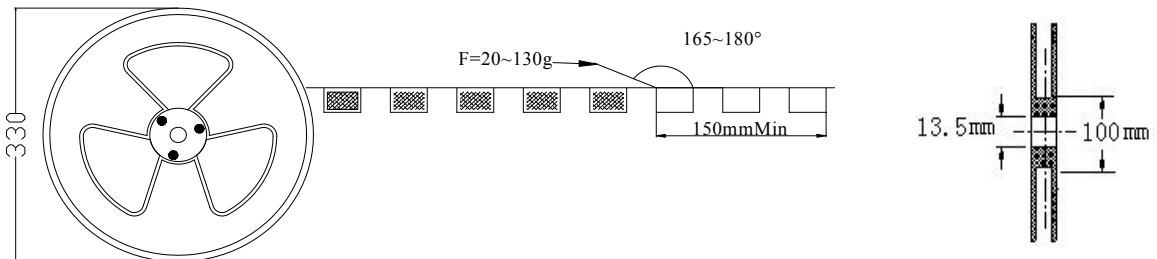
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## PACKAGING



A0	B0	K0	T	P	W	Unit
17.3	18.75	7.3	0.4	24	32	mm



## Packaging Quantity

Inner Carton		Quter Carton				Unit: mm
Reel size	Quantity/Reel	Inside the box size	Quantity	Carton size	Quantity	
Φ 330	300pcs	350*335*37	300pcs	365*345*290	1800pcs	

## Storage

1. Temperature and humidity conditions: Less than 40°C and 70% RH.
2. Recommended products should be used within 6 months form 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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## SOLDERING CONDITIONS

Figure 1. Re-flow Soldering

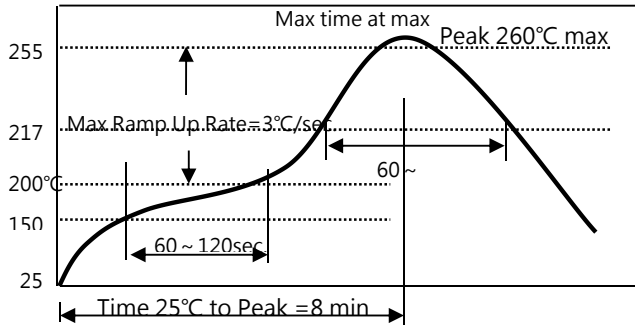
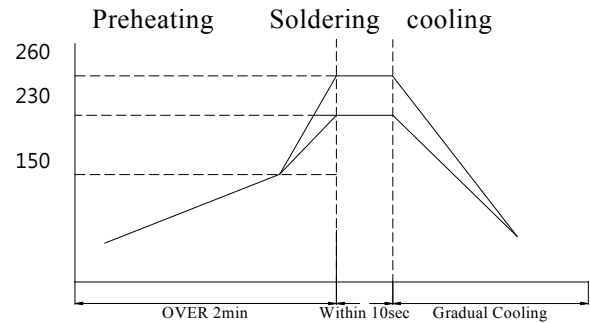


Figure 2. Wave Soldering



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-left: auto; margin-right: 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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