

承 認 書

SPECIFICATION FOR APPROVAL

CUSTOMER:	
CUSTOMER P/N	
PART NO:	
DESCRIPTION:	SMD INDUCTOR
PRODUCTS NO:	BCRH1212Y-180M
PRODUCTS REV:	1
DATE:	2018-6-11

PURCHASER CONFIRMED		
REMARK		

PROVIDER ENGINEER DEPT.		
APPROVAL BY	CHECK BY	DRAWN BY
		chenlinli



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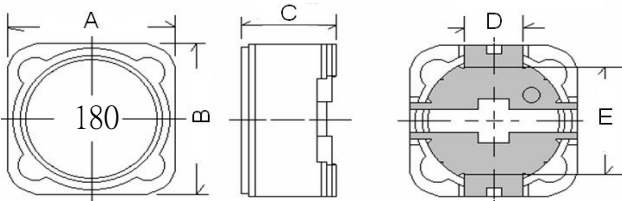
TEST DATA

DIMENSION & ELECTRIC CHARACTER

ROHS Compliant

CUSTOMER:		PART NO:	
DESCRIPTION:	SMD INDUCTOR	SERIES NO:	BCRH1212Y-180M

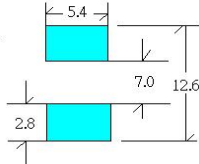
1.MECHANIC



UNIT : mm

A	12.5MAX
B	12.5MAX
C	12.0MAX
D	5.0±0.2
E	7.9±0.2
F	
G	
H	

2.RECOMMEND LAND PATTERN DIMENSIONS



3.SPECIFICATIONS

Part Number	L(0A) Inductance 18uH±20% @1KHZ 0.25V	R _{dc} (mΩ)		Heat Rating Current DC Amps.Idc(A)	Saturation Current DC Amps. Idc (A)
		Typical	Max	Typical	Typical
BCRH1212Y-180M	18.0	16.0	19.0	6.5	7

- (1). All test data is referenced to 25°C ambient.
- (2). Operating Temperature Rangr-30°C to +100°C.
- (3). DC current(6.5A)that will cause an approximate ΔT of 40°C.
- (4). DC current(7.0A)that will cause Lo to drop approximately 25%.
- (5). The part temperature(ambient+temp rise)should not exceed 100°C under worst case operating conditions.Circuit design,component placement,PWB trace size and thickness,airflow and other cooling provisions all affect temperature part temperature should be verified in the end appliation.

APPROVED BY: Vincent

CHECKED BY: Taojun

DRAWN BY: Daixin

PACKAGE STANDARD

ROHS Compliant

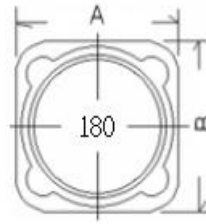
PART NO. BCRH1212Y SERIES

4. MARKING AND DATE CODE

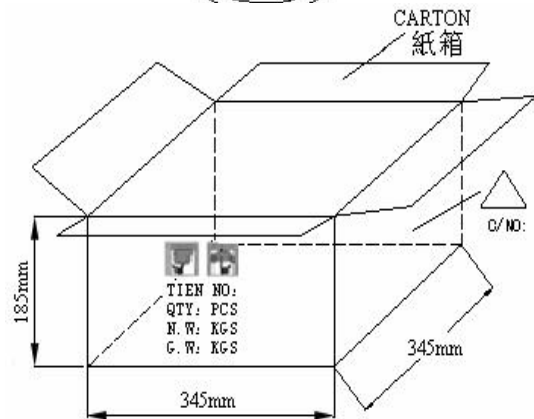
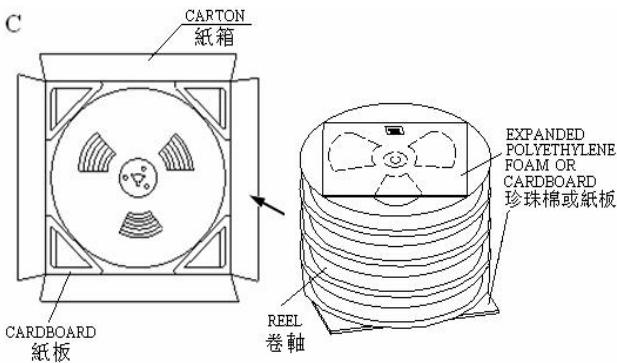
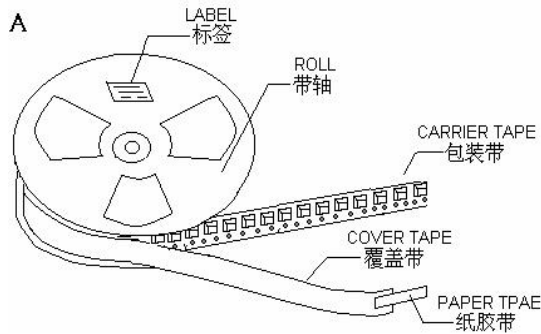
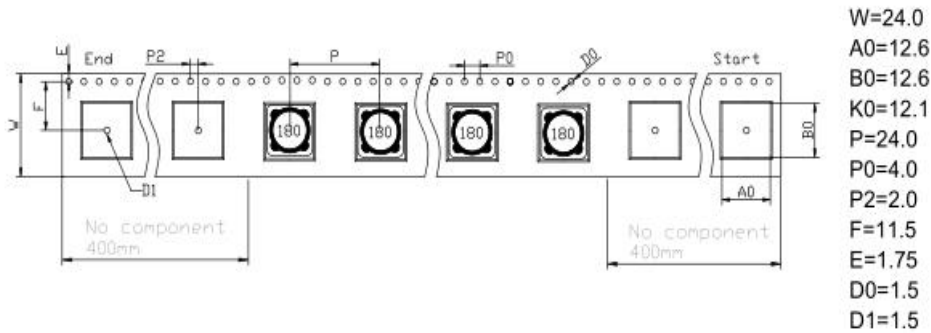
4-1 Marking

The inductor is marked with a 3-digit code

Example: 18 μ H \rightarrow 180



5. PACKING DIRECTION: (mm)



NO	A	B	C
QUANTITY	200PCS	200PCS	1000PCS

SPECIFICATION FOR APPROVAL

TEST DATA FOR PREPRODUCTION SAMPLES

MEAS. Item	Inductance (uH)	DCR (mΩ)	Isat (A) Max	Irms (A) Max		A (mm)	B (mm)	C (mm)	
Spec	18.0±20%	19 MAX	L(7.0A)≥ L(0A)*0.75	6.5		12.5Max	12.5Max	12.0MAX	
Test Freq.	1KHz/0.25V		1KHz/0.25V	ΔT≦40℃					
1	16.6	15.2	16.5	OK		12.15	12.15	11.58	
2	17.0	15.7	17.0	OK		12.19	12.12	11.53	
3	17.4	15.4	16.9	OK		12.18	12.15	11.45	
4	17.2	15.5	16.8	OK		12.14	12.12	11.51	
5	16.9	15.4	16.0	OK		12.15	12.15	11.54	
6									
7									
8									
9									
10									
X	17.02	15.44	16.64			12.162	12.138	11.522	
R	0.8	0.5	1.0			0.05	0.03	0.13	

TEST INSTRUMENT:

Inductance TH2816B
 DCR GKT-502BC
 Isat CH2816+WR7210
 Irms CH2816+WR7210

APPROVED BY: Vincent

CHECKED BY: Taojun

DRAWN BY: Daixin

ELECTRONICS CHARACTER TEST CHART

CUSTOMER:		CUSTOMER P/N:	TEST DATE:2018-6-11						
PART NAME:	SMD INDUCTOR	BC PN: BCRH1212Y-180M	SAMPLE CO:						
TEMPERATURE RISE CURRENT	DC:6.5A	TEST INSTRUMENTS	CD1068+CD1320METER						
1.CURVES OF TEMPERATURE AND INDUCTAME VARIED WITH TP CARRENT									
TEMPERATURE (°C)								INDUCTORS(uH)	
TIME	0min	3min	6min	9min	12min	15min	18min	20min	
□ TEMPERATURE(°C)	22.2	36.5	38.7	39.8	40.5	40.9	41	41.3	
△ INDUCTORS(uH)	18.5	18.1	18.1	18.2	18.2	18.2	18.2	18.2	
TEST TERM:				1KHZ 0.25V	TEST INSTRUMENTS:		WK3260B+WK3265B METER		
2.INDUCTCMCE VS CURRENT									
CURRENT (A)	0A	1.53A	3.05A	4.58A	6.10A	7.63A	9.15A	10.68A	
— INDUCTORS	19.22	19.2	19.1	19	18.8	18.5	17.5	9.69	
TEST TERM:				0.25V	TEST INSTRUMENTS:		WK3260B METER		
3.INDUCTCMCE VS FREQUENCUY									
FREQUENCY(Hz)	1KHz	10KHz	50KHz	100KHz	300KHz	500KHz	800KHz	1MHZ	
— INDUCTORS	18.3	18.2	17.7	17.5	17.1	16.9	16.8	16.9	
1.TEST CONDITION									
TEMPERATURE: 25°C									
HUMIDITY: ≅ 65% RH				APPROVED BY		CHECKED BY		PREPARED BY	
								chenlinli	

Operation Temperature	-40°C to +125°C (Includes temperature when the coil is heated)	
External Appearance	On visual inspection, the coil has no external defects.	
Solder Ability Test	<p>More than 90% of terminal electrode should be covered with solder.</p> <p>1. After fluxing, component shall be dipped in a melted. dipped in a melted.</p> <p>Solder: bath at 235°C ± 5°C for 5 ± 0.5 seconds</p>	
Heat endurance of Soldering	<p>1. Components should have not evidence of electrical and mechanical damage.</p> <p>2. Inductance: within ±10% of initial value.</p> <p>3. Impedance: within ±10% of initial value.</p> <ul style="list-style-type: none"> ● Preheat: 150 ± 5°C 60 seconds. ● Solder temperature: 250 ± 5°C. ● Flux: rosin. ● Dip time: 10 ± 0.5 seconds. 	
Terminal Strength	<p>After soldering of X, Y withstanding at below conditions .The terminal should not Peel off. (Refer to figure at below)</p> <p>5N:60sec.</p>	
Insulating Resistance	Over 100MΩ at 100V D.C. between coil and core.	
Dielectric Strength	No dielectric breakdown at 30V D.C. for 1 minute between coil and core.	
Vibration Test	Inductance deviation within +10% after vibration for 1 hour. In each of three orientations at sweep vibration (10--55~10HZ) with 1.5mmP-P amplitudes	
Drop test	Inductance deviation within +10% after being dropped once with 981m/s ² (100G) shock Attitude upon a rubber block method shock testing machine, in three different orientations	

© Application Notice/Handling

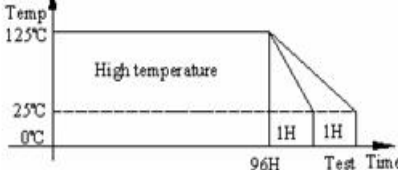
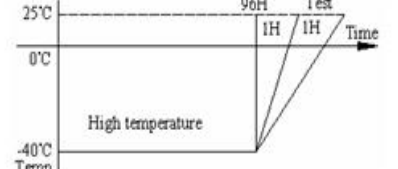
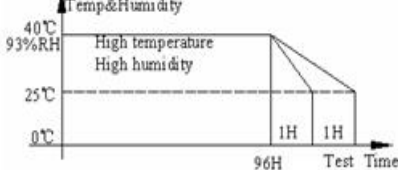
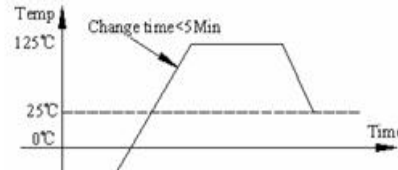
1. Storage Conditions

To maintain the solder ability of terminal electrodes:

- (1) Temperature and humidity conditions: less than 40°C and 70% RH.
- (2) Products should be used within 6 months.
- (3) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Handling

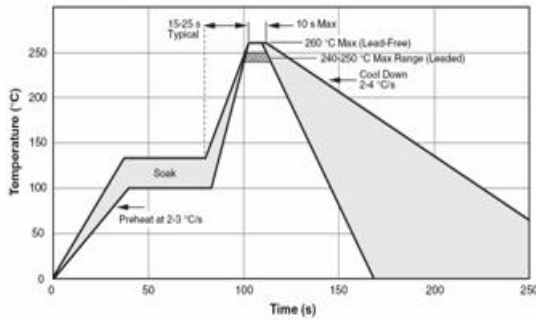
- (1) Do not touch the electrodes (soldering terminals) with fingers as this may lead to deterioration of solderability.
- (2) The use of tweezers or vacuum pick-ups is strongly recommended for individual components.
- (3) Bulk handling should ensure that abrasion and mechanical shock are minimized.

TEST	Required Characteristics	Test Method/Condition
High Temperature Storage Test Reference documents: MIL-STD-202G Method108A	1. No case deformation or change in appearance 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$	 <p>Temperature: $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 96 ± 2 hours. Tested not less than 1 hour, nor more than 2 hours at room.</p>
Low Temperature Storage Test Reference documents: IEC 68-2-1A 6.1 6.2	1. No case deformation or change in appearance 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$	 <p>Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 96 ± 2 hours. Tested not less than 1 hour, nor more than 2 hours at room.</p>
Humidity Test Reference documents: MIL-STD-202G Method103B	1. No case deformation or change in appearance 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$	 <ol style="list-style-type: none"> 1. Dry oven at a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 96hours 2. Measurements At the end of this period 3. Exposure: Temperature: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Humidity: 93 ± 2hoysr. 4. Tested while the chamber. 5. Tested not less than 1 hour. Nor more than 2 hours at room temperature.
Thermal Shock Test Reference documents: MIL-STD-202G Method107G	1. No case deformation or change in appearance 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$	 <p>First -40°C for 30 Minutes, last 125°C for 30 Minutes as 1 cycle. Go through 20 cycles.</p>

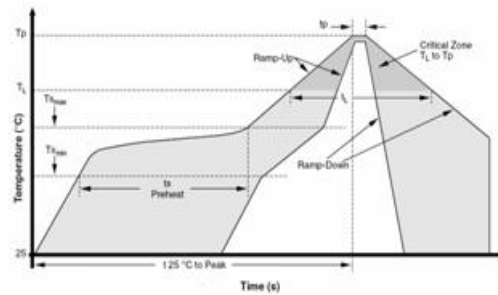
■ Application Notice/Handling

- (1) Temperature and humidity conditions : less than 40°C and 70% RH.
- (2) Products should be used within 6 months.
- (3) The packaging material should be kept where no chlorine or sulfur exists in the air.
- (4) Do not touch the electrodes (soldering terminals) with fingers as this may lead to deterioration of solder ability
- (5) The use of tweezers or vacuum pick-ups is strongly recommended for individual components.
- (6) Bulk handling should ensure that abrasion and mechanical shock are minimized.

TYPICAL WAVE SOLDER PROFILE FOR LEADED AND LEAD-FREE THROUGH-HOLE PACKAGES



TYPICAL IR REFLOW PROFILE FOR LEADED AND LEAD-FREE SURFACE MOUNT PACKAGES



IPC/JEDEC J-STD-020C, Figure 5-1

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (Ts _{max} to Tp)	3 °C/second max.	3 °C/second max.
Preheat		
± Temperature Min (Ts _{min})	100 °C	150 °C
± Temperature Max (Ts _{max})	150 °C	200 °C
± Time (ts _{min} to ts _{max})	60-120 seconds	60-180 seconds
Time maintained above:		
± Temperature (T _l)	183 °C	217 °C
± Time (t _l)	60-150 seconds	60-150 seconds
Peak/Classification Temperature (Tp)	See Table 4.1	See Table 4.2
Time within 5 °C of actual Peak Temperature (tp)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Table 4. Classification Reflow Profiles (per IPC/JEDEC J-STD-020C, Table 5.2)

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	240 +0/-5 °C	225 +0/-5 °C
≥2.5 mm	225 +0/-5 °C	225 +0/-5 °C

Table 5. SnPb Eutectic Process – Package Peak Reflow Temperatures (per IPC/JEDEC J-STD-020C, Table 4.1)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 + 0 °C *	260 + 0 °C *	260 + 0 °C *
1.6 mm - 2.5 mm	260 + 0 °C *	250 + 0 °C *	245 + 0 °C *
≥2.5 mm	250 + 0 °C *	245 + 0 °C *	245 + 0 °C *

* Tolerance: Process compatibility is up to and including the stated classification temperature (this means Peak reflow temperature + 0 °C. For example 260 °C + 0 °C) at the rated MSL level.

Table 6. Pb-free Process – Package Classification Reflow Temperatures (per IPC/JEDEC J-STD-020C, Table 4.2)

- Note 1: The profiling tolerance is + 0 °C, -X °C (based on machine variation capability) whatever is required to control the profile process but at no time will it exceed -5 °C. Process compatibility at the peak reflow profile temperatures as defined in Table 4.2.
- Note 2: Package volume excludes external terminals (balls, bumps, lands, leads) and/or nonintegral heat sinks.
- Note 3: The maximum component temperature reached during reflow depends on package thickness and volume. The use of convection reflow processes reduces the thermal gradients between packages. However, thermal gradients due to differences in thermal mass of SMD packages may still exist.
- Note 4: Components intended for use in a “lead-free” assembly process shall be evaluated using the “lead-free” classification temperatures and profiles defined in Tables 4.1, 4.2 and 5.2 whether or not lead free.