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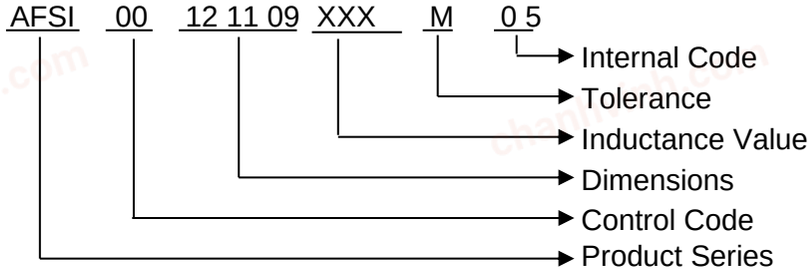
YAGEO GROUP
PULSE

BFSI00121109XXXM05 Series Specification

1 Scope:

This specification applies to large current and low RDC SMD power inductor.

2 Part Numbering:



3 Rating:

Operating temperature range:－40°C～125°C (Including self - temperature rise)

Storage condition:-20℃~40℃；75%RH Max

4 Marking:



Marking color： Black

Marking： C → Chilisin

XXX → Inductance

5 Material List:

NO	Part	Material
1	Flat copper wire	AIW（220℃）
2	Core	Iron powder
3	coating	Paint Gray （127# matte）
4	Solder	Sn96.5-Ag3.0-Cu0.5
5	Ink	jet ink black (9210)
6	EPOXY	M02-039-AU(6461HF)

6 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35℃)	20 to 30℃
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

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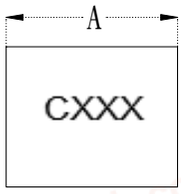
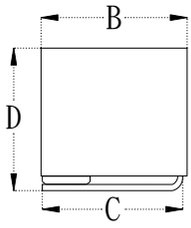
7 Configuration and Dimensions:

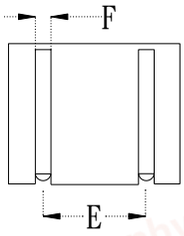
TOP VIEW



SIDE VIEW



BOTTOM VIEW

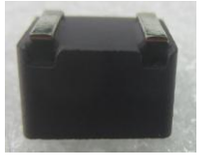


Part No.	A	B	C	D	E	F
BFSI00121109R47M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211091R0M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211091R5M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211092R2M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211093R3M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211094R7M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211095R6M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211096R8M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI001211098R2M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI00121109100M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1
BFSI00121109150M05	12.0±0.5	11.0±0.5	8.4±0.3	8.8 max	8.0±0.4	1.6±0.1

8 Product appearance







9 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	Tolerance (±%)	Irms (A)Typ.	Isat (A)Typ.	RDC (mΩ)Max.	Marking
BFSI00121109R47M05	0.47	100kHz,1.0V	20	50.0	65.0	1.5 (1.1 typ)	CR47
BFSI001211091R0M05	1.0	100kHz,1.0V	20	40.0	45.0	2.0 (1.5 typ)	C1R0
BFSI001211091R5M05	1.5	100kHz,1.0V	20	33.0	36.0	2.5 (2.0 typ)	C1R5
BFSI001211092R2M05	2.2	100kHz,1.0V	20	30.0	30.0	2.8 (2.4 typ)	C2R2
BFSI001211093R3M05	3.3	100kHz,1.0V	20	26.0	26.0	3.8 (3.3 typ)	C3R3
BFSI001211094R7M05	4.7	100kHz,1.0V	20	20.0	23.0	6.2 (5.7 typ)	C4R7
BFSI001211095R6M05	5.6	100kHz,1.0V	20	18.0	21.0	7.0 (6.4 typ)	C5R6
BFSI001211096R8M05	6.8	100kHz,1.0V	20	17.0	19.0	7.8 (6.8 typ)	C6R8
BFSI001211098R2M05	8.2	100kHz,1.0V	20	16.0	18.0	9.0 (8.2 typ)	C8R2
BFSI00121109100M05	10.0	100kHz,1.0V	20	13.0	17.5	12.0 (11.3 typ)	C100
BFSI00121109150M05	15.0	100kHz,1.0V	20	11.0	13.5	15.0 (14.3 typ)	C150

Note:

1. Ambient + temperature rise: －40°C～125°C (Including self - temperature rise)
2. Isat for Inductance drop 30% from its value without current.
3. Irms for a 40℃ temprature rise from 25℃ ambient.
4. The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions. Circuit design125°C under worst case operating conditions. Component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
5. Before loading the parts, glue in the middle of the corresponding PCB Layout size to consolidate the parts to prevent Reflow from causing displacement problems

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BFSI00121109XXXM05 Series Specification

10 Reliability verification conditions

No.	Stress	Reference	Test Conditions	Sample Size	Specification	Result
1	High Temperature Exposure (Storage)	MIL-STD-202 Method 108	Upper Temperature : 125°C; Time:1000hrs;Unpowered. Measurement at 24±4 hours after test conclusion	77	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
2	Temperature Cycling	JESD22 Method JA-104	preconditioning : reflow 3 times ;-40°C/ (Soak Time:30minutes) →125°C/ (Soak Time:30minutes) ;Transition Time: 1 minute maximum;Tested cycle:1000cycles;Measurement at least 24 hours after test conclusion.	77	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
3	Biased Humidity	MIL-STD-202 Method 103	preconditioning : reflow 3 times ;Temperature:85°C ;Humidity:85%;Time:1000hrs;Unpowered. Measurement at 24±4 hours after test conclusion.	77	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
4	Operational Life	MIL-PRF-27	preconditioning : reflow 3 times ;Upper Temperature : 125°C (including heat rise); Time:1000hrs;Applied Current: Rated Current . Measurement at 24±4 hours after test conclusion	77	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
5	Physical Dimension	JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specification.	30	Product spec.	PASS
6	Resistance to Solvents	MIL-STD-202 Method 215	Immersion 3+0.5/-0 minutes in Terpene defluxer. Brush 10 strokes (wet bristle) 2 to 3 oz. Rinse in water. Air blow dry.	5	1. Marking resistance to solvent-No constitute failure (≤3X magnification) 2. Componet protective coating, encapsulation material and sleeve material resistance - No damage or degradation that has occurred due to solvent (10X magnification)	PASS
7	Mechanical Shock	MIL-STD-202 Method 213	Units are non-operating. Pulse shape : Half-sine waveform Impact acceletation : 100 g's Pulse duration : 6 ms Number of shocks : 18 shocks (3 shocks for each face)	30	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
8	Vibration	MIL-STD-202 Method 204	Pulse Shape:sine wave Amplitude :5g Sweep time and duration:10Hz to 2000Hz to 10Hz in 20minutes as a period Number of Vibrations :12 cycles each of 3 orientations.	30	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
9	Resistance to Soldering Heat	MIL-STD-202 Method 210	Pre-heating: 150-200°C，60~120s ； Reflow: time above 217°C, 60s ~150s ; Peak Temp:260±5°C,30±5S，reflow 3 times	30	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
10	Solderability	J-STD-002	Method B1 : 1、preconditioning : 8hours steam age test 2、Solder temperature 245±5°C ,time 5.0±0.5sec. 3、Speed: 25±6mm/s. Method D : 1、preconditioning : 8hours steam age test 2、Solder temperature 260±5°C ,time 30+5/-0sec. 3、Speed: 25±6mm/s.	15	All terminations shall exhibit a continuous solder coating free from defects for a minimum of 95% of the critical area of any individual termination. (10X magnification)	PASS
11	Board Flex	AEC-Q200-005	Bend the board (D) X =2mm, 60sec minimum holding time.	30	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS
12	Terminal Strength (SMD)	AEC-Q200-006	Apply a 1.8Kg force to the side of a device bending tested. The force shall be applied for 60+1 seconds.	30	1. Electrical characterization-Inductance change range 2. Appearance-No damage (OM)	PASS

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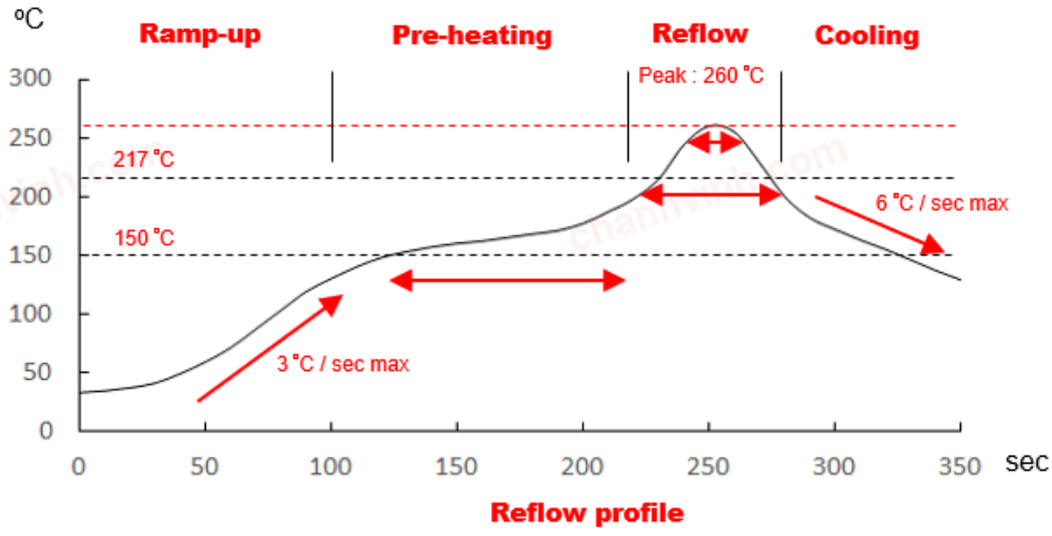
BFSI00121109XXXM05 Series Specification

11 Reflow Profile:



Lead-Free(LF) Refer to J-STD-020F

Item	Ramp-up	Pre-heating	Reflow	Peak Temp.	Cooling
Temp. scope	R.T. ~150 ℃	150 ℃~200 ℃	217 ℃	260±5 ℃	Peak Temp. 150 ℃
Time spec	-	60~120 sec	60~150 sec	20~40 sec	-

Note:

1. IR reflow times: within 3 times
2. Nitrogen adopted is recommended while in IR reflow

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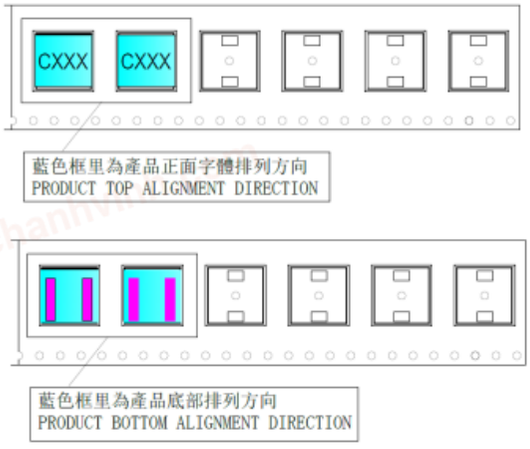
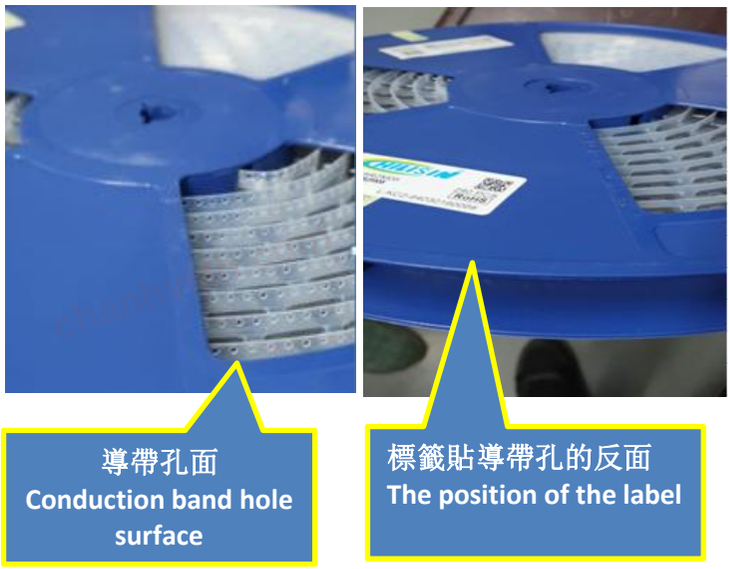
12 Packaging:

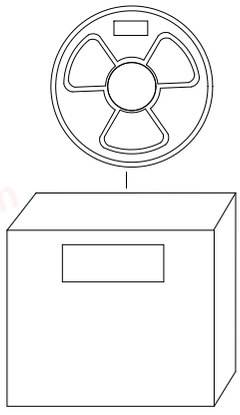
12.1 Small Pack:240pcs per reel





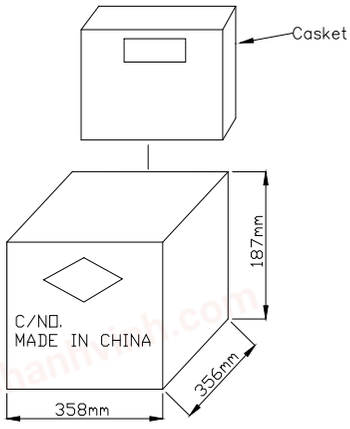
项　目	W	A_0	B_0	K_0	K_1	P	F	E	D_0	D_1	P_0	P_2	T
尺寸（mm）	$24.0^{\pm0.30}$	$12.2^{\pm0.10}$	$11.0^{\pm0.10}$	$9.0^{\pm0.10}$	$8.07^{\pm0.10}$	$20.0^{\pm0.10}$	$11.5^{\pm0.10}$	$1.75^{\pm0.10}$	$1.5\ ^{+0.10}_{-0.00}$		$4.0^{\pm0.10}$	$2.0^{\pm0.10}$	$0.5^{\pm0.05}$

12.2 Medium pack: 2 reel per casket (480pcs)



Inner carton number	8401-013-01
Carrier	M30-021-454-0
Cover	M30-010-05-1
Reel	M34-006-12
Desiccant	M66.002
pouch	M32-002-09
Label type	Self-adhesion

12.3 Large pack: 2 small carton per carton (960pcs)



Carton number	8402-049-01
Label location	Top left corner on side surface
Label size	
Label type	Self-adhesion

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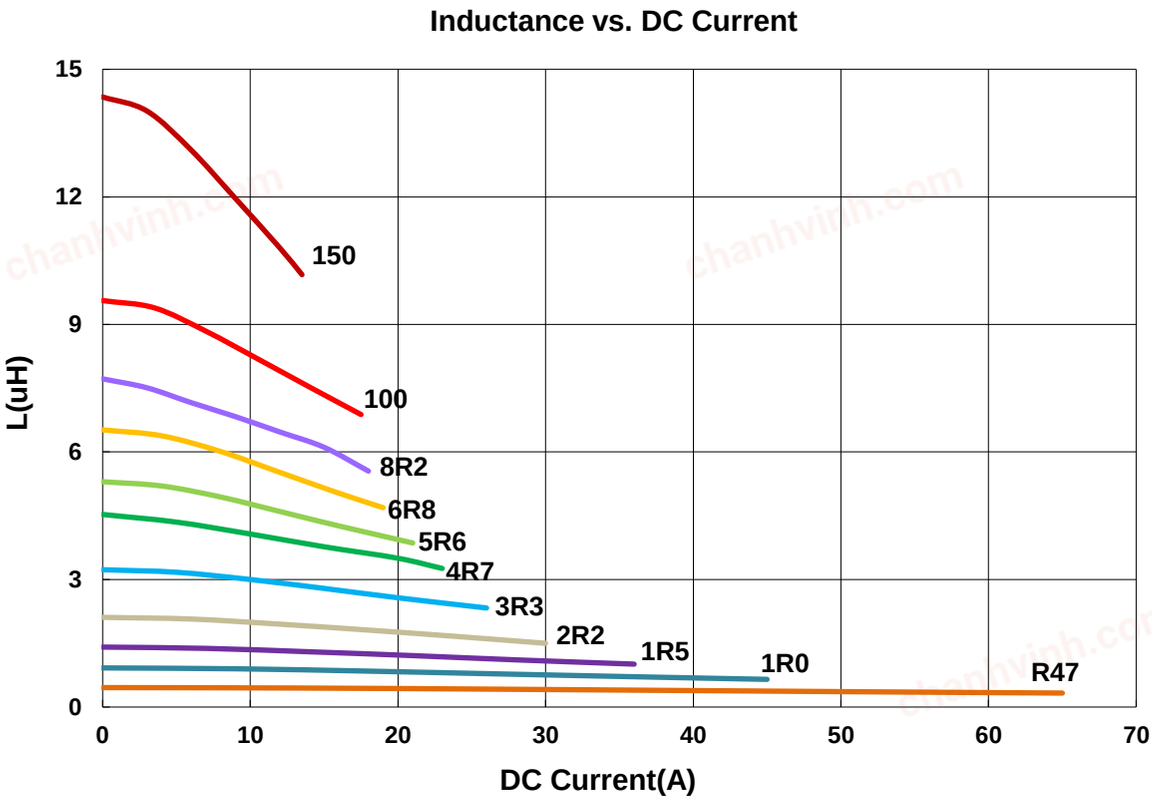
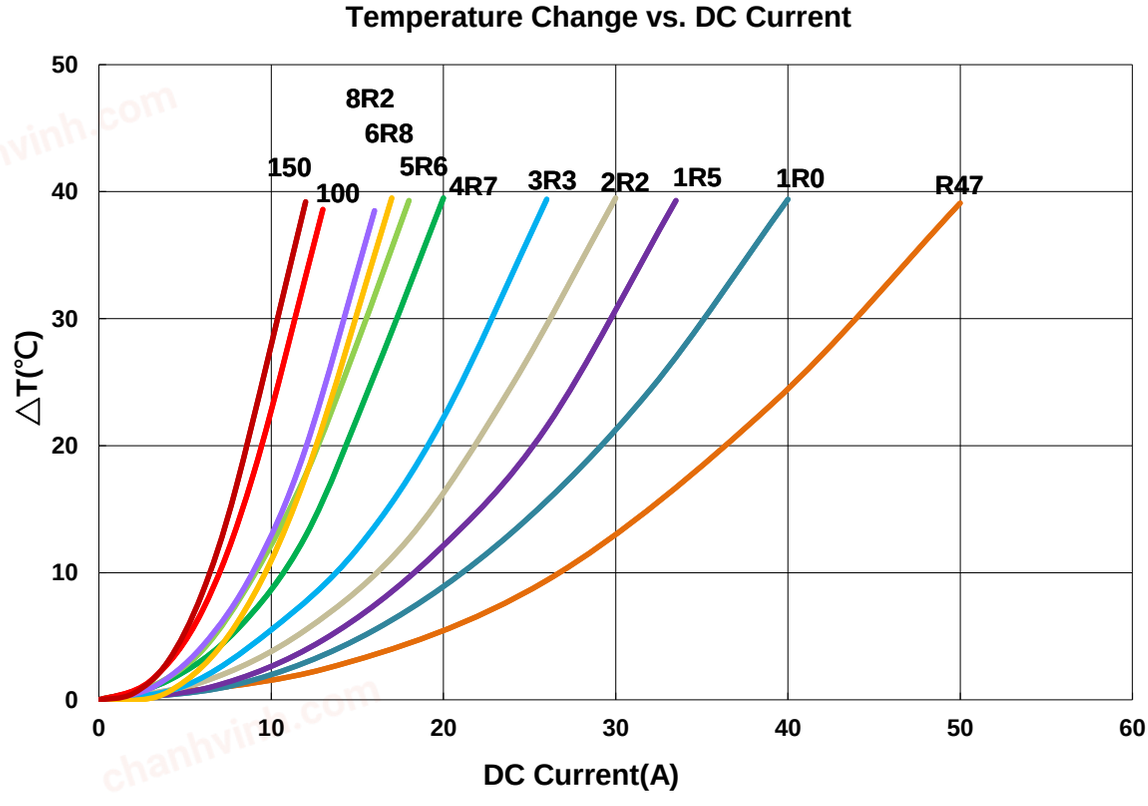
BFSI00121109XXXM05 Series Specificat

13 Graph :





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