PRODUCT SPECIFICATION

RoHS Compliant

ALL

SPEC. NO: D-0603-001-U
Date : Jan.08,2019

CUSTOMER'S PRODUCT NAME:

PRODUCT NAME:

TPI3015CT SERIES

THIS ITEM IS:

☐LEADED ■LEAD-FREE

THIS SPECIFICATION IS:

☐ FULLY ACCEPTED

☐ DENIED

☐ ACCEPTED UNDER THE FOLLOWING CONDITIONS

SIGNATURE: DATE:

NAME(PRINT):

TITLE:

千如電子集團
ABC-ATEC ELECTRONICS GROUP

FACTORY:
AOBA TECHNOLOGY (M) SDN. BHD.
Lot 2, Jalan 6/2, Kawasan Perusahaan Seri Kembangan,
43300 Seri Kembangan, Selangor Darul Ehsan, Malaysia.
Tel : 603-89422111

HEADQUARTERS:
ABC TAIWAN ELECTRONICS CORP.
No.98, Ln.298, Huandong Rd.,
Yangmei 32665 Taoyuan, Taiwan
Tel: 886-3-478-8188

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D-0603-001-U

1. Scope

This specification applies Thin Power Choke TPI3015CT-Series to be delivered to user.

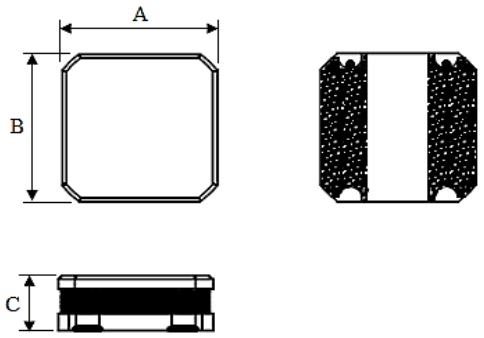
2. Product Identification

TPI 3015 C T 2R2 M - □□

(1) (2) (3) (4) (5) (6) (7)

(1) Product name
(2) Shapes and dimensions
(3) Coating Type
(4) Taping
(5) Inductance
2R2 : 2.2uH 100 : 10uH
(6) Tolerance
M:±20% N:±30%
(7) Internal Code (If any)

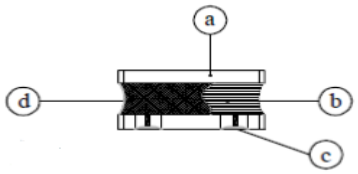
3. Shapes and Dimensions [Dimensions in mm]



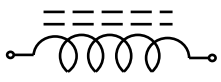
A : 3.0 ±0.1 mm
B : 3.0 ±0.1 mm
C : 1.5 mm Max.

4. Materials

No	Part Name	Material
a	Ferrite Core	Ni-Zn Ferrite
b	Terminals	Ag / Ni / Sn
c	Coil	Cu / P180 Grd 1
d	Adhesive	Silicon Base Resin
	Magnetic Powder	Ni-Zn Ferrite



5. Electrical Schematics



No Polarity

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6. Electrical Characteristics

Part No.	Inductance (μH)	Tolerance	DC Resistance		Rated DC current (A)		Marking
			(mΩ)	Tolerance	Idc1	Idc2	
TPI3015CT1R0□-□□	1.0	N	28	±30%	2.30	2.30	-
TPI3015CT1R5□-□□	1.5	N	37		2.10	2.10	-
TPI3015CT2R2□-□□	2.2	M	58	±20%	1.62	2.00	-
TPI3015CT2R7□-□□	2.7	M	60		1.50	1.95	-
TPI3015CT3R3□-□□	3.3	M	75		1.35	1.80	-
TPI3015CT4R7□-□□	4.7	M	100		1.20	1.60	-
TPI3015CT5R6□-□□	5.6	M	120		1.00	1.40	-
TPI3015CT6R8□-□□	6.8	M	150		0.97	1.30	-
TPI3015CT100□-□□	10	M	220		0.80	1.10	-
TPI3015CT150□-□□	15	M	300		0.65	1.00	-
TPI3015CT180□-□□	18	M	410		0.57	0.90	-
TPI3015CT220□-□□	22	M	475		0.55	0.80	-
TPI3015CT330□-□□	33	M	650		0.45	0.70	-
TPI3015CT390□-□□	39	M	850		0.40	0.50	-
TPI3015CT470□-□□	47	M	1100		0.35	0.45	-
TPI3015CT680□-□□	68	M	1700		0.30	0.35	-
TPI3015CT820□-□□	82	M	1900		0.27	0.32	-
TPI3015CT101□-□□	100	M	2100		0.25	0.30	-

1. Inductance is measured in HP-4285A Precision LCR Meter @ 100kHz, 1V.
2. DC resistance is measured in DU-5011 milliohm meter (or equivalent).
3. Tolerance : M =20% , N=30% (Table shows stock tolerances in □).
4. Idc1 : Based on inductance change (△L/Lo :≦-30%)
5. Idc2 : Based on temperature rise (△T : 40˚C TYP.)
6. Operating temperature range: -40°C ~ +125°C (Including self generated heat)
7. Storage temperature: -10°C ~ +40°C (tape & reel packaging), -40°C ~ +125°C (component)
   Humidity: 30~70% R.H.

*Note: MSL = 1

*Note: Marking not available at the moment.

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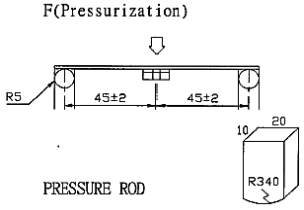
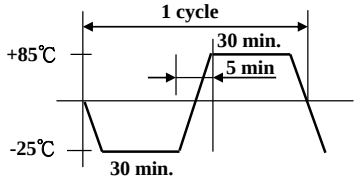
7. Reliability Test

Item	Specifications	Test conditions
Solderability	The metalized area must have 90% minimum solder coverage.	Dip pads in flux and dip in solder pot (NP303) at 240℃ ±5℃.
Substrate bending	ΔL/Lo : ≤ ±10% There shall be no mechanical damage or electrical damage.	The sample shall be soldered onto the printed circuit and board a load applied until the figure in the arrow direction is made approximately 3mm(keep time 5±1 seconds) 
Vibration	ΔL/Lo : ≤ ±10% There shall be no mechanical damage.	Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x,y and z directions for 2 house for a total of 6 hours. Frequency : 10~50 Hz Amplitude : 1.5mm
High Temperature Resistance	ΔL/Lo : ≤ ±10% There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 hours in an atmosphere with a temperature of 85±2℃ and a normal humidity. Upon completion, the measurement shall be made after the sample has been left in a normal temperature and humidity for 1 hour.
Low Temperature	ΔL/Lo : ≤ ±10% There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 hours in an atmosphere with a temperature of -30±2℃. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.
Thermal Shock	ΔL/Lo : ≤ ±10% There shall be no damage or problems.	The sample shall be subject to 5 continuous cycles, such as shown in the following temperature cycle:  Measure the test items after leaving the inductors at room temperature and humidity for 1 hours.
Moisture Storage	ΔL/Lo : ≤ ±10% There shall be no mechanical damage.	The sample shall be left for 96 hours in a temperature of 40±2℃ and a humidity(RH) of 90～95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour.
Component Adhesion (Push Test)	12N Min	The device should be reflow soldered (245±5℃ for 10 seconds) to a copper substrate a dynamometer force gauge should be applied to the side of the component the device must with-stand a minimum force of 12N without failure of the termination attached to component.

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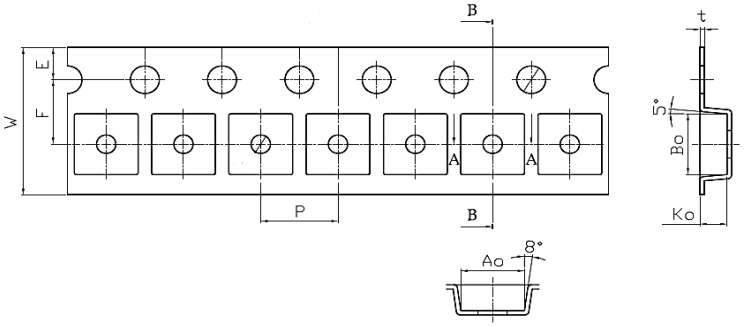
8. Packaging

The packaging must be done not to receive any damage during transporting and storing.

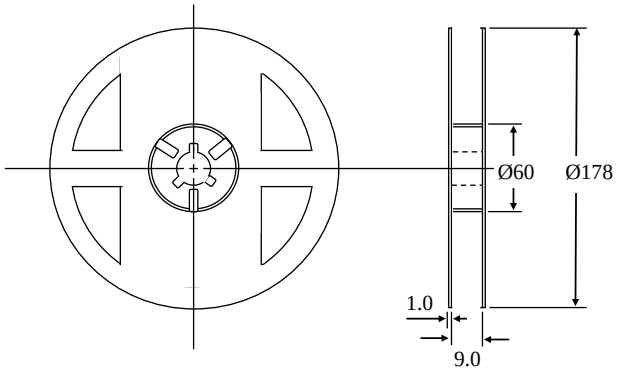
8-1 Tape dimensions



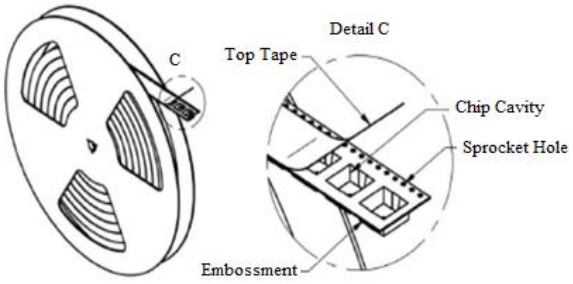
unit:mm

Ao	3.30
Bo	3.30
Ko	1.70
P	4.00
W	8.00
t	0.23
E	1.75
F	3.50

8-2 Reel dimensions



8-3 Tapping figure



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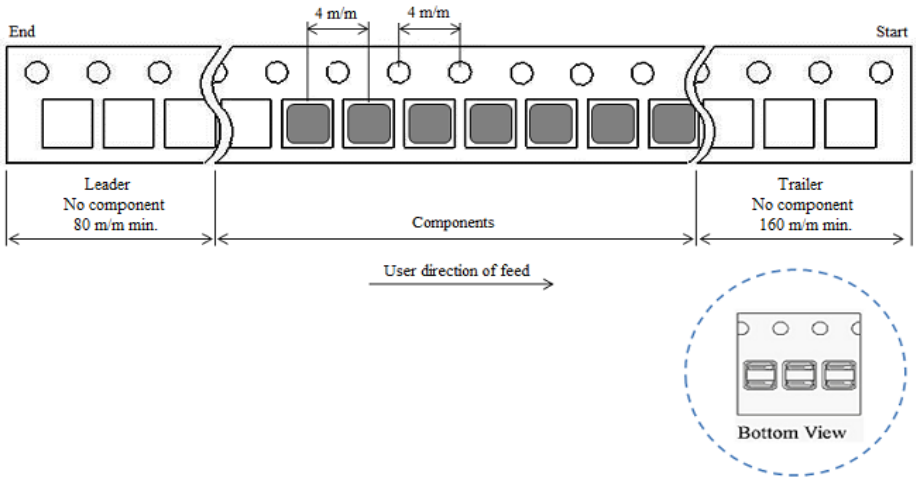
8-4 Packaging Form

There shall not continuation more than two vacancies of the product.



8-5 Packing Quantity

Quantity : φ178 mm reel type : 2000 pcs./reel

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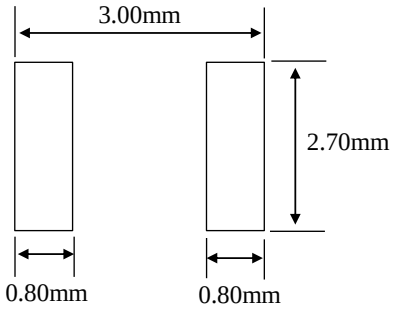
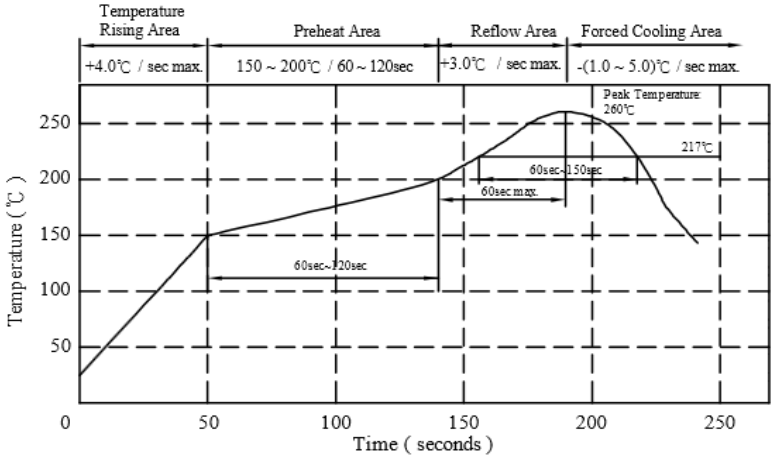
9. Recommended Soldering Conditions (Please use this product by reflow soldering)

9-1 Recommended Footprint



9-2 Recommended Reflow Pattern

Reflow : 2 times maximum
Peak Temp：260℃ max.
Max. Peak Temp - 5℃ ：30sec max.
Max time above 217℃ ：60sec~150sec max.



9-3 Iron Soldering

Use a solder iron of less than 30W when soldering, do not allow the soldering iron tip directly touch the ferrite body outside of terminal electrode.
2 seconds max. at 280˚C.

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10. Safety & Precaution Notes

1. Products may not be used in applications that directly affect the personal safety or cause significant impacts and losses to society. If you apply to these applications, please be sure to contact us at first to confirm.

2. The storage period is less than 12 months. Ensure to follow the storage conditions (Temperature: 5 to 30°C, Humidity: 10 to 65% RH or none). If the storage period is exceeded the limit, the electrodes might be deteriorate/oxidized and affect soldering. Solderability should be checked if this period is exceeded.
Other storage precaution:
a) Products should be stored on the pallet for the prevention of the influence from humidity, dust and so on.
b) Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.
c) Do not unpack the minimum package until immediately before use. After unpacking, re-seal promptly or store in desiccator with a desiccant.
d) Do not store product in bulk to prevent coils and parts being damaged.

3. Do not use or store in locations where there are corrosive gases (salt, acid, alkali, etc.).

4. Soldering condition for mounting should be within the specification range.
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.

5. When using, try to avoid excessive mechanical impact on the product such as collision / drop…etc.

6. When assembling a printed circuit board with a new mounted chip, be careful to avoid assembly deformation of the circuit board that may cause the overall or partial distortion of the circuit board such as at screw tightening position.

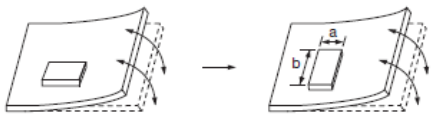
7. Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the thermal design.

8. Do not expose the products to magnets or magnetic fields.

9. If you would like to use this products for more stringent safety or reliability of performance and/or quality requirements, or its failure, malfunction or trouble may cause serious damage to society, individuals or property, or you have special requirement beyond the specification or condition in the catalogue, please contact us.

10. PCB should be designed so that products are not subjected to the mechanical stress caused by warping of the board as shown below. Bending and twisting of PCB will cause excessive mechanical stress and lead to crack in the product as well.

Products should be located in the sideways direction
(Length: a<b) to the mechanical stress.



Poor example　　Good example

11. Cleaning brush shall not touch the winding portion of the product to prevent the breaking of wire. Cleaning could cause failure and degradation of a product.

12. Care should be taken when transporting or handling product to avoid excessive vibration or mechanical shock. Product could be damaged by external mechanical pressure, stacked under heavy object, as well as strong shaking and drop.

SPEC NAME	PRODUCT SPECIFICATION	SPEC NO.: D-0603-001
PART NAME	TPI3015CT Series	CUSTOMER: ALL

No	Rev	Request By	Revise Page	Revise Content	Reason	Prepared	Verified	Approved
0	△				制　　定			
11/8/2008								
1	A	R&D	2/6,4/6,5/6頁	1.塗裝變更 2.電氣特性變更	塗裝膠造成core龜裂	余金燕 2009.1.14	梁國旺 2009.1.14	梁國旺 2009.1.14
1/14/2009								
2	B	Sales 藍	2/6頁	2R2N 變更為 2R2M 4R7N 變更為 4R7M	藍家勝要求變更,但現狀規格 4R7無法達到	余金燕 2009.1.20	梁國旺 2009.1.20	梁國旺 2009.1.20
1/20/2009								
3	C	R&D	2/6頁	4R7M降一圈數12.5Ts 電氣特性變更	滿足M公差需求	余金燕 2009.2.3	梁國旺 2009.2.3	梁國旺 2009.2.3
2009年 2月 3 日								
4	D	R&D	2/6頁	增訂 1R5,3R3,6R8	系列規格制定	余金燕 2009.4.7	梁國旺 2009.4.7	梁國旺 2009.4.7
2009年 4月7日								
5	E	R&D		格式變更,日期刪除	標準格式	余金燕 2009.4.29	梁國旺 2009.4.29	梁國旺 2009.4.29
2009年 4月29日								
6	F	R&D	2/6頁	增訂 220M	客戶需求	余金燕 2009.5.22	梁國旺 2009.5.22	梁國旺 2009.5.22
2009年 5月22日								
7	G	R&D	2/6,4/6,5/6頁	1.特性及材料全面調整 2.變更7"reelx8mm carrier	1.Dipping方式→Plastic jig方式 2.顧客要求	余金燕 2009.7.7	梁國旺 2009.7.7	梁國旺 2009.7.7
2009年 7月7日								
8	H	R&D	2/6頁	增訂 470M	客戶需求	余金燕 2009.7.27	梁國旺 2009.7.27	梁國旺 2009.7.27
2009年 7月27日								
9	I	R&D	2/6頁	1.增訂 150M, 330M 680M, 820M, 101M 2.Idc1 & Idc2 變更	1.顧客要求 2.規格重複驗證	余金燕 2010.1.25	葉嘉嵩 2010.1.25	葉嘉嵩 2010.1.25
2010年 1月25日								
10	J	R&D	2/6頁	增訂 2R7M	顧客要求	余金燕 2010.4.01	葉嘉嵩 2010.4.01	葉嘉嵩 2010.4.01
2010年 4月1日								
11	K	R&D	2/4頁	增訂捺印	顧客要求	余金燕 2010,4,12	葉嘉嵩 2010,4,12	葉嘉嵩 2010,4,12
2010年 4月12日								
12	L	R&D	2/6頁	1.Rdc 變更 2.Idc1 & Idc2 變更	1.規格重複驗證 2.工程能力不足	FC Tsai 2010.12.17	Badli 2010.12.17	Iskandar 2010.12.17
2010年12月17日								
13	M	R&D	2/6頁	增訂 2R7M	顧客要求	FC Tsai 2011.6.29		Iskandar 2011.6.29
2010年6月29日								
14	N	R&D	2/6頁	5R6M added	Request by customer	FC Tsai 2011.7.26		Iskandar 2011.7.26
2010年7月26日								
15	P	R&D	2/6頁	Revised Rdc, Idc and winding condition.	Spec improvement	FC Tsai 2011.10.29		Iskandar 2011.10.29
2011年10月29日								

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PART NAME	TPI3015CT Series	CUSTOMER: ALL

No	Rev	Request By	Revise Page	Revise Content	Reason	Prepared	Verified	Approved
16	Q	R&D	2/6頁	180M added.	Request by customer	Shikin 2012/12/28		Iskandar 2012/12/28
17	R	R&D	Page 2/4	Revise the operating temperature. Before: -25 ~ +120°C After: -40 ~ +125°C	Request by customer	Shikin 2013/03/19	KM Lee 2013/03/19	Iskandar 2013/03/19
18	S	R&D	Page 2/4	1) Revise the Storage temperature. Before: -10 ~ +40°C After: -40 ~ +125°C 2) Add storage temp. definition for product with taping	Request by customer	Shikin 2013/10/02	KM Lee 2013/10/02	Iskandar 2013/10/02
19	T	R&D	Page 4/6, 5/6, 6/6	1) Update packaging drawing and information 2) Change reflow profile curve.	1) Information out of date 2) Standardize all reflow profile curve by HQ.	Farizal 2016/11/03	KM Lee 2016/11/03	Iskandar 2016/11/03
20	U	R&D	Add page 7/7	Add safety & precautions notes	User guide for product safety requirement.	KM Lee 2019/01/08	KM Lee 2019/01/08	Iskandar 2019/01/08
21	△							
22	△							
23	△							
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29	△							
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