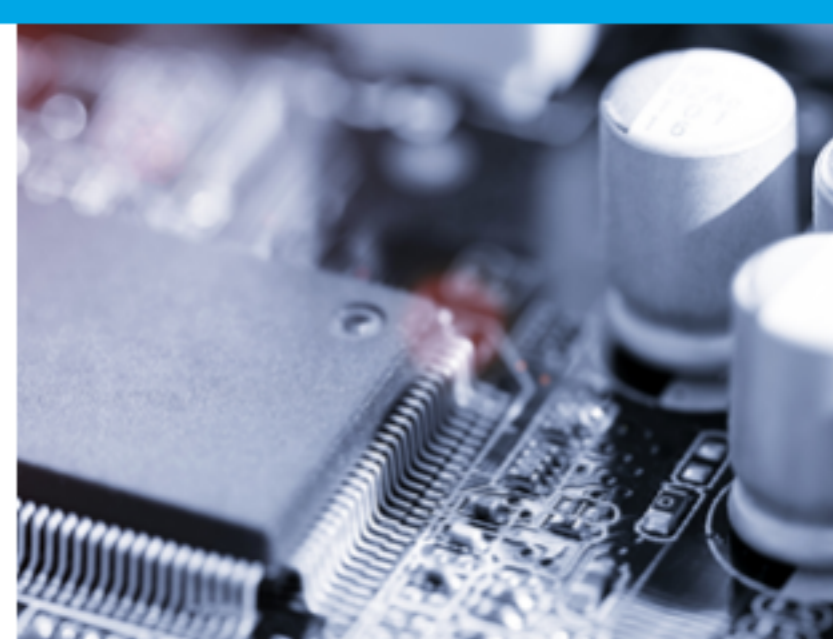




Final Product Change Notification

PCN number 2022100001

Issue Date:2022-10-18
Effective Date:2023-01-31



Dear *Customer*,
Here's your quality information concerning products our customers and partners purchased from WeEn.

Management Summary

This notification is to release Tak Cheong as the second assembly source of Thyristors in TO220F.

Release the Second Assembly Source of Thyristors in TO220F

Information Notification

Release Tak Cheong as the second assembly source of Thyristors in TO220F. For the details, please refer to the qualification report enclosed.

Why do we issue this Information Notification

It is to make sure the supply of products, and comply with business contingency management.

Identification of Affected Products

Both sources are qualified. The date code and location code can be found on the label.

Impact

Data Sheet Revision

To be updated accordingly.

Disposition of Old Products

No affect.

Production

Both production lines are qualified, more flexible.

Additional information

Affected products and sales history information: see attached file of Product List.
See attached file of Self-qualification Report.

Remarks

Should you not be able to obtain these documents, please contact your WeEn sales representative or the e-mail address mentioned below under Contact and Support.

Contact and Support

For all Quality Notification content inquiries, please contact your local WeEn Sales Support team.

For specific questions on this notice or the products affected please contact our specialist directly.

Name:Shawn Lin
Position:Quality Manager
e-mail address:Shawn.xf.lin@ween-semi.com

At WeEn Semiconductors we are constantly striving to improve our product and processes to ensure they reach the highest possible Quality Standards.

You have received this email because you are a designated contact or subscribed to WeEn Quality Notifications. WeEn shall not be held liable if this Notification is not correctly distributed within your organization.

This message has been automatically distributed. Please do not reply.

WeEn Semiconductors
www.ween-semi.com

WeEn Semiconductors	Qualification Report: Release the Second Source of TO220F Thyristor, Tak Cheong	Document No.: Qual Plan
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WeEn
WeEn Semiconductors

Qualification Report

*Qualify 2nd Source Factory for Thyristor in Package TO220F,
TAK CHEONG*

WeEn Semiconductors	Qualification Report: Release the Second Source of TO220F Thyristor, Tak Cheong	Document No.: Qual Plan
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1. Introduction

Tak Cheong is our existing qualified assembly & testing site and TO220F (SOT186A) are now running smoothly in normal production. In order to increase the production flexibility, this qualification is release Tak Cheong as the second source of thyristor in TO220F.

2. Affected types

Includes the Thyristor in TO220F (SOT186A). Please refer to the attached product list.

3. Target Specification or Customer Expectation

This is to qualify Thyristor in TO220F at TAK CHEONG

4. Purposed Technology or Material

TAK CHEONG's standard process and WeEn approved BOM.

5. Current Technology, Platform or Material Used

Package	TO220F/SOT186A		
Device	TYN16X-600CT	BTA216X-800B	BTA420X-800BT
Die bonding	Leadframe –Hualong (华龙) Solder Wire - PbSn5Ag2.5		
Molding	EK3600T		
Plating	Matte Sn finish		

BOM material Comparison

Material	TAK CHEONG	Huashan
Leadframe Leadframe thickness	Hualong 0.505mm	Hualong 0.505mm
Die Attach	Soft Solder wire PbSn5Ag2.5	Soft Solder wire Pb10Sn2Ag
Wire	5mils, 8mils, 10mils, 12mils, 15mils, 20mils / Tanaka	5mils, 8mils, 10mils, 12mils, 15mils, 20mils / Heraeus
EMC	EK3600T	EK3600T

WeEn Semiconductors	Qualification Report: Release the Second Source of TO220F Thyristor, Tak Cheong	Document No.: Qual Plan
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6. Test Vehicles

6.1 Qualification vehicle

- 1) TYN16X-600CT
- 2) BTA216X-800B
- 3) BTA420X-800BT

7 Electrical Yield **Result: Acceptable**

7.1 Final test Yield and datalog

Lot No.	TJ21433272N	TJ21433273N	TJ21433274N
Device	TYN16X-600CT	BTA216X-800B	BTA420X-800BT
Test QTY In	647	644	681
Test QTY out	646	643	676
Test Yield	99.85%	99.84%	99.27%

8 Process Capability

8.1 Solder thickness Measurement: Acceptable

Lot #	TJ21433272N		TJ21433273N		TJ21433274N	
Device	TYN16X-600CT		BTA216X-800B		BTA420X-800BT	
Spec	Solder thickness	BLT	Solder thickness	BLT	Solder thickness	BLT
CPK	4.94	3.1	4.76	4.72	2.23	1.1
RESULT	Accept		Accept		Accept	

8.2 Solder Void Check: **Result: Acceptable**

Lot No	TJ21433272N	TJ21433273N	TJ21433274N
Device	TYN16X-600CT	BTA216X-800B	BTA420X-800BT
Spec	≤ 10%	≤ 10%	≤ 10%
RESULT	Accept	Accept	Accept

8.3 Wire pulling Result: Acceptable

Lot No	TJ21433272N			TJ21433273N			TJ21433274N		
Device	TYN16X-600CT			BTA216X-800B			BTA420X-800BT		
CPK	3.62	4.37	4.05	3.98	4.28	4.64	2.70	10.61	5.52
RESULT	Accept			Accept			Accept		

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8.4 X-ray Performance after molding: Result: Acceptable



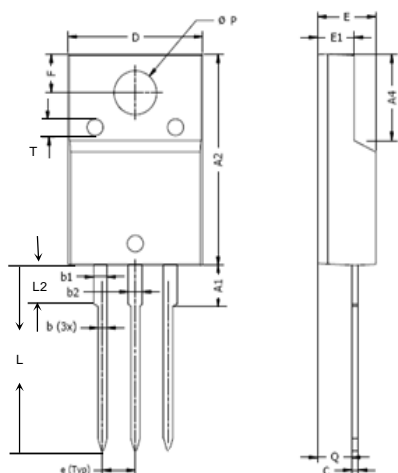
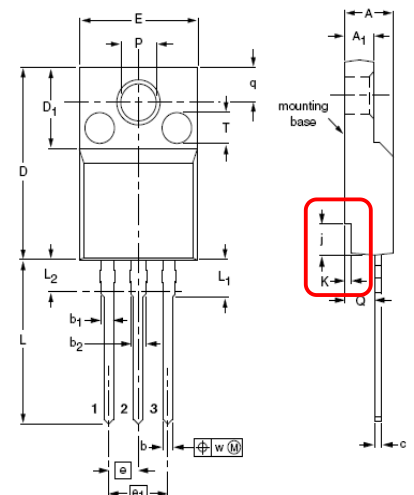
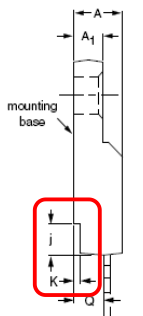
9 REL Test Summary: Result: Acceptable

9.1 Reliability result

Package	Type	Test	Duration	Samples Size	Result
SOT186A	BTA420X-800BT	Temperature Cylce test	500 cycles	80	Pass
		UHAST	96 hrs	80	Pass
		High temperature Storage	1000 hrs	80	Pass
		High Temperature, Humidity & Reverse Bias	1000 hs	80	Pass
		Thermal Fatigue	10000 cycles	80	Pass
		Static High Temperature Life	1000 hrs	80	Pass
SOT186A	TYN16X-600CT	Temperature Cylce test	500 cycles	80	Pass
		UHAST	96 hrs	80	Pass
		High temperature Storage	1000 hrs	80	Pass
		High Temperature, Humidity & Reverse Bias	1000 hs	80	Pass
		Thermal Fatigue	10000 cycles	80	Pass
		Static High Temperature Life	1000 hrs	80	Pass
SOT186A	BTA216X-800B	Temperature Cylce test	500 cycles	80	Pass
		UHAST	96 hrs	80	Pass
		High temperature Storage	1000 hrs	80	Pass
		High Temperature, Humidity & Reverse Bias	1000 hs	80	Pass
		Thermal Fatigue	10000 cycles	80	Pass
		Static High Temperature Life	1000 hrs	80	Pass

10 Package Analysis

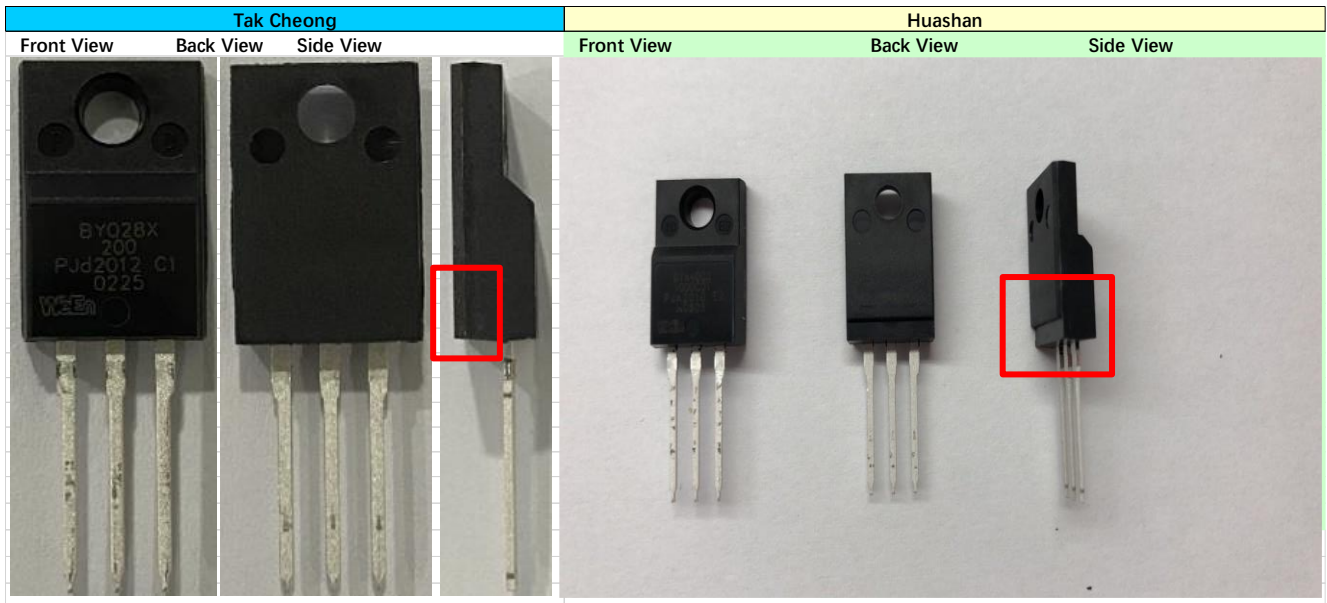
10.1 Physical Dimension: No difference for major POD dimension.

SOT186A POD Comparison_Tak Cheong vs Huashan												
												
Unit: mm						Unit: mm						
Tak Cheong Spec			TAK Actual Data			Huashan Spec			Huashan Actual Date			Remark
Symbol	Min	Max	Minimum	Maximum	Mean	Symbol	Min	Max	Minimum	Maximum	Mean	
E	4.00	4.60	4.320	4.420	4.373	A	4.200	4.600	4.350	4.390	4.375	Comparable
E1	2.50	2.90	2.690	2.760	2.717	A1	2.500	2.900	2.740	2.780	2.756	Comparable
Q	2.30	2.60	2.350	2.490	2.451	Q	2.300	2.600	2.400	2.450	2.411	Comparable
b	0.70	0.90	0.710	0.720	0.712	b	0.700	0.900	0.710	0.720	0.715	Comparable
b ₁	0.90	1.10	0.990	1.040	1.018	b ₁	0.900	1.100	0.980	1.030	1.006	Comparable
b ₂	1.00	1.40	1.070	1.160	1.096	b ₂	1.000	1.400	1.100	1.140	1.123	Comparable
c	0.40	0.70	0.480	0.520	0.495	c	0.400	0.700	0.510	0.520	0.516	Within HS limit
A2	15.20	15.80	15.270	15.420	15.331	D	15.200	15.800	15.350	15.400	15.380	Comparable
A4	6.30	6.50	6.320	6.400	6.351	D1	6.300	6.500	6.390	6.420	6.399	Comparable
L	13.50	14.40	13.612	13.704	13.650	L	13.500	14.400	13.700	13.760	13.725	Comparable
A1	2.70	3.30	3.02	3.12	3.079	L1	2.790	3.300	2.990	3.020	3.005	Comparable
L2	--	3.00	2.93	2.98	2.96	L2	--	3.000	2.890	2.920	2.901	Comparable
D	9.70	10.30	10.010	10.100	10.049	E	9.700	10.300	9.970	10.010	9.993	Within HS limit
e	2.54BSC		2.500	2.550	2.511	e	2.54BSC		2.530	2.550	2.539	Comparable
e1	5.08BSC		5.070	5.090	5.080	e1	5.08BSC		5.070	5.090	5.080	Comparable
Different design: No J						J	1.700	2.700	2.080	2.120	2.103	Different design
Different design: No K						K	0.400	0.600	0.500	0.510	0.504	Different design
ØP	3.00	3.40	3.120	3.360	3.242	ØP	3.000	3.200	3.130	3.150	3.139	Comparable
F	2.60	3.00	2.700	2.740	2.716	q	2.600	3.000	2.740	2.780	2.751	Comparable
T	--	2.50	1.949	1.969	1.960	T(3)	(2.10)		2.090	2.110	2.101	Comparable
			Not defined			w	(0.4)		0.390	0.410	0.401	
			Not defined			Z1	(1.70)		1.690	1.710	1.701	
			Not defined			Z2	(1.60)		1.590	1.610	1.600	

Remark: Major POD parameters are comparable. There are different design on dimension J and K which are not in Tak Cheong's TO220F.

10.2 Appearance



Result: Same outline.



Remark: Tak Cheong doesn't have step design on the backside of plastic body.

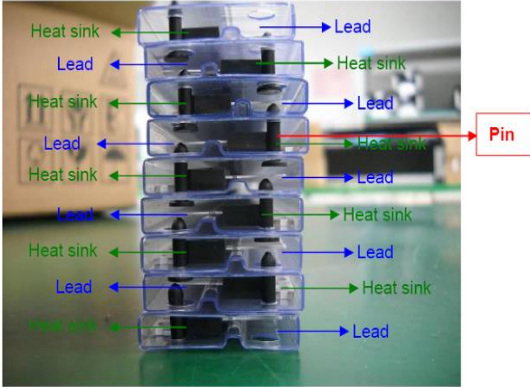



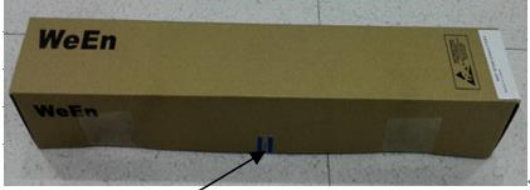
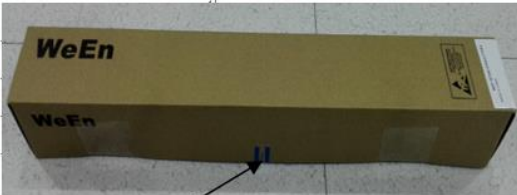
11 Product and Packing

11.1 Marking

Tak Cheong	Huashan
	
Line 1 = Device type	Line 1 = Device type
Line 2 = Device name / voltage	Line 2 = Device name / voltage
Line 3 Pjd = Diffusion J & Tak Cheong code d	Line 3 PJA = Diffusion J & Huashan code A
Line 3 Date Code	Line 3 Date Code
Line 4 = Lot number	Line 4 = Lot number
Line 5 = Logo WeEn	Line 5 = Logo WeEn

11.2 Packing Method

- Same packing methods;
- 50pcs for one tube;
- 1000pcs for each packing box;
- Tak Cheong uses pin lock.

Tak Cheong Packing	Huashan
50ea / Tube 1,000ea / box	50ea / Tube 1,000ea / box
	
	
 <p data-bbox="151 1496 343 1527">WeEn QA 封条</p>	 <p data-bbox="758 1556 949 1588">WeEn QA 封条</p>

Tube dimension comparison

Unit mm	Tak cheong	Huashan
Length	525±1.00	520±1.00
Width	31.4±0.2	33.0±0.2
Tube inner dimension	5.5±0.1	5.6±0.4
Tube thickness	0.70±0.1	0.75±0.125

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11.3 Box Label

Same printed label format, no change.

Tak Cheong (2 nd source)		Huashan	
1. Normal lot	2. Combine lot	1. Normal lot	2. Combine lot
 <p>WeEn Semiconductors MADE IN CHINA</p> <p>(33T)PUID 01dTJ22333190N (30T)LOT2 TJ22333191N (30D)DATE2 2233 (30Q)QTY2 936 (32T)ORIG N260 (31T)PMC JdH (1T)LOT TJ22333190N (9D)DATE 2233 (Q)QTY 1000 (30P)TYPE BYT79X-600P (3P)PART BYT79X-600PQ (1P)CODENO 9340 701 43127</p>	 <p>WeEn Semiconductors MADE IN CHINA</p> <p>(33T)PUID 02dTJ22333190N (32T)ORIG N260 (31T)PMC JdH (1T)LOT TJ22333190N (9D)DATE 2233 (Q)QTY 1000 (30P)TYPE BYT79X-600P (3P)PART BYT79X-600PQ (1P)CODENO 9340 701 43127</p>	 <p>WeEn SEMICONDUCTORS MADE IN CHINA</p> <p>(33T)PUID 02AN3K552925 (32T)ORIG N260 (31T)PMC JAE (1T)LOT N3K552925 (9D)DATE 2015 (Q)QTY 1000 (30P)TYPE BTA206X-800CT (3P)PART BTA206X-800CT,127 (P)CODENO 9340 656 52127</p>	 <p>WeEn SEMICONDUCTORS MADE IN CHINA</p> <p>(33T)PUID 01AN3K552923 (30T)LOT2 N3K552925 (30D)DATE2 2015 (32T)ORIG N260 (30Q)QTY2 394 (31T)PMC JAE (1T)LOT N3K552923 (9D)DATE 2014 (Q)QTY 1000 (30P)TYPE BTA206X-800CT (3P)PART BTA206X-800CT,127 (P)CODENO 9340 656 52127</p>

12. Conclusions

Based on above qualification results, the Thyristor products in TO220F are qualified to be assembled and tested at Tak Cheong.