



## Product / Process Change Notice

No.: Z200-PCN-PM202203-01-A

Date: March 03, 2022

**Change Title : To add SUNRISE (model No.BJ-232) as second source of Tray for SON 8X6 MM^2 package.**

Change Classification:  Major  Minor with customer notification  Minor without customer notification  
Change item :  DataSheet  Design  Raw Material  Wafer FAB  Assembly  Testing  Packing  Others

**Affected Product(s) :**

Please refer to Table 1 in details.

**Description of Change(s)**

To add SUNRISE (model No.BJ-232) as second source of Tray for SON 8X6 MM^2 package.

**Reason for Change(s) :**

To increase the TRAY capacity of SON 8X6 MM^2 package and meet customers delivery request.

**Impact of Change(s) : ( positive & negative )**

Form : No Change

Fit : No Change

Function : No Change (Please refer to attachment I)

Reliability : No Concern (Please refer to attachment I)

Hazardous Substances: No Concern (Please refer to attachment II)

**Qualification Plan/ Results :**

(1) SUNRISE is one company with ISO9001 certification (Please refer to Attachment III)

(2) Based on Winbond standard tray qualification result, the new tray meets our criteria. (please refer to Attachment I)

**Implementation Plan :**

Date Code: \_\_\_\_\_ onward     Lot No: \_\_\_\_\_ onward     Proposed first ship date: June 01, 2022

**Originator: (QA)**

Hyhuang

**Approval: (QA Dept. Manager)**

Michael

**Approval: (QRA Director)**

Chang Shu Cheng

**Contact for Questions & Concerns**

Name: Betty Huang TEL:886-3-5678168 (ext.76549) FAX: 886-3-5796124  
Address : No. 8,Keya 1st Rd., Daya Dist., Central Taiwan Science Park, Taichung City 42881,Taiwan  
E-mail: Hyhuang8@winbond.com



**Table 1. The affected part no are list below.**

W25M02GVZEIG	W25Q64JVZEIQ	W25N01JWZEIG	W25M512JWEIQ	W25M512JWEAQ
W25M512JVEIQ	W25Q64JVZEIM	W25Q64JVZEAQ	W25M02GVZEIR	W74M12JWZEIQ
W25Q128JVEAQ	W25Q256JWEIM	W25N02JWZEIC	W25N512GWEIT	W25M512JVEBQ
W25Q128JVEIQ	W25Q32JVZEAQ	W25M02GVZEJG	W25N02JWZEF	W25Q128FVEIG
W25Q256JVEIN	W25H512JVESM	W25Q128JVEJM	W25R512JVEIQ	W25Q128BVEAG
W25Q256JVEIQ	W25N04KVZEIR	W25Q64FVZEIG	W25Q256JWEIN	W25Q256FVEIG
W25Q128JVEIM	W25Q512JVEIQ	W25Q01NWZEIM	W25Q256JVEBQ	W25Q128FVEBQ
W25R256JVEIQ	W25N512GWEIT	W25M161AWEIT	F25Q512JVEIQ	W25Q256FVEBQ
W25N02JWZEJF	W25Q256JWEIQ	W74M25JWZEIQ	W25Q256JVESQ	W25Q01JVZEJQ
W25N01KVZEIR	W25Q01JVZEIM	F25N01GVZEIG	W25N01GWZEJG	W25M512JVESQ
W25N01GVZEAG	W25Q128JVEJQ	SC2R256AVW	F25Q128BVEIG	W25M161AVEIT
W25M02GVZEAG	W25Q256JVEJQ	W25Q512JVEIN	W25Q256JWEBQ	W25Q64JVZEBQ
W25N02KVZEIR	W25Q512NWEIQ	W25Q128FVEJF	W25M512JVEAQ	W25M02GWZEIT
W25N01GVZEIG	W25N02KVZEIU	W25N04KWZEIR	P25Q256JVEIQ	W25N01JWZEIU
W25Q256JVEJQ	W25H01JVZEAM	W25N01GVZEJG	W25Q256FVEIF	W25N01GVZEAT
W25Q259JVEIQ	W25Q256JVEAQ	W25H256JVESM	W25M02GWZEIG	F25Q128JVEIQ
W25Q512JVEJQ	W25Q128JWEIM	W25Q128JWEIQ	W25N01JWZEIT	W25M121AWEIT
W25R256JWEIQ	W25Q128FVEIQ	W25Q128JWEIQ	W25Q64FWZEIG	W25M121AVEIT
W25N02JWZEIF	W25N512GWEIR	W25N04KVZEIU	W25Q64CVZESG	W25R128JVEIQ
W25N01GVZEIR	W25N512GVEIR	W25M02GVZEIT	F25Q256FVEIG	W25Q256FVEAQ
W25Q64JVZEAM	W25Q512NWEIM	WPAM512JVEIQ	W25H256JVEAM	W25Q512JVEAQ
W25Q128FVEAQ	W25N01GVZEJR	W25Q128JVESQ	SC2R512AVW	W25Q256JVEJM
W25N01GWZEIG	W25N02KWZEIR	W25Q256JWEAQ	W25Q64JVZESM	W74M01GVZEIG
W25Q512JVEIM	W25N01JWZEAG	W25R128JVEIN	W25N01JWZEJG	W25N01GWZEIT
W25R256JVEIN	W25Q256JVEJM	W25N512GWEKR	W74M51NWZEIQ	W25Q32JVZEIM
W25Q01JVZEIQ	W25N512GVEAG	W25R512JVEIN	W25H512JVEAM	W25Q64FVZEBQ
W25N512GVEIG	W25R512NWEIQ	W25M02GVZEAT	W25M512JVEJQ	W25Q64FVZEAQ
W25R128JWEIQ	W25N01GVZEIT	W25Q32JVZEIQ	W25N02KVZEIE	W25Q128BVEIG
W25Q256JVEIM	F25Q256JVEIQ	W25Q64JVZESQ	W25M321AVEKT	W25M321AVEIT
W25Q257JVEIQ				

02/17/2022

# 2<sup>nd</sup> Tray Source SUNRISE BJ-232 SON8 6x8mm<sup>2</sup> Tray Qualification Report

```
elif_operation ==  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
elif_operation == "MIRROR_Z"  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
  
#selection at the  
mirror_ob.selector =  
modifier_ob.selector =  
bpy.context  
print("SUNRISE BJ-232")
```

**winbond**  
We Deliver

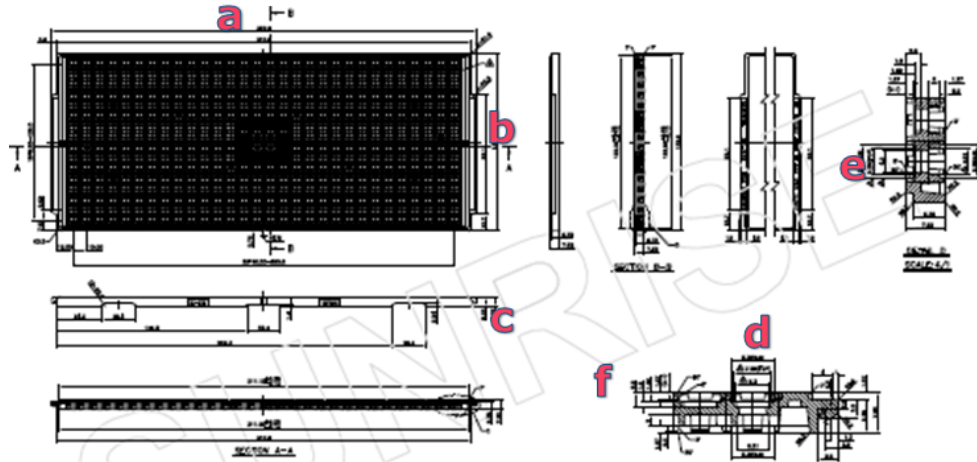
# Purpose:

- ◆ Add the 2nd tray source SUNRISE BJ-232 for SON8 8x6mm<sup>2</sup>, due to this tray is single source.
- ◆ Based on below check items to verify the quality of SUMRISE BJ-232 is equal the POR tray HWASHU EA70608.
  - ◆ Checklist:

Tray drawing	1. Tray design rule & Comparison	Page 3
Tray qualification	1. ICP data check	Page 4
	2. Measurement check	Page 5
	a. Dimension	
	b. Warpage	
	c. Surface electric resistivity	
	3. Strapping test	Page 6
	4. Dropping test (Box)	Page 7
	5. Machine handling check	Page 8
	6. Cutting PP Belt	Page 9
	7. Dropping Test (Tray)	Page 10
	8. Manual handling check	Page 11
	a. Pop out by brush	
	b. Tray stack	
c. Tray tilt view		
	d. Pick & place IC by vacuum pen	

# Tray design rule & Comparison

- ◆ SUNRISE BJ-232 design is based on JEDEC spec. and the design value can meet spec.



Item	a	b	c
JEDEC Spec (mm)	322.6±0.25	135.9±0.25	7.62±0.13
Design value (mm)	322.49	135.95	7.625
Judgment	<b>Meet Spec.</b>		
Item	d	e	f
JEDEC Spec (mm)	8.3±0.08	6.3±0.08	1.80±0.13
Design value (mm)	8.326	6.298	1.805
Judgment	<b>Meet Spec.</b>		

- ◆ The comparison between the 2<sup>nd</sup> tray source SUNRISE and POR tray HWASHU

ITEM	POR Tray	2 <sup>nd</sup> Tray Source
Tray Supplier	HWASHU	SUNRISE
Type Name	EA706008	BJ-232
Tray Dimension(HxWxH)	322.6 x 135.9 x 7.62	322.6 x 135.9 x 7.62
Dimension Pitch in X-axis	12.50 mm	12.50 mm
Dimension Pitch in Y-axis	7.95 mm	7.95 mm
Matrix	16X30=480 pcs/Tray	16X30=480 pcs/Tray
Material	PPE	PPE
Heat Resistance	150 °C	150 °C

◆ ICP measurement data is listed below and the result is **meet criteria**.

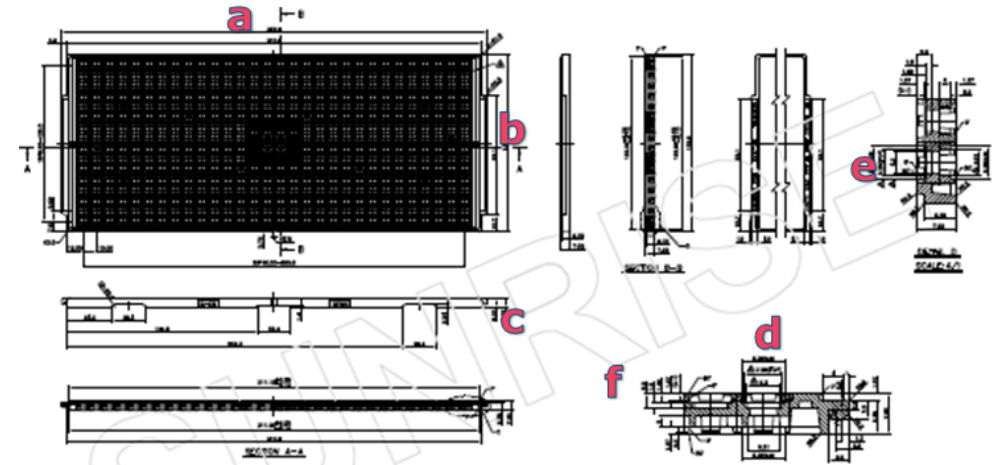
管理項目	RoHS 歐盟危害物質	RoHS 包材指令	Halogen 鹵素	Phthalates 鄰苯二甲酸鹽
	(Pb,Cd,Hg,Cr+6,PBB,PBDE)	Cd+Pb+Hg+Cr+6<100 ppm	(Br, Cl)	DEHP, BBP, DBP, DIBP
包裝材料*3	參照 “包裝材料的定義”	V	V	V

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013, 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	參考IEC 62321-5: 2013, 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	參考IEC 62321-4: 2013+ AMD1: 2017, 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9)	參考IEC 62321-7-2: 2017, 以紫外光-可見光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015, 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.
多溴聯苯總和 (Sum of PBBs)	mg/kg	-	n.d.	

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鄰苯二甲酸二(C7-11支鏈與直鏈)烷基酯 (DHNUP) (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)) (CAS No.: 68515-42-4)	參考IEC 62321-8: 2017, 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二(C6-8支鏈)烷基酯, 富C7 (DIHP) (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)) (CAS No.: 71888-89-6)		mg/kg	50	n.d.
鄰苯二甲酸雙(2-甲氧基乙基)酯 (DMEP) (Bis(2-methoxyethyl) phthalate (DMEP)) (CAS No.: 117-82-8)		mg/kg	50	n.d.
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)		mg/kg	50	n.d.
鄰苯二甲酸二正庚酯 (Di-n-heptyl phthalate) (CAS No.: 3648-21-3)		mg/kg	50	n.d.
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321: 2008, 以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016, 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)		mg/kg	50	n.d.
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)		mg/kg	50	n.d.
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.

# Measurement Check

- ◆ Items: Dimension/Warpage/Surface electric resistance
- ◆ Sample size: 9 pcs tray
- ◆ Result: **Meet Spec.**



Item	Sub_item	Spec.	MAX	MIN	AVG	Result
Dimension	Tray length (a)	322.6±0.25 mm	322.49	322.48	322.485	<b>Meet Spec.</b>
	Tray width (b)	135.9±0.25 mm	135.95	135.93	135.94	
	Tray total thickness (c)	7.62±0.13 mm	7.69	7.62	7.66	
	Unit length (d)	8.3±0.08 mm	8.326	8.309	8.317	
	Unit width (e)	6.3±0.08 mm	6.298	6.297	6.298	
	Unit depth (f)	1.80±0.13 mm	1.813	1.805	1.809	
Warpage	Warpage(before bake)	≤0.70 mm	0.15	0.04	0.08	<b>Meet Spec.</b>
	Warpage(after bake) (bake condition : 48hrs at 150 °C)	≤0.76 mm	0.36	0.15	0.23	
Surface Resistance	Surface Resistance	≥10 <sup>4</sup> and ≤10 <sup>11</sup> Ω	2.6*10 <sup>9</sup>	9.6*10 <sup>5</sup>	6.5*10 <sup>7</sup>	<b>Meet Spec.</b>

# Strapping Test

- ◆ Belt bonding method: Two PP belts at short sides/ One PP belt at long side
  - ◆ Belt Material: PP(Polypro Pylene) belt
  - ◆ Belt bonding force: < 20Kg
  - ◆ Cycle time: 100 times.
- ◆ Sample Size:
  - ◆ IC: 3840pcs
  - ◆ Tray: 8pcs(loading ICs trays) + 1pcs(cover tray)
- ◆ Judge Criteria:

Check item	No Crack	No Chip Out	No Tray Gap
IC	V	V	-
<b>SUNRISE BJ-232</b>	V	-	V

- ◆ Result: **PASS**





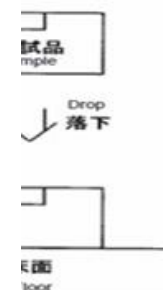
# Dropping Test (Box)

- ◆ Dropping Method: 6 faces, 1 corner, 3 edges
- ◆ Dropping Height: 100 cm
- ◆ Sample size:
  - ◆ IC: 3840pcs
  - ◆ Tray: 8pcs(loading ICs trays) + 1pcs(cover tray)
- ◆ Judge Criteria:

Check item	No Crack	No Chip Out	No Tray Gap
IC	V	V	-
<b>SUNRISE BJ-232</b>	V	-	V

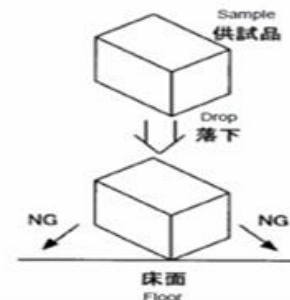
- ◆ Result: **PASS**

Face drop test  
面下試驗



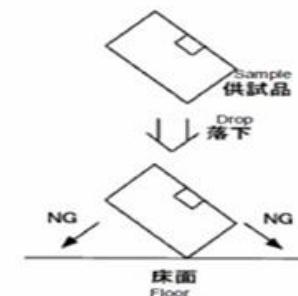
6 faces

Corner drop test  
角落下試驗



1 corner

Edge drop test  
稜落下試驗



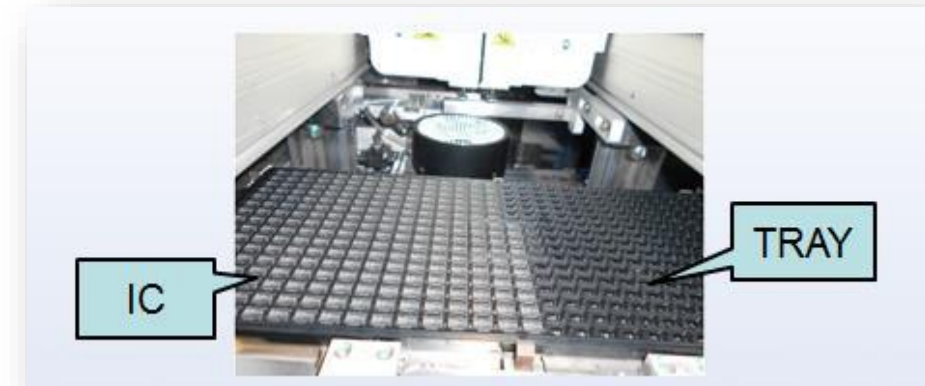
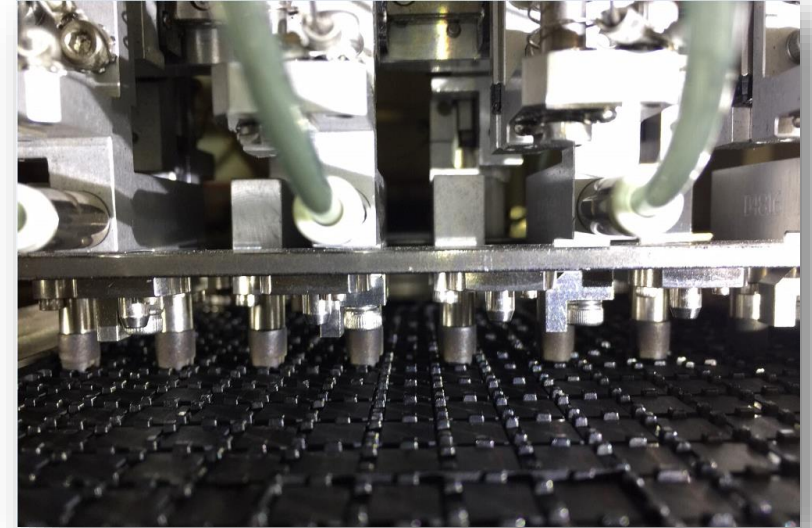
3 edges

# Machine Handling Check

- ◆ Method:
  - ◆ Move tray in machines
  - ◆ Pick and place IC in/out tray.
- ◆ Stages:
  - ◆ Assembly: Singulation saw,
  - ◆ Function Testing: Burn-in, Testing, Lead Scan.
- ◆ Sample size:
  - ◆ IC: 3840pcs
  - ◆ Tray: 8pcs(loading ICs trays) + 1pcs(cover tray)
- ◆ Judge Criteria:

Check item	No Jam	No Crack	No Chip Out
IC	V	V	-
<b>SUNRISE BJ-232</b>	V	-	V

- ◆ Result: **PASS**

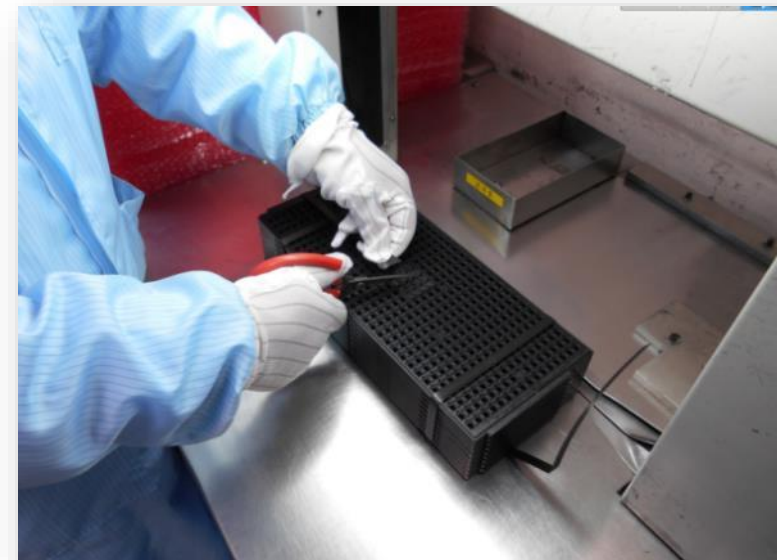


# Cutting PP Belt

- ◆ Method: Cut and remove Two PP belts at short sides / One PP belt at long side
- ◆ Process:
  - ◆ Cut PP belts → Check tray gap → Check IC pop out of pocket if tray gap found
  - ◆ The tray can not be pressed when cutting pp belts
  - ◆ Cycle time: 100 times
- ◆ Sample size:
  - ◆ IC: 3840pcs
  - ◆ Tray: 8pcs(loading ICs trays) + 1pcs(cover tray)
- ◆ Judge Criteria:

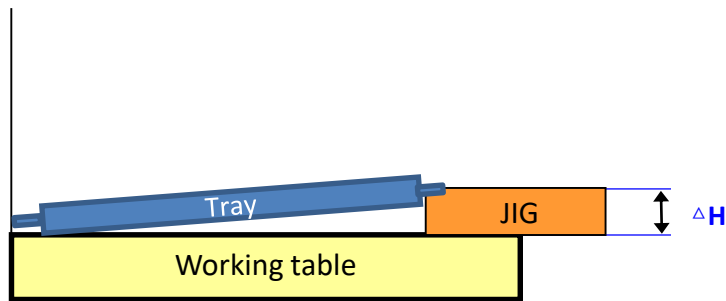
Check item	No Crack	No Chip Out	No IC pop out of pocket
IC	V	V	-
<b>SUNRISE BJ-232</b>	V	-	V

- ◆ Result: **PASS**

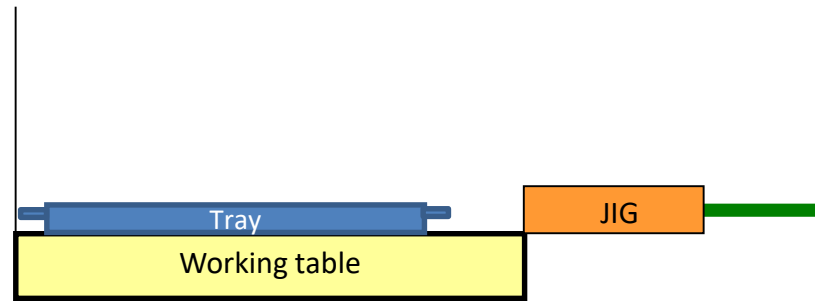


# Dropping Test (Tray)

- ◆ Purpose: Assess the potential risk of IC jump out of tray pocket when tray is collided.
- ◆ Method:
  - ◆ Lift up one side of Tray at height  $\Delta H$ , and remove JIG slowly.
  - ◆ Check IC pop out of pocket.



Use JIG to lift up the Tray  
(  $\Delta H$  )



Remove JIG, check IC pop out of pocket

- ◆ Result:
  - ◆ SUNRISE BJ-232 IC pop out of pocket after  $\Delta H = 10\text{mm}$  as height condition at tray dropping test.

# Manual Handling Check

- ◆ Method: Pop out check by brush Tray stack, Tray tilt view, Pick & Place IC



- ◆ Sample size & Judge criteria

Method	Sample size	No IC pop out of pocket	No Tray Gap	No IC Jam
Pop out check by brush	Tray: 8+1pcs; IC: 3840pcs	V	-	-
Tray stack	Tray: 8+1pcs; IC: 3840pcs	-	V	-
Tray tilt view (30°)	Tray: 8+1pcs; IC: 3840pcs	V	-	-
Pick & Place IC by vacuum pen	480 pcs/Tray	V	-	V

- ◆ Result: **PASS**