



MAT-6200 Die Bonding 測試

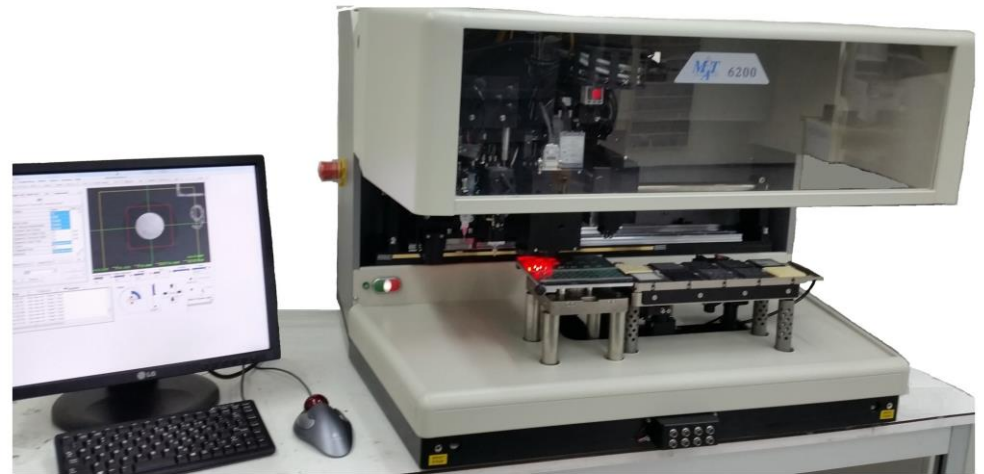
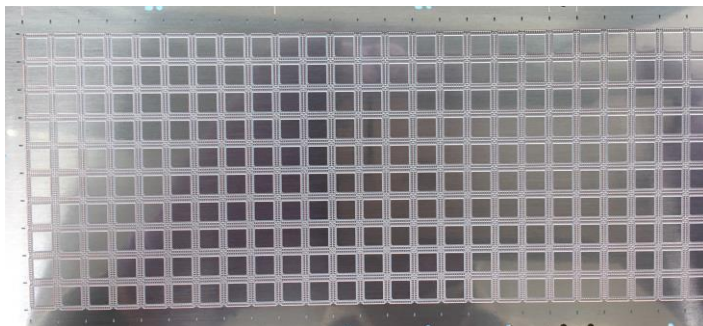


- ◆ 晶粒：3x3mm Die (客戶提供)
- ◆ 基板：258x78mm QFN Substrate (客戶提供)
- ◆ 銀膠：三種銀膠(客戶提供)
- ◆ BLT要求：25 μ m \pm 10 μ m
- ◆ Tilt要求： \pm 10 μ m

銀膠



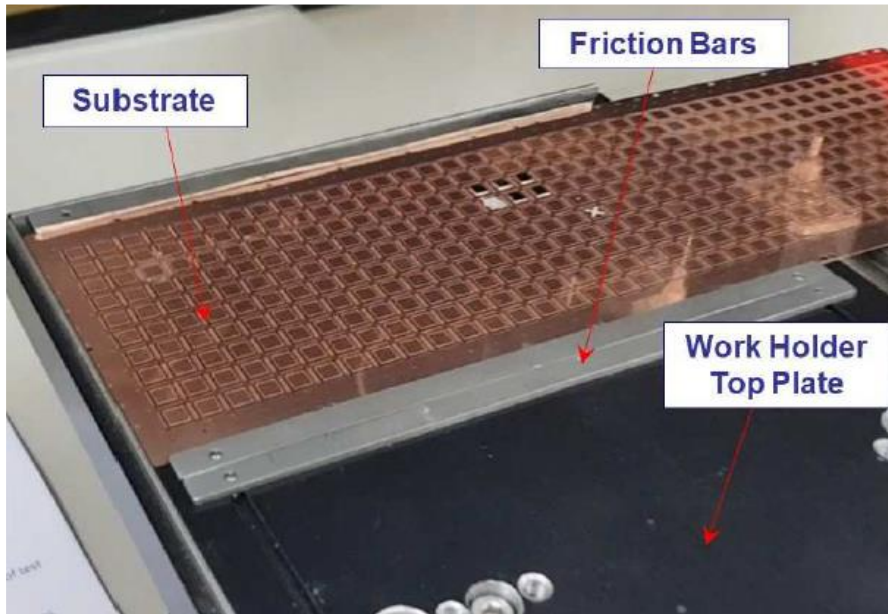
QFN
基板



MAT-6200黏晶機



MAT-6200 Die Bonding 測試樣品

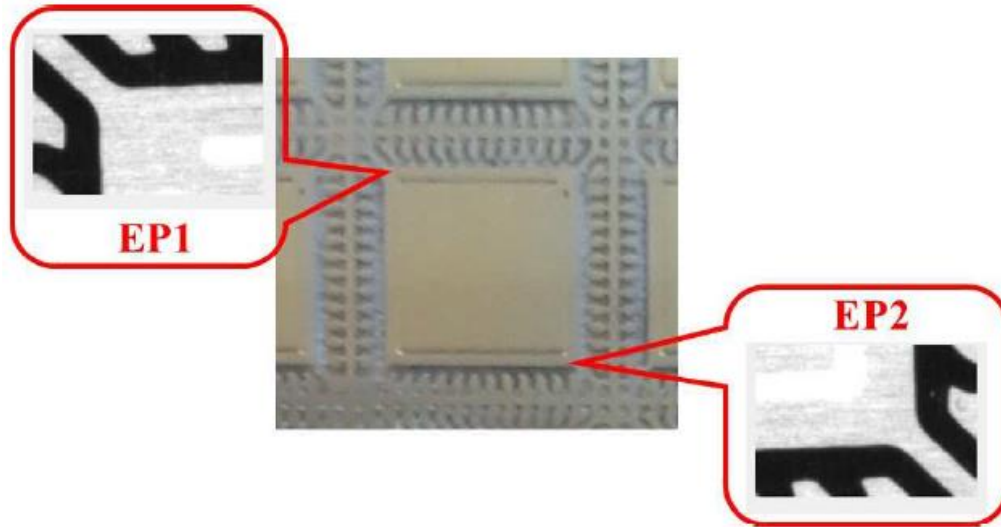


QFN基板架設於Work Holder



Die放置於2" Waffle Pack

MAT-6200 Die Bonding 測試參數



QFN基板影像辨識
(Die Bond區域兩點辨識點)



EP1



EP2

Die影像辨識
(Die區域兩點辨識點)

MAT-6200 Die Bonding 測試參數

MAT model 6200

User Production Programming Utilities Options Windows Help

Height Purge PU Vac. WH V... Theta Center Ind. R...

Die Single Cell Multi Cell Tray Application

Niching

Bond Parameters Cycle Control Fluxing Flipper Ag Sinter Precise
General Waffle Dispensing Stamping Vision PU Parameters

Dispense Set: 27DN12 Tip: 27

Delete New Copy Update Paste: DN12

Parameter Name	Value	Units
Surface Detection	Enabled	
Search Height	1.5	mm
Search Force	400	gr
Search Velocity	3	mm/sec
Ascend Velocity	10	mm
Dispensing Height	0.2	mm
Dispensing Pressure	25	psi
Dispensing Time	100	msec
Dwell Time	0	msec
Tail Release Height	2	mm
Tail Release Time	0	msec
Motor Reverse Time	50	msec
Drip Prevention	Disabled	
On Before Start Line	350	msec
Off Before Finish Line	0	msec

Test Actions Save

Edit Shape New Shape Delete Shape Undo

MAT model 6200

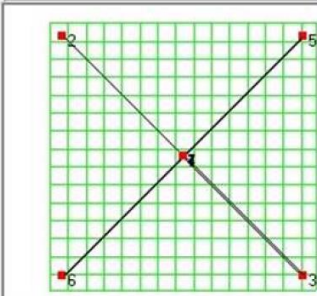
User Production Programming Utilities Options Windows Help

Height Purge PU Vac. WH V... Theta Center Ind. R...

Die Single Cell Multi Cell Tray Application

Niching

Bond Parameters Cycle Control Fluxing Flipper Ag Sinter Precise
General Waffle Dispensing Stamping Vision PU Parameters



Insert Dot
Delete Dot
Clear
Apply First Dot Velocity
Parameters
Save
Undo

Dot#	X (mm)	Y (mm)	Connect to n	Velocity
2	-1.3500	-1.3500	<input checked="" type="checkbox"/>	4.0000
3	1.3500	1.3500	<input checked="" type="checkbox"/>	4.0000
4	0.0000	0.0000	<input checked="" type="checkbox"/>	4.0000
5	1.3500	-1.3500	<input checked="" type="checkbox"/>	4.0000
6	-1.3500	1.3500	<input checked="" type="checkbox"/>	4.0000
7	0.0000	0.0000	<input type="checkbox"/>	4.0000

Test performed with Needle Gauge 27, Needle length: 1/2". No issues observed.



點膠參數



MAT-6200 Die Bonding 測試參數



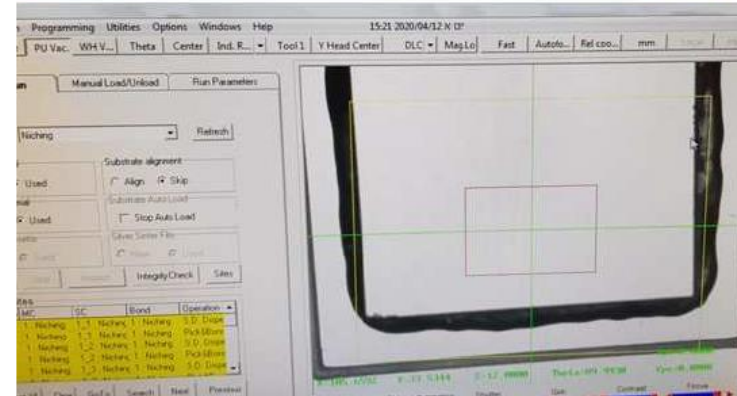
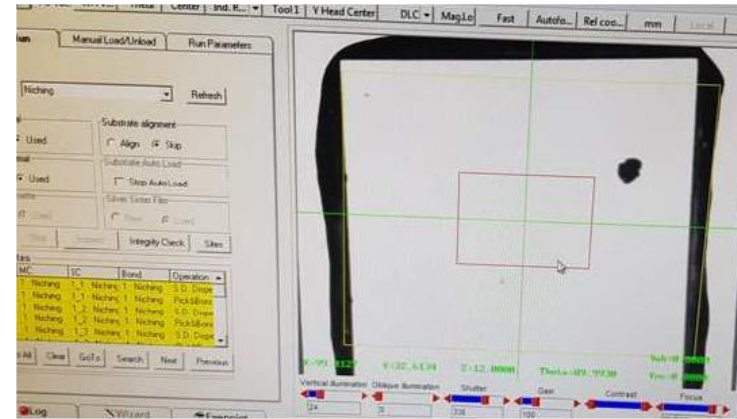
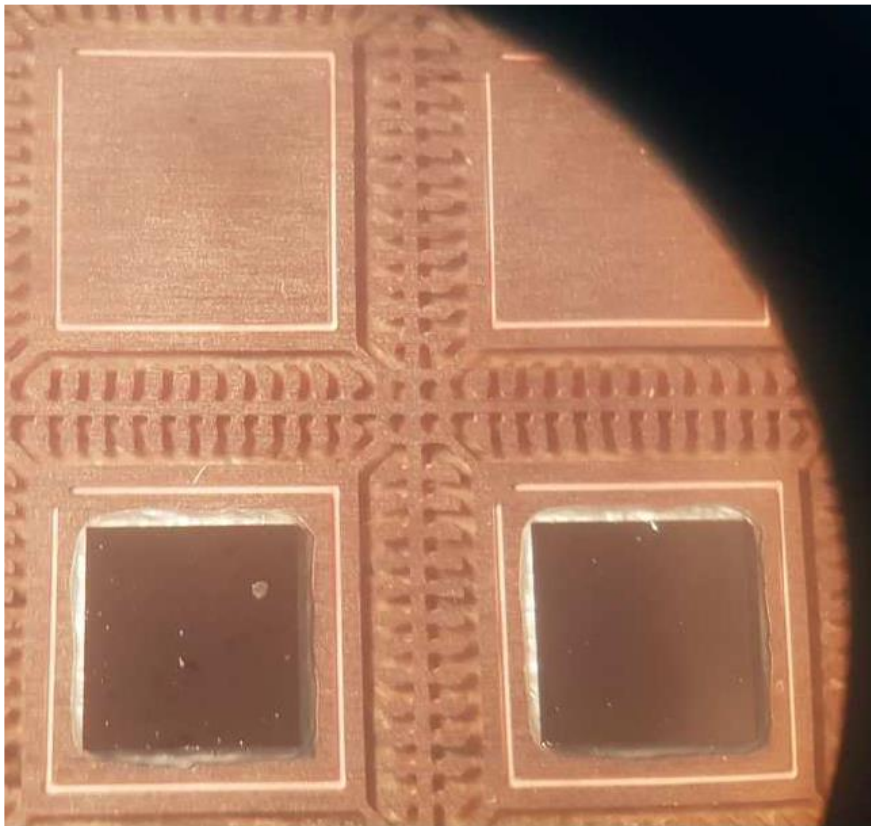
Niching		
Parameter Name	Value	Units
Pickup Tool Rotation	0	
Pickup Tool Name	Tool 1	
Pickup Time	200	msec
Pickup Force	350	gr
Pickup Search Velocity	3	mm/sec
Pickup Search Height	1.5	mm

Pickup參數

Niching		
Parameter Name	Value	Units
Bond Time	1200	msec
Bond Force	600	gr
Search Velocity	3	mm/sec
Search Height	1.5	mm
Bond Thickness Control	Yes	
Bond Line Thickness	0.025	mm
Z Offset	0.04	mm
Contact Time	3000	msec
Scrubbing	None	

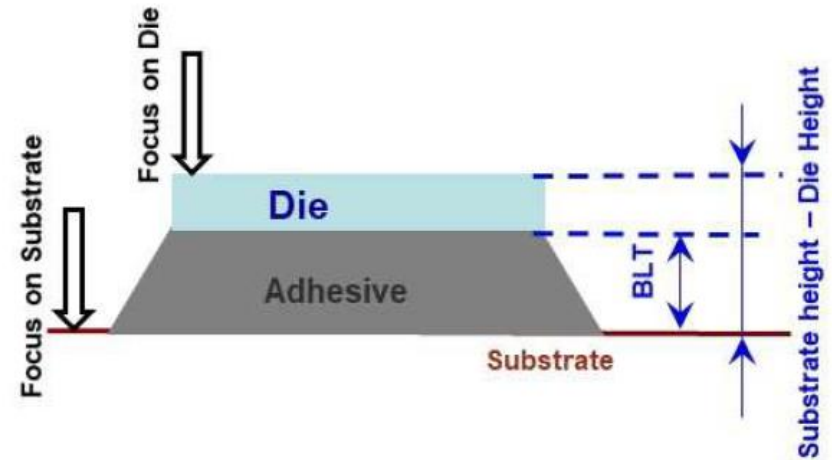
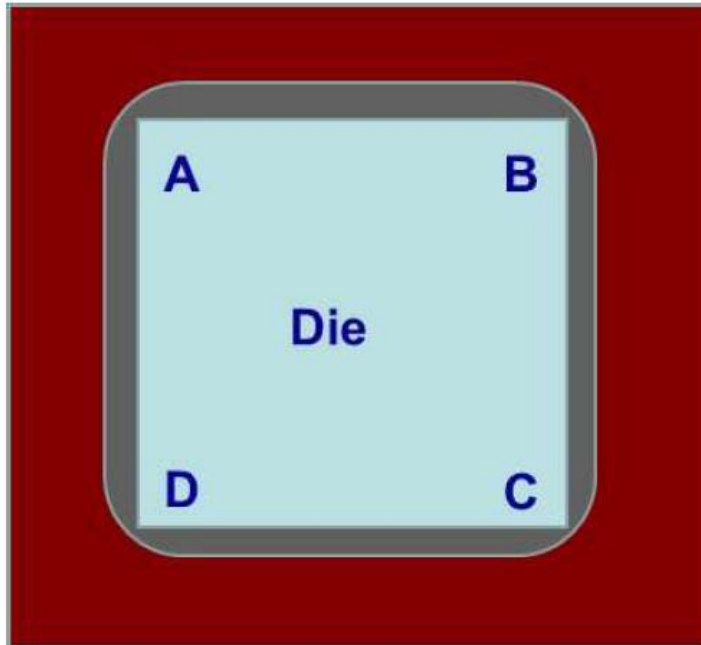
Bonding參數

MAT-6200 Die Bonding 測試結果



可達成100% Wet Out與Fillet Height可控制<50% Die Thickness

MAT-6200 Die Bonding BLT控制



完成Bonding後，MAT6200可量測Die不同位置(A/B/C/D)的BLT與Tilt。



MAT-6200 Die Bonding BLT控制



Bond Line Thickness						
DATE:		April 12, 2020				
CUSTOMER		Niching				
MODEL:	6200	Comments				
S/N:	101	DN12 before curing				
Die no.	Za [μm]	Zb [μm]	Zc [μm]	Zd [μm]	BLT [μm]	TILT [μm]
1	416	415	418	419	22	4
2	417	414	417	417	21.25	3
3	416	420	422	422	25	6
4	418	415	419	419	22.75	4
5	414	416	420	420	22.5	6
6	416	415	422	422	23.75	7
7	416	414	417	417	21	3
8	416	419	420	420	23.75	4
9	417	419	418	418	23	2
10	415	416	419	419	22.25	4

Needle #27 Length 1/2"

銀膠#1：BLT與Tilt符合客戶要求。

Die Thickness	
395	[μm]

AVG	22.725	4.3
Min	21	2
Max	25	7
Range ±	2	2.5

MAT-6200 Die Bonding BLT控制

Bond Line Thickness						
DATE:		April 12, 2020				
CUSTOMER		Niching				
MODEL:	6200	Comments				
S/N:	101	DN17 before curing				
Die no.	Za [μm]	Zb [μm]	Zc [μm]	Zd [μm]	BLT [μm]	TILT [μm]
1	415	416	421	419	22.75	6
2	417	419	420	419	23.75	3
3	419	416	418	417	22.5	3
4	420	424	427	424	28.75	7
5	424	421	422	425	28	4
6	418	418	419	418	23.25	1
1	423	428	429	429	32.25	6
2	425	427	428	430	32.5	5
3	419	418	420	420	24.25	2
4	421	420	428	429	29.5	9
5	423	421	426	428	29.5	7
						Needle #27 Length 1/2"
						Needle #25 Length 1/4"

銀膠#2：BLT與Tilt符合客戶要求。

Die Thickness	
395	[μm]

AVG	27	4.81818182
Min	22.5	1
Max	32.5	9
Range ±	5	4

MAT-6200 Die Bonding BLT控制

Bond Line Thickness						
DATE:		April 12, 2020				
CUSTOMER		Niching				
MODEL:	6200	Comments				
S/N:	101	DN18 before curing				
Die no.	Za [μm]	Zb [μm]	Zc [μm]	Zd [μm]	BLT [μm]	TILT [μm]
1	418	417	419	420	23.5	3
2	418	418	421	421	24.5	3
3	414	416	420	417	21.75	6
4	417	419	419	418	23.25	2
5	421	424	428	427	30	7
6	416	416	420	420	23	4
7	419	418	417	420	23.5	3
8	414	416	420	418	22	6
9	417	417	419	417	22.5	2
10	419	418	420	417	23.5	3

Needle #27 Length 1/2"

銀膠#3：BLT與Tilt符合客戶要求。

Die Thickness	
395	[μm]

AVG	23.75	3.9
Min	21.75	2
Max	30	7
Range ±	4.125	2.5