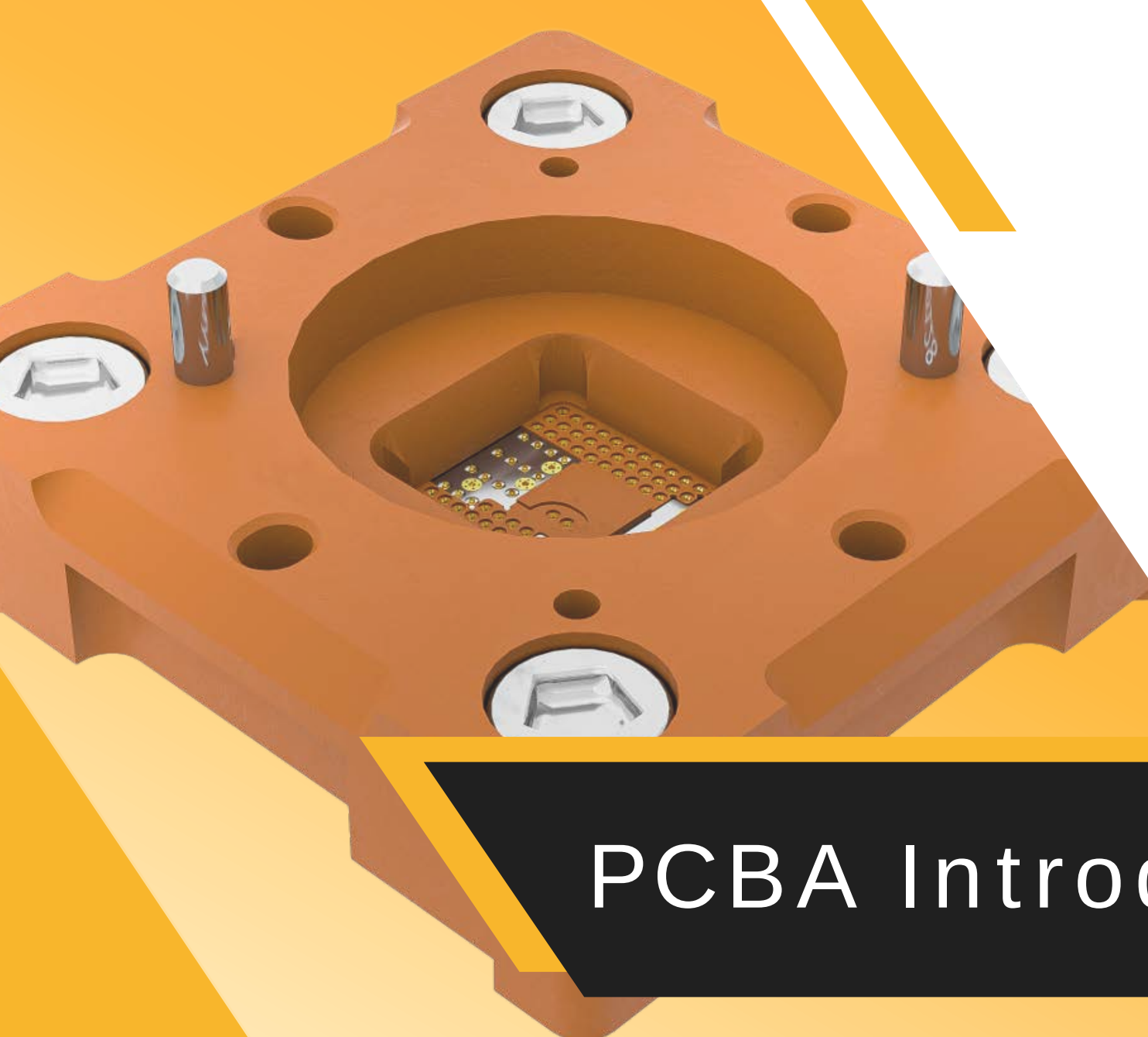




CCP Contact Probes

PCBA Introduction



China Service Location



Shenzhen
Airport



Guangshen
Express

Shenzhen Factory

Founded: 2012

Area: 2000 M

Employees: 30 (FPC+FPCA)

Capacity: 20,000 M2/Month

Shenzhen

Nanjing CS

Taiwan

Tao-Yuan Office

Wu-Tong Electronic Co. Ltd.

Founded: May 2012

Function: Sales/FAE/CS



Company Outlook





Company Milestone





Certification



IATF 16949



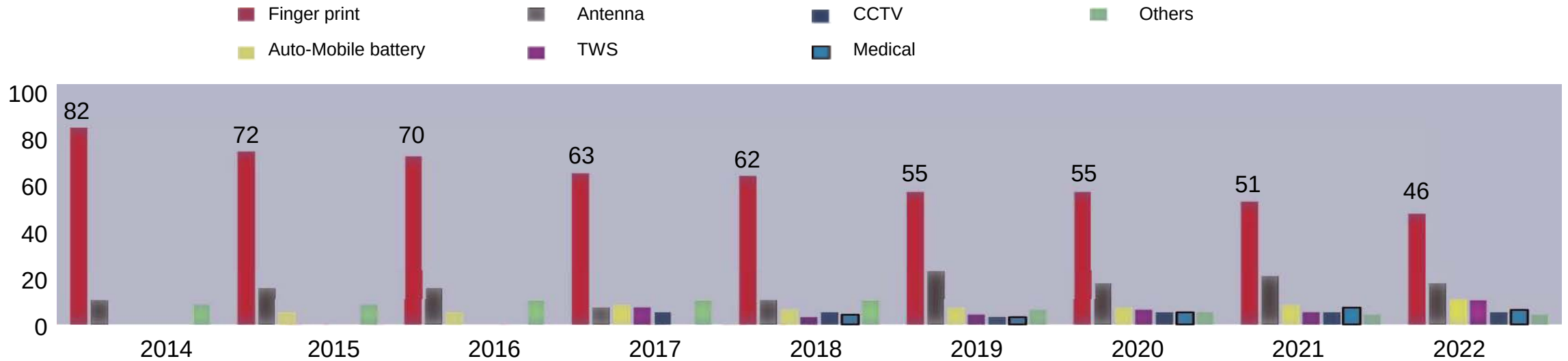
ISO 9001



ISO 14001



Product Application



%	2014	2015	2016	2017	2018	2019	2020	2021	2022
Finger print	82	72	70	63	62	55	55	51	46
Auto-Mobile battery	10	15	15	7	10	22	17	20	17
Antenna	0	5	5	8	6	7	7	8	12
TWS	0	0	0	7	3	4	6	5	10
CCTV	0	0	0	5	5	3	5	5	5
Medical	0	0	0	0	4	3	5	7	6
Others	8	8	10	10	10	6	5	4	4



Testing Equipment



ROHS Optical Spectrum Analyzer



Salt spray test



RA test



Bridge circuit HG2810B LCR



Dimension test



Peel strength test



Testing Equipment



Bending test



Bending test



Testing Equipment



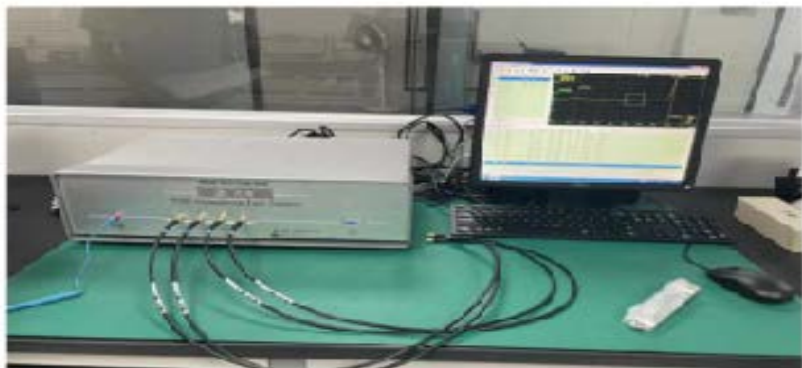
DC Resistance Tester JK2511
(10 $\mu\Omega$ —2K Ω)



Microscope



Scrubber



TDR

Impedance range test :
measuring accuracy : $\pm 1\%$ (@50 Ω)
measure length : 0.05~2m
Incident wave bandwidth : 3G Hz



Insulation Resistance Test
(LK2679D)



Manufacturing - Dry Process



Cutting



Pre-lamination Auto-machine



Drilling



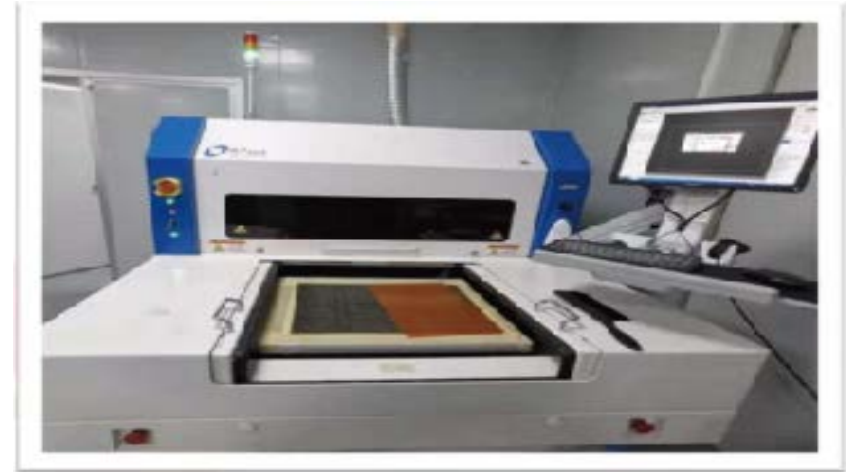
Plasma



Manufacturing - Dry Process



O/S test (Including Kelvin Test)



UV laser



ICT test



Printing spray



Manufacturing - Dry Process



Punch hole



Lamination



Punch outline



AVI



Manufacturing - Dry Process



Pre-lamination Stiffener Auto-machine



Oven



Manufacturing - Dry Process



SMT

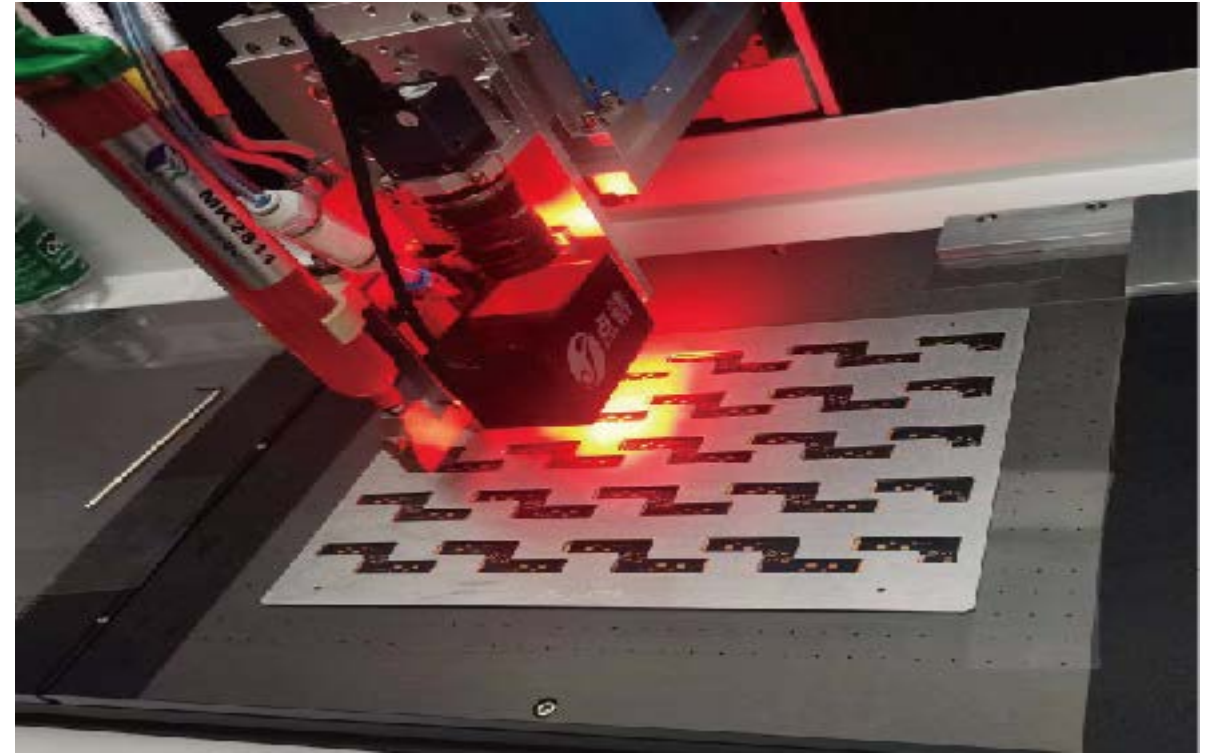
- EKRA-XPRTS
- YAMAHA-YS12
- VITRONIC-XPMII
- Zhenhuaxing-A410



AOI



Manufacturing - Dry Process



Gluings with Spray Machine



Process Capability

FPC		PCB	
Item	Capability	Items	Capability
Layer	1~6L	Layer	1~10L
Thickness	0.05~0.3mm	Thickness	0.15~2mm
Min. Line W/S	1oz: 0.07/0.08mm 1/2oz: 0.06/0.07mm 1/3oz: 0.05/0.06mm	Min. Line W/S	1oz: 0.075/0.1mm 1/2oz: 0.075/0.075mm 1/3oz: 0.075/0.075mm
Min. Aperture	NC: 0.10mm Laser: 0.05mm	Min. Aperture	NC: 0.10mm Laser: 0.05mm
Min. Ring size	D+0.15mm	Min. Ring size	D+0.15mm
Via Hole Thickness	>8um	Via Hole Thickness	>8um
Blind via Aspect Ratio	0.8	Blind via Aspect Ratio	0.8
Blind via Dimple	<10um	Blind via Dimple	<10um
CVL Offset	+/-0.2mm	PSR Offset	+/-0.05mm
PSR Offset	+/-0.05mm	Min. PSR Bridge	min 0.12mm
Steffiner/Adhesion Offset	+/-0.3mm	Min. PAD size	0.18*0.1mm for mini LED
Min. PAD size	0.18*0.1mm for mini LED	Surface Treatment	ENIG, Au: 1~5u" ; 噴錫
Surface Treatment	ENIG, Au: 1~5u"	Outline Tolerance	+/-0.1mm(Local)
Outline Tolerance	+/-0.05mm(Local)	Outline Tolerance	+/-0.1mm(Local)
Finger Offset	+/-0.07mm(Local)	Finger Offset	+/-0.1mm
Thickness Tolerance	normal: +/-0.05 ; adv: +/-10%	Thickness Tolerance	normal: +/-0.05 ; adv: +/-10%
Silkscreen Offset	+/-0.3mm	Silkscreen Offset	+/-0.3mm
Silkscreen Symbol	QR code(4x4mm 13bits) 、barcode	Silkscreen Symbol	QR code(4x4mm 13bite) 、barcode



Process Capability

Rigid-Flex	
Item	Capability
Layer	2L~6L
Thickness	0.3~1.6mm
Min. Line W/S	1oz: 0.07/0.08mm 1/2oz: 0.06/0.07mm 1/3oz: 0.05/0.06mm
Min. Aperture	NC: 0.15mm Laser: 0.05mm
Min. Ring size	D+0.15mm
Via Hole Thickness	>12um
Blind via Aspect Ratio	0.8
Blind via Dimple	<10um
CVL Offset	+/-0.2mm
PSR Offset	+/-0.05mm
Min. PSR Bridge	Min 0.12mm
Steffiner/Adhesion Offset	+/-0.3mm
Min. PAD size	0.18*0.1mm for mini LED
Surface Treatment	ENIG, Au: 1~5u"
Outline Tolerance	+/-0.1mm(Local)
Finger Offset	+/-0.07mm(Local)
Thickness Tolerance	normal: +/-0.05 ; adv: +/-10%
Silkscreen Offset	+/-0.3mm
Silkscreen Symbol	QR code(4x4mm 13bits) 、 barcode
Resin Flow	<0.5mm



Products Lead Time

Structure	Sample		Mass Production	
	Bare Bard	With Component	Bare Bard	With Component
Single Sided	4 Days	5 Days	1 Week	7~14 Days
Double Sided	7 Days	9 Days	1 Week	12~15 Days
Multi-Layers	10 Days	12 Days	2 Week	3 Week
RFPC	12 Days	14 Days	4 Week	5 Week



Main Material Source

FCCL		FR4 core		PP	
Company	Taiflex Sytech Aplus Dupont	Company	Nanya Wazam	Company	Doosan
PI Thickness	0.5 & 1 & 2mil	Core Thickness	0.05~1.0mm	Thickness	25~100um
Ad Thickness	0/18/25 um	Copper Thickness	1/3~2oz		
Copper Thickness	1/3~2oz	Tg	150~170		

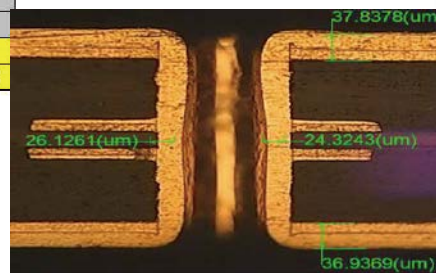
Coverlay		Stiffener		Adhesion	
Company	Taiflex Sytech Aplus	Company	Aplus	Company	3M & Tesa
PI Thickness	0.5 & 1mil	PI Thickness	2~10mil	Thickness	All type
Ad Thickness	15/18/20/25/35um	Ad Thickness	35um		



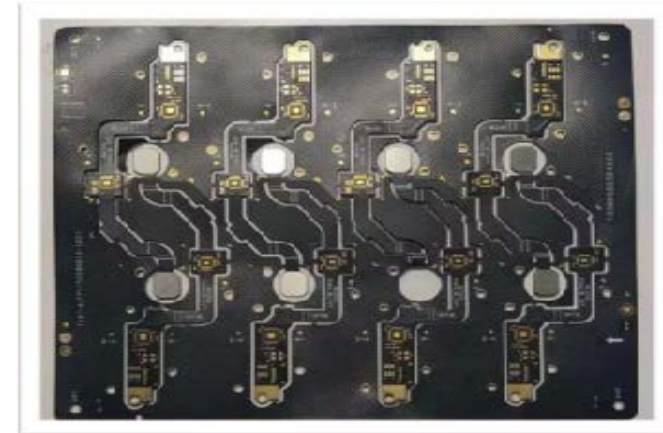
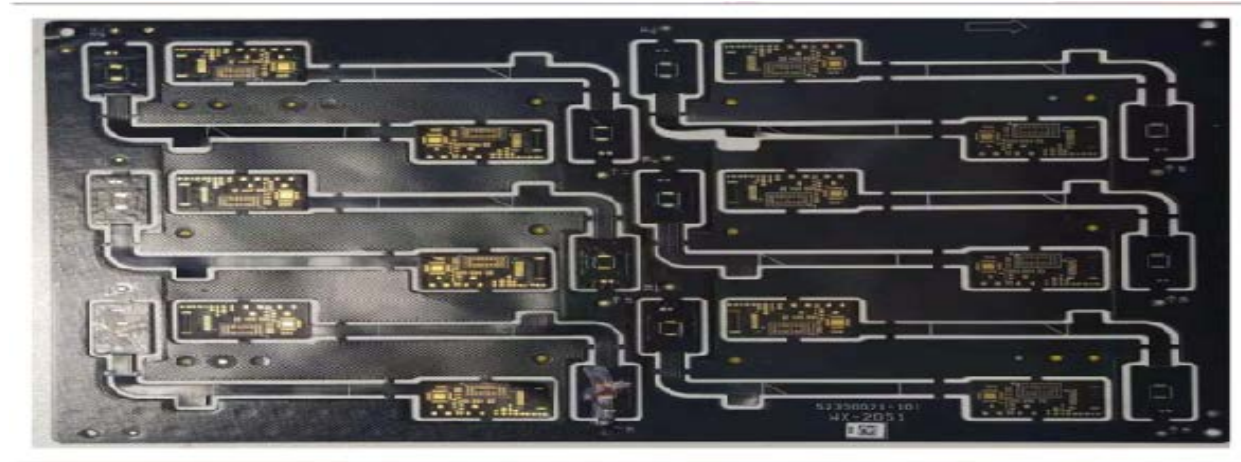
Products - LCM Module 4L RF

STACKUP

Layer Description	Type	Std Thk	Estimated thickness		
			A	B	C
TSM	LPI (黑色)	20.0	20.0		
Cu-Plating	Copper plating	20.0	20.0		
L1 CU	Copper	18.0	12.0		
L1 FR4 ADH	ADH	25.0	20.0		
L1 FR4	FR4	50.0	50.0		
L1/L2 ADH	ADH	25.0	25.0		
TOP EMI	EMI (黑色)	15.0		15.0	
TOP PI STIFF	PI	200.0			200.0
	ADH	25.0			23.0
L2 CVL	PI	12.5	12.5	12.5	12.5
	ADH	20.0	15.0	15.0	15.0
Cu-Plating	Copper plating	12.0	0.0	0.0	0.0
	RA Copper	12.0	11.0	11.0	11.0
L2/L3 BASE	PI	25.0	25.0	25.0	25.0
	RA Copper	12.0	11.0	11.0	11.0
Cu-Plating	Copper plating	12.0	0.0	0.0	
L3 CVL	ADH	20.0	15.0	15.0	
	PI	12.5	12.5	12.5	
L3/L4 ADH	ADH	25.0	20.0		
L4 FR4	FR4	50.0	50.0		
L4 FR4 ADH	ADH	25.0	25.0		
L4 CU	ED Copper	18.0	12.0		
Cu-Plating	Copper plating	20.0	20.0		
BSM	LPI (黑色)	20.0	20.0		
			396.0	117.0	297.5
			400±50	120±30	300±30



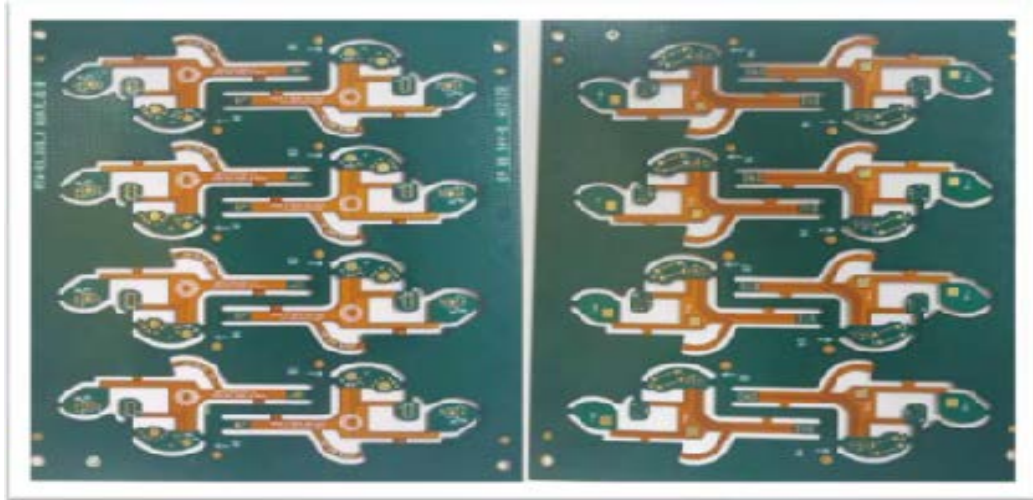
4L RFPC (Min. 0.3mm)



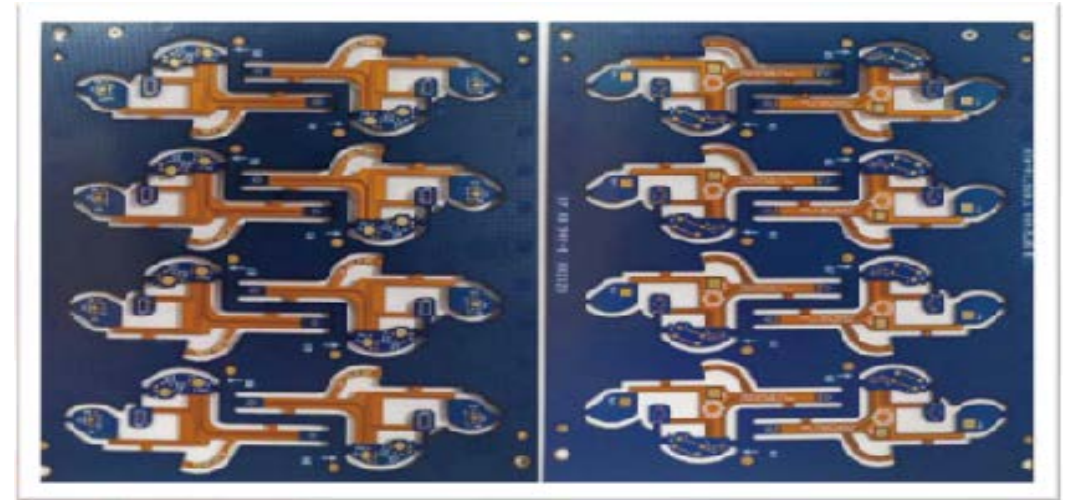


Products - 4L RF

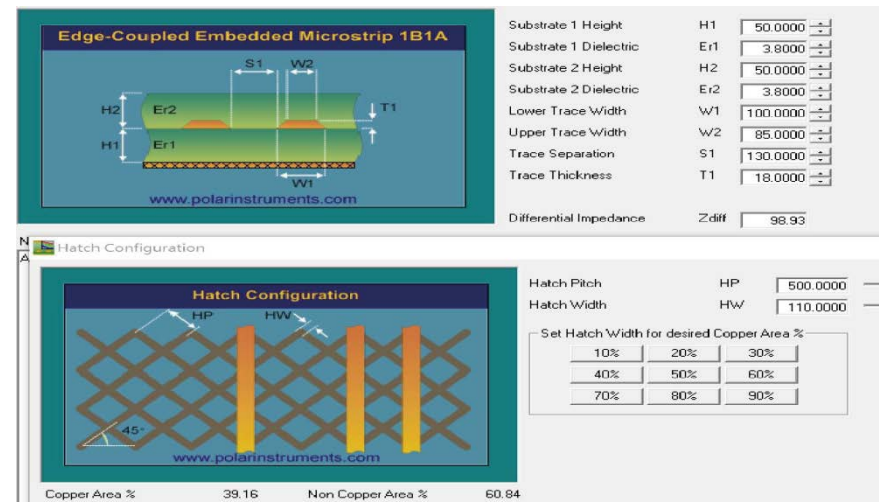
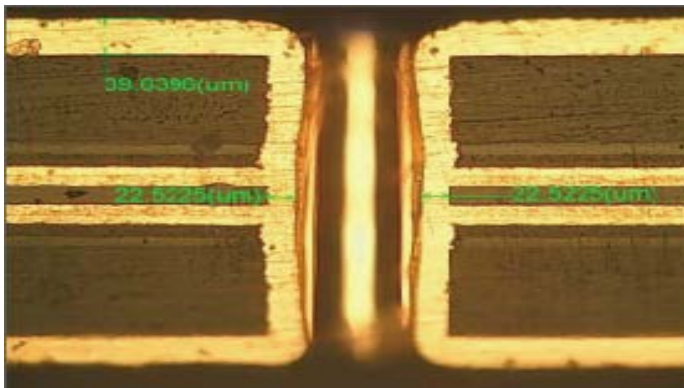
Green Solder Mask



Blue Solder Mask

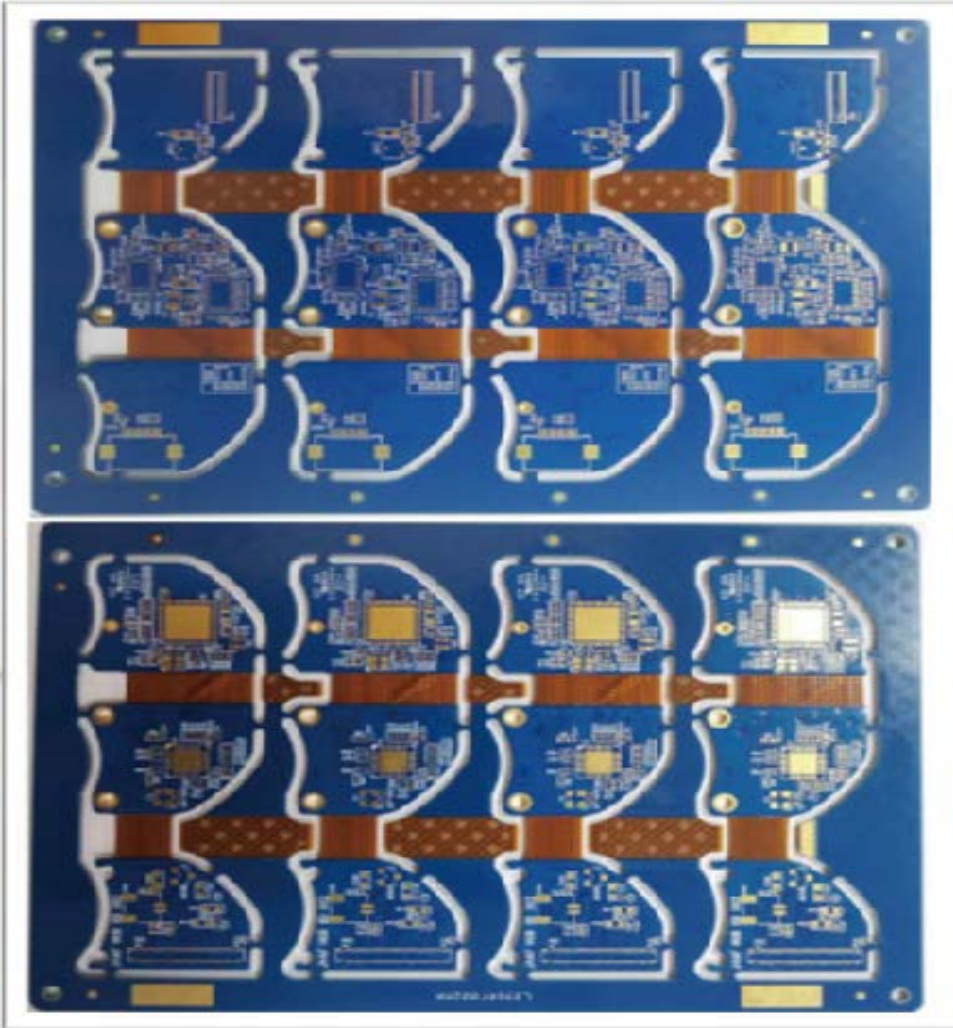


4L Through Hole T=0.5



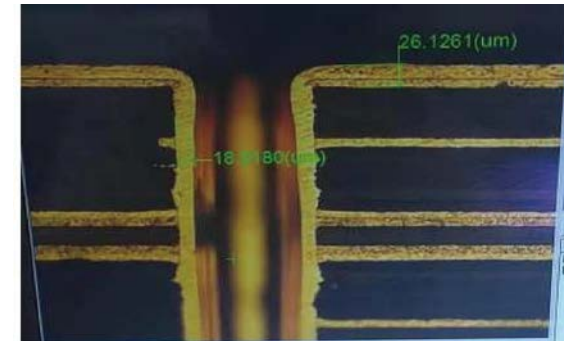


Products - 6L RF



6L Through Hole T=1.0

Layer	Type	FPC Stack Up		Impedance Simulation	
		Thickness(um)		Single-end	Differential
		FPC+PCB	FPC		
	LP1	20	0		90+10
L1	Copper plating	11			
	Copper	18			
	base film	300			8/6mils
	EPOXY	25			
L2	Coverlay pi	12.5	12.5		
	Adhesive(cvl)	25	25		
	CuPlating	11	11		
	Copper	0.5OZ	18		
	EPOXY	12.5	12.5		
	base film	12.5	12.5		
L3	EPOXY	12.5	12.5		
	Copper	0.5OZ	18		2.6/8mils
	Adhesive(cvl)	25	25		
	Coverlay pi	12.5	12.5		
L4	EPOXY	25	25		
	Copper	0.5OZ	18		
	EPOXY	12.5	12.5		
	base film	12.5	12.5		
	EPOXY	12.5	12.5		
	Copper	0.5OZ	18		
L5	CuPlating	11	11		
	Adhesive(cvl)	25	25		
	Coverlay pi	12.5	12.5		
	EPOXY	25			
L6	base film	300			
	Copper	18			8/6mils
	Copper plating	11			
	LP1	20			
Total:um		1054.5	306.5		
mm		1.05	0.307		



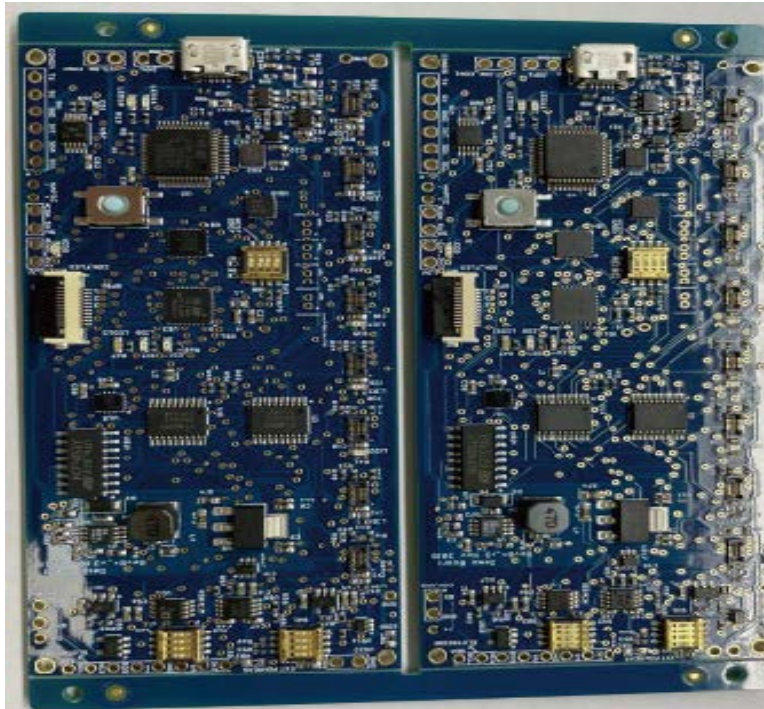
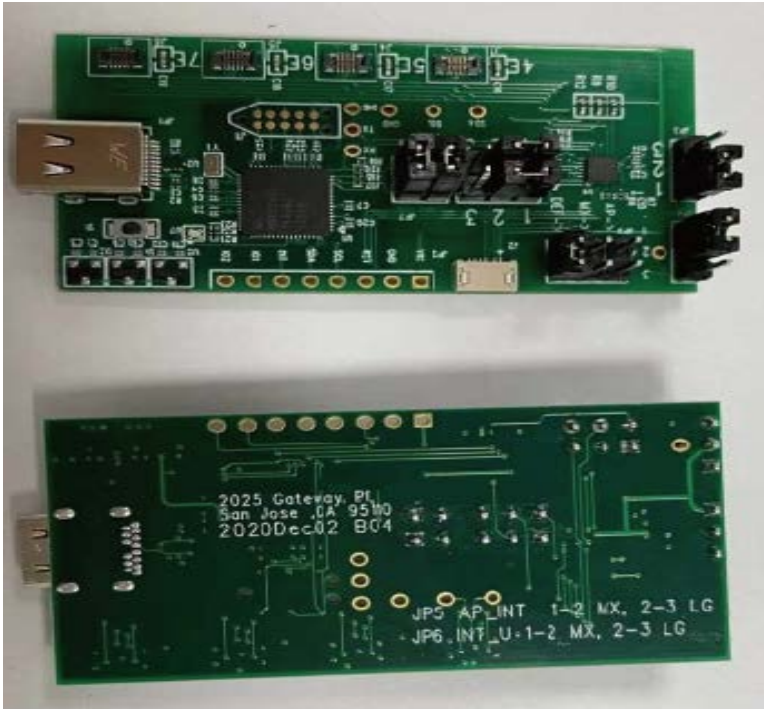


Products - Antenna Module Double Side





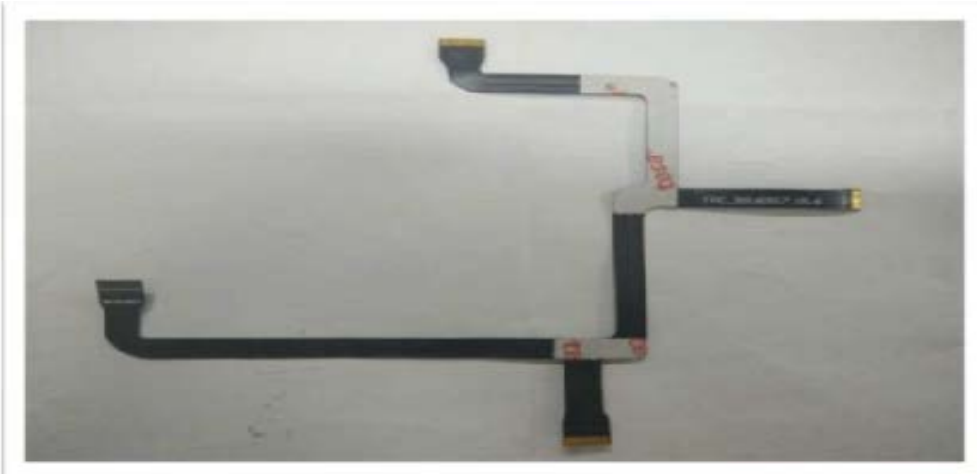
Products - 4L PCBA



- Customer Consign or Supply
- Master Purchase Component (New Product Development with Market Price)

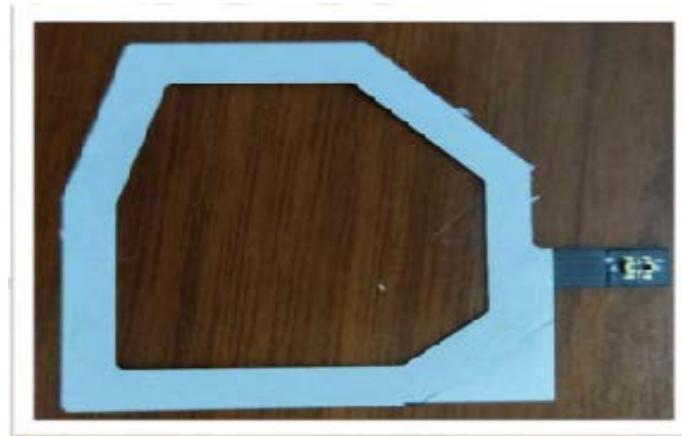


Products - Pogo Pin Double Side





Products - Double Side



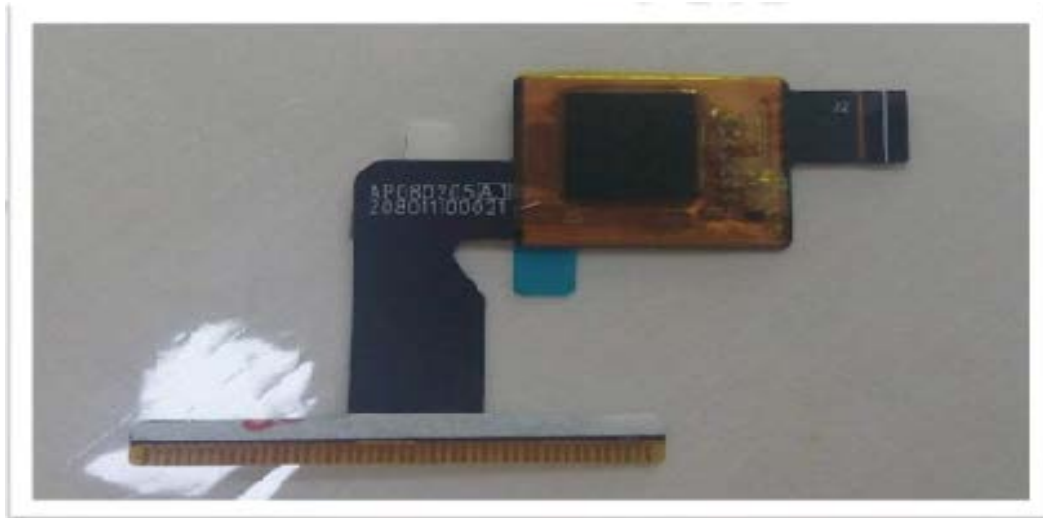
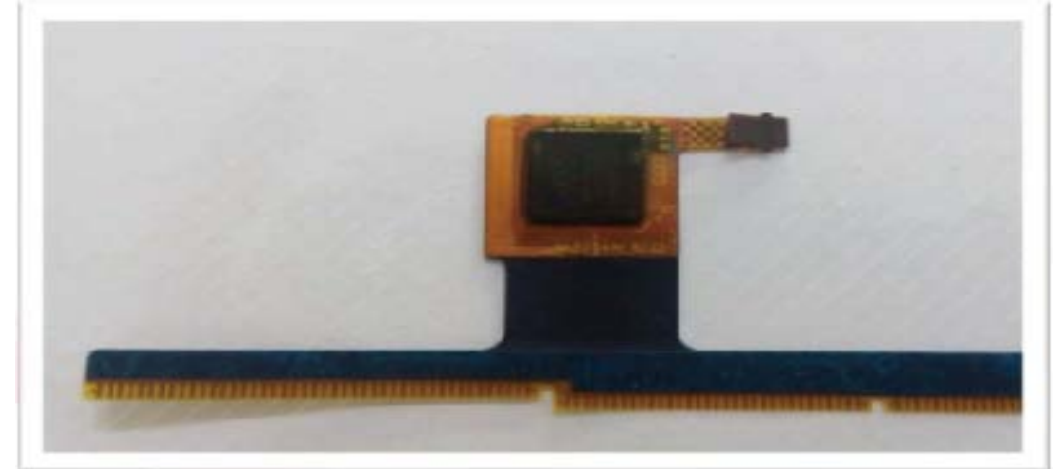


Products - Double Side



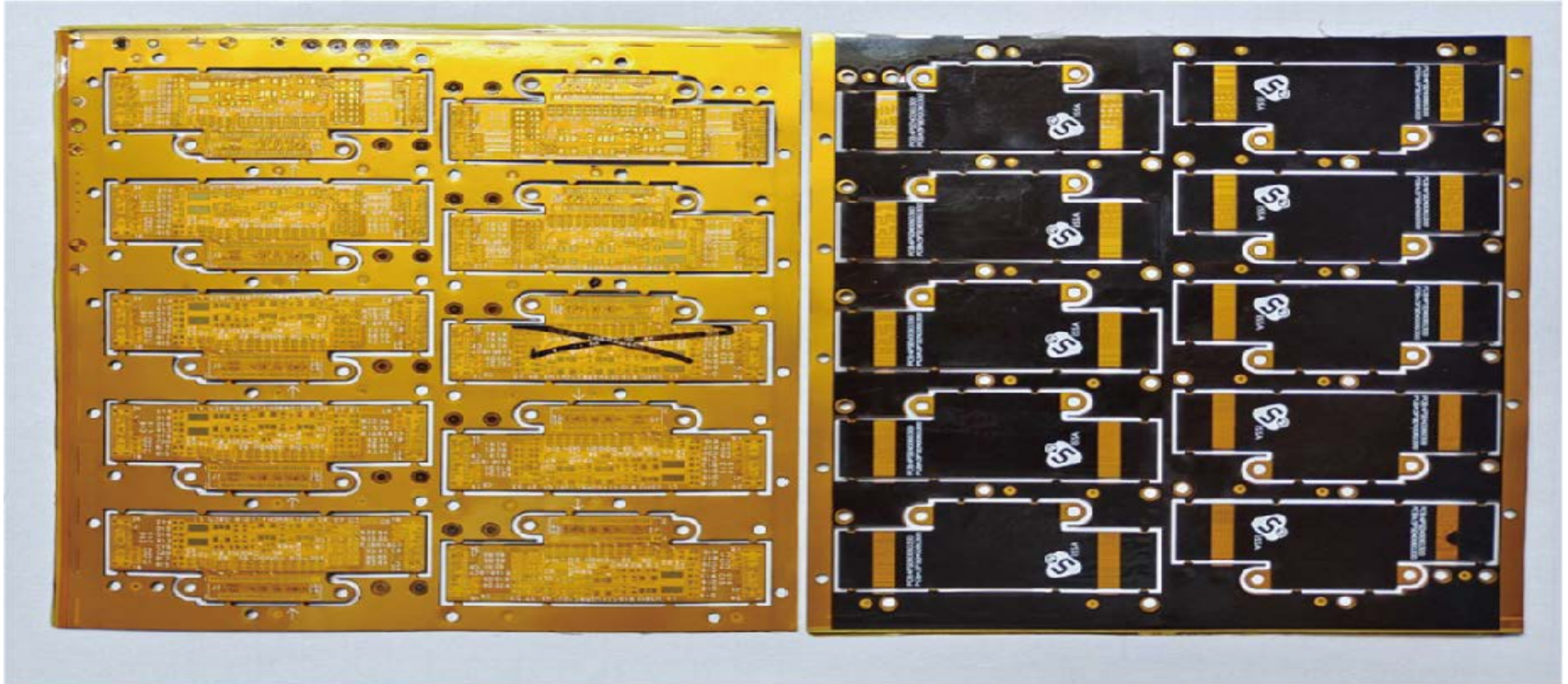


Products - CTP Double Side





Products - 4L for AR/VR





CCP Contact Probes

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