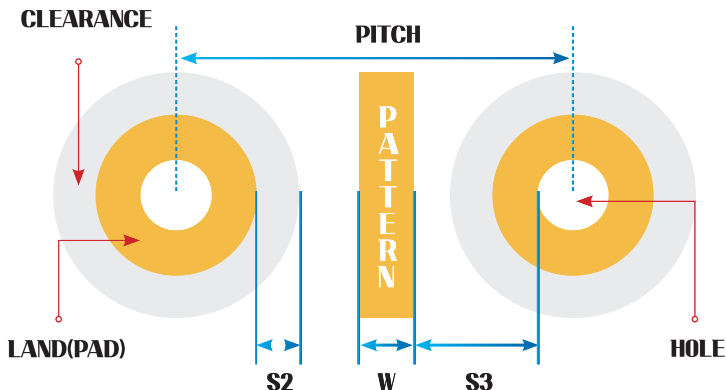
FINE PITCH CAPABILITY

SMART
KOREA PCB

High Multi Layer Board (BGA Pitch)

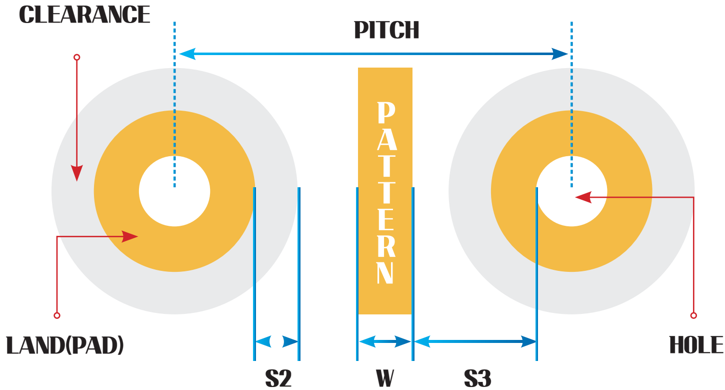


	NO	Pitch	0.2Pitch	0.25Pitch	0.3Pitch	0.35Pitch	0.4Pitch
Inner Layer	1	Drill Size	0.075Ø	0.075Ø		0.125Ø	0.15Ø
	2	Pad Size	0.15mm	0.19mm	0.23mm	0.25mm	0.28mm
	3	Trace Width -W	0.045mm	0.065mm	0.07mm	0.07mm	0.08mm
	4	Clearance (Drill to Trace) -S3	0.04mm	0.055mm	0.055mm	0.0775mm	0.085mm
	5	Annular Ring (Drill to Pad) -S2	0.0375mm	0.055mm	0.055mm	0.0625mm	0.065mm
Outer Layer	1	Pad Size	0.15mm	0.20mm	0.25mm	0.3mm	0.33mm
	2	Space (Pad to Pad)	0.05mm	0.05mm	0.05mm	0.05mm	0.07mm
	3	Annular Ring (Drill to Pad)	0.0375mm	0.0625mm	0.065mm	0.0875mm	0.09mm
	4	PCB Thickness (Normal)	STACK-UP 문의				
		PCB Thickness (Special)	STACK-UP 문의				

SMART
KOREA PCB

FINE PITCH CAPABILITY

Socket Board (Pitch)

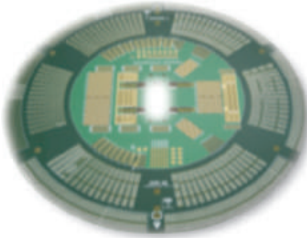


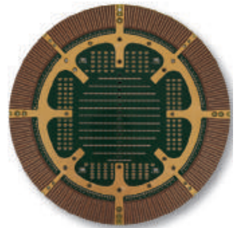
	NO	Pitch	0.2Pitch	0.2Pitch	0.25Pitch	0.3Pitch	0.35Pitch	0.4Pitch
Inner Layer	1	Drill Size	0.075Ø	0.095Ø	0.105Ø	0.125Ø	0.175Ø	0.21Ø
	2	Pad Size	0.15mm	0.15mm	0.2mm	0.22mm	0.28mm	0.32mm
	3	Trace Width -W	0.045mm	0.045mm	0.05mm	0.05mm	0.055mm	0.06mm
	4	Clearance (Drill to Trace) -S3	0.04mm	0.03mm	0.048mm	0.062mm	0.06mm	0.065mm
	5	Annular Ring (Drill to Pad) -S2	0.0375mm	0.0225mm	0.0475mm	0.0475mm	0.0525mm	0.055mm
Outer Layer	1	Pad Size	0.15mm	0.15mm	0.20mm	0.24mm	0.29mm	0.33mm
	2	Space (Pad to Pad)	0.05mm	0.05mm	0.05mm	0.06mm	0.06mm	0.07mm
	3	Annular Ring (Drill to Pad)	0.0375mm	0.0225mm	0.0475mm	0.0575mm	0.0575mm	0.06mm
	4	PCB Thickness (Normal)	1.0T	1.1T	1.2T	2.0T	2.5T	2.5T
		PCB Thickness (Special)	-	-	-	4.0T	5.0T	5

FAB CAPABILITY

Description	Standard / Inch(mm)	Advanced / Inch(mm)
Max. Number of Layers	80 Layer	
Min. Copper Thickness	1/3 oz (12 ㎛)	
Min. Board Thickness	0.0157"(0.4mm)	
Max. Board Thickness	0.250"(6.35mm)	0.299"(7.6mm)
Layer to Layer Registration	±0.0031"(0.08mm)	±0.0016"(0.04mm)
Impedance Control	±10%	±5%
Warpage (inch per inch)	0.008"(0.2mm)	0.006"(0.15mm)
Imaging	Standard / Inch(mm)	Advanced / Inch(mm)
Min. Trace Width - Outer layer	0.0039"(0.10mm)	0.0035"(0.089mm)
Min. Trace Width - Inner layer	0.0028"(0.07mm)	0.002"(0.05mm)
Min. Trace Space - Outer layer	0.0039"(0.10mm)	0.0035"(0.089mm)
Min. Trace Space - Inner layer	0.0035"(0.089mm)	0.0028"(0.07mm)
Min. Annular Ring	0.004"(0.1mm)	0.0032"(0.07mm)
BGA Pitch	0.0158"(0.4mm)	0.012"(0.3mm)
Solder Mask	Standard / Inch(mm)	Advanced / Inch(mm)
Min. Solder Mask Dam	0.004"(0.1mm)	0.003"(0.075mm)
Solder Mask Clearance	0.002"(0.05mm)	0.0014"(0.035mm)
Min. SMT Pad Spacing	0.0079"(0.2mm)	0.006"(0.15mm)
Solder Mask Thickness	0.0007"(0.018mm)	
Hole	Standard / Inch(mm)	Advanced / Inch(mm)
Min. Hole Size(M/C)	0.0050"(0.125mm BVH 기준)	0.0038"(0.095mm BVH 기준)
Hole Tolerance	±0.003"(0.0762mm)	±0.002"(0.051mm)
Aspect Ratio	21.3 : 1	32 : 1 =>38 : 1
Surface Finishing	Standard / Inch(mm)	Advanced / Inch(mm)
HASL	300μ" ~340μ" (7.0 ㎛ ~ 8.0 ㎛)	
Immersion Gold	2μ" ~5μ" (0.05 ㎛ ~ 0.127 ㎛)	
Gold Finger	30μ" ~ 60μ" (0.762 ㎛ ~ 1.5 ㎛)	
Nickel Plating	150μ" ~ 300μ" (3.81 ㎛ ~ 7.62 ㎛)	
Electronic Hard Gold	30μ"(0.78 ㎛) ~ 50μ"(1.27 ㎛)	
Out-Line	Standard / Inch(mm)	Advanced / Inch(mm)
Board Outline Tolerance	±0.008"(±0.2mm)	±0.005"(±0.127mm)
Guide Rail	0.400" ~ 0.300"(10.0mm ~ 7.6mm)	
Beveling	20˚, 30˚, 45˚	
Panel Size	Standard / Inch(mm)	Advanced / Inch(mm)
Max. Panel Size	23.622"(600mm) x 31.496"(800mm)	

PROBE CARD PCB

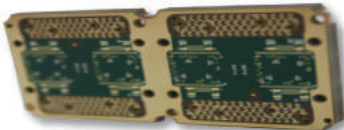


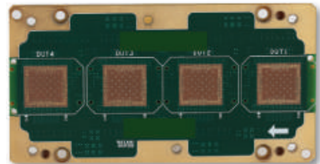


Board Specification

Specification	Value
Layers	~ 76
Thickness	7.2mm (283mil)
Material	FR4 / NELCO / PANASONIC
Blind Via / Buried Via / Back Drill Via In Pad / BGA Flatness Control	

HIFIX PCB

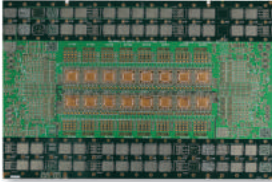


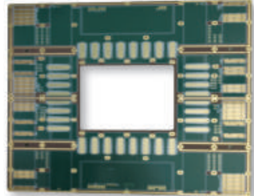


Board Specification

Specification	Value
Layers	~60
Thickness	6.3mm (250mil)
Material	FR4 / NELCO / PANASONIC
BGA Pitch	0.4 / 0.35 / 0.3mm
Aspect Ratio	34:1
Blind Via / Buried Via / Back Drill Via In Pad / BGA Flatness Control	

LOAD BOARD PCB



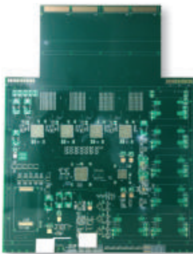


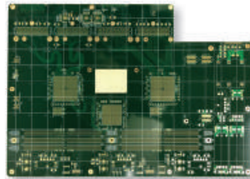
Board Specification

Layers	~ 76
Thickness	8mm (320mil)
Material	FR4 / NELCO / PANASONIC
BGA Pitch	0.4 / 0.35 / 0.3mm
Aspect Ratio	38:1

Blind Via / Buried Via / Back Drill
Via In Pad / BGA Flatness Control

SYSTEM BOARD / INSTRUMENT BOARD



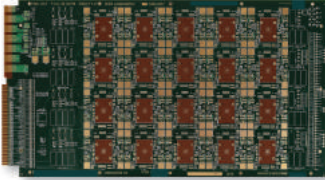


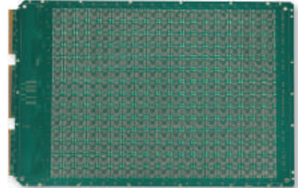
Board Specification

Layers	~ 50
Material	FR4 / NELCO
Board Size	600 x 750mm

Back Drill / Via In Pad

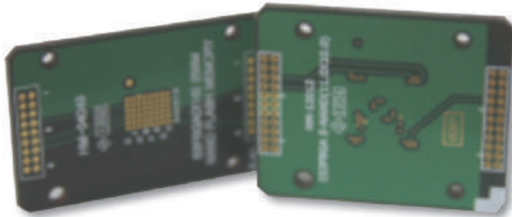
BURNIN BOARD PCB





Board Specification	
Layers	~ 36
Thickness	1.6 ~ 4.8mm (62 ~ 188mil)
Material	FR5 / NELCO / POLYIMIDE
Size	680 x 590mm
BGA Pitch	0.4 / 0.35mm
Via In Pad / Laser Drill / Back Drill	

BURN IN SOCKET BOARD PCB



Board Specification	
Layers	~ 20
Material	FR4 / NELCO / POLYIMIDE
BAG Pitch	0.3 / 0.25mm
Blind Via / Back Drill / Via In Pad	

SMART
KOREA PCB

HIGH ASPECT RATIO ATE BOARD CAPABILITY & DEVELOPMENT PLAN

Item	BGA Hole Pitch			
	0.5mm	0.4mm	0.35mm	0.3mm
Drill Size	0.2mm (7.8mil)	0.15mm (6mil)	0.125mm (5mil)	0.11mm (4.3mil)
Trace Width	70um (2.7mil)	60um (2.3mil)	60um (2.3mil)	60um (2.3mil)
Clearance	110um (4.3mil)	90um (3.5mil)	85um (3.3mil)	65um (2.6mil)
CURRENT CAPABILITY				
Board Thick.	6.35mm (250mil)	5mm (200mil)	4mm (158mil)	2.4mm (95mil)
Aspect Ratio	32:1	33:1	33:1	20:1
UNDER DEVELOPMENT (TO BE COMPLETED WITHIN Q1 OF 2018)				
Board Thick.	7.6mm (300mil)	5.8mm (228mil)	5mm (200mil)	3mm (118mil)
Aspect Ratio	38:1	38:1	41:1	27:1

5. FINE PITCH ATE BOARD CAPABILITY

SMART
KOREA PCB

Item		BGA Hole Pitch				2018년 (Pitch t상승 개념)	2019년 (Pitch t상승 개념)
		0.5mm	0.4mm	0.35mm	0.3mm	0.25mm	0.2mm
Drill size		0.2mm	0.15mm	0.125 mm	0.11mm	0.075 mm	0.075 mm (0.05)
Trace Width		70um	60um	60um	60um	50um	45um
Clearance		110um	90um	85um	65um	50um	40um
Board Thick		6.3mm	5mm	3.4mm	2.4mm	1.3mm	1.4mm
Aspect Ratio		32:1	33:1	28:1	20:1	17:1	19:1
2018 Q4 (드릴 가공 한계 개념)	Board Thick	7.6mm	5.7mm	4mm	Under Review	Under Review	Under Review
	Aspect Ratio	38:1	38:1	32:1			
2019 Q2 (드릴 가공 한계 개념)	Board Thick	8mm	6.3mm	5mm			
	Aspect Ratio	40:1	42:1	41:1			

SMART KOREA PCB

BASE MATERIAL

Material	Brand	Part Number	TG	Dielectric Constant (DK)	Dielectric Loss (DF)	Application
FR4 High Tg	DOOSAN	DS-7409S	173℃	4.5 ~ 4.8 (1MHz)	0.035 (1MHz)	Multi layers
	ISOLA	185HR	180℃	4 (2GHz)	0.02 (2GHz)	
	NELCO	N4000-29	185℃	4.3 (1GHz)	0.015 (2.5GHz)	
LOW Dk & LOW Df	PANA SONIC	Megtron6	185℃	3.7 (1GHz)	0.002 (1GHz)	High Speed
		Megtron7	200℃	3.6 (1GHz)	0.002 (1GHz)	
	NELCO	N4000-13 N4800-20	210℃	3.7 (1GHz)	0.009 (2.5GHz)	
		N4000-13SI	210℃	3.4 (1GHz)	0.008 (2.5GHz)	
		Meteorwave 1000	215℃	3.7 (2GHz)	0.004 (2GHz)	High Speed
		Meteorwave 2000	215℃	3.4 (2GHz)	0.003 (2GHz)	
		Meteorwave 4000	170℃	3.5 (2GHz)	0.002 (2GHz)	
POLYI -MIDE	KYOCERA	TLC-W-583	240	4.6 ~ 4.8 (2GHz)	0.006 (1GHz)	High Temp.
	ARLON	85N	260	4.2 (1MHz)	0.006 (1GHz)	High Temp.

2019

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