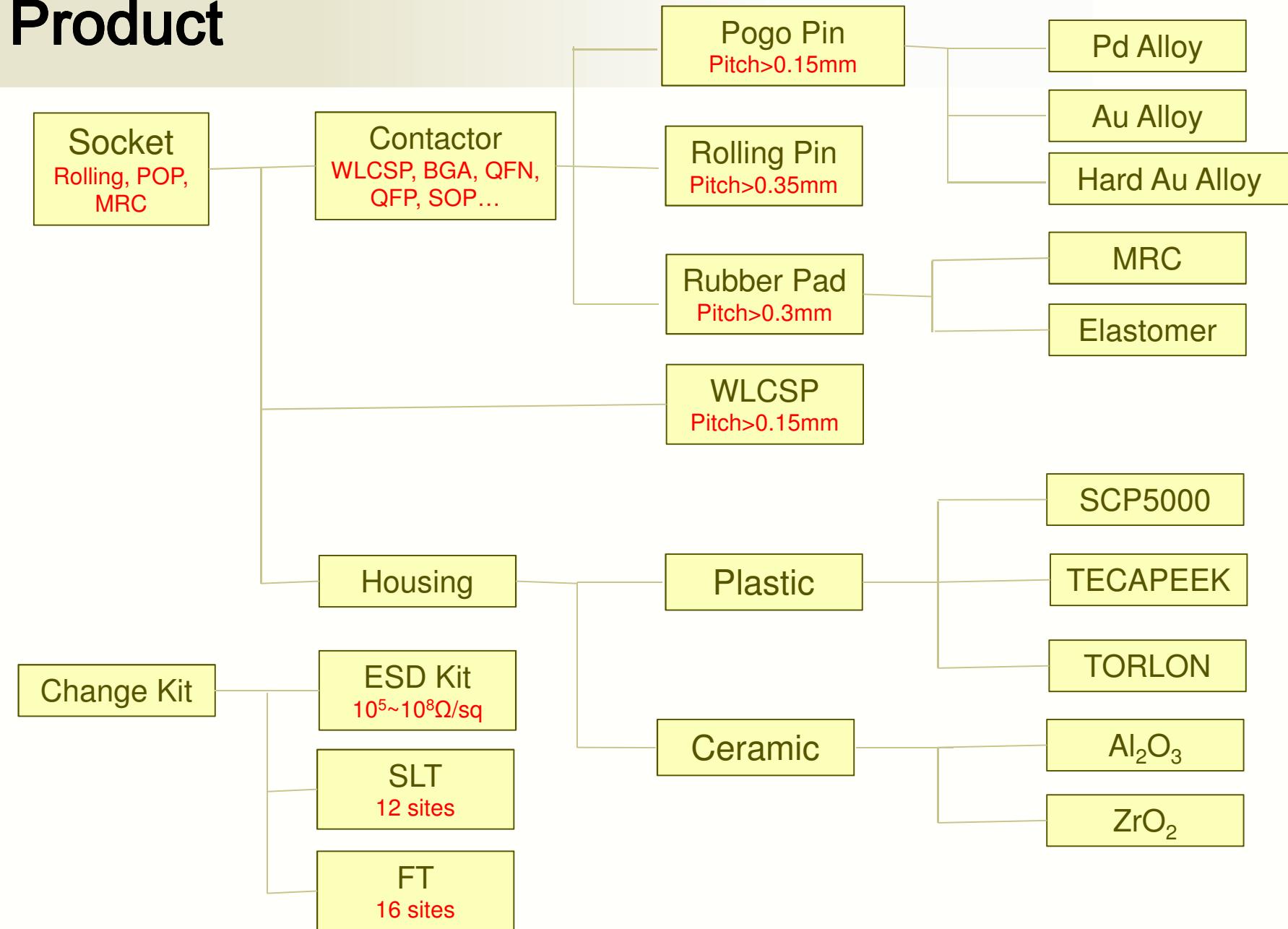


佳婕科技股份有限公司

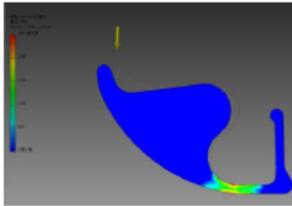
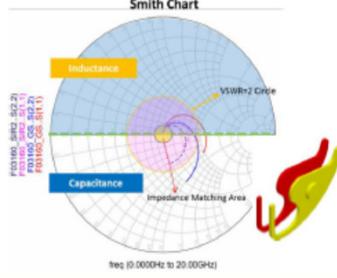
- Business Item:
 - Semiconductor IC test socket products, testing handler conversion kits, and optoelectronics.
 - Leader of Taiwan manufacturer for mobile communication module testing fixtures.



Product

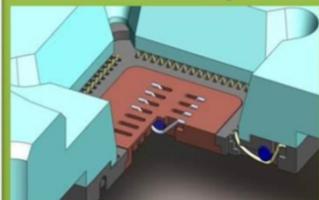
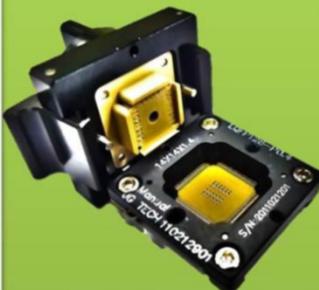


Socket Service & Technology

Design	<ol style="list-style-type: none">1. stress for operated lifetime and electrical performance of application bandwidth for novel contactor design.2. 3D stress and electromagnetic design tools at new products development <p>Design Tool: 3D stress and electromagnetic design tools</p>   
Manufacture	<ol style="list-style-type: none">1. CNC: 22 sets, Lathes: 3 sets, Roku-Roku: 6 sets, Grinder: 4 sets2. Flexible productivity, customized for world wide customer satisfaction.
FAE service	<ol style="list-style-type: none">1. On-line and Just-in-time support (repair/ replacement/ debug...etc.).2. socket/change kit repair/modification, any type of socket even not from JG.3. ...

Socket Products

Rolling Technology



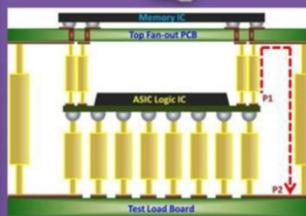
Self Cleaning
For
Leadless PKG

Pogo Solution



Profuse
Probe
Selection

PoP Application



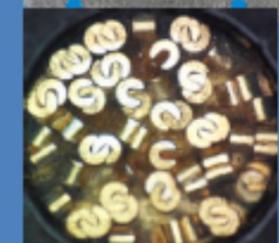
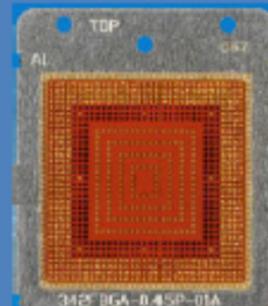
ASIC/Memo.
Testing

Change Over Kit



Multi-site
And ESD
Capability

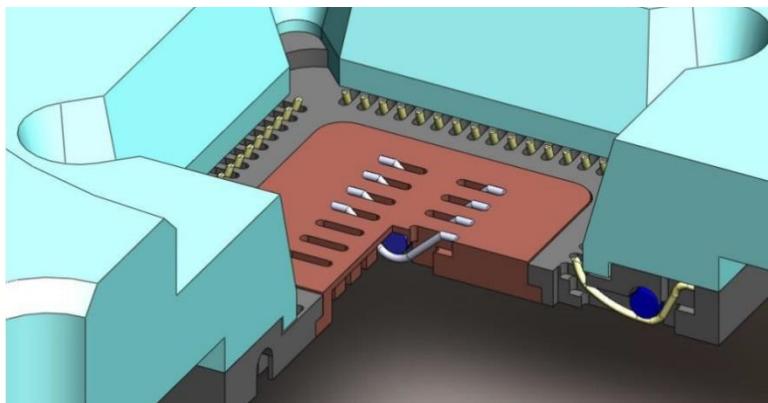
MRC Solution



High Speed
Performance

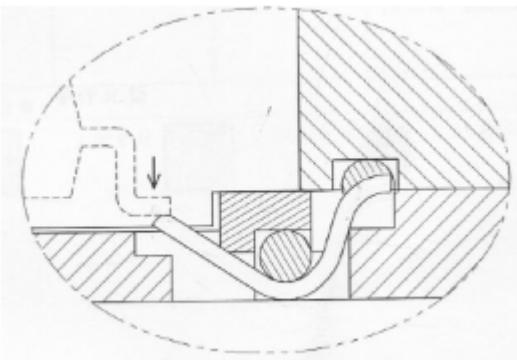
Rolling Technology

Electrical Specifications	F0401 Contact Socket(Pitch0.4)
Electrical Length	1.63mm
Inductance(GSSG)	0.83nH
Capacitance(GSSG)	0.26pF
Insertion Loss(GSG)	-1dB@20.1GHz
Return Loss(GSG)	-20dB@7GHz
DC Resistance	34.8mohm
Mechanical specifications	
Physical Contact Length	2.0mm
Contact Force	50grams
Service Environment	-40 to 150°C
Housing Material	Torlon 5030
Contact Insertion Life	>350.000(Matte Tin)

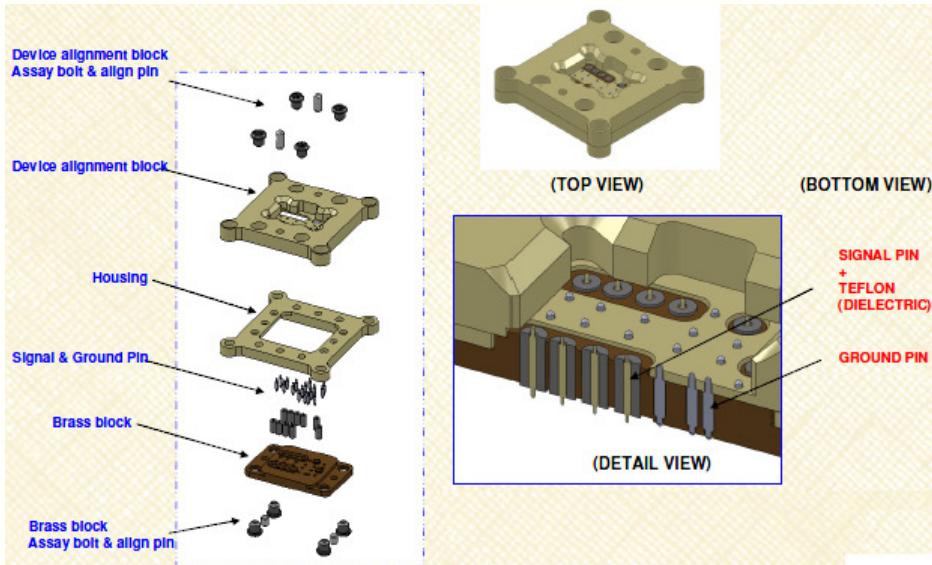


F0401 Contactor Benefits:

Shorter Electrical Length.
Low Inductance & Capacitance.
High Bandwidth with RL & IL.
Good Impedance Control.
Excellent Signal Integrity.
Maximum Crosstalk Immunity.
Low Consistent Contact Resistance.
Higher First Yield.
Good Contact Profile.
Oxide-Cutting Wipe Action.
Low Frequent Cleaning.
Near-Device Decoupling.



Pogo Solution



Base Material	BeCu	Pd Alloy	SK4
HV	350	430	700

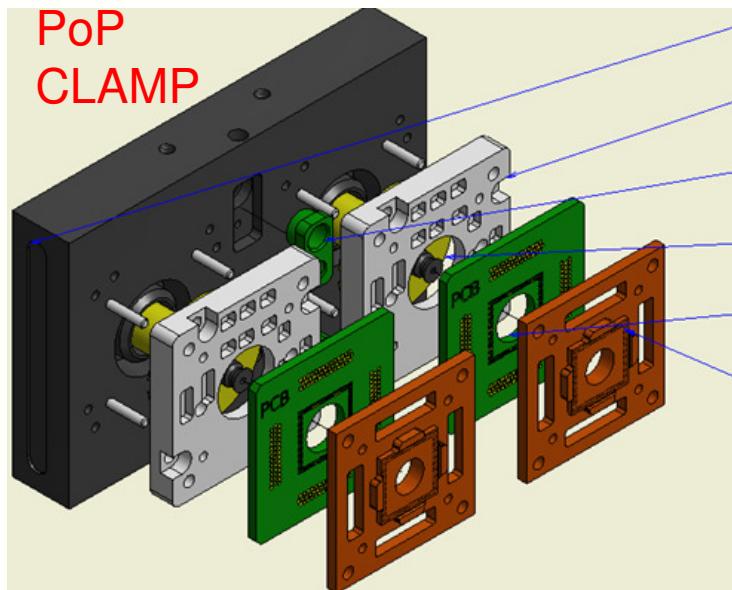
Plunger	Pd Alloy	Au Alloy	Hard Au Alloy
HV	430	280	650
Use For	Pure Tin	NiPdAu	NiPdAu
Cost	High	Low	High

Spring	SWP	Stainless
Service Environment	-40 to 120°C	-40 to 200°C

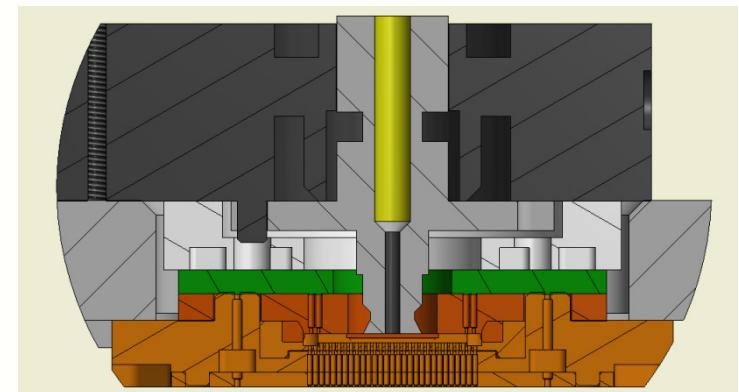
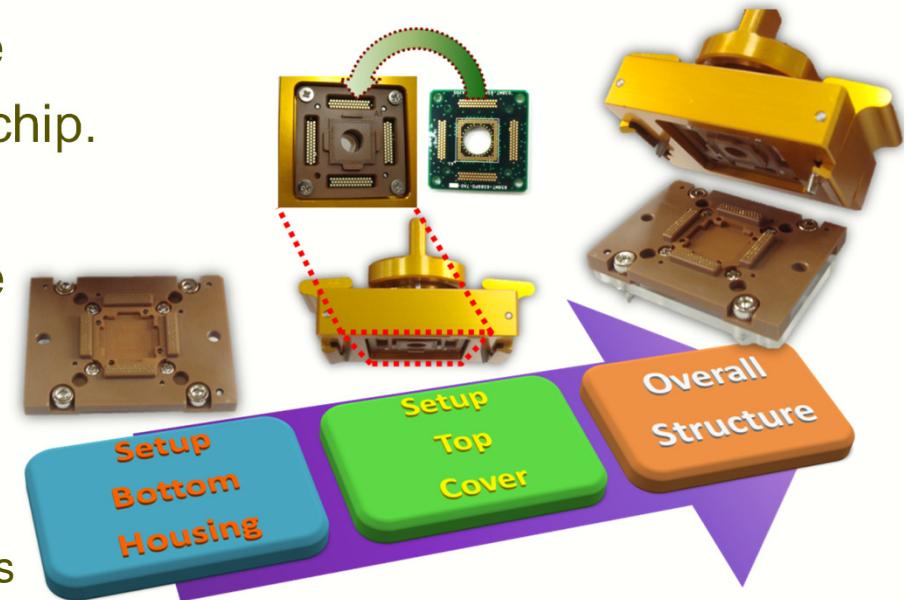
Pogo pin Specification	
Pitch	0.35~1.27mm
Electrical Length	<2mm
DC Contact Resistance	<50mohm
Current Rating	>10A continuous
Service Environment	-40 to 150°C
Housing Material	TECAPEEK or Vespel

PoP Application

- Memory Test Solution of PoP Structure
 - ASIC IC regards as a known good chip.
- ASIC IC Test Solution of PoP Structure
 - Memory on Load Board
 - Memory on Adapt Board



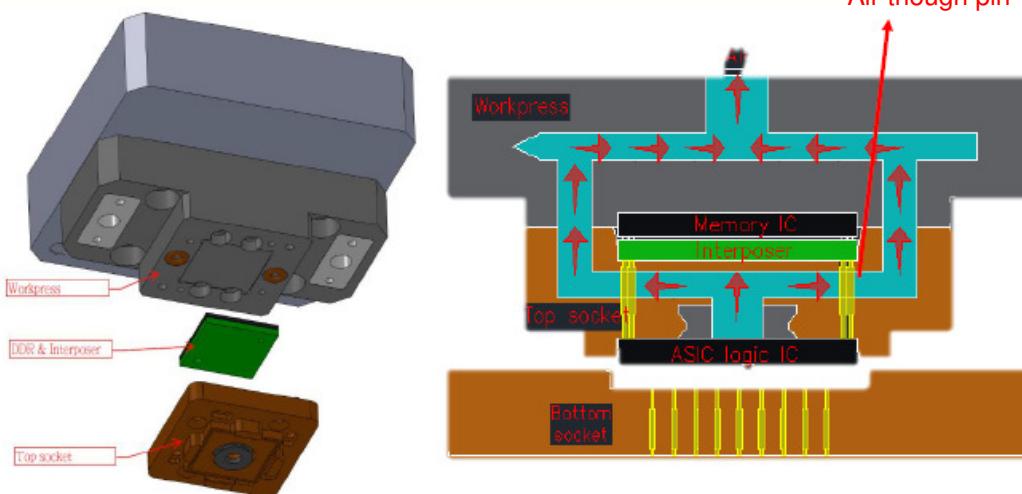
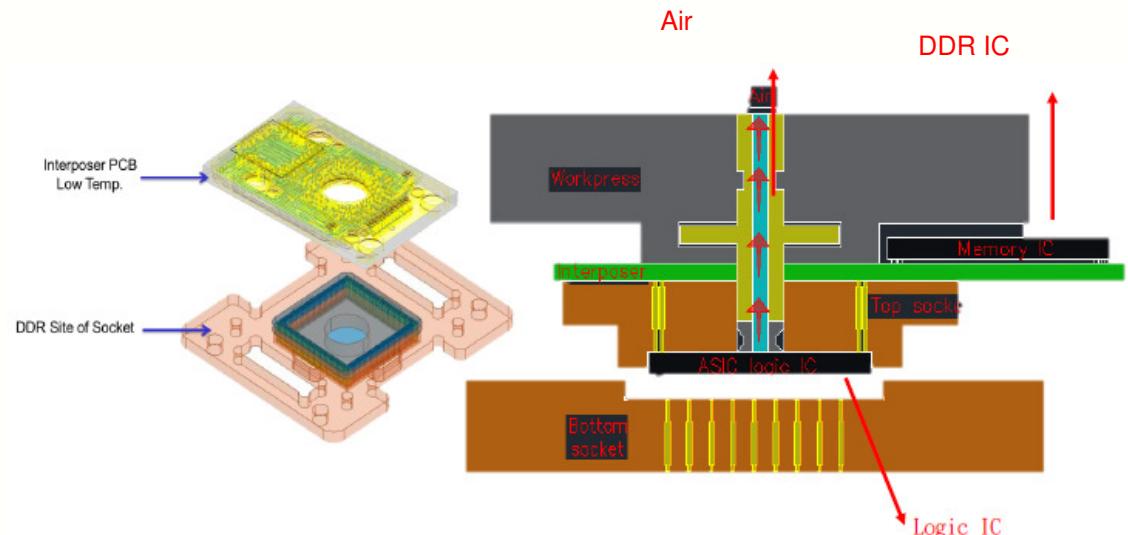
Workpress
Adaptor
Guide Hold
Pad Holder
PCB
Top Housing



PoP Application

Go through board design:

Air through interposer board
DDR IC on the edge of board.



Go through Pin design:

Air through top housing and pin to pick up main chip

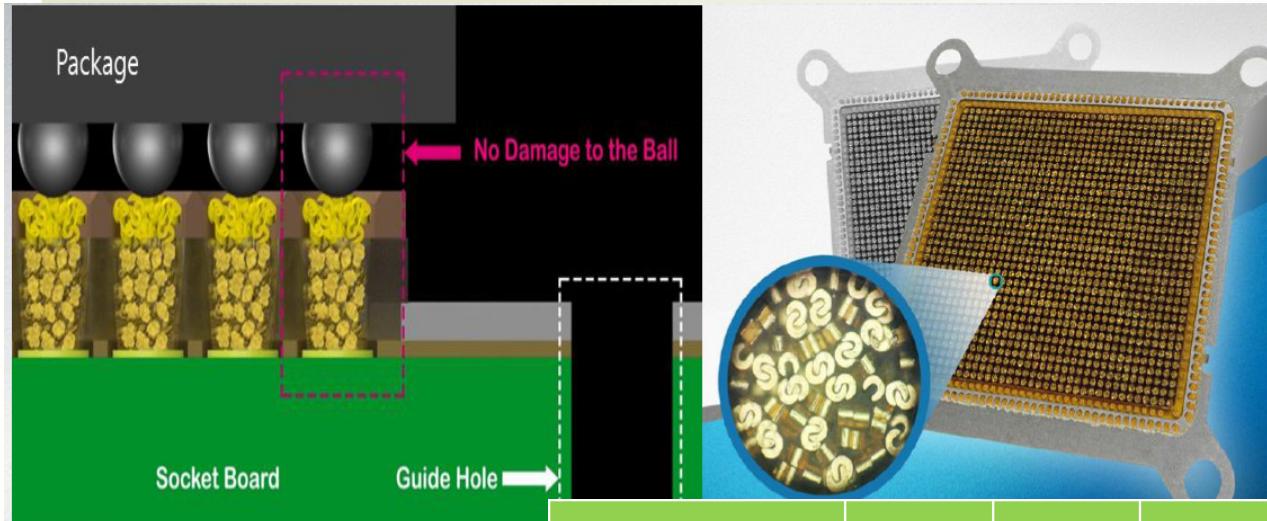
Change Over Kits

Package	Parts	Hot Plate	Shuttle	Nest	Nozzle
BGA	T6+ESD Coating	T6+ESD Coating or ESD420	T6+ESD Coating or ESD420	Cu+ ESD nozzle	
QFN	T6+ESD Coating	T6+ESD Coating	T6+ESD Coating	Cu+ ESD 420	
QFP	T6+ESD Coating	T6+ESD Coating	T6+ESD Coating or ESD420	Cu+ ESD nozzle	



	Base	Hot Plate	Shuttle	Clamp	T6 Hard Anodizing	ESD 420	ESD Coating
Category	Kit - ESD series	Kit - ESD series	Kit - ESD series	Kit - ESD series	Material 處理	Material 處理	Material 處理
Material	T6 鋁合金, SUS303	T6 鋁合金	T6 鋁合金	T6 鋁合金, PEEK, TR4230	T6 Hard Anodizing	ESD 420	Ceramic Coating
Temp	-40°C ~ 800°C	-40°C ~ 300°C	-40°C ~ 300°C	-40°C ~ 300°C	-40°C ~ 300°C	-60°C ~ 260°C	-60°C ~ 700°C
ESD precaution	NA	$10^{10} \sim 10^{12} \Omega/\text{sq}$	$10^5 \sim 10^8 \Omega/\text{sq}$	$10^5 \sim 10^8 \Omega/\text{sq}$			
CNC Accuracy	$\pm 0.02\text{mm}$	$\pm 0.02\text{mm}$	$\pm 0.02\text{mm}$	$\pm 0.02\text{mm}$	$\pm 0.01\text{mm}$	$\pm 0.01\text{mm}$	$\pm 0.01\text{mm}$
Function	Positioned, Ducking, Fixed L/B & Socket & M/C	Pre-Heat, Heating, positioned	Pre-Heat, Heating, positioned	Positioned, Heating/Cooling at Contact	Common use	Stable impedance	耐磨高導熱

MRC Solution



MRC(MEMS Rubber Contact, which powder is manufactured by MEMS process) bump that leads to complete connection between the PCB pads and solder balls

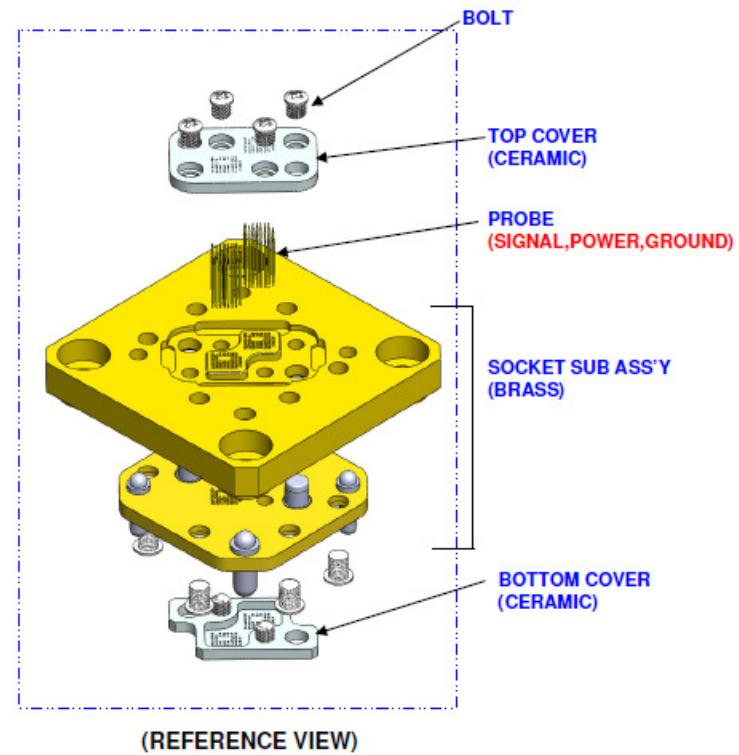
For high speed solution
MRC provide longer life
span and lower cost to
customers.

Pitch	1.0mm	0.8mm	0.65mm	0.5mm	0.4mm	0.35mm	0.3mm	
Self Inductance	0.06nH	0.06nH	0.07nH	0.05nH	0.04nH	0.04nH	0.05nH	
Band Width (Bump Array : G-S-G)	S21 (Insertion loss)	-1dB @ 20.23GHz	-1dB @ 22.0GHz	-1dB @ 27.75GHz	-1dB @ 34.67GHz	-1dB @ 37.89GHz	-1dB @ 39.31GHz	-1dB @ 44.83GHz
	S11 (Return loss)	-20dB @ 6.35GHz	-20dB @ 5.9GHz	-20dB @ 6.57GHz	-20dB @ 7.97GHz	-20dB @ 9.81GHz	-20dB @ 9.29GHz	-20dB @ 7.25Hz

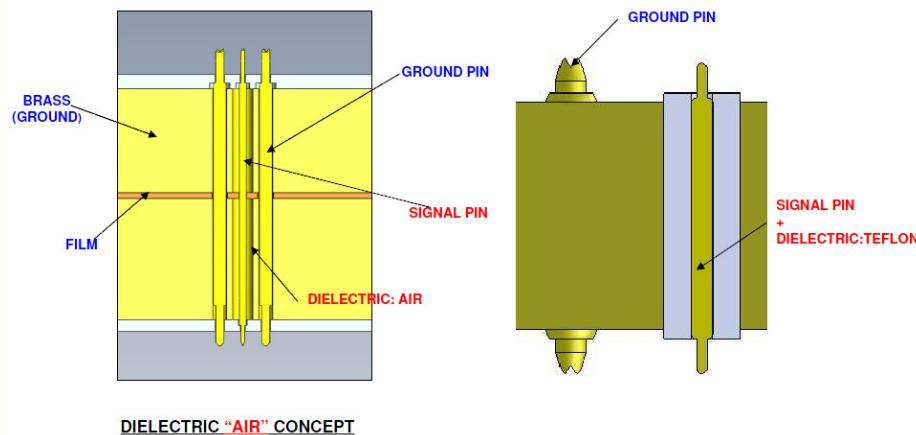
WLCSP

CSP has the advantage of high-speed transmission because of its no lead frame, which will be a cause of extra C.R.L.

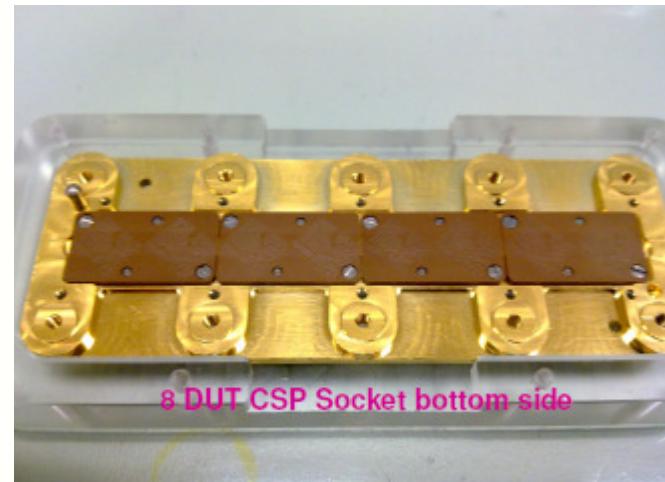
The implementation of high performance CSP requires a highly discriminative test-system. For this, we need test sockets, which must be high speed, low price and fine pitch.



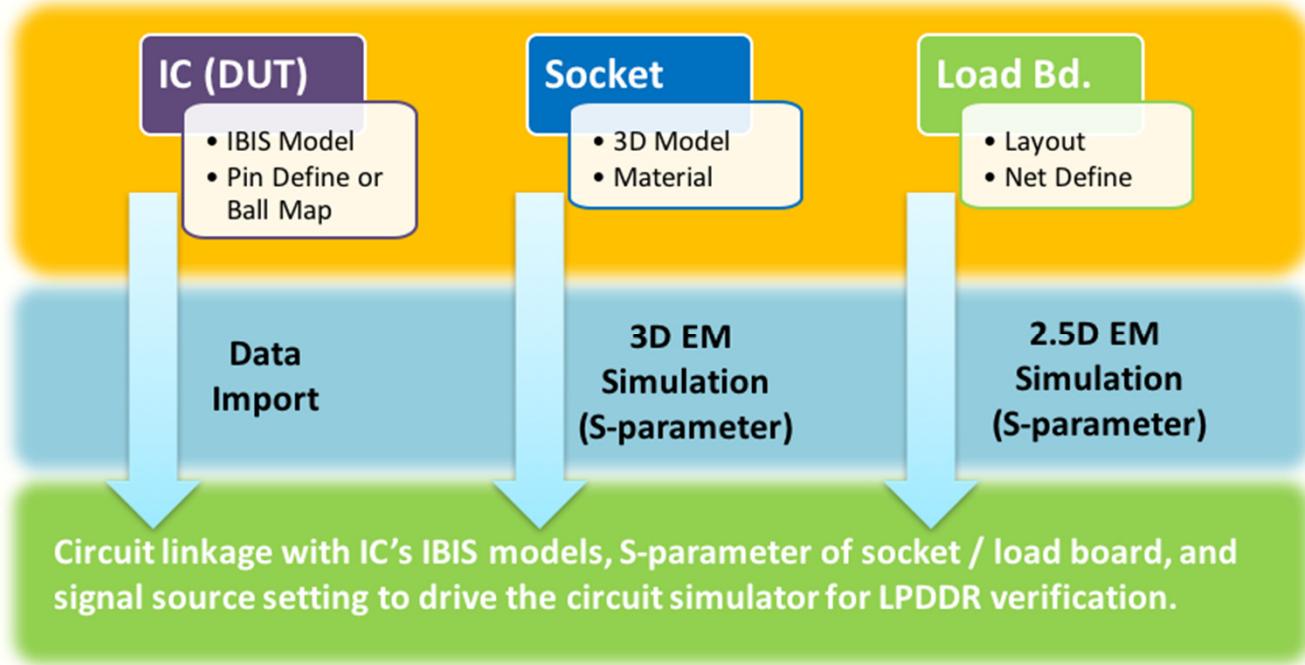
(REFERENCE VIEW)



DIELECTRIC "AIR" CONCEPT



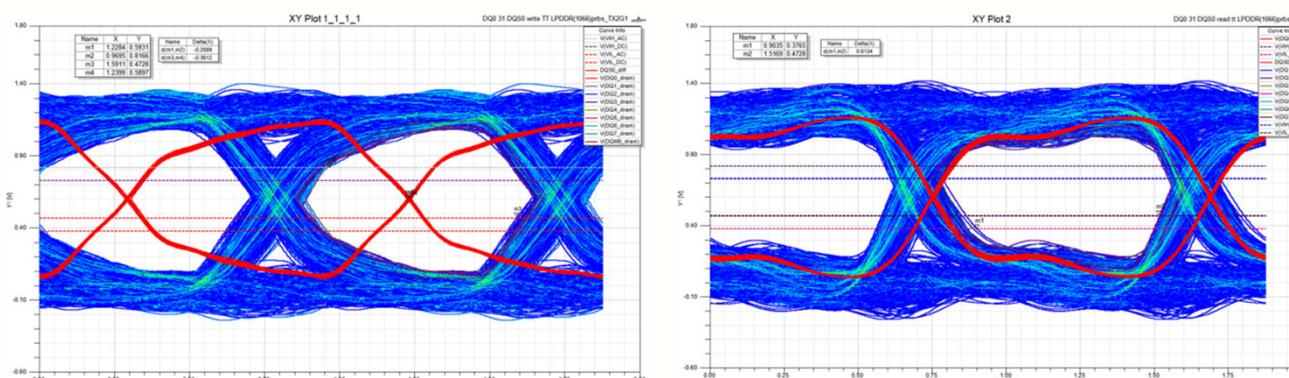
SI/PI Simulation



Data Collection from Customer

Execute EM Simulation

Execute Circuit Simulation

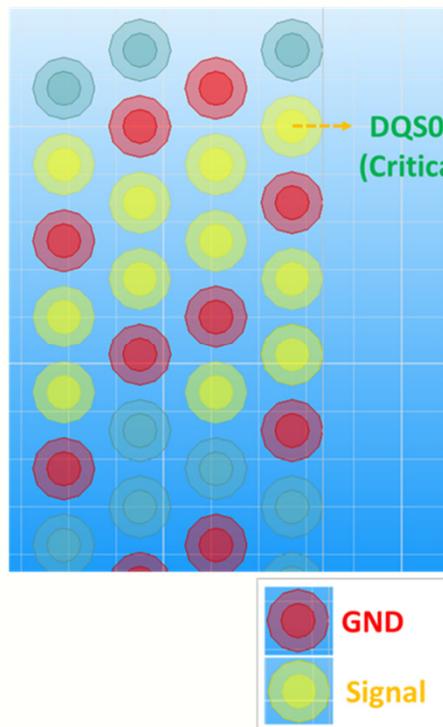


Example of Simulation

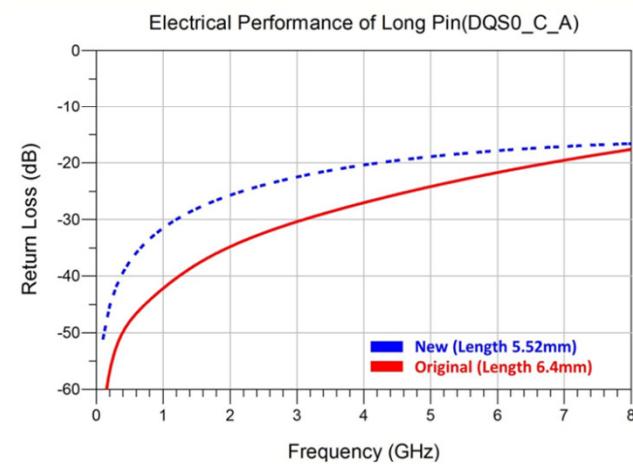
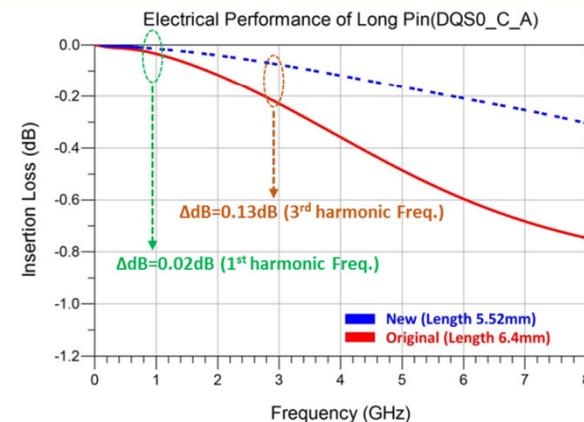
PoP Device Upgrade of LPDDR3 Speed
 Speed from 1066Mbps to 1866Mbps
 Original Pin Failed to LPDDR3-1866Mbps Test Speed

	Long Pin (Pitch 0.8mm)	
	Length	Diameter(\emptyset)
New	5.52	0.51
Original	Length 6.4	Diameter(\emptyset) 0.51

Pin Definition of Long Pin



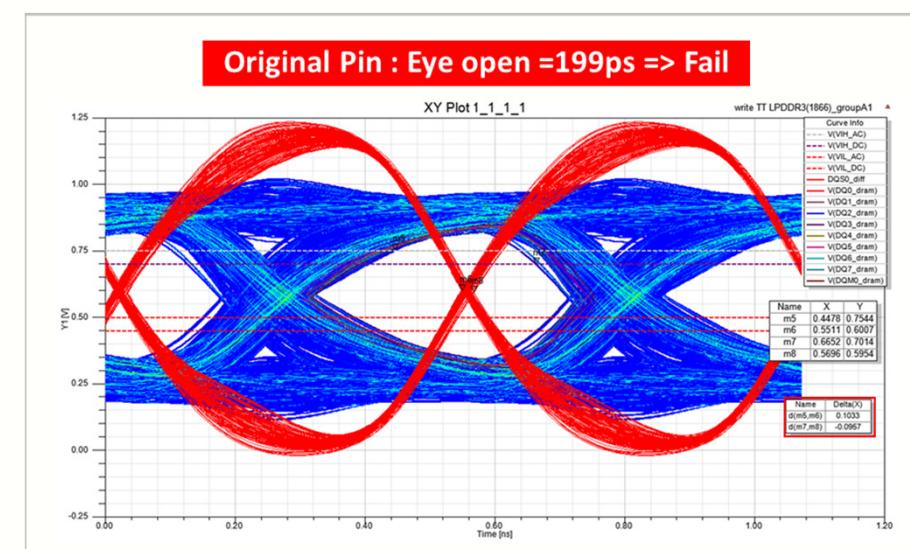
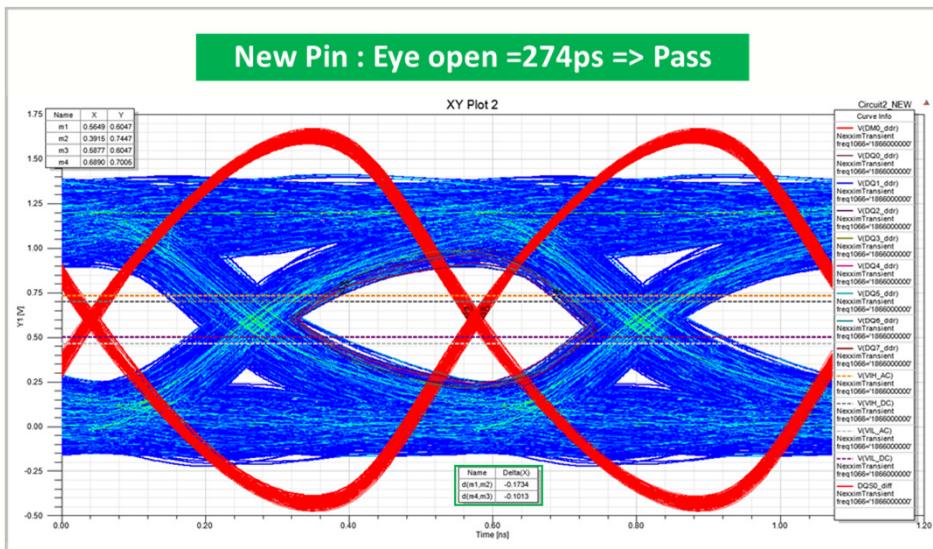
- Comparison Simulation Results
 - Long Pin (Pitch 0.8 mm)



Example of Simulation

- Comparison Simulation Results
 - Eye Diagrams of New Pin & Original Pin

Pass Criteria under JEDEC Standard : Eye Open \geq 201.5ps



High Speed SerDes Socket

- Available Testing Solutions for Server IC

- Highly Customization Socket Design
- Excellent Electrical/Mechanical Performance
- Outstanding Solutions for Customers

- Replace Silicone Rubber Socket

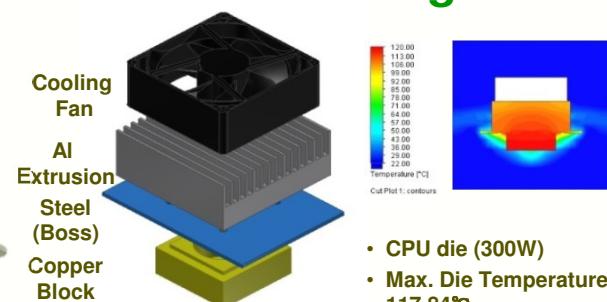
- Better Insertion Loss Bandwidth (50GHz @ -1dB)
- Availability for High Speed Server IC Testing(>28Gbps)
- DC Contact Resistance (<60 mΩ)
- Longer Lifetime(Over 200k)

- Next Generation High Speed Application

- Conformability for High Speed Application (~28Gbps)
- Availability for the New High Speed Application (>40Gbps)

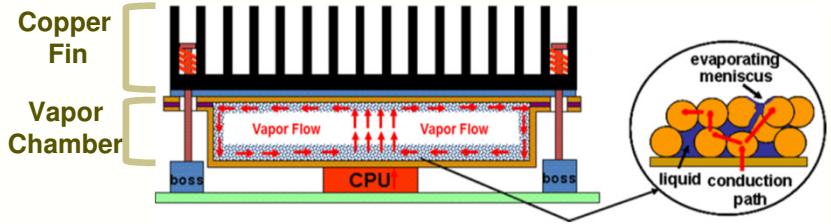


Fan Cooling



- CPU die (300W)
- Max. Die Temperature : 117.84°C
- Ave. Die Temperature : 115.52°C
- Min. Die Temperature : 111.59°C

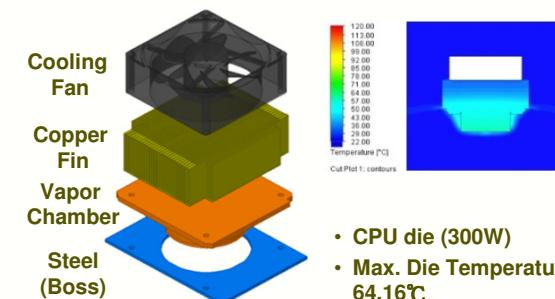
Vapor Chamber Cooling Mechanism



Vapor Chamber Cooling

- Power Range : 160~400W
- Innovation Cooling Technology
- Smaller Volume Size

Vapor Chamber Cooling



- CPU die (300W)
- Max. Die Temperature : 64.16°C
- Ave. Die Temperature : 60.99°C
- Min. Die Temperature : 57.70°C

Pogo S-Parameter

JGTech provide Single-End and Differential results for customer to review pogo pin's performance

	Signal pin	Return pin					
Type	01	02	03	04	05		
Single-end patterns							
Type	06	07	08	09	10		
Single-end patterns							

S/G Ratio	SE01	SE02	SE03	SE04	SE05
-1dB BW(IL)	>20	3.8	>20	9.6	8.4
-3dB BW(IL)	20	7.7	>20	>20	>20
-15dB BW(RL)	4.1	1.8	>20	5.6	3.9
S/G Ratio	SE06	SE07	SE08	SE09	SE10
-1dB BW(IL)	>20	>20	>20	>20	>20
-3dB BW(IL)	>20	>20	>20	>20	>20
-15dB BW(RL)	14.8	17.2	7.0	>20	6.6

Unit: GHz

	Signal pin	Return pin					
Type	01	02	03	04	05		
Differential patterns							
Type	06	07	08	09	10		
Differential patterns							

S/G Ratio	Diff-01	Diff-02	Diff-03	Diff-04	Diff-05
-1dB BW(IL)	>20	>20	>20	>20	>20
-3dB BW(IL)	>20	>20	>20	>20	>20
-15dB BW(RL)	11.0	6.6	8.7	8.4	4.8
-20dB EMI BW	>20	>20	>20	>20	>20
-20dB EMC BW	>20	>20	>20	>20	>20
S/G Ratio	Diff-06	Diff-07	Diff-08	Diff-09	Diff-10
-1dB BW(IL)	>20	>20	12.0	12.0	12.1
-3dB BW(IL)	>20	>20	>20	>20	>20
-15dB BW(RL)	7.2	6.0	3.5	3.6	3.6
-20dB EMI BW	>20	>20	>20	>20	>20
-20dB EMC BW	>20	>20	>20	>20	>20

Unit: GHz