2014/9/4

- 2013 1H & 2014 1H QoQ, YoY
- Major Product Composition
- Marketing Trend
- New Product
  - ✓ BT Card Reader Status
  - ✓ 0.6 thickness USP in Mobile industry Status

2013 1H & 2014 1H QoQ, YoY

Unit : '000NTD

	Q4'13	Q1'14	Q2'14	Q2'13	1H'14	1H'13
Revenue	805,481	564,083	697,641	732,966	1,261,724	1,335,600
Profit	178,623	110,659	174,976	153,574	285,635	282,315
Margin	22%	20%	25%	20%	23%	21%
EPS	0.89	0.44	0.67	0.40	1.11	1.10
Cross margin after tax	55,717	30,729	46,511	24,104	77,240	66,211

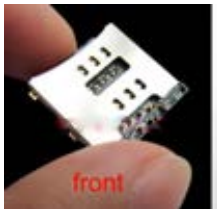
- Q1'14 impact by Q4'13 early shipment, revenue decrease but and margin downside.
- Q1'14 and Q2'14 product composition has no change, demand vary upon PC market.

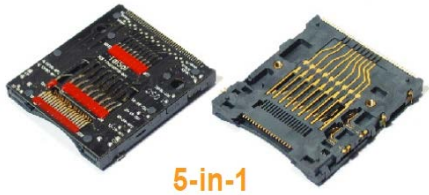
Product Line Composition (by Revenue)

- Thermal Solution




- Connectors



- CR Modules

- Heat Pipe

	Conn	CR-M	HP	TM
2012	35%	8%	15%	42%
2013	30%	10%	20%	40%
2014 1H	32%	5%	20%	43%

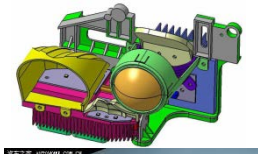
Marketing Trend (by Revenue)

Data Communication

PC

MOBILITY

Consumer



Automobile

	PC	Data	Consumer	Mobility	Automobile
2012	90%	0%	10%	0%	0%
2013	65%	5%	15%	15%	0%
2014 1H	60%	10%	10%	20%	0%

China International Financial Exhibition 2014
Aug 28th ~Aug 31 at Beijing

Lakala is going to provide new generation Bluetooth interface Card Reader for mobile application, which is planning to use latest BT4.0 wireless technology and support China UnionPay bank card including IC smart card and magnetic strip card. Fully compatible to all mainstream smart phone and tablet product in the market, implement wireless free ; all the infrastructure pass PBOC certificate, one machine one key, one key one use by state-of-art security solution and payment gateway. Magnetic Strip Card is going to be replaced by IC smart card in coming years, no doubt, Lakala new generation BT interface Card Reader will be best choice.

2014, Sep MP ……

NEC Medias X N-06E

Japanese Heat Pipe : D5x100x0.6mm.

Sony Xperia Z2

Comparison between Metal Plate and Heat Pipe

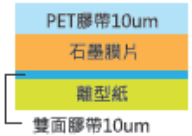
- Metal Plate is directly mounted onto Chip. It may conduct the heat from high temperature IC chip
- Metal Plate is produced by press/diecast/machinary, design upon customer requirement.
- For Mobile machine, usually use Cu plate and Cu tape (total thickness : 0.055mm for tape, 0.025mm for plate, with very goo adhesive and thermal conductively. Sometime will be design for EMI shielding.
- Metal plate conduct hat by material, but heat pipe is conduct heat by working fluid.

Thermal Conductivity *(K=QL/AT)*	
Aluminum	206 W/m*k
Copper	377 W/m*k
Graphite	Horizontal: 600~1600 W/m*k
	Vertical: 5~30 W/m*k
Heat Pipe	Over 5000 W/m*k

Graphite

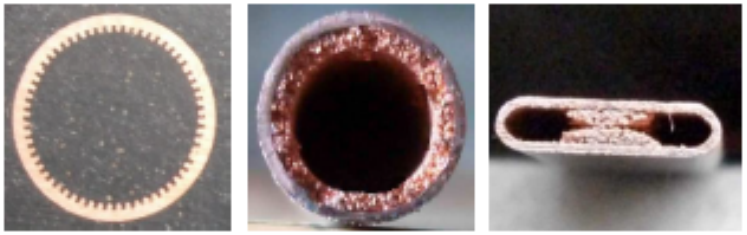
- Graphite[Horizontal1600 (W/M*K) ; Vertical 5~10 (W/M*K)], 0.6 & 0.5 mm ultra slim heat pipe has around 5000 (W/M*K) , which give at least 500% incremental on thermal performance.
- Using ultra slim heat pipe, temperature expect to discrease 6~10℃, which is much better than Graphite 2~3℃
- Thickness of Graphite is only 0.4mm, mechanical easy; heat pipe need more space and limit mechanical shape.

Properties		T68		Tolerance	Unit	Test Method
Thickness厚度		25		-	μm	Micrometer
Thermal Conductivity導熱係數	XY axis	1500-1700	1600	±160	W/m.K	AC calorimeter
	Z axis	5	5	±0.5	W/m.K	Laser flash
Thermal Diffusivity 熱擴散率		8.92	8.75	-	cm^2/S	AC calorimeter
Density密度		2.1	2.26	-	g/cm^3	Archimedes law
Electrical Conductivity 導電率		20000	18000	-	S/cm	JIS K7194
Flexural Strength彎曲度		Flexible	Flexible	-	-	MIT
Heat Resistance熱阻		400	-	-	℃	AC calorimeter
Heat Capacity (SHC)熱容量		0.895	-	-	J/g-K	-

類型	T68	T68A	T68AP	T68APF
加工方式	不加工	底部貼合絕緣 雙面膠帶10um	1. 上層貼合標準PET 膠帶10um 2. 底部貼合絕緣雙面 膠帶10um	1. 上層貼合標準PET 膠帶10um 2. 底部貼合絕緣雙面 膠帶10um 3. 有封邊
結構				
特徵	■發揮石墨之熱傳導性、 柔軟性 ■低熱電阻 ■最高可在400℃ ■導電性	■單面具有絕緣黏合性 ■標準品，黏力強 ■保證黏貼在箱體， 底盤上的強黏力 ■耐電壓1kV	■產品表面，黏合面均 具有絕緣性 ■耐電壓 ■PET膠帶1kV ■雙面膠帶1kV	■產品表面，黏合面 均具有絕緣性 ■耐電壓 ■PET膠帶1kV ■雙面膠帶1kV
耐熱溫度	400°C	100°C	100°C	100°C
總厚度	25um	35um	45um	45um

Different Wick Structure for Heat pipe

Performance: A > B > C



Wick Material	Mesh	Fiber	Groove	Powder	Ultra-Slim
Capillary Force	B	B	C	A	A
Permeability	B	B	A	C	A
Bending	A	A	B	C	B
Flatten	A	A	C	C	A
Length effect	A	A	C	B	B
Qmax	B	B	C	A	A
Anti-Gravity	B	B	C	A	A

Reference: Heat Pipe Technology and Engineering Application, 2000.

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