

## APPROVAL SHEET

Issued No. : \_\_\_\_\_

**DESCRIPTION** : SMD 3225 CRYSTAL  
**NOMINAL FREQ.** : 25.000000 MHz  
**TAITIEN P/N** : Y0010-X-292-3  
**TAITIEN MODEL** : XXCEELNANF-25.000000MHz  
**REVISION** : 1  
**DATE** : 06/12/2014

QA	Checked	Prepared

**CUSTOMER** : YOYE  
**CUSTOMER P/N** : \_\_\_\_\_

Customer Signature
Approved:
Date:

## REVISION HISTORY

Rev.	Revised Page	Revision Content	Date	Ref. No.	Reviser
01	N/A	Initial Released	06/10/2014	N/A	Y.P.Ma

Please note that placing order with Taitien constitutes acknowledgement that you have read and agree to Taitien's Terms and Conditions. Please refer to our website for more details. Thank you for choosing Taitien!  
 Remedies and Limitation of Liability: BUYER'S SOLE AND EXCLUSIVE REMEDY AND TAITIEN'S SOLE LIABILITY, WITH RESPECT TO ANY BREACH OF WARRANTY, SHALL BE AT TAITIEN'S OPTION: (A) REPAIR OR REPLACEMENT OF THE DEFECTIVE OR NONCONFORMING CRYSTALS OR (B) REFUND OF BUYER'S PURCHASE PRICE FOR THE DEFECTIVE OR NONCONFORMING CRYSTALS.  
 IN NO EVENT SHALL TAITIEN'S TOTAL LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES ARISING OUT OF ANY CAUSE (INCLUDING, BUT NOT LIMITED TO, CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER TORT) EXCEED THE PURCHASE COST OF THE CRYSTALS. IN NO EVENT SHALL TAITIEN BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

## CONTENT

<b>SPECIFICATIONS</b>	<b>PAGE</b>
ELECTRICAL SPECIFICATIONS	4~5
RECOMMENDED IR REFLOW PROFILE	6
PRODUCT DIMENSIONS	7
PRODUCT IDENTIFICATION (MARKING)	7
PACKAGE INFORMATION	8

---

## ATTACHMENT

<b>TESTING DATA</b>	<b>PAGE</b>
ELECTRICAL CHARACTERISTICS TEST	9
<b>OTHER DATA</b>	
SUBSTANCE ANALYSIS LIST OF RAW MATERIAL	10

## ELECTRICAL SPECIFICATIONS

	Parameter	Min.	Typ.	Max.	Units	Test Condition
1-1	Nominal Frequency	25.000000			MHz	
1-2	Frequency Tolerance.	-30		+30	ppm	at 25°C +/-2°C
1-3	Operating Temperature range	-40		+85	°C	
1-4	Storage Temperature range	-40		+85	°C	
1-5	Temperature Characteristics	-30		+30	ppm	-40°C to +85°C
1-6	Nominal Load Capacitance	10			pF	
1-7	Series Resistance			60	Ω	
1-8	Shunt Capacitance			7.0	pF	
1-9	Motion Capacitance				fF	
1-10	Motion Inductance				mH	
1-11	Q factor				K	
1-12	Spurious Response				dB	
1-13	Frequency Pull ability				ppm/pF	
1-14	C0/C1 Ratio					
1-15	Aging	-3		+3	ppm/year	
1-16	Insulation Resistance	500MΩ Min. @ DC100V				
1-17	Nominal Drive Level	10			μ W	into 10Ω
1-18	Dependency Condition				μ W	
1-19	Drive Level Dependency Resistance Max. Minus Min.				Ω	
1-20	Drive Level Dependency Frequency Max. Minus Min.				ppm	
1-21	Drive Level Dependency Resistance Max.				Ω	

## ■ CUSTOMER SPECIAL REQUIREMENT

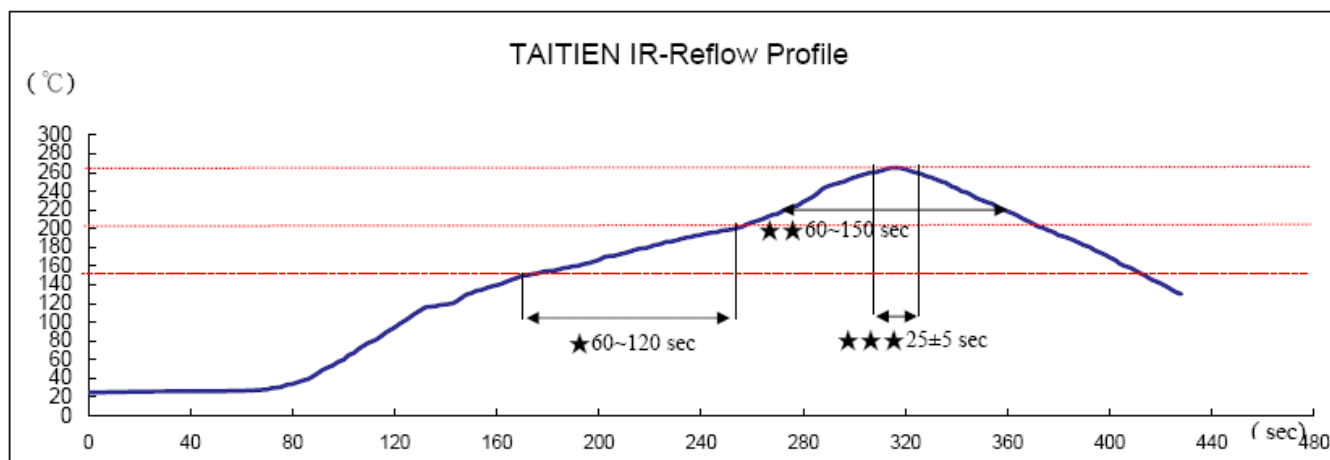
2

## ■ ENVIRONMENTAL

	Parameter	Reference Std.	Test Condition
3-1	Vibration Test	MIL-STD-883 2007 Condition A	10~2000Hz, 1.52mm, 20g, each axis for 4 hrs
		JESD22-B103 Condition 1	
3-2	Thermal Shock	MIL-STD-883 1010 Condition B	-55°C, 125°C; soak time is 10 mins, with total 200 cycles
		JESD22-A104 Condition B	
3-3	Mechanical Shock	MIL-STD-883 2002 Condition B	1500G, half-sine, 0.5ms, each axis for 3 times.
		JESD22-B104 Condition B	

## RECOMMENDED IR REFLOW PROFILE

- IR REFLOW PROFILE OF CERAMIC SMD PRODUCTS FOR Pb FREE PROCESS



Reference Standard: JEDEC-STD 020

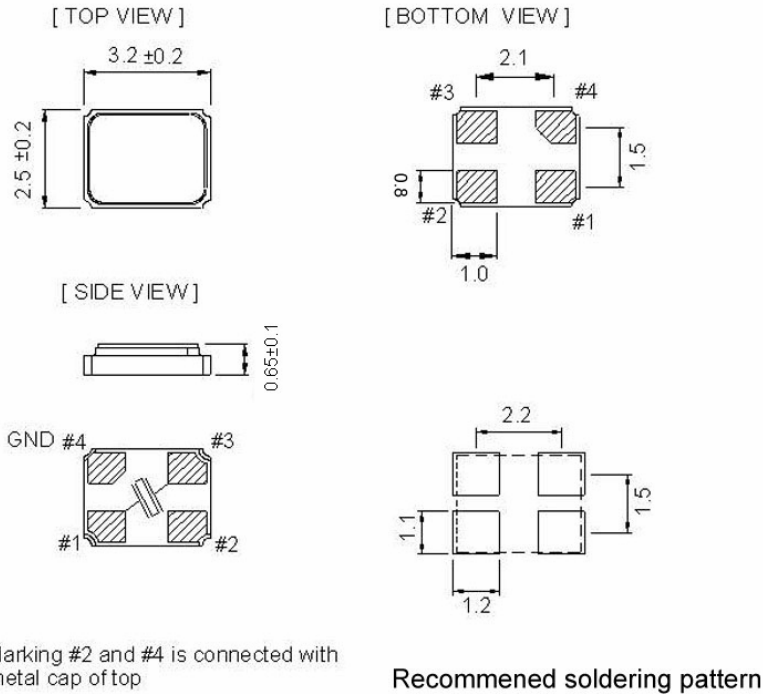
Test conditions: ★ Pre-heating : 150°C to 200°C, 60~120secs.

★★ Heating : 217°C, 60~150sec.

★★★ Peak temperature : 260±5°C, 25±5sec.

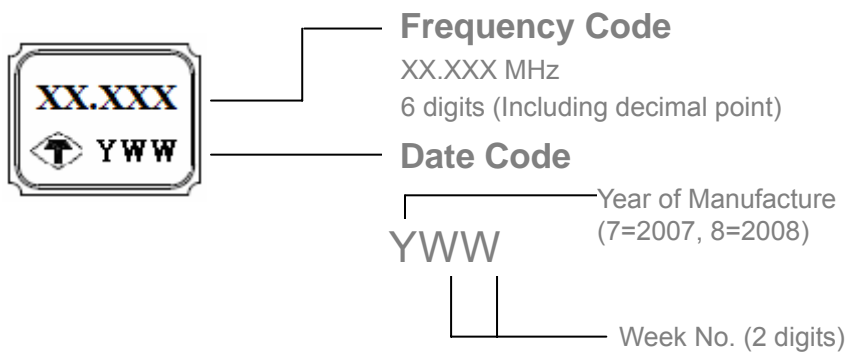
## ■ PRODUCT DIMENSIONS

### ➤ DIMENSIONS



## ■ PRODUCT IDENTIFICATION (MARKING)

### ➤ PROCEDURE: LASER

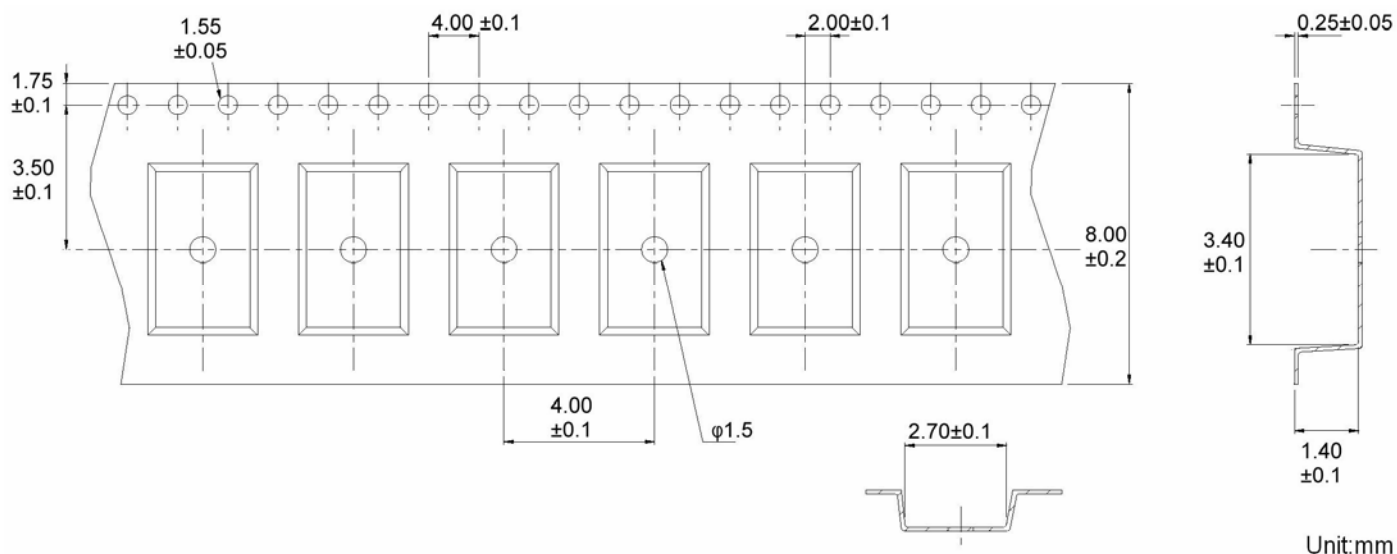


### ➤ FOR EXAMPLE:



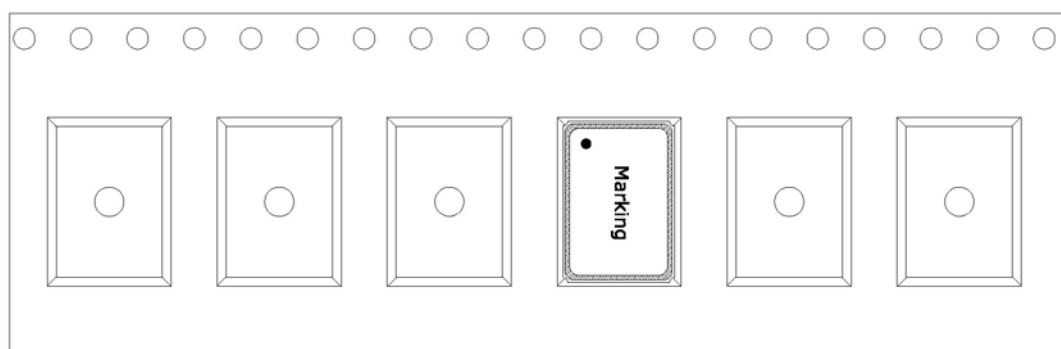
## ■ PACKAGE INFORMATION

### ➤ TAPE (CARRIER) DIMENSIONS

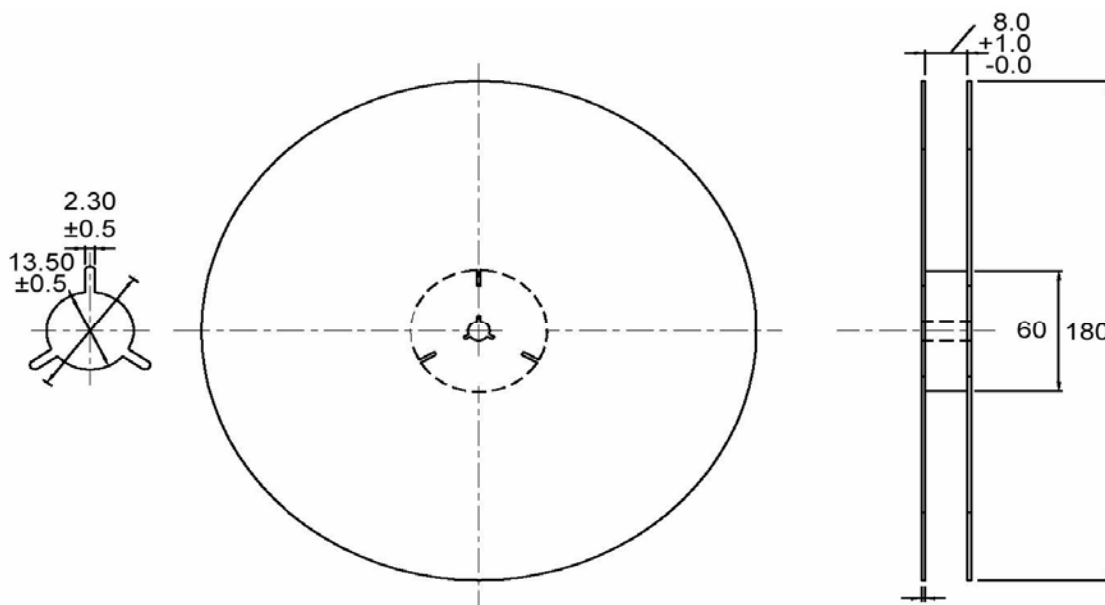


Unit:mm

### ➤ THE DIRECTION OF PACKING



### ➤ REEL DIMENSIONS



Unit:mm



## ■ ATTACHMENT

### ➤ ELECTRICAL CHARACTERISTICS TEST

EXCEL EXPORT PRINTOUT FORMAT

Batch # : Test on : 08/12/2014  
 Setup file : 2500000010  
 Taitien Spec NO. : Y0010X2923  
 Description :  
 Ref. Freq. : 25.000000MHz  
 Power : 10 Uw INTO 10 ohm  
 Search range : 1000 ppm  
 Mode Type : Fundamental AT  
 Timebase : Internal

DLD[manual] (uW) : 0.01 0.1 1 10 100

DLD scan mode : Low -> High

	Status	FL:10+/- 0.0pF	FL1:10+/- 0.0pF	Rr	C0	C1	C0/C1	Ts	Q	L	FDDL	DLD2	RLD2
	Unit	[MHz]	[ppm]	[ohm]	[pF]	[fF]		[ppm/pF]	[K]	[mH]	ppm	Ohms	Ohms
	Center	25.000000	0	/	/	/	/	/	/	/	/	/	/
	High	25.000750	30	60	7	9999.9	9999.9	9999.9	9999.9	9999.9	9999.9	9999.9	9999.9
	Low	24.999250	-30	0	0	0	0	0	0	0	0	0	0
1	Pass 1	24.999900	-4.0	10.1	0.6	3.0	212.0	13.2	209.8	13.5	1.1	0.5	10.2
2	Pass 1	24.999915	-3.4	16.3	0.6	2.9	212.0	13.0	132.9	13.8	0.6	0.3	16.5
3	Pass 1	24.999878	-4.9	11.3	0.6	3.1	203.0	13.6	183.8	13.2	0.7	0.4	11.2
4	Pass 1	25.000070	2.8	12.1	0.6	3.0	211.0	13.3	175.0	13.5	1.2	2.0	13.1
5	Pass 1	24.999920	-3.2	9.7	0.7	2.9	222.0	12.9	223.4	13.9	0.6	0.7	9.7
6	Pass 1	24.999875	-5.0	9.3	0.6	3.0	207.0	13.4	225.6	13.4	0.9	0.8	9.6
7	Pass 1	24.999815	-7.4	7.2	0.6	3.0	211.0	13.2	296.0	13.6	0.8	0.6	7.4
8	Pass 1	24.999850	-6.0	14.2	0.6	3.0	215.0	13.1	151.7	13.7	0.6	0.4	14.3
9	Pass 1	24.999690	-12.4	10.9	0.6	2.9	213.0	13.0	199.8	13.8	0.8	0.8	11.2
10	Pass 1	24.999978	-0.9	14.9	0.6	2.9	219.0	12.8	148.4	14.0	0.5	1.4	15.1
11	Pass 1	24.999863	-5.5	23.7	0.6	2.8	216.0	12.6	94.4	14.3	0.7	1.2	24.2
12	Pass 1	24.999833	-6.7	9.7	0.6	3.0	214.0	13.3	219.3	13.5	2.8	1.6	10.5
13	Pass 1	24.999950	-2.0	10.1	0.7	3.1	208.0	13.7	204.1	13.1	0.6	0.6	10.3
14	Pass 1	24.999925	-3.0	11.0	0.6	2.9	215.0	12.9	197.4	13.9	1.1	1.1	11.5
15	Pass 1	24.999918	-3.3	10.5	0.6	3.0	211.0	13.2	202.5	13.6	0.6	0.4	10.4
16	Pass 1	24.999935	-2.6	9.3	0.6	2.9	223.0	12.8	235.5	14.0	0.7	0.6	9.3
17	Pass 1	24.999733	-10.7	37.4	0.6	3.0	204.0	13.1	57.7	13.7	3.4	3.5	38.6
18	Pass 1	24.999680	-12.8	18.4	0.6	2.9	214.0	13.0	117.9	13.8	0.3	0.8	18.7
19	Pass 1	24.999918	-3.3	10.2	0.6	3.1	210.0	13.5	204.2	13.3	0.8	0.3	10.2
20	Pass 1	24.999915	-3.4	10.4	0.7	3.0	217.0	13.2	203.3	13.5	0.6	2.5	12.4
	<b>Average</b>	24.999878	-4.9	13.3	0.6	3.0	212.9	13.1	184.1	13.7	1.0	1.0	13.7
	<b>Stdev</b>	0.000094	3.76	6.83	0.01	0.08	5.21	0.28	54.14	0.29	0.77	0.83	7.01
	CA	-16.28	-16.28	/	/	/	/	/	/	/	/	/	/
	CP	2.66	2.66	2.28	174.21	/	/	/	/	/	/	/	/
	CPK	2.22	2.22	2.28	174.21	/	/	/	/	/	/	/	/

Supervisor: \_\_\_\_\_

Inspector: \_\_\_\_\_

ATTACHMENT

SUBSTANCE ANALYSIS LIST OF RAW MATERIAL



TAITIEN ELECTRONICS CO., LTD.

TAITIEN ELECTRONICS (NANJING) CO.,LTD.  
物料物質成分分解表 (Hazardous Substance Analysis List of Raw Material)

型號(Model):XX type  
weight: 17.96 mg±-20%

No.	Name of Part	Material Name	Material Mass(mg)	Constituent name	CAS No.	Material Analysis(%)	Supplier Name	檢測機構 Test Institution	檢測報告編號 Test report No.	檢驗日期 Test date	有害物質的濃度或含量的含量 (ppm) Hazardous substances content								對應的檢驗報告 Corresponding inspection report	
											Pb	Cd	Hg	Cr6+	PBBs	PBDEs	鎘價(Br)	鎘價(Cl)		
1	BASE	Ceramic	13.6	Al <sub>2</sub> O <sub>3</sub>	1344-28-1	80.6	NSK	SGS	CE201363142	2013/9/26	ND	ND	ND	ND	ND	ND	ND	ND		
				Fe	7439-89-8	8.7														
				W	7440-33-7	8.8														
				Ni	7440-02-0	6.1														
				SiO <sub>2</sub>	14828-80-7	4.3														
				Ag	7440-22-4	4.2														
				Co	7440-48-4	3.2														
				Cr <sub>2</sub> O <sub>3</sub>	1308-38-0	2.3														
				Au	7440-57-5	0.6														
				Cu	7440-50-8	0.7														
Mo	7439-98-7	0.5																		
2	LID	Kovar	2.76	Fe	7439-89-8	53.04	WANOTEC	PONY	D0052013004D- D0052013054	2014/9/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	
				Ni	7440-02-0	29.80														
				Co	7440-48-4	16.70														
				Mn	7439-96-5	0.35														
				Si	7440-21-3	0.10														
		C	1333-86-4	0.01																
	Plating	0.39	Ni	7440-02-0	100	WANOTEC	PONY	D0052013004D- D0052013104D	2014/9/11	ND	ND	ND	ND	ND	ND	ND	ND	ND		
3	ADHESIVE	Silver paste	0.6	Ag	7440-22-4	80	FUJIKURA	SGS	CE201362019 CE201362020	2013/11/19	ND	ND	ND	ND	ND	ND	ND	ND	ND	
				Silicone Resin	Secret	20														
4	Blank	Quartz	0.5	SiO <sub>2</sub>	14828-80-7	100	TAITIEN	SGS	CANEC1310938601	2013/7/19	ND	ND	ND	ND	ND	ND	ND	ND	ND	
5	Electrode	Cr	0.01	Cr	7440-47-3	100	SOLAR	SGS	SHAEC131882902	2013/9/25	ND	ND	ND	Negative	ND	ND	ND	ND	ND	
		Ag	0.09	Ag	7440-22-4	100			SHAEC131882905	2013/9/25	ND	ND	ND	Negative	ND	ND	ND	ND	ND	ND

QC0708-03FN-1.0



TAITIEN ELECTRONICS CO., LTD.

TAITIEN ELECTRONICS (NANJING) CO., LTD.

原材料有害物質成分分解表 (Hazardous Substance Analysis List of Raw Material)

型號(Model):XX type  
weight: 17.6 mg±-20%

No.	Name of Part	Material Name	Material Mass(mg)	Constituent name	CAS No.	Material Analysis(%)	Supplier Name	檢測機構 Test Institution	檢測報告編號 Test report No.	檢驗日期 Test date	有害物質的濃度或含量的含量 (ppm) Hazardous substances content								對應的檢驗報告 inspection report					
											Pb	Cd	Hg	Cr6+	PBBs	PBDEs	鎘價(Br)	鎘價(Cl)						
1	BASE	Ceramic	6.31	Al <sub>2</sub> O <sub>3</sub>	1344-28-1	100	三星	SGS	CANEC1315533401	2013/10/15	ND	ND	ND	ND	ND	ND	ND	ND	ND					
				W	7440-33-7	63.58																		
				Ni	7440-02-0	31.05																		
		Metal	3.93	Ni	7440-02-0	31.05															4.47			
																						Au	7440-57-5	4.47
																						Fe	7439-89-8	54
KV ring	2.58	Ni	7440-02-0	29	17																			
						Co	7440-48-4	17																
						Fe	7439-89-8	54																
2	LID	Kovar	3.2	Ni	7440-02-0	29	測發品質	SGS	SHAEC132874919	2013/12/17	ND	ND	ND	Negative	ND	ND	ND	ND	ND					
				Co	7440-48-4	17																		
			Plating	0.3	Ni	7440-02-0															100			
3	ADHESIVE	Silver paste	0.6	Ag	7440-22-4	80	FUJIKURA	SGS	CE201362019 CE201362020	2013/11/19	ND	ND	ND	ND	ND	ND	ND	ND	ND					
				Silicone Resin	/	20																		
4	Blank	Quartz	0.5	SiO <sub>2</sub>	14828-80-7	100	TAITIEN	SGS	CANEC1310388601	2013/7/19	ND	ND	ND	ND	ND	ND	ND	ND	ND					
5	Electrode	Cr	0.01	Cr	7440-47-3	100	SOLAR	SGS	SHAEC131882902	2013/9/25	ND	ND	ND	Negative	ND	ND	ND	ND	ND					
		Ag	0.09	Ag	7440-22-4	100			SHAEC131882905	2013/9/25	ND	ND	ND	Negative	ND	ND	ND	ND	ND	ND				

17.50

QC0708-03FN-1.0