RELIABILITY TEST REPORT

TESTITEM: 1.ELECTRICAL

2.MECHANICAL

3.ENV IRONMENTAL

SERIES NO.: CIL1 SERIES

TEST EQUIPMENT: 1.INSERTION & REMOVAL APPARATUS

2.ELECTRONIC MEASURING APPARATUS

3.ENV IRONMENTAL APPARATUS

DATE OF TESTING: 01 / 23 / 2013

TEST DEPART: R&D TESTER: Clark.Chen

CONTAINT: ATTACHED



REVIEWED: <u>David</u> APPROVED: <u>David</u> VERIFIED: <u>Clark</u> .



1.ELECTRICAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT	TES	ST RESULT
1-1	Contact resistance	Dry circuit of DC 20mV	Less than 20 mΩ	Sample	$20 \text{ m}\Omega$ max.
		max.,10mA max.,		1	11.07 mΩ
		wire resistance shell be removed from the measured		2	$11.03~\mathrm{m}\Omega$
		value		3	11.13 mΩ
				4	11.11 mΩ
				5	11.09 mΩ
1-2	Dielectric strength	When applied AC1500V	No breakdown	Sample	1 minute
		1 minute between adjacent terminal.		1	Pass
		terminar.		2	Pass
				3	Pass
				4	Pass
				5	Pass
				5	Pass
1-3	Insulation resistance	When applied DC 500 V	More than $1000 \text{ M}\Omega$	Sample	$1000~\mathrm{M}\Omega$ min.
		between adjacent terminal or ground		1	$10\times10^6~\mathrm{M}\Omega$
				2	$10\times10^6~\mathrm{M}\Omega$
				3	$10\times10^6\mathrm{M}\Omega$
				4	$10\times10^6~\mathrm{M}\Omega$
				5	$10 \times 10^6 \mathrm{M}\Omega$

2. MECHANICAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT	TES	ST RESULT
2-1	Pin retention force in	Push Pin for insulator base	Plug:	Sample	> 0.3 Kgf
	Board mount Header	at speed 25±3 mm per	More than 0.3 Kgf	1	1.12 kgf
		minute	Wiore than 0.5 Hgr	2	1.03 kgf
				3	1.10 kgf
				4	1.08 kgf
				5	1.07 kgf
			Receptacle:	Sample	> 0.3 Kgf
			More than 0.3 Kgf	1	1.22 kgf
				2	1.28 kgf
				3	1.21 kgf
				4	1.30 kgf
				5	1.26 kgf



2-2	Mating & Unmating	Horizontal direction:	Mating force:	Sample	< 3.0 kgf
	force		Less than 3.0 kgf	1	2.047 kgf
		Processor and Processor		2	2.219 kgf
				3	2.105 kgf
				4	2.133 kgf
				5	2.182 kgf
			Unmating force:	Sample	> 0.5 kgf
			More than 0.5 kgf	1	1.654 kgf
				2	1.735 kgf
				3	1.539 kgf
				4	1.623 kgf
				5	1.572 kgf
		Lateral direction: Speed 25±3 mm per minute	Mating force:	Sample	< 3.0 kgf
			Less than 3.0 kgf	1	2.210 kgf
				2	2.042 kgf
				3	2.153 kgf
				4	2.081 kgf
				5	2.173 kgf
			Unmating force:	Sample	> 0.5 kgf
			More than 0.5 kgf	1	1.594 kgf
				2	1.710 kgf
				3	1.636 kgf
				4	1.681 kgf
				5	1.621 kgf
2-3	Durability	Connector shall be	Contact resistance:	Sample	Contact resistance
		subjected to 10 cycles of	Less than twice of	1	$12.55~\mathrm{m}\Omega$
		insertion and withdrawal	initial	2	12.51 mΩ
				3	$12.52~\mathrm{m}\Omega$
				4	12.62 mΩ
				5	$12.56~\mathrm{m}\Omega$

3. ENVIRONMENTAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT	TES	ST RESULT
3-1	Temperature rise	Then carried the rated	30°C max.	Sample	< 30 °C
		current		1	18.2 ℃
				2	18.8 ℃
				3	17.9 ℃
				4	18.6 ℃
				5	17.6 ℃



3-2	Heat aging	85 ± 2 °C ,96 hours	No damage	Sample	No damage
		,		1	Pass
				2	Pass
				3	Pass
				4	Pass
				5	Pass
3-3	Humidity	60 ±2°C, 90-95%RH, 96	Appearance:	Sample	No damage
		hours measurement must be	No damage	1	Pass
		taken within 30 min. after	140 damage	2	Pass
		tested		3	Pass
				4	Pass
				5	Pass
			Contact resistance:	Sample	Contact resistance
			Less than twice of	1	$11.52~\mathrm{m}\Omega$
			initial	2	11.59 mΩ
				3	11.53 mΩ
				4	11.56 mΩ
				5	11.58 mΩ
			Dielectric strength:	Sample	Dielectric strength
			To pass Para 1-2	1	Pass
			10 pass 1 ara 1-2	2	Pass
				3	Pass
				4	Pass
				5	Pass
3-4	Temperature cycling	One cycle consists of:	Appearance:	Sample	No damage
		155 ⁻¹⁰ °C, 30 min	No damage	1	Pass
				2	Pass
		2. Room temp. 10-15 min		3	Pass
		3. 85 ⁻³		4	Pass
		4. Room temp. 10-15 min		5	Pass
	Total cycle: 5 d	Total cycle: 5 cycle	Contact resistance:	Sample	Contact resistance
			Less than twice of	1	11.68 mΩ
			initial	2	11.62 mΩ
				3	11.69 mΩ
				4	11.61 mΩ
				5	11.68 mΩ
			Dielectric strength:	_	Dielectric strength
			To pass Para 1-2	1	Pass
			10 pass raia 1-2	2	Pass
				/.	
				3 4	Pass Pass



Salt spray			m 25 20G		G 1	NT 1
Spray time:48±4 hours Measurement must be taken after water rinse A pass A	3-5	Salt spray		Appearance:	Sample	
Measurement must be taken after water rinse 3 Pass 4 Pass 5 Pass 5 Pass 5 Pass 6 1 12.01 mΩ 3 12.05 mΩ 4 12.02 mΩ 5 12.09 mΩ 5 12.09 mΩ 5 12.09 mΩ 5 12.09 mΩ 6 12.00 mΩ 6				No damage	1	
after water rinse $\begin{bmatrix} 4 & Pass \\ Pass \\ Sample \\ Contact resistance: \\ Less than twice of initial \\ East than twice of initial \\ I & 12.01 m\Omega \\ 2 & 12.07 m\Omega \\ 4 & 12.02 m\Omega \\ 5 & 12.09 m\Omega \\ 4 & 12.02 m\Omega \\ 5 & 12.09 m\Omega \\ 5 & 12.09 m\Omega \\ 6 & 12.09 m\Omega \\ 6 & 12.09 m\Omega \\ 6 & 12.09 m\Omega \\ 7 & 12.09 m\Omega \\ 8 & 12.09 m\Omega \\ 8 & 12.09 m\Omega \\ 1 & Pass \\ 2 & Pass \\ 4 & Pass \\ 5 & Pass \\ 8 & 12.09 m\Omega \\ 1 & Pass \\ 2 & Pass \\ 4 & Pass \\ 2 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 4 & Pass \\ 5 & Pass \\ 6 & Pass \\ 6 & 12.09 m\Omega \\ 1 & Pass \\ 6 & 2 & Pass \\ 7 & 2 & Pass \\ 8 & 3 & Pass \\ 1 & Pass \\ 7 & Pass \\ 8 & 3 & Pass \\ 1 & Pass \\ 7 & Pass \\ 8 & 3 & Pass \\ 1 & Pass \\ 7 & Pass \\ 8 & 3 & Pass \\ 1 & Pass \\ 7 & Pass \\ 9 & 1 & Pass \\ 1 & Pass \\ 1 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 3 & Pass \\ 4 & Pass \\ 5 & Pass \\ 6 & Pass \\ 7 & Pass \\ 7 & Pass \\ 7 & Pass \\ 7 & Pass \\ 8 & 3 & Pass \\ 1 & Pass \\ 7 $						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Measurement must be taken			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			after water rinse			Pass
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				Contact resistance:	Sample	Contact resistance
3 12.05 mΩ 4 12.02 mΩ 5 12.09 mΩ 6 1 Pass 2 Pass 4 Pass 5 Pass 4 Pass 5 Pass 6 Pass				Less than twice of	1	$12.01~\mathrm{m}\Omega$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				initial	2	$12.07~\mathrm{m}\Omega$
Sample Dielectric strength: To pass Para 1-2 1 Pass					3	$12.05~\mathrm{m}\Omega$
Dielectric strength: To pass Para 1-2 1 Pass					4	12.02 mΩ
Dielectric strength: To pass Para 1-2 1 Pass					5	$12.09~\mathrm{m}\Omega$
To pass Para 1-2				Dielectric strength:	Sample	
Solder ability				_	1	
3				10 pass 1 ara 1-2	2	
3-6 Solder ability						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3-6	Solder ability	Land Erro Process	Minimum	_	
Soldering time: 3 ± 0.3 second Soldering pot: $245 \pm 5^{\circ}\text{C}$ area		Border definity				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				area		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Soldering pot: 245 ± 5°C			
No damage Sample No damage 1 Pass						
heat Type: Refer Reflow temperature profile(4.1)	3_7	Resistance to soldering	I I D C CMT	No damage	_	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3-7	heat		140 damage		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		neat				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{ c c c c }\hline 3-8 & \text{Micro Vibration} & 100 \text{ G} \\ 50 \text{ Cycle/min} \\ 20,000 \text{ cycles} & & & & & & & & & & \\ \hline & 50 \text{ Cycle/min} \\ 20,000 \text{ cycles} & & & & & & & & \\ \hline & & & & & & & & \\ \hline & & & &$			profile(4.1)			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2 0	Micro Vibration	100 5			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3-8	IVIICIO VIDIALIOII	100 G	Appearance:	Sample	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				No damage	2	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			20,000 cycles			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
Less than twice of initial				C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					-	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				initial		
Insulation resistance: To pass Para 1-3						
Insulation resistance: To pass Para 1-3 Sample Insulation resistance: 1 Pass 2 Pass 3 Pass 4 Pass						
To pass Para 1-3 To pass Para 1-3					5	19.32 mΩ
1 Pass 2 Pass 3 Pass 4 Pass					Sample	
2 Pass 3 Pass 4 Pass				10 pass I aia 1-3	1	
4 Pass					2	Pass
					3	
					4	Pass
5 Pass					5	Pass



4. Recommended IR Reflow Temperature Profile:

4.1 Using Lead-Free Solder Paste

