RELIABILITY TEST REPORT

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MA-tek Milestone , Accreditation & Certificates

MA-tek is a company with ISO 9001, IECQ 17025 and ISO 27001 certifications and is the only lab in Taiwan awarded the Industrial Excellence Award by the IDB (2008). MA-tek's method of dimension measurement of analytical data can be traced back to the NIST Standard (National Institute of Standard and Technology).

- 2004 Certified by ISO 9001 and IECQ 17025.
- 2006 Elected as the Distinguished Enterprise by the Industry Development Bureau (IDB).
- 2006 Awarded #32 in the Taiwan Top 50 and #157 in the Asia Top 500 Fastest Growing Companies by Deloitte.
- 2008 Awarded the best performance company of Industrial Excellence Award by the Economy Ministry's Industry Development Bureau (IDB).
- 2009 Listed on the Taiwan OTC market (3587)
- 2012 Awarded #474 in the Asia Top 500 Fastest Growing Companies by Deloitte.
- 2013 A+ companies in Taiwan by Global Views Monthly Magazine.
- 2015 Certified by ISO 27001.

ISO/IEC 27001

IECQ 17025

ISO 9001

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MA-tek Core Team

■ **CEO - Dr. Yong-Fen Hsieh**

More than 20 years of experience in various fields of IC(Si), TFT-LCD, LED(III-V, II-VI), LCOS, GaAs, and Ge/ Metal contacts system.
Specialized in TEM analysis, fault isolation/failure analysis, analytical lab operation, quality management (QE, QA, QS, TQM), and materials-related fundamental research.

■ **MA - Dr. J.C. Hu**

More than 10 years of experience in various fields of Advanced IC exploratory & processing, LED, PV, industry, international technology collaboration, materials analysis.
Specialized in TEM, HRTEM, EDX, EELS, PFA and SEM related analysis, materials science, applied chemistry.

■ **FA - Max Kuo**

More than 10 years of experience in IC EFA (EMMI, OBIRCH, LCD, etc.) and PFA (Structure and Process diagnosis) analysis.
Specialized in fault isolation/failure analysis, SEM, chemical analysis, FA total solution consulting and coordination.

■ **RA - Woody Chuang**

More than 20 years of experience in PCB, CCL, FCCL, FPCB and Server ODM/OEM.
Specialized in PCB/FPCB related reliability test and failure analysis, server component reliability research and material analysis.

■ **SA - Ming-Ching Huang**

More than 10 years of experience in surface analysis of IC(Si), TFT-LCD, LED, LCOS, GaAs, and solar cells.
Specialized in SIMS, Auger, ESCA/XPS, Scanning Capacitance Microscopy, Atomic Force Microscopy, Magnetic Field Microscopy, and SRP.

Contents

1 Background Information

1.1 Client Information

TOCALO & HAN TAI TW CO., LTD

User Name：Lily Lin

TEL：+886-3-758-0791 Ext.1075

1.2 Testing Inquiry

Model Name	Test Item	Quantity
20200221-A	Surface Insulation Resistance Test	3 pcs
20200221-B		
20200221-C		

1.3 Pass/Fail Criteria

N/A

2 Testing Summary

Test Item	Condition	Model Name	Judgment
Surface Insulation Resistance Test	Test Voltage：10 V Current Range：500 uA Thickness：10 um Test Time：60 Sec	20200221-A 20200221-B 20200221-C	N/A

3 Testing Items, Conditions, and Raw Data

3.1 Surface Insulation Resistance Test

3.1.1 Test System

Brand/Model No.	Calibration Date
Agilent / 4339B	2018/11/23~2020/05/23

3.1.2 Test Method and Condition

Specification：The test based on Customer's specification.

Environmental Temperature and Humidity：25°C±5°C / 55%R.H±10%

Test Condition：

Test	Condition	
Surface Insulation Resistance Test	Test Voltage	10 V
	Current Range	500 uA
	Thickness	10 um
	Test Time	60 Sec

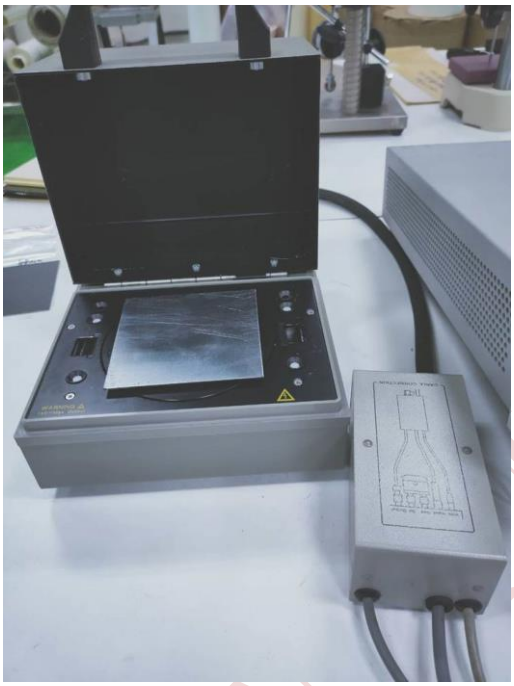
3.1.3 Test Results

Test Result below to table：

Electrical verification will be conducted by client.

Sample name	Vout	Clmt	Rs
20200221-A	10.00 V	500.0 uA	+3.0903E+11Ω
20200221-B	Overcurrent		
20200221-C	10.00 V	500.0 uA	+2.9813E+14Ω
Test Results(20200221-A)		Test Results(20200221-C)	
			

3.1.4 Pictures of Surface Insulation Resistance Test



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Test Setup