

# KOLAS 공인시험기관 인정서

## 큐알티 주식회사

인 정 번 호 : KT218

법인등록번호 : 134411-0059857  
(또는 고유번호)

사업장소재지 : (소재지)경기도 이천시 부발읍 경충대로 2091  
(소재지-1)충청북도 청주시 흥덕구 대신로 215  
(소재지-2)경기도 수원시 영통구 광고로 109

최초인정일자 : 2004년 04월 19일

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인정분야 및 범위 : 별첨

발 행 일 : 2020년 07월 02일

상기 기관을 국가표준기본법 제23조 및 KS Q ISO/IEC 17025:2017에 의거하여 KOLAS 공인시험기관으로 인정합니다. 또한 ISO-ILAC-IAF 공동성명에 언급된 바와 같이 인정된 분야 및 범위에 대한 기술적 능력과 시험기관의 품질경영시스템이 적절함을 인정합니다.



한국인정기구장  
(Korea Laboratory Accreditation Scheme)



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## 03. 전기시험

### 03.014 환경 및 신뢰성

규격번호	규격명	시험범위	사업장	현장시험
AEC-Q100-005-REV-D1:2012	NON-VOLATILE MEMORY PROGRAM/ERASE ENDURANCE, DATA RETENTION, AND OPERATIONAL LIFE TEST (Exception) 3.6 Measurements 4 Failure criteria	Temperature : (55 ~ 150) °C	소재지, 소재지-1	N
AEC-Q100-008-REV-A:2003	EARLY LIFE FAILURE RATE (ELFR) (Exception) 3.3 Acceptance Criteria 3.4 Sample Disposition	Temperature : (55 ~ 150) °C	소재지, 소재지-1	N
IPC/JEDEC J-STD-020E:2014	MOISTURE/REFLOW SENSITIVITY CLASSIFICATION FOR NONHERMETIC SOLID STATE SURFACE MOUNT DEVICES (Exception) 3.6 Electrical test 5.2 Initial electrical test 5.8 Final electrical test	Bake Temperature : 125 °C Moisture Soak Temperature: (30 ~ 85) °C Humidity : (60 ~ 85) % R.H Reflow Peak Temperature : Max. 260 °C	소재지, 소재지-1	N
JESD22-A101D:2015	STEADY STATE TEMPERATURE HUMIDITY BIAS LIFE TEST (Exception) 5 Failure criteria	Temperature : 85 °C Humidity : 85 % R.H.	소재지, 소재지-1	N
JESD22-A102E:2015	ACCELERATED MOISTURE RESISTANCE UNBIASED AUTOCLAVE (Exception) 5 Failure criteria	Temperature : 121 °C Humidity : 100 % R.H. Vapor Pressure : 205 kPa	소재지, 소재지-1	N
JESD22-A103E:2015	HIGH TEMPERATURE STORAGE LIFE (Exception) 4.2 Measurements 4.3 Failure criteria	Temperature : (125 ~ 300) °C	소재지, 소재지-1	N
JESD22-A104E:2014	TEMPERATURE CYCLING (Exception) 5.9 Measurements 6 Failure criteria	Temperature : (-65 ~ 150) °C	소재지, 소재지-1	N

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규격번호	규격명	시험범위	사업장	현장 시험
JESD22-A105D:2020	POWER AND TEMPERATURE CYCLING (Exception) 4.4 Measurements 5 Failure criteria	Temperature : (-40 ~ 125) °C	소재지, 소재지-1	N
JESD22-A106B.01:2016	THERMAL SHOCK (Exception) 4.2 Measurements 4.3 Failure criteria	Temperature : (-65 ~ 150) °C	소재지	N
JESD22-A108F:2017	TEMPERATURE, BIAS, AND OPERATING LIFE (Exception) 6 Measurements 7 Failure criteria	Temperature : (-40 ~ 200) °C	소재지, 소재지-1	N
JESD22-A110E:2015	HIGHLY ACCELERATED TEMPERATURE AND HUMIDITY STRESS TEST (HAST) (Exception) 5 Failure criteria	Temperature: (110 ~ 130) °C Humidity : 85 % R.H. Vapor Pressure : (122 ~ 230) kPa	소재지, 소재지-1	N
JESD22-A113H:2016	PRECONDITIONING OF NONHERMETIC SURFACE MOUNT DEVICES PRIOR TO RELIABILITY TESTING (Exception) 4.1 Initial electrical test 4.10 Final electrical test	Temperature Cycling Temperature : (-40 ~ 150) °C Bake out Temperature : 125 °C Moisture Soak Temperature: (30 ~ 85) °C Humidity: (60 ~ 85) % R.H Reflow Peak Temperature.: Max. 260 °C	소재지, 소재지-1	N
JESD22-A117E:2018	ELECTRICALLY ERASABLE PROGRAMMABLE ROM (EEPROM) PROGRAM/ERASE ENDURANCE AND DATA RETENTION TEST (Exception) 4.1.3 Electrical test verification 4.4 Measurements 5 Failure criteria and calculation	Temperature : (55 ~ 150) °C	소재지, 소재지-1	N

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JESD22-A118B:2015	ACCELERATED MOISTURE RESISTANCE - UNBIASED HAST (Exception) 5 Failure criteria	Temperature: (110 ~ 130) °C Humidity : 85 % R.H. Vapor Pressure : (122 ~ 230) kPa	소재지, 소재지-1	N
JESD22-A119A:2015	LOW TEMPERATURE STORAGE LIFE (Exception) 3.2 Measurements 3.3 Failure criteria	Temperature : (-40 ~ -65) °C	소재지, 소재지-1	N
JESD22-B101C:2015	EXTERNAL VISUAL (Exception) 6 Failure criteria	Magnification : Max. 100 X	소재지, 소재지-1	N
JESD22-B110B.01:2019	MECHANICAL SHOCK - COMPONENT AND SUBASSEMBLY (Exception) 4.3 Measurements 5 Failure criteria	Acceleration Peak: (1 000 ~ 29 000) m/s <sup>2</sup>	소재지	N
JESD22-B113B:2018	BOARD LEVEL CYCLIC BEND TEST METHOD FOR INTERCONNECT RELIABILITY CHARACTERIZATION OF COMPONENTS FOR HANDHELD ELECTRONIC PRODUCT (Exception) 10 Electrical monitoring requirements and failure criteria	Frequency : (1 ~ 3) Hz Depth : (2 ~ 4) mm	소재지	N
JESD74A:2007	EARLY LIFE FAILURE RATE CALCULATION PROCEDURE FOR SEMICONDUCTOR COMPONENTS (Exception) 4.4 Failure analysis	Temperature : (55 ~ 150) °C	소재지, 소재지-1	N

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JESD22-B103B.01:2016	VIBRATION, VARIABLE FREQUENCY (Exception) 4.3 Optional stress application - Random vibration test (cont'd) Table 2 - Overall measures of random vibration test levels ; Service condition A, B 4.4 Measurements 5 Failure Criteria	Frequency : (10 ~ 2000) Hz Acceleration : (10 ~ 200) ㎎	소재지	N
MIL-STD-202H:2015	DEPARTMENT OF DEFENSE TEST METHOD STANDARD ELECTRONIC AND ELECTRICAL COMPONENT PARTS 103 Humidity (steady state) 107 Thermal shock (Exception) Table III. Thermal Shock conditions(liquid) 108 Life (at elevated ambient temperature) (Exception) 4.3 Measurements	Conditioning Temperature : 40 °C Exposure Humidity : (90 ~ 95) % R.H. Temperature : 40 °C Temperature : (-65 ~ 150) °C Temperature : (70 ~ 200) °C	소재지-1	N
MIL-STD-810H:2019	DEPARTMENT OF DEFENSE TEST METHOD STANDARD ENVIRONMENTAL ENGINEERING CONSIDERATIONS AND LABORATORY TESTS 501.7 High Temperature (Exception) 2.2.2 Procedure III - Tactical-Standby to Operational 502.7 Low Temperature (Exception) 2.2.2 Procedure III - Manipulation 503.7 Temperature Shock 507.6 Humidity Table 507.6-VIII Hot Humid - Natual Cycle B3. Table 507.6-IX Aggravated cycle 509.7 Salt Fog	Temperature : (30 ~ 71) °C Temperature : (-61 ~ -21) °C Temperature : (-61 ~ 71) °C Humidity : (30 ~ 95) % R.H. Temperature : (30 ~ 60) °C Temperature : 35 °C Salt solution : 5 %	소재지	N

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MIL-STD-202H:2015	DEPARTMENT OF DEFENSE TEST METHOD STANDARD ELECTRONIC AND ELECTRICAL COMPONENT PARTS 101 Salt atmosphere (corrosion) (Exception) 4.2 Preperation of specimen 5.2 Measurement 103 Humidity (steady state) 107 Thermal shock 108 Life (at elevated ambient temperature) (Exception) 4.3 Measurements 201 Vibration (Exception) 5.1 Measurements 204 Vibration, high frequency (Exception) 4.7 Test condition F (3 000 Hz) 4.9 Test condition H (80g peak) 4.10 Alternate procedure for use of linear in place of logarithmic change of frequency 5.1 Measurements	Temperature : 35 ℃ Salt solution : 5 % Conditioning Temperature : 40 ℃ Exposure Humidity : (90 ~ 95) % R.H. Temperature : 40 ℃ Temperature : (-65 ~ 150) ℃ Temperature : (70 ~ 200) ℃ Frequency : (10 ~ 55) Hz Displacement max : 1.5 mm Frequency : (10 ~ 2 000) Hz Acceleration : (100 ~ 500) m/s <sup>2</sup>	소재지	N

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MIL-STD-810H:2019	DEPARTMENT OF DEFENSE TEST METHOD STANDARD ENVIRONMENTAL ENGINEERING CONSIDERATIONS AND LABORATORY TESTS 501.7 High Temperature (Exception) 2.2.2 Procedure III - Tactical-Standby to Operational 502.7 Low Temperature (Exception) 2.2.2 Procedure III - Manipulation 503.7 Temperature Shock 507.6 Humidity Table 507.6-VIII Hot Humid - Natural Cycle B3. Table 507.6-IX Aggravated cycle	Temperature : (30 ~ 71) °C Temperature : (-61 ~ -21) °C Temperature : (-61 ~ 71) °C Humidity : (30 ~ 95) % R.H. Temperature : (30 ~ 60) °C	소재지-1	N
AEC-Q100-002-REV-E:2013	HUMAN BODY MODEL (HBM) ELECTROSTATIC DISCHARGE TEST	Voltage : (50 ~ 8 000) V	소재지-2	N
AEC-Q100-004-REV-D:2012	IC LATCH-UP TEST (Exception) 5. Failure criteria	Current : Max. 2 A Voltage : Max. 100 V	소재지-2	N
AEC-Q100-011-REV-D:2019	CHARGED DEVICE MODEL (CDM) ELECTROSTATIC DISCHARGE TEST (Exception) 2.2 Measurements 2.9 Failure criteria	Voltage : (50 ~ 2 000) V	소재지-2	N
AEC-Q101-001-REV-A:2005	HUMAN BODY MODEL (HBM) ELECTROSTATIC DISCHARGE(ESD) TEST (Exception) 3.4 Measurements 4 Failure criteria	Voltage : (50 ~ 8 000) V	소재지-2	N
AEC-Q101-005-REV-A:2019	CHARGED DEVICE MODEL (CDM) ELECTROSTATIC DISCHARGE(ESD) TEST (Exception) 2.2 Measurements 2.8 Failure criteria	Voltage : (50 ~ 2 000) V	소재지-2	N

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ANSI/ESDA/JEDEC JS-001-2017	ELECTROSTATIC DISCHARGE (ESD) SENSITIVITY TESTING HUMAN BODY MODEL (HBM) - COMPONENT LEVEL (Exception) 6.1 Parametric and Functional Testing 6.7 Testing After Stressing 7.0 Failure criteria	Voltage : (50 ~ 8 000) V	소재지-2	N
JESD22-A115C:2010	ELECTROSTATIC DISCHARGE (ESD) SENSITIVITY TESTING MACHINE MODEL (MM) (Exception) 5 Failure criteria	Voltage : (50 ~ 1 500) V	소재지-2	N
JESD22-C101F:2013	FIELD-INDUCED CHARGED-DEVICE MODEL TEST METHOD FOR ELECTROSTATIC DISCHARGE WITHSTAND THRESHOLDS OF MICRO ELECTRONIC COMPONENTS (Exception) 11 Failure criteria	Voltage : (50 ~ 3 000) V	소재지-2	N
JESD78E:2017	IC LATCH-UP TEST (Exception) 5 Latch-up detection criteria	Current : Max. 2 A Voltage : Max. 100 V	소재지-2	N
ANSI/ESDA/JEDEC JS-002-2018	ELECTROSTATIC DISCHARGE SENSITIVITY TESTING CHARGED DEVICE MODEL (CDM) - DEVICE LEVEL (Exception) 7.7.2 Device Test 7.2.2.1 Pre-Stress Testing 7.2.2.2 Failure criteria	Voltage : (50 ~ 2 000) V	소재지-2	N

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