
TABLE OF CONTENTS

1.0 SCOPE AND PURPOSE	1
1.1 SCOPE	1
1.2 PURPOSE	1
1.2.1 <i>Existing Data</i>	1
2.0 REFERENCES	1
2.1 OTHER DOCUMENTS.....	1
3.0 DEFINITIONS.....	1
4.0 APPARATUS AND REQUIRED EQUIPMENT.....	4
4.1 WAVEFORM VERIFICATION EQUIPMENT	4
4.1.1 <i>Oscilloscope</i>	4
4.1.2 <i>Current Transducer (Inductive Current Probe)</i>	4
4.1.3 <i>Evaluation Loads</i>	5
4.1.4 <i>Attenuator</i>	5
4.2 HUMAN BODY MODEL SIMULATOR	5
4.2.1 <i>HBM Test Equipment Parasitic Properties</i>	6
5.0 STRESS TEST EQUIPMENT QUALIFICATION AND ROUTINE VERIFICATION	6
5.1 OVERVIEW OF REQUIRED HBM TESTER EVALUATIONS	6
5.2 MEASUREMENT PROCEDURES	6
5.2.1 <i>Reference Pin Pair Determination</i>	6
5.2.2 <i>Waveform Capture with Current Probe</i>	6
5.2.3 <i>Determination of Waveform Parameters</i>	7
5.2.4 <i>High-Voltage Discharge Path Test</i>	9
5.3 HBM TESTER QUALIFICATION.....	9
5.3.1 <i>HBM Tester Qualification Procedure</i>	9
5.4 TEST FIXTURE BOARD QUALIFICATION FOR SOCKETED TESTERS	10
5.5 ROUTINE WAVEFORM CHECK REQUIREMENTS.....	11
5.5.1 <i>Standard Routine Waveform Check Description</i>	11
5.5.2 <i>Alternate Routine Waveform Capture Procedure</i>	12
5.6 HIGH-VOLTAGE DISCHARGE PATH CHECK.....	12
5.6.1 <i>Relay Testers</i>	12
5.6.2 <i>Non-Relay Testers</i>	13
5.7 TESTER WAVEFORM RECORDS.....	13
5.7.1 <i>Tester and Test Fixture Board Qualification Records</i>	13
5.7.2 <i>Periodic Waveform Check Records</i>	13
5.8 SAFETY	13
5.8.1 <i>Initial Set-Up</i>	13
5.8.2 <i>Training</i>	13
5.8.3 <i>Personnel Safety</i>	13

6.0 CLASSIFICATION PROCEDURE	13
6.1 PARAMETRIC AND FUNCTIONAL TESTING.....	13
6.1.1 <i>Handling Components</i>	14
6.2 DEVICE STRESSING	14
6.3 PIN CATEGORIZATION	14
6.3.1 <i>No-Connect Pins</i>	15
6.3.2 <i>Supply Pins</i>	15
6.3.3 <i>Non-Supply Pins</i>	15
6.4 PIN GROUPINGS	16
6.4.1 <i>Supply Pin Groups</i>	16
6.4.2 <i>Shorted Non-Supply Pin Groups</i>	16
6.5 PIN STRESS COMBINATIONS	17
6.5.1 <i>Non-Supply and Supply to Supply Combinations (1, 2, ...N)</i>	18
6.5.2 <i>Non-Supply to Non-Supply Combinations</i>	19
6.6 HBM STRESSING WITH A LOW-PARASITIC SIMULATOR	20
6.6.1 <i>Low-Parasitic HBM Simulator</i>	20
6.6.2 <i>Requirements for Low Parasitics</i>	20
6.7 TESTING AFTER STRESSING	20
7.0 FAILURE CRITERIA.....	20
8.0 COMPONENT CLASSIFICATION.....	21

ANNEXES

Annex A (Informative) - HBM Test Method Flow Chart.....	22
Annex B (Informative) - HBM Test Equipment Parasitic Properties	25
Annex C (Informative) - Example of Testing a Product Using Table 2A, 2B, or 2A with a Two-Pin HBM Tester.....	30
Annex D (Informative) - Examples of Coupled Non-Supply Pin Pairs.....	36
Annex E (Informative) - Bibliography.....	37
Annex F (Normative) - Alternative Table for Table 2B	38
Annex G (Normative) - Cloned Non-Supply (IO) Pin Sampling Test Method	39
Annex H (Informative) - Failure Window Detection Testing Methods	45
Annex I (Informative) - ANSI/ESDA/JEDEC JS-001 Revision History	46