

JEDEC STANDARD

Test Methods and Acceptance Procedures for the Evaluation of Polymeric Materials

JESD72A

(Revision of JESD72, June 2001)

MARCH 2018

JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



NOTICE

JEDEC standards and publications contain material that has been prepared, reviewed, and approved through the JEDEC Board of Directors level and subsequently reviewed and approved by the JEDEC legal counsel.

JEDEC standards and publications are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products, and assisting the purchaser in selecting and obtaining with minimum delay the proper product for use by those other than JEDEC members, whether the standard is to be used either domestically or internationally.

JEDEC standards and publications are adopted without regard to whether or not their adoption may involve patents or articles, materials, or processes. By such action JEDEC does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the JEDEC standards or publications.

The information included in JEDEC standards and publications represents a sound approach to product specification and application, principally from the solid state device manufacturer viewpoint. Within the JEDEC organization there are procedures whereby a JEDEC standard or publication may be further processed and ultimately become an ANSI standard.

No claims to be in conformance with this standard may be made unless all requirements stated in the standard are met.

Inquiries, comments, and suggestions relative to the content of this JEDEC standard or publication should be addressed to JEDEC at the address given, or refer to www.jedec.org under Standards and Documents for alternative contact information.

Published by
©JEDEC Solid State Technology Association 2018
3103 North 10th Street
Suite 240 South
Arlington, VA 22201-2107

This document may be downloaded free of charge; however JEDEC retains the copyright on this material. By downloading this file the individual agrees not to charge for or resell the resulting material.

PRICE: Contact JEDEC

Printed in the U.S.A.
All rights reserved

PLEASE!

DON'T VIOLATE
THE
LAW!

This document is copyrighted by JEDEC and may not be reproduced without permission.

For information, contact:

JEDEC Solid State Technology Association
3103 North 10th Street
Suite 240 South
Arlington, VA 22201-2107

or refer to www.jedec.org under Standards-Documents/Copyright Information.

Test Methods and Acceptance Procedures for the Evaluation of Polymeric Materials

Contents

1	Scope	1
2	Applicable Documents	1
3	Requirements	3
3.1	Apparatus.....	3
3.2	Material Acquisition Specification.....	3
3.3	Certification of Compliance	3
3.4	Evaluation Procedures	3
3.5	Properties of Uncured Materials.....	3
3.6	Properties of Cured Materials	5
3.7	Responsibility for Test.....	8
3.8	Classification of Testing	9
4	Procedures	10
4.1	Methods of Examination and Test.....	10
4.2	Materials.....	10
4.3	Viscosity	10
4.4	Pot Life	11
4.5	Shelf Life	11
4.6	Thermogravimetric Analysis	11
4.7	Outgassed Materials	12
4.8	Ionic Impurities	13
4.9	Bond Strength	14
4.10	Coefficient of Linear Thermal Expansion	15
4.11	Thermal Conductivity	15
4.12	Volume Resistivity	16
4.13	Dielectric Constant.....	17
4.14	Dissipation Factor	17
4.15	Sequential Test Environment	18
4.16	Density	18
4.17	Mechanical Integrity	19
4.18	Operation Life Test.....	20
4.19	Test Deviation	20
5	Summary	20
Annex A (informative) Differences between revisions		21

TEST METHODS AND ACCEPTANCE PROCEDURES FOR THE EVALUATION OF POLYMERIC MATERIALS

(From Board Ballot JCB-18-04, formulated under the cognizance of the JC-13.5 Subcommittee on Hybrid, RF/Microwave, and MCM Technology.)

1 Scope

This Test Method covers the minimum requirements that should be in effect for the evaluation and acceptance of polymeric materials for use in industrial, military, space, and other special-condition products which may require capabilities beyond standard commercial microelectronics applications. It is not the intent of this Publication to specify a material, but to evaluate the material to assure that the quality and reliability of the microelectronic devices are not compromised. These materials shall be classified in two types as follows:

- 1) Type I being electrically conductive.
- 2) Type II being electrically insulative.

The user may elect to use test data from routine tests or evaluations for all or part of the user certification.

The test methods included as a part of this Publication are those which best address those physical, chemical, mechanical, and electrical properties of materials which can impact the reliability of these microelectronic devices. This Publication is not designed to be exhaustive of all techniques available as newer and more nearly absolute techniques are constantly being developed.

2 Applicable documents

The Standards and Publications listed, of current issue, form a part of this Test Method to the extent specified herein.

MIL-STD-883, *Test Methods and Procedures for Microelectronics*

MIL-PRF-38534, *General Specification Hybrid Microcircuits*

MIL-PRF-38535, *General Specification for Integrated Circuits (Microcircuits) Manufacturing*

FED-STD-406, *Federal Test Method Standard for Test of Adhesives*

ANSI/NCSL Z540-1, *General Requirements for Calibration Laboratories, Measuring and Test Equipment*

ASTM C177, *Steady State Heat Flux Measurement and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus*

ASTM C518, *Steady State Heat Flux Measurement and Thermal Transmission Properties by Means of the Heat Flowmeter Apparatus*

ASTM D150, *AC Loss Characteristics and Dielectric Constant of Solid Electrical Insulating Materials*