

ICS 29.080.30

CCS K 30



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/Z 37754-2019

**Guidance on clearances and creepage distances in particular
for distances equal to or less than 2 mm - Test results of
research on influencing parameters**

Issued on: June 4, 2019

Implemented on: January 1, 2020

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

Foreword

This guidance technical document was drafted in accordance with the rules given in GB/T 1.1-2009.

This guidance document uses the translation method equivalent to IEC TR63040.2016 "On the determination of electrical distances not exceeding 2 mm"

Guidelines for gaps and creepage distances for test results that affect the parameters.

This guidance technical document was proposed by the China Electrical Equipment Industry Association.

This guidance technical document is under the jurisdiction of the National Low Voltage Equipment Insulation Coordination Technical Committee (SAC/TC417).

This guiding technical document drafting unit. Shanghai Electric Apparatus Research Institute, Shanghai Electric Apparatus Research Institute (Group) Co., Ltd., Shanghai Electric

Ke Electric Technology Co., Ltd.

Introduction

This guidance document gives information on the insulation of the printed board assembly and other equivalent layout planes, in which case the clearances and

The creepage distance is the same along the path of the solid insulating material surface.

This guidance document is based on research data published in May 1989 in Germany. SC28A (predecessor of TC109) opened in November.1990

The research data was analyzed.

The background information related to the project research is as follows.

---The test sample used in the research is produced in the same process as the printed

circuit board. The circuit module spacing is from 0.16mm~

6.3mm;

---The test sample uses 10 different materials, the influence of the manufacturing process on the surface of the material, such as molding, processing, etc., is not used as the research item.

Part of the purpose;

---The sample is placed in different regions, such as urban, rural, industrial, desert and coastal areas, and is regularly exposed to voltage stress, correlation number

It has been accumulated for a long time.

About determining clearances that are no more than 2mm away

And creepage distance guidelines for impact parameters

Test results of the study

1 Scope

This guidance document describes dimensions for clearances and creepage distances not exceeding 2 mm in printed wiring boards and similar structural members.

The results of the method were determined in which the clearance and creepage distance were the same along the path of the solid insulating surface.

The information given in this guidance document is for research purposes only and does not apply to clearances and creepage distances of equipment in low voltage systems.

Determination of dimensions (see GB/T 16935.1 for corresponding requirements). However, the relevant clearance and creepage distance dimensions can be used during functional design.

For reference.

This guidance document gives the results of the study in the following cases.

--- Clearance independent of the microscopic environment;

--- The creepage distance of pollution levels 1, 2 and 3 is also applicable to small pitch products with similar printed circuit board design;

--- Avoid the creepage distance of the flashing surface of the insulation surface;

--- Information on the minimum creepage distance required to maintain the minimum insulation resistance.

This guidance document specifies a test method for assessing the surface water absorption

group of insulation materials that have not yet been classified.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 16935.1-2008 Insulation of equipment in low-voltage systems - Part 1. Principles, requirements and tests (IEC 60664-1.

2007, IDT)

3 Terms and definitions

The following terms and definitions as defined in GB/T 16935.1-2008 apply to this document.

The terminology database addresses maintained by ISO and IEC for standardization are as follows.

3.1

Non-uniform electric field inhomogeneousfield

Non-uniform electric field

The voltage gradient between the electrodes is substantially non-constant electric field.

Note. Regarding the voltage withstand capability, the non-uniform electric field condition of the tip to the planar electrode structure is the worst case, which is called Case A. It can be made up of one

A dot electrode having a radius of 30 μm and a planar electrode of 1 m x 1 m are represented.

3.2

Uniform electric field

Uniform electric field