



ANSI/EIA 364-46B-2006
Approved: January 30, 2006

EIA STANDARD

TP-46B

MICROSECOND DISCONTINUITY TEST PROCEDURE FOR ELECTRICAL CONNECTORS, CONTACTS AND SOCKETS

EIA/ECA-364-46B

(Revision of EIA-364-46A)

JANUARY 2006

EIA/ECA-364-46B



Electronic Components, Assemblies & Materials Association

**ELECTRONIC COMPONENTS, ASSEMBLIES & MATERIALS
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(From Standards Proposal No. 5085 formulated under the cognizance of the CE-2.0 National Connectors Standards Committee.

Published by

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Technology Strategy & Standards Department
2500 Wilson Boulevard
Arlington, VA 22201

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TEST PROCEDURE No. 46B

MICROSECOND DISCONTINUITY TEST PROCEDURE
FOR
ELECTRICAL CONNECTORS, CONTACTS AND SOCKETS

(From EIA Standards Proposal No. 5085 formulated under the cognizance EIA CE-2.0 Committee on National Connector Standards, and previously published in EIA-364-46A.)

1 Introduction

1.1 Scope

This procedure is to define a method of detecting a discontinuity of one microsecond or longer in a mated electrical connector, contact or socket. This procedure shall not be used for durations less than one microsecond; see EIA-364-87, test procedure for nanosecond event detection.

1.2 Definition

A discontinuity is defined as a series loop resistance of 10 ohms or greater lasting for one microsecond or longer, measured at the detector input unless otherwise specified in the referencing document.

2 Test Resources

2.1 Equipment

The test equipment shall consist of a detector and a power supply (internal or external to the detector) and associated wiring.

2.1.1 Detector

A detector shall be used that will register when a resistance is detected, indicating that a discontinuity, see 1.2, has occurred.

2.1.2 Power supply

The power supply may be separate from the detector. The power supply shall be capable of supplying 100 milliamperes dc. The power supply shall be capable of supplying open circuit voltage not to exceed 5.0 volts. Power supply regulation response time shall be 0.1 microseconds or better.

3 Test specimen

3.1 Description

The test specimens shall consist of fully terminated connectors.

4 Test procedure

4.1 Unless otherwise specified in the referencing document, 100 contacts shall be wired in two or more series circuit(s) with each circuit connected to a separate detector, or shall be individually connected to separate detectors (one detector for each contact). The maximum initial resistance of any individual series loop circuit shall not exceed 3 ohms. If the resistance exceeds 3 ohms, additional circuits shall be required and connected to additional detectors.

4.2 Unless otherwise specified in the referencing document, for test specimens with 50 positions or less, all contact positions shall be monitored for the specified discontinuity. Additional test specimens shall be added to the sample population to assure the minimum number of positions as specified in 4.1 are monitored.

4.3 False failure may be caused by electrical noise or interference. If a discontinuity is indicated, the detector shall be reset. If any further discontinuities occur, the time and test parameters resulting in said discontinuity shall be recorded and reported. Specimens shall not be failed by a single discontinuity indication when the detector is reset and the discontinuity does not recur.

5 Details to be specified

The following details shall be specified in the referencing document:

5.1 The number of specimens to be tested and description

5.2 Specimen configuration

5.3 Type of test and severity level

5.4 Number of contacts to be tested if other than specified in 4.1 and 4.2

5.5 Electrical load conditions, if other than 100 milliamperes maximum

6 Test documentation

Documentation shall contain the details specified in clause 5, with any exceptions, and the following:

6.1 Title of test

6.2 Test equipment used, and date of last and next calibration

6.3 Results including failures

6.4 Room ambient temperature and humidity

6.5 Date of test and name of operator

EIA Document Improvement Proposal

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