



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS C 60068-2-38 : 2013

(IEC 60068-2-38 : 2009)

(RCJ/JSA)

Environmental testing—Part 2-38: Tests—Test Z/AD: Composite temperature/humidity cyclic test

ICS 19.040

Reference number : JIS C 60068-2-38 : 2013 (E)

PROTECTED BY COPYRIGHT

Date of Establishment: 1988-02-01

Date of Revision: 2013-03-21

Date of Public Notice in Official Gazette: 2013-03-21

Investigated by: Japanese Industrial Standards Committee
Standards Board

Technical Committee on Electricity Technology

JIS C 60068-2-38:2013, First English edition published in 2013-08

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2013

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 General	2
3.1 Description of the test	2
3.2 Application of the test	2
4 Description of test chamber	3
4.1 Chamber for exposure to moisture	3
4.2 Chamber for exposure to cold	3
5 Severities	4
6 Testing procedure	4
6.1 Preconditioning	4
6.2 Initial measurements	5
6.3 Conditioning	5
6.4 Test cycle	9
6.5 Final measurements	11
7 Information to be given in the relevant specification	12
8 Information to be given in the test report	12

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Reliability Center for Electronic Components of Japan (RCJ)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS C 60068-2-38:1988** is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public or utility model right. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public or the utility model right.

JIS C 60068 consists of the following 58 parts;

JIS C 60068-1 *General and guidance*

JIS C 60068-2-1 *Part 2-1: Tests—Test A: Cold*

JIS C 60068-2-2 *Part 2-2 : Tests—Test B: Dry heat*

JIS C 60068-2-6 *Part 2-6: Tests—Test Fc: Vibration (sinusoidal)*

JIS C 60068-2-7 *Test Ga and guidance: Acceleration, steady state*

JIS C 60068-2-11 *Test Ka: Salt mist*

JIS C 60068-2-13 *Test M: Low air pressure*

JIS C 60068-2-14 *Part 2-14: Tests—Test N: Change of temperature*

JIS C 60068-2-17 *Test Q: Sealing*

JIS C 60068-2-18 *Part 2-18: Tests—Test R and guidance: Water*

JIS C 60068-2-20 *Part 2-20: Tests—Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

JIS C 60068-2-21 *Part 2-21: Tests—Test U: Robustness of termination and integral mounting devices*

JIS C 60068-2-27 *Part 2-27: Tests—Test Ea: Shock*

JIS C 60068-2-30 *Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

JIS C 60068-2-31 *Test Ec: Drop and topple, primarily for equipment-type specimens*

JIS C 60068-2-38 *Test Z/AD: Composite temperature/humidity cyclic test*

JIS C 60068-2-39 *Part 2: Tests. Test Z/AMD: Combined sequential cold, low air pressure, and damp heat test*

JIS C 60068-2-40 *Test Z/AM: Combined cold/low air pressure tests*

- JIS C 60068-2-41 *Test Z/BM: Combined dry heat/low air pressure tests*
- JIS C 60068-2-42 *Test Kc: Sulphur dioxide test for contacts and connections*
- JIS C 60068-2-43 *Test Kd: Hydrogen sulphide test for contacts and connections*
- JIS C 60068-2-45 *Environmental testing procedures of electronic and electrical resistance to solvents (immersion in cleaning solvents)*
- JIS C 60068-2-46 *Guidance to Test Kd: Hydrogen sulphide test for contacts and connections*
- JIS C 60068-2-47 *Part 2-47: Tests—Mounting of specimens for vibration, impact and similar dynamic tests*
- JIS C 60068-2-48 *Part 2: Tests. Guidance on the application of the tests of JIS environmental testing series to simulate the effects of storage*
- JIS C 60068-2-49 *Guidance to Test Kc: Sulphur dioxide test for contacts and connections*
- JIS C 60068-2-50 *Tests Z/AFc: Combined cold/vibration (sinusoidal) tests for both heat-dissipating and non-heat-dissipating specimens*
- JIS C 60068-2-51 *Tests Z/BFc: Combined dry heat/vibration (sinusoidal) tests for both heat-dissipating and non-heat-dissipating specimens*
- JIS C 60068-2-52 *Test Kb: Salt mist, cyclic (sodium chloride solution)*
- JIS C 60068-2-53 *Guidance to tests Z/AFc and Z/BFc: Combined temperature (cold and dry heat) and vibration (sinusoidal) tests*
- JIS C 60068-2-54 *Test Ta: Solderability testing of electronic components by the wetting balance method*
- JIS C 60068-2-57 *Time-history vibration test method*
- JIS C 60068-2-58 *Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*
- JIS C 60068-2-59 *Test Fe: Vibration—Sine-beat method*
- JIS C 60068-2-60 *Test Ke: Flowing mixed gas corrosion test*
- JIS C 60068-2-61 *Test Z/ABDM: Climatic sequence*
- JIS C 60068-2-64 *Test Fh: Vibration, broad-band random (digital control) and guidance*
- JIS C 60068-2-65 *Part 2-65: Vibration, acoustically induced*
- JIS C 60068-2-66 *Test Cx: Damp heat, steady state (unsaturated pressurized vapour)*
- JIS C 60068-2-67 *Test Cy: Damp heat, steady state, accelerated test primarily intended for components*
- JIS C 60068-2-68 *Dust and sand test*
- JIS C 60068-2-69 *Part 2-69: Tests—Test Te: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method*

- JIS C 60068-2-70 *Part 2: Tests—Test Xb: Abrasion of markings and letterings caused by rubbing of fingers and hands*
- JIS C 60068-2-75 *Part 2-75: Tests—Test Eh: Hammer tests*
- JIS C 60068-2-77 *Tests—Test 77: Body strength and impact shock*
- JIS C 60068-2-78 *Part 2-78: Tests—Test Cab: Damp heat, steady state*
- JIS C 60068-2-80 *Part 2-80: Tests—Test Fi: Vibration—Mixed mode*
- JIS C 60068-2-81 *Part 2-81: Shock—Shock response spectrum synthesis*
- JIS C 60068-2-82 *Part 2-82: Tests—Test XW₁: Whisker test methods for electronic and electric components*
- JIS C 60068-2-83 *Part 2-83: Tests—Test Tf: Solderability test of electronic components for surface mounting devices (SMD) by the wetting balance method using solder paste*
- JIS C 60068-3-1 *Background information, Section One—Cold and dry heat tests*
- JIS C 60068-3-2 *Part 3: Background information Section Two—Combined temperature/low air pressure tests*
- JIS C 60068-3-3 *Guidance Seismic test method for equipments*
- JIS C 60068-3-4 *Part 3-4: Supporting documentation and guidance—Damp heat tests*
- JIS C 60068-3-5 *Part 3-5: Supporting documentation and guidance—Confirmation of the performance of temperature chambers*
- JIS C 60068-3-6 *Part 3-6: Supporting documentation and guidance—Confirmation of the performance of temperature/humidity chambers*
- JIS C 60068-3-7 *Part 3-7: Supporting documentation and guidance—Measurements in temperature chambers for tests A and B (with load)*
- JIS C 60068-3-8 *Part 3-8: Supporting documentation and guidance—Selecting amongst vibration tests*