

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS C 5101-3 : 2010

(IEC 60384-3 : 2006)

(JEITA/JSA)

**Fixed capacitors for use in
electronic equipment—
Part 3: Sectional specification—
Surface mount fixed tantalum
electrolytic capacitors with
manganese dioxide solid electrolyte**

ICS 31.060.30

Reference number : **JIS C 5101-3 : 2010 (E)**

C 5101-3 : 2010 (IEC 60384-3 : 2006)

Date of Establishment: 1998-07-20

Date of Revision: 2010-06-21

Date of Public Notice in Official Gazette: 2010-06-21

Investigated by: Japanese Industrial Standards Committee
Standards Board

Technical Committee on Electronics Technology

JIS C 5101-3:2010, First English edition published in 2010-12

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 2010

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

AT

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 General	1
1.1 Scope	1
1.2 Object	1
1.3 Normative references	2
1.4 Information to be given in a detail specification	2
1.5 Terms and definitions	4
1.6 Marking	4
2 Preferred ratings and characteristics	5
2.1 Preferred characteristics	5
2.2 Preferred values of ratings	6
3 Quality assessment procedures	7
3.1 Primary stage of manufacture	7
3.2 Structurally similar components	7
3.3 Certified records of released lots	7
3.4 Qualification approval	8
3.5 Quality conformance inspection	9
4 Test and measurement procedures	10
4.1 Preliminary drying	10
4.2 Measuring conditions	10
4.3 Mounting	10
4.4 Visual examination and check of dimensions	10
4.5 Electrical tests	10
4.6 Resistance to soldering heat	12
4.7 Solderability	12
4.8 Shear test	13
4.9 Substrate bending test	13
4.10 Rapid change of temperature	13
4.11 Climatic sequence (applicable to Style 1 capacitors only)	14
4.12 Damp heat, steady state (applicable to Style 1 capacitors only)	14
4.13 Characteristics at high and low temperature	15
4.14 Surge	15
4.15 Endurance	15
4.16 Reverse voltage (if required by the detail specification)	16
4.17 Component solvent resistance (if required by the detail specification)	16
4.18 Solvent resistance of the marking (if required by the detail specification)	17
4.19 High surge current (if required by the detail specification)	17

C 5101-3 : 2010 (IEC 60384-3 : 2006)

Annex A (normative) Test plans for assessment level EZ	18
Annex B (normative) Test schedule for assessment level EZ	22

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 Japan Electronics and Information Technology Industries Association (JEITA)/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 5101-3:1998** has been 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, utility model right or application for registration of utility model after opening to the public which have technical properties. 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, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

JIS C 5101 series consists of the following 45 parts under the general title “*Fixed capacitors for use in electronic equipment*”:

JIS C 5101-1 *Part 1: Generic specification*

JIS C 5101-2 *Part 2: Sectional specification: Fixed metallized polyethylene-terephthalate film dielectric d.c. capacitors*

JIS C 5101-2-1 *Part 2-1: Blank detail specification: Fixed metallized polyethylene-terephthalate film dielectric d.c. capacitors—Assessment levels E and EZ*

JIS C 5101-3 *Part 3: Sectional specification—Surface mount fixed tantalum electrolytic capacitors with manganese dioxide solid electrolyte*

JIS C 5101-3-1 *Part 3-1: Blank detail specification—Surface mount fixed tantalum electrolytic capacitors with manganese dioxide solid electrolyte—Assessment level EZ*

JIS C 5101-4 *Part 4: Sectional specification—Aluminium electrolytic capacitors with solid (MnO₂) and non-solid electrolyte*

JIS C 5101-4-1 *Part 4-1: Blank detail specification—Fixed aluminium electrolytic capacitors with non-solid electrolyte—Assessment level EZ*

JIS C 5101-4-2 *Part 4-2: Blank detail specification—Fixed aluminium electrolytic capacitors with solid (MnO₂) electrolyte—Assessment level EZ*

JIS C 5101-8 *Part 8: Sectional specification: Fixed capacitors of ceramic dielectric, Class 1*

JIS C 5101-8-1 *Part 8-1: Blank detail specification: Fixed capacitors of ceramic dielectric, Class 1 Assessment level EZ*

- JIS C 5101-9 *Part 9: Sectional specification: Fixed capacitors of ceramic dielectric, Class 2*
- JIS C 5101-9-1 *Part 9-1: Blank detail specification: Fixed capacitors of ceramic dielectric, Class 2 Assessment level EZ*
- JIS C 5101-11 *Part 11: Sectional specification: Fixed polyethylene-terephthalate film dielectric metal foil d.c. capacitors*
- JIS C 5101-11-1 *Part 11: Blank detail specification: Fixed polyethylene-terephthalate film dielectric metal foil d.c. capacitors Assessment level E*
- JIS C 5101-13 *Part 13: Sectional specification—Fixed polypropylene film dielectric metal foil d.c. capacitors*
- JIS C 5101-13-1 *Part 13-1: Blank detail specification—Fixed polypropylene film dielectric metal foil d.c. capacitors—Assessment levels E and EZ*
- JIS C 5101-14 *Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*
- JIS C 5101-14-1 *Part 14-1: Blank detail specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains—Assessment level D*
- JIS C 5101-14-2 *Part 14-2: Blank detail specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains—Safety tests only*
- JIS C 5101-14-3 *Part 14-3: Blank detail specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains—Assessment level DZ*
- JIS C 5101-15 *Part 15: Sectional specification: Fixed tantalum capacitors with non-solid or solid electrolyte*
- JIS C 5101-15-1 *Part 15: Blank detail specification: Fixed tantalum capacitors with non-solid electrolyte and foil electrode Assessment level E*
- JIS C 5101-15-2 *Part 15: Blank detail specification: Fixed tantalum capacitors with non-solid electrolyte and porous anode Assessment level E*
- JIS C 5101-15-3 *Part 15: Blank detail specification: Fixed tantalum capacitors with solid electrolyte and porous anode Assessment level E*
- JIS C 5101-16 *Part 16: Sectional specification: Fixed metallized polypropylene film dielectric d.c. capacitors*
- JIS C 5101-16-1 *Part 16-1: Blank detail specification: Fixed metallized polypropylene film dielectric d.c. capacitors—Assessment levels E and EZ*
- JIS C 5101-17 *Sectional specification: Fixed metallized polypropylene film dielectric a.c. and pulse capacitors*
- JIS C 5101-17-1 *Part 17-1: Blank detail specification: Fixed metallized polypropylene film dielectric a.c. and pulse capacitors—Assessment levels E and EZ*

- JIS C 5101-18 *Part 18: Sectional specification—Fixed aluminium electrolytic surface mount capacitors with solid (MnO₂) and non-solid electrolyte*
- JIS C 5101-18-1 *Part 18-1: Blank detail specification—Fixed aluminium electrolytic surface mount capacitors with solid (MnO₂) electrolyte—Assessment level EZ*
- JIS C 5101-18-2 *Part 18-2: Blank detail specification—Fixed aluminium electrolytic surface mount capacitors with non-solid electrolyte—Assessment level EZ*
- JIS C 5101-20 *Part 20: Sectional specification—Fixed metallized polyphenylene sulfide film dielectric surface mount d.c. capacitors*
- JIS C 5101-20-1 *Part 20-1: Blank detail specification—Fixed metallized polyphenylene sulfide film dielectric surface mount d.c. capacitors—Assessment level EZ*
- JIS C 5101-21 *Part 21: Sectional specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1*
- JIS C 5101-21-1 *Part 21-1: Blank detail specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1—Assessment level EZ*
- JIS C 5101-22 *Part 22: Sectional specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2*
- JIS C 5101-22-1 *Part 22-1: Blank detail specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2—Assessment level EZ*
- JIS C 5101-23 *Part 23: Sectional specification—Fixed surface mount metallized polyethylene naphthalate film dielectric DC capacitors*
- JIS C 5101-23-1 *Part 23-1: Blank detail specification—Fixed surface mount metallized polyethylene naphthalate film dielectric DC capacitors—Assessment level EZ*
- JIS C 5101-24 *Part 24: Sectional specification—Surface mount fixed tantalum electrolytic capacitors with conductive polymer solid electrolyte*
- JIS C 5101-24-1 *Part 24-1: Blank detail specification—Surface mount fixed tantalum electrolytic capacitors with conductive polymer solid electrolyte—Assessment level EZ*
- JIS C 5101-25 *Part 25: Sectional specification—Surface mount fixed aluminium electrolytic capacitors with conductive polymer solid electrolyte*
- JIS C 5101-25-1 *Part 25-1: Blank detail specification—Surface mount fixed aluminium electrolytic capacitors with conductive polymer solid electrolyte—Assessment level EZ*
- JIS C 5101-26 *Part 26: Sectional specification—Fixed aluminium electrolytic capacitors with conductive polymer solid electrolyte (to be published)*
- JIS C 5101-26-1 *Part 26-1: Blank detail specification—Fixed aluminium electrolytic capacitors with conductive polymer solid electrolyte—Assessment level EZ (to be published)*

**Fixed capacitors for use in
electronic equipment—
Part 3: Sectional specification—
Surface mount fixed tantalum
electrolytic capacitors with manganese
dioxide solid electrolyte**

Introduction

This Japanese Industrial Standard has been prepared based on the third edition of **IEC 60384-3** published in 2006 without modifying the technical contents.

The portions with dotted underlines are the matters not given in corresponding International Standard.

1 General

1.1 Scope

This Standard is a sectional specification associated with generic specification **JIS C 5101-1**, and applies to surface mount tantalum solid electrolyte capacitors. These capacitors are primarily intended to be mounted directly onto substrates for hybrid circuits or onto printed boards.

The following two styles are considered:

- Style 1: protected capacitors;
- Style 2: unprotected capacitors.

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows:

IEC 60384-3:2006 *Fixed capacitors for use in electronic equipment—
Part 3: Sectional specification: Surface mount fixed tantalum electrolytic
capacitors with manganese dioxide solid electrolyte* (IDT)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified) and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

1.2 Object

The object of this Standard is to prescribe preferred ratings and characteristics and to select from **JIS C 5101-1**, the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. The levels of test severities and performance requirements to be prescribed in detail specifications referring to this sectional specification shall be at least equal to this Standard.