

SLOVENSKI STANDARD SIST EN 60393-6:2016

01-julij-2016

Potenciometri za elektronsko opremo - 6. del: Področna specifikacija - Prednastavljeni potenciometri za površinsko montažo

Potentiometers for use in electronic equipment - Part 6: Sectional specification - Surface mount preset potentiometers

iTeh STANDARD PREVIEW

Potentiomètres utilises dans les équipements électroniques - Partie 6 : Spécification intermédiaire - Potentiomètres d'ajustement pour montage en surface

SIST EN 60393-6:2016

Ta slovenski standard je istoveten z: EN 60393-6:2016

ICS:

31.040.20 Potenciometri, spremenljivi Poten

Potentiometers, variable

upori resistors

SIST EN 60393-6:2016

en

SIST EN 60393-6:2016

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 60393-6:2016

https://standards.iteh.ai/catalog/standards/sist/433f7305-b76b-4b42-b270-5ac176a4e207/sist-en-60393-6-2016

EUROPEAN STANDARD

EN 60393-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 31.040.20

English Version

Potentiometers for use in electronic equipment - Part 6: Sectional specification - Surface mount preset potentiometers (IEC 60393-6:2015)

Potentiomètres utilises dans les équipements électroniques - Partie 6 : Spécification intermédiaire - Potentiomètres d'ajustement pour montage en surface (IEC 60393-6:2015) Potentiometer zur Verwendung in Geräten der Elektronik -Teil 6: Rahmenspezifikation - Trimmpotentiometer für die Oberflächenmontage (IEC 60393-6:2015)

This European Standard was approved by CENELEC on 2016-01-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

SIST EN 60393-6:2016

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization Comité Européen de Normalisation Electrotechnique Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 60393-6:2016

European foreword

The text of document 40/2409/FDIS, future edition 2 of IEC 60393-6, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60393-6:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2019-01-18 the document have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60393-6:2015 was approved by CENELEC as a European Standard without any modification. (standards.iteh.ai)

<u>SIST EN 60393-6:2016</u> https://standards.iteh.ai/catalog/standards/sist/433f7305-b76b-4b42-b270-5ac176a4e207/sist-en-60393-6-2016

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	<u>Title</u> <u>EN/HD</u>	Year
IEC 60062	-	Marking codes for resistors and capacitors EN 60062	-
IEC 60068-1	2013	Environmental testing Part 1: GeneralEN 60068-1 and guidance	2014
IEC 60068-2-1	2007	Environmental testing Part 2-1: Tests -EN 60068-2-1 Test A: Cold	2007
IEC 60068-2-2	2007	Environmental testing Part 2-2: Tests -EN 60068-2-2 Test B: Dry heat	2007
IEC 60068-2-58	2004	Environmental testing - Part 2-581 Tests -EN 60068-2-58	2004
		Test Td: Test methods for solderability,	
		resistance to dissolution of metallization	
	https://sta	and to soldering heat of surface mounting	
_	-	ndards lieh algaralog standards/sist/43317303-6766-9642-6270- devices (SMD) 3ac1/6a4e207/sist-en-60393-6-2016 + corrigendum I	Dec. 2004
IEC 60286-3	-	Packaging of components for automaticEN 60286-3	_
		handling Part 3: Packaging of surface	
		mount components on continuous tapes	
IEC 60393-1	2008	Potentiometers for use in electronicEN 60393-1 equipment Part 1: Generic specification	2009
IEC 61193-2	2007	Quality assessment systems Part 2:EN 61193-2	2007
		Selection and use of sampling plans for	
		inspection of electronic components and	
		packages	
		, ,	

SIST EN 60393-6:2016

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 60393-6:2016

https://standards.iteh.ai/catalog/standards/sist/433f7305-b76b-4b42-b270-5ac176a4e207/sist-en-60393-6-2016



IEC 60393-6

Edition 2.0 2015-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Potentiometers for use in electronic equipment EVIEW
Part 6: Sectional specification – Surface mount preset potentiometers

Potentiomètres utilisés dans les équipements électroniques – Partie 6: Spécification intermédiaire — Potentiomètres d'ajustement pour montage en surface 5ac176a4e207/sist-en-60393-6-2016

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 31.040.20 ISBN 978-2-8322-3058-9

Warning! Make sure that you obtained this publication from an authorized distributor.

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

Η(DREWO	RD	4		
1	Gene	General			
	1.1	Scope	6		
	1.2	Normative references			
	1.3	Information to be given in a detail specification	6		
	1.3.1	General	6		
	1.3.2	Outline drawing and dimensions	7		
	1.3.3	Mounting	7		
	1.3.4				
	1.3.5	Resistance law	7		
	1.3.6	Ratings and characteristics	8		
	1.3.7	Marking	8		
	1.3.8	Ordering information	8		
	1.3.9	Additional information (not for inspection purposes)	8		
	1.3.1	0 Packaging	8		
	1.4	Marking	9		
	1.4.1	General			
	1.4.2	Marking for potentiometers	9		
	1.4.3	Marking for packaging	9		
	1.4.4		9		
2	Prefe	erred ratings, characteristics and test severities	9		
	2.1	Preferred characteristics SIST EN 60393-6:2016 General Sac176a4e207/sist-en-60393-6-2016 Preferred climatic categories	9		
	2.1.1	General	9		
	2.1.2	Preferred climatic categories	9		
	2.1.3	Temperature coefficients and temperature characteristics of resistance	10		
	2.1.4	Limits for change in resistance or output voltage ratio	10		
	2.1.5				
	2.2	Preferred values of ratings			
	2.2.1	General			
	2.2.2				
	2.2.3				
	2.2.4	(, , , , , , , , , , , , , , ,			
	2.2.5	5			
	2.2.6	5 (, , , , , , , , , , , , , , , , , ,			
	2.2.7	, ,			
	2.3	Preferred test severities			
	2.3.1	General			
	2.3.2	, ,			
	2.3.3				
	2.3.4				
	2.3.5	•			
	2.3.6				
	2.3.7	3			
	2.3.8	•			
	2.3.9	· · · · · · · · · · · · · · · · · · ·			
	2.3.1	0 Component solvent resistance	15		

	2.3.11	Solvent resistance of the marking	15
3	Quality as	ssessment procedures	15
	3.1 Ger	neral	15
		initions	
	3.2.1	Primary stage of manufacture	15
	3.2.2	Structurally similar components	15
	3.2.3	Assessment level EZ (zero nonconforming)	15
	3.3 Qua	alification approval	
	3.3.1	General	16
	3.3.2	Qualification approval on the basis of the fixed sample size procedure	16
	3.3.3	Tests	16
	3.4 Qua	ality conformance inspection	24
	3.4.1	Formation of inspection lots	24
	3.4.2	Test schedule	24
	3.4.3	Assessment levels	24
	3.5 Del	ayed delivery	27
Bil	bliography		28
Fi	gure 1 – Ra	ted dissipation curve	12
Fi	gure 2 – Ra	ted dissipation curve with smaller area of operation	13
Та	ıble 1 – Tem	perature coefficients and temperature characteristics of resistance	10
Та	ble 2 – Limi	its for change in resistance or output voltage ratio	11
		SIST EN 60393-62016 ed sample size test schedule for qualification approval (1 of 7)	
		lity conformance inspection:00ot/by-16693-6-2016	
		lity conformance inspection: Periodic testing	
18	me 5 – Ulla	mry comormance inspection: Periodic testing	Zn

INTERNATIONAL ELECTROTECHNICAL COMMISSION

POTENTIOMETERS FOR USE IN ELECTRONIC EQUIPMENT -

Part 6: Sectional specification – Surface mount preset potentiometers

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

 5ac176a4e207/sist-en-60393-6-2016
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60393-6 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition published in 2003 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) revision of the information on the assessment level EZ (zero nonconforming);
- b) complete editorial revision.

IEC 60393-6:2015 © IEC 2015

- 5 -

The text of this standard is based on the following documents:

FDIS	Report on voting
40/2409/FDIS	40/2424/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This International Standard is to be used in conjunction with IEC 60393-1:2008.

A list of all parts in the IEC 60363 series, published under the general title Potentiometers for use in electronic equipment, can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed.
- withdrawn,
- replaced by a revised edition, or amended. **iTeh STANDARD PREVIEW**

(standards.iteh.ai)

SIST EN 60393-6:2016 https://standards.iteh.ai/catalog/standards/sist/433f7305-b76b-4b42-b270-5ac176a4e207/sist-en-60393-6-2016

POTENTIOMETERS FOR USE IN ELECTRONIC EQUIPMENT -

Part 6: Sectional specification – Surface mount preset potentiometers

1 General

1.1 Scope

This part of IEC 60393 applies to surface mount preset potentiometers for use in electronic equipment.

This part of IEC 60393 prescribes preferred ratings and characteristics and selects from IEC 60393-1, the appropriate quality assessment procedures, tests and measuring methods, and it gives general performance requirements for this type of potentiometers.

This standard gives the minimum performance requirements and test severities.

1.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

SIST EN 60393-6:2016

IEC 60062, Marking code for resistors and capacitors 3f7305-b76b-4b42-b270-

5ac176a4e207/sist-en-60393-6-2016

IEC 60068-1:2013, Environmental testing – Part 1: General and guidance

IEC 60068-2-1:2007, Environmental testing – Part 2-1: Tests – Test A: Cold

IEC 60068-2-2:2007, Environmental testing – Part 2-2: Tests – Test B: Dry heat

IEC 60068-2-58:2004, Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)

IEC 60286-3, Packaging of components for automatic handling – Part 3: Packaging of surface mount components on continuous tapes

IEC 60393-1:2008, Potentiometers for use in electronic equipment – Part 1: Generic specification

IEC 61193-2:2007, Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packages

1.3 Information to be given in a detail specification

1.3.1 General

Detail specifications shall be derived from the relevant blank detail specification.

Detail specifications shall not specify requirements inferior to those of the generic, sectional or blank detail specification. When more severe requirements are included, they shall be