

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC



**Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques**

SPÉCIFICATION PARTICULIÈRE CADRE:

**REGULATEURS
DE TENSION INTÉGRÉS**

**Harmonized System of Quality Assessment for
Electronic Components**

**BLANK DETAIL SPECIFICATION:
INTEGRATED VOLTAGE
REGULATORS**

**Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik**

**VORDRUCK
FÜR BAUARTSPEZIFIKATION:
INTEGRIERTE
SPANNUNGSREGLER**

2

**Edition
Issue
Ausgabe**

CECC 90 201

1988

Dieses blaue Blatt ist nach dem Titelblatt der CECC 90 201 Ausgabe 2 (1988) einzufügen

This blue page shall be inserted after the title page of CECC 90 201 Issue 2 (1988)

Cette page bleue doit être insérée après la page de garde de la CECC 90 201 Edition 2 (1988)

ÄNDERUNG 1 ZU CECC 90 201 (Ausgabe 2)

AMENDMENT 1 TO CECC 90 201 (Issue 2)

AMENDEMENT 1 A LA CECC 90 201 (Edition 2)

VORDRUCK FÜR BAUARTSPEZIFIKATION

BLANK DETAIL SPECIFICATION

SPECIFICATION PARTICULIERE CADRE

INTEGRIERTE SPANNUNGSREGLER

INTEGRATED VOLTAGE REGULATORS

REGULATEURS DE TENSION INTEGRES

EIN DEUTSCHER TEXT LIEGT NICHT VOR

The following amendment shall be made :

La modification suivante doit être effectuée :

Paragraph 4 related to Inspection requirements has to be reworded because the test sequences are now introduced in the Generic Specification CECC 90 000.

Le paragraphe 4 concernant les exigences de contrôle doit être réécrit car les séquences d'essais sont introduites dans la Spécification Générique CECC 90 000.

Keep page 6 and cross out page 7 ; replace pages 8/9 to 12/13 by new pages 7/8 to 11/12 ; delete pages 14 to 20 ; replace Annex A (pages 21, 22) by Annex A (without modification but renumbered pages 13/14).

Conserver la page 6 et barrer la page 7 ; remplacer les pages 8/9 à 12/13 par les nouvelles pages 7/8 à 11/12 ci-jointes ; supprimer les pages 14 à 20 ; remplacer l'annexe A (pages 21, 22) par l'annexe A (sans modification mais renumérotée pages 13/14) ci-jointe.

Enter this amendment on the yellow "Record of amendments" sheet.

Enregistrer cette modification sur la feuille jaune "Enregistrement des amendements".

This amendment was circulated to the CECC for voting in the documents listed below and was ratified by the president of the CECC for publication.

Le texte de cet amendement a été soumis au vote du CECC dans les documents indiqués ci-dessous et a été ratifié par le Président du CECC pour être publié.

Document Date of voting Report on the voting

Document Date de vote Rapport de vote

CECC(Secretariat)2989 February 1992 CECC(Secretariat)3048

CECC(Secrétariat)2989 Février 1992 CECC(Secrétariat)3048

CECC 90 201 Ausgabe 2 Änderung 1 1994

CECC 90 201 Issue 2 Amendment 1 1994

CECC 90 201 Edition 2 Amendement 1 1994

Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
Stresemannallee 15
D-6000 Frankfurt/Main 70
Telefon: Int.+ (49) 69 6 30 82 83
Telex 4-12871 vdetz d
Telefax Int.+ (49) 69 6 30 82 83 (Gr. 2/3)
or from the National Authorized Institutions
of the participating countries listed
who can supply copies of:

- 1 The Internal Regulations of the FEN e.V.
- 2 CECC Specifications of the FEN and National Specifications for the System
- 3 CECC 00 200: Qualified Products List (QPL)
- 4 CECC 00 300: CECC Publications and their related national documents

Austria
Österreichischer Verband
für Elektrotechnik
Eschenbachgasse 9
A-1010 Vienna

Belgium
Comité Electrotechnique Belge
Galerie Ravenstein 3
Boite 11
B-1000 Brussels

Denmark
Dansk Elektroteknisk Komite
Strandgade 38
DK-1401 Copenhagen K

Finland
Finnish Electrotechnical
Standards Association
P.O. Box 134
SF-00211 Helsinki 21

France
Union Technique de l'Electricité
Participation française au CECC
12, Place des Etats-Unis
F-75783 Paris Cedex 16

Germany
Deutsche Elektrotechnische
Kommission im DIN und VDE
Stresemannallee 15
D-6000 Frankfurt/Main 70

Ireland
EOLAS- The Irish Science and
Technology Agency
Glasnevin
IRL-Dublin 9

Italy
Comitato Elettrotecnico Italiano
Viale Monza, 259
I-20126 Milan

Netherlands
Nederlands Elektrotechnisch Comité
Postbus 5059
NL-2800 GB Delft

Norway
Norsk Elektroteknisk Komite
P.O. Box 280
Skøyen
N-0212 Oslo 2

Portugal
Instituto Português da Qualidade
Rua José Estêvão, 83A
P-1199 Lisbon Codex

Spain
Asociación Electrotécnica y Electrónica Española
Comité Español del CECC
Avda. de Brasil, 7
E-28020 Madrid 20

Sweden
Svenska Elektriska Kommissionen
Box 1284
S-16428 Kista-Stockholm

Switzerland
Schweizerischer Elektrotechnischer
Verein
Postfach
CH- 8008 Zürich

United Kingdom
British Electrotechnical Committee
British Standards Institution
2, Park Street
GB-London W1A 2BS



Documents

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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby accepted by all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for INTEGRATED VOLTAGE REGULATORS. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom, and copies of it can be obtained from the addresses shown on the blue fly sheet.

PREFACE

This blank detail specification (BDS) was prepared by CECC WG9 "INTEGRATED CIRCUITS".

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 747 : Semiconductor devices : Discrete devices and integrated circuits, IEC 748 : Semiconductor devices : Integrated circuits, IEC 749 : Semiconductor devices : Mechanical and climatic test methods.

The text of this second Issue consists of the text of CECC 90 201 Issue 1 (1984) amended in accordance with the ratified new material introduced by the following document.

<u>Document</u>	<u>Date of Voting</u>	<u>Report on the Voting</u>
CECC(Secretariat)1979	December 1986	CECC(Secretariat)2070

It is recognized that the layout proposed cannot apply to all detail specifications based on this document. For example when several similar devices are covered by the same detail specification, it may be convenient to give the limiting values in a table.

In accordance with the decision of the CECC Management Committee this specification is published initially in French and English. The German text will follow as soon as it has been prepared.

EFFECTIVE DATE

This second Issue of CECC 90 201 shall become effective for all new qualification approvals on 1st July 1988. Issue 1 will continue to remain effective to cover all past approvals.

1 FRONT PAGE

The front page of the DS shall be laid out as shown on the following page.

The numbers between square brackets correspond to the following indications which shall be given :

Identification of the DS and of the component :

- [1] The name of the National Standards Organization under whose authority the DS is published and, if applicable, the organization from whom the DS is available.
- [2] The CECC Symbol and the CECC number allotted to the DS by the CECC General Secretariat.
- [3] The number and issue number of the CECC generic or sectional specification as relevant ; also national reference if different.
- [4] If different from the CECC number, the national number of the DS, date of issue and any further information required by the national system, together with any amendment numbers.
- [5] Type number, a short description of the type by :
 - function (for example voltage regulator)
 - number of independent circuits per package
 - number and kind of inputs and outputs
 - material and type of construction (silicon, monolithic, multichip, bipolar, MOS)
 - performance, for example high output power, high speed, low power consumption
 - electrostatic sensitivity (where applicable).
- [6] Information on typical construction (where applicable)

For [5] and [6] the text to be given in the DS should be suitable for an entry in CECC 00 200 or CECC 00 300.

- [7] An outline drawing with main dimensions which are of importance for interchangeability, and/or reference to the appropriate national or international document for outlines. Alternatively, this drawing may be given in an appendix to the DS.
- [8] Quality assessment level(s)
- [9] Reference data giving information on the most important properties of the component, which allow comparison between the various component types intended for the same, or for similar, applications.

Identification of the component and supplementary information :

Description of the materials for the package (for example, glass, ceramic, silicone) and information relating to the mounting (welding, soldering), lead material and finish.

Inside the sketch of the package, the terminal connections to the inputs, outputs or other important points of the circuit shall be identified. This can be shown by a functional block diagram.

Description of the numbering of the terminals with the identification of pin number 1.

Marking on the device in accordance with the GS (see 2.5 of CECC 90 000).

ROUT for front page of detail specification

Specification available from : [1]	CECC 90 201-xxx [2] 			
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH : [3]	Page 1	Total number of pages : [4]		
OUTLINE AND DIMENSIONS : [7]	[5]			
	[6]			
	[8]			
[9]				
Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200 : Qualified Products List.				

2 RATINGS (LIMITING VALUES) (Not for inspection purposes)

These apply over the operating temperature range, unless otherwise stated (see SS 90 200).

- 2.1 Maximum (and where appropriate minimum) value of voltage between the reference terminal and each other terminal.
- 2.2 Any other limiting value(s) of voltage between any specified terminals as appropriate.
- 2.3 Maximum continuous output current. I_O
- 2.4 Maximum continuous internal power dissipation with reference to a derating curve or factor related to the reference point temperature or ambient temperature. P_D
- 2.5 Maximum absolute value of differential voltage (input to output) where appropriate. $|V_I - V_O|$
- 2.6 Maximum and minimum ambient or reference point operating temperature. T_{amb}
- 2.7 Maximum and minimum storage temperature. T_{stg}
- 2.8 Any specific mechanical or environmental ratings peculiar to the device.
- 2.9 Any interdependence of limiting conditions.
- 2.10 Maximum value of short-circuit duration, where appropriate. t_{OS}

3 RECOMMENDED CONDITIONS OF USE AND ASSOCIATED CHARACTERISTICS (Not for inspection purpose)

The characteristics which are not listed in clause 4 as "Inspection Requirements" are given for information only, and are given at the manufacturer's discretion possibly by typical values or curves.

The following characteristics shall apply over the full ambient operating temperature range unless otherwise specified. Where the stated performance of the circuit varies over the ambient operating temperature range the values of the input and output voltages and their associated currents shall be stated at 25 °C and at the extremes of the operating temperature range.

Where it is necessary to use external elements to ensure stable operation of the regulator, the values of the characteristics specified refer to the regulator with such elements connected.

In the following text "fixed regulator" means regulator with internally set output voltage and "adjustable regulator" means regulator with externally set output voltage.

CHARACTERISTICS		SYMBOL	METHOD (See SS 90 200, 4.1.2)
3.1	Maximum and minimum input voltages.	V_I	
3.2	Maximum and minimum regulated output voltages (fixed regulator) or output voltage range (adjustable regulator).	V_O	
3.3	Maximum and minimum absolute values of differential voltage (input to output).	$ V_I - V_O $	
3.4	Maximum value of long term variation of the regulated output voltage (over a stated period).	V_{stab}	
3.5	Maximum and minimum output currents (fixed regulator) or output current range (adjustable regulator).	I_O	
3.6	Maximum input regulation coefficient (over a specified range).	K_{RIV}	R-01
3.7	Minimum value of the ripple rejection ratio.	K_{RR}	R-02
3.8	Maximum load regulation coefficient (over a specified output current range).	K_{ROV}	R-03
3.9	Maximum value of output noise voltage.	V_{On}	R-04
3.10	Maximum value of the temperature coefficient of regulated output voltage.	αV_O	R-05
3.11	Maximum value of quiescent current (standby current).	I_{IQ}	R-06
3.12	Maximum variation of current I_{IQ} with specified conditions of input voltage change and load current change.	ΔI_{IQ}	
3.13	Maximum value of short-circuit current (where appropriate).	I_{OS}	R-07
3.14	Maximum and minimum values of reference voltage (where appropriate).	V_{REF}	R-08
3.15	Maximum values of transient response to changes of input voltage.		R-09
3.16	Maximum values of transient response to changes of load current.		R-10
3.17	Operating area.		R-11
3.18	Maximum value of limited output current (where appropriate).	I_{OK}	R-12

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4 TEST CONDITIONS AND INSPECTION REQUIREMENTS

See 3.6 of CECC 90 000 with the following special requirements:

The values and exact test conditions to be used shall be specified as required in the detail specification relevant to a given type, in line with the indications given in CECC 90 200 for the relevant test.

The tests apply to fixed regulators; for adjustable regulators, unless otherwise specified, the output voltage shall be set in turn to two values:

a) as close as possible to V_O maximum consistent with the ratings;

b) as close as possible to V_O minimum consistent with the ratings;

these values being obtained by the use of fixed external control components. The control conditions shall be the same as for the Sub-Group A3 tests for adjustable regulators. The same tests shall then be performed as if the circuit was a fixed regulator.

External elements necessary to ensure stable operation shall be specified and shall be connected for all electrical tests.





EXAMINATION OR TEST	D ND	CONDITIONS OF TEST	LIMITS TO BE SPECIFIED
GROUP A INSPECTION			
Sub-Group A2			
Verification of the function at 25 °C GS/Note 5	ND		
Output voltage V_O Method R-03		V_I = specified value I_O = specified value or, where appropriate adjusting network values	V_{OA} , V_{OB}
Input regulation coefficient K_{RIV} Method R-01		V_I = specified value ΔV_I = specified value I_O = specified value or, where appropriate adjusting network values	K_{RIVA}
Load regulation coefficient K_{ROV} Method R-03		V_I = specified value I_O = specified value ΔI_O = specified value or, where appropriate adjusting network values	K_{ROVA}
Sub-Group A3			
Static characteristics at 25 °C	ND		
Verification of operating area Method R-11		Fixed regulator: (1) $V_I = V_I$ min. specified; $I_O = I_O$ min. specified (2) $V_I = V_I$ min. specified; $I_O = I_O$ max. specified (3) $V_I = V_I$ max. specified; $I_O = I_O$ min. specified (4) $V_I = V_I$ max. specified; $I_O = I_O$ max. specified Adjustable regulator: (1) $V_I = V_I$ min. specified; $V_O = V_O$ min. specified $I_O = I_O$ min. specified; ΔI_O = specified value (2) $V_I = V_I$ min. specified $V_O = V_I$ min. - $V_I - V_O$ min. specified values $I_O = I_O$ min. specified; ΔI_O = specified value (3) $V_I = V_O$ max. + $V_I - V_O$ min. specified values $V_O = V_O$ max. specified $I_O = I_O$ min. specified; ΔI_O = specified value	$V_{O(1)A}$, $V_{O(1)B}$ $V_{O(2)A}$, $V_{O(2)B}$ $V_{O(3)A}$, $V_{O(3)B}$ $V_{O(4)A}$, $V_{O(4)B}$ $K_{ROV(1)A}$ $K_{ROV(2)A}$ $K_{ROV(3)A}$