SLOVENSKI STANDARD
SIST EN 120005:2002

01-september-2002

Blank detail specification: Photodiodes, photodiode arrays (not intended for fibre optic applications)

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VFB: Photodioden, Photodioden-Zeilen (nicht für faseroptische Anwendungen)

SPC: Photodiodes, réseaux de photodiodes (non destinées aux applications pour les fibres optiques)

Ta slovenski standard je istoveten z: **EN 120005:1992**

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment

SIST EN 120005:2002 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 120005

July 1992

UDC:

Supersedes CECC 20005 Issue 1:1986

Descriptors: Quality, electronic components, photodiodes

English version

Blank Detail Specification: Photodiodes, photodiode-arrays (Not intended for fibre optic applications)

Spécification Particulière Cadre: Photodiodes, réseaux de photodiodes (Non destinées aux applications pour les fibres optiques)

Vordruck für Bauartspezifikation: Photodioden, Photodioden-Zeilen (Nicht für faseroptische Anwendungen)

This European Standard was approved by the CENELEC Electronic Components Committee (CECC) on 27 January 1992. CENELEC members are bound to comply with 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 General Secretariat of the CECC 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 CECC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.

CECC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

Ref. No. EN 120005:1992 E

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 acceptable in all member countries without further testing.

This European Standard was prepared by CECC WG 20, "*Opto-Electronic Components and Liquid Crystal Devices*".

The text of the draft based on document CECC 20005 Issue 1:1986 was submitted to the formal vote for conversion to a European Standard; together with the voting report, circulated as document CECC(Secretariat)3007 the following documents were approved by CECC as EN 120005 on 27 January 1992:

CECC 20005 Issue 1:1986 with Amendment 1

The following dates were fixed:

- latest date of announcement of the EN at national level (doa) 1992-12-22
- latest date of publication of an identical national standard (dop) 1993-06-22
- latest date of declaration of national standards obsolescence 1993-06-22
- latest date of withdrawal of conflicting national standards (dow) 2002-12-22

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

CECC

English version

Harmonized System of Quality Assessment for Electronic Components

BLANK DETAIL SPECIFICATION:

PHOTODIODES, PHOTODIODE-ARRAYS (NOT INTENDED FOR FIBRE OPTIC APPLICATIONS)

Système Harmonisé d'Assurance de la Qualité des Composants Electroniques

SPECIFICATION PARTICULIERE CADRE:

PHOTODIODES, RESEAUX DE PHOTODIODES (NON DESTINEES AUX APPLICATIONS POUR LES FIBRES OPTIQUES)

Harmonisiertes Gütebestätigungssystem für Bauelemente der Elektronik

VORDRUCK FÜR BAUARTSPEZIFIKATION:

PHOTODIODEN, PHOTODIODEN-ZEILEN (NICHT FÜR FASEROPTISCHE ANWENDUNGEN)

1 Issue
Edition
Ausgabe

CECC 20005

1986

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 PHOTODIODES, PHOTODIODE-ARRAYS (NOT INTENDED FOR FIBRE OPTIC APPLICATIONS). It should be read in conjunction with the current regulations of the CECC System.

At the date of printing of this document 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.

Preface

This blank detail specification was prepared by the CECC Working Group 20: "SEMICONDUCTOR OPTOELECTRONIC AND LIQUID CRYSTAL DEVICES". It is one of a series of blank detail specifications for semiconductor devices, based on the generic specification CECC 20000.

Voting

The text of this blank detail specification was circulated to the CECC for voting in the documents indicated below, and was ratified by the President of the CECC for printing as a CECC Specification.

Document	Voting Date	Report on the Voting
CECC (Secretariat) 1453	2 April 1984	CECC (Secretariat) 1623
CECC (Secretariat) 1454		CECC (Secretariat) 1624

NOTE This specification is published initially in English and French. The German text will follow as soon as it has been prepared.

Texts between square brackets give guidelines on how to fill in the blank detail specification

PHOTODIODES, PHOTODIODE-ARRAYS (NOT INTENDED FOR FIBRE OPTIC APPLICATIONS)

[Name (address) of responsible ONH ① (and possibly of body from which specification is available)]	Page of	CECC 20005-XXX ② [CECC detail specification number plus issue number and/or date]
ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH: CECC 20000, issue . . .[and national references if different] ③	[National number of detail specification ④ This box may not be used if national number includes CECC number]	

1 Mechanical description ⑦

Either outline references (code A) or base and case references (codes B + C):
— from IEC 191-2:
— national [if desired]

OUTLINE DRAWING AND CONNECTIONS
(Terminal connected to case, if any)

[The outline drawing may correspond to the device itself and/or the device with its mounting clip]

[may be transferred to, or given with more details, in clause **9** of this specification]

MARKING: letters and figures/colour code [see **2.5** of CECC 20000 and/or clause **6** of this specification]

Polarity indication if special method is used

Detail specification for: ⑤

[Type number(s) of relevant device (s) and, if appropriate, structurally similar devices]
ORDERING INFORMATION: see clause **7** of this specification

2 Short description ⑥

Photodiodes/photodiode-arrays

Semiconductor material: Si/. . .
Encapsulation: metal/glass/plastic/. . .
Application:
Power: ambient-rated (T_{amb})
[Some important quick reference data may be added]

3 Level (S) of quality assessment ⑧

[if relevant]

4 Limiting values (Absolute maximum rating system) ⑨

These apply per diode over the operating temperature range unless otherwise stated.
[X denotes that a value shall be inserted in the detail specification]

Clause CECC 20005	[Repeat only clause numbers used, with text. Additional values, if any, shall be given at the appropriate place without clause number(s). Curves should preferably be given in clause 9 of this specification]	Symbol	Value min.	Value max.	Unit
4.1	**Operating ambient temperatures**	T_{amb}	X	X	°C
4.2	**Storage temperatures**	T_{stg}	X	X	°C
4.3	**Soldering temperature** [Soldering time and minimum distance to case shall be given Recommended mounting conditions (temperature, duration. . .) may be given in clause **9.1** of this specification]	T_{sld}		X	°C
4.4	**Reverse voltage**	V_R		X	V
4.5	**Total power dissipation at ambient temperature of 25 °C with temperature derating curve if necessary** (see **9.2**)	$P_{(tot)}$		X	W

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00200: Qualified Products List.

5 Electrical and optical characteristics

See clause 8 of this specification for inspection requirements (Groups A and C)

[Signs between brackets correspond to characteristics given as "where appropriate" or as alternatives:

— Those characteristics marked "where appropriate" in this clause and in the inspection section shall either be omitted or, if specified, shall then be measured.

— For equivalent characteristics given as alternatives, the choice should preferably be left open to allow the use of the same detail specification by different manufacturers or countries.

Repeat only clause numbers used, with text. Any additional characteristics to be given at appropriate place but without clause number.

When several devices are defined in the same detail specification, the relevant values should be given on successive lines, where possible avoiding repetition of identical values.]

Clause CECC 20005	Measured	Characteristics and conditions, at T_{amb} = 25 °C unless otherwise stated	Symbol	Value		Unit
				min.	max.	
5.1.1 and/or	A2b	Reverse current under irradiation at specified V_R and E_e or E_v (see Note 4)	$I_R(H)(1)$ $I_R(e)(1)$	X		µA
5.1.2 and/or	A2b	Responsivity at a specified wavelength in the visible region for a given bandwidth Δλ at specified V_R and E_e	S(1)	X		A/W
5.1.3	A2b	Responsivity at a specified wavelength in the infrared region for a given bandwidth Δλ at specified V_R and E_e	S(2)	X		A/W
5.2	C2a	Where appropriate: Reverse current under irradiation at specified V_R and E_e or E_v (see Note 4)	$I_R(H)(2)$ $I_R(e)(2)$		(X)	µA
5.3	A2b	For arrays, matching factor of diodes, under specified conditions: $m = \frac{I_R(H)\ (highest)}{I_R(H)\ (lowest)}$ or $\frac{I_R(e)\ (highest)}{I_R(e)\ (lowest)}$ or $\frac{S(1)\ (highest)}{S(1)\ (lowest)}$ or $\frac{S(2)\ (highest)}{S(2)\ (lowest)}$	m		X	—
5.4	A2b	Reverse dark current at specified V_R and irradiance $E_e = 0$	$I_R(1)$		X	nA
5.5	A3	Reverse dark current at specified V_R irradiance $E_e = 0$ and specified T_{amb}	$I_R(2)$		X	µA
5.6	C2a	Rise time under specified V, I_R, λ_p, Δλ, R, t_w and δ	t_r		X	µs
5.7	C2a	Fall time under specified V, I_R, λ_p, Δλ, R, t_w and δ	t_f		X	µs
5.8	C2a	Where appropriate: Junction capacitance at V_R specified preferably $V_R = 0$, f to be specified, $E_e = 0$	C_{tot}		(X)	pF
5.9		Reverse current under irradiation versus illuminance E_v or irradiance E_e (see Note 4) expressed as a curve at specified V_R (see **9.4**)				
5.10		Responsivity diagram at specified V_R (see **9.4**)				
5.11		Relative responsivity expressed as a curve at specified V_R and E_e (see **9.5**)				

Notes on page 7

6 Marking

[Information actually marked on the device and on the primary pack.]

[Any particular information other than given in box ⑦ on front page and/or **2.5** of CECC 20000 shall be specified here.]

7 Ordering information

The following minimum information is necessary to order a specific device, unless otherwise specified:

— type number

— CECC reference of detail specification with issue number and/or date when relevant

— any other particulars.

8 Test conditions and inspection requirements

These are given in the following tables, where the values and exact test conditions to be used should be specified as required for a given type, and as required by the relevant test in CECC 20000. [X shows that a value is to be inserted in the detail specification.]

[When several devices are included in the same detail specification, the relevant conditions and/or values should be given on successive lines, where possible avoiding repetition of identical conditions and/or values.

The choice between alternative tests should preferably be left open, unless very sound technical reasons forbid this. Although such tests are not strictly equivalent, they are meant to achieve the same results which are to assess the correct manufacture of a device. Alternatives are provided to take into account different equipments or methods of measurement used in various countries.]

In this section, reference to clause numbers are made with respect to CECC 20000, unless otherwise stated.

GROUP A — Lot by lot

All tests are non destructive (**3.5.6**)

Examination or test (Ref. 4.3.4/. . .)	Conditions at T_{amb} = 25 °C unless otherwise stated	Inspection				
		Limits (see Note 1)			Assessment	
		min.	max.	Unit	IL	AQL
SUB-GROUP A1 Visual inspection	**4.2.1**				I	1,5 %
SUB-GROUP A2a Non-operative devices	[State relevant limits See Note 2 →]				II	0,15 %
SUB-GROUP A2b					II	0,65 %
$I_R(1)$ (P-002)	$V_R = V_R$ max. $E_e = 0$		X	nA		
$I_R(H)(1)$, $I_R(e)(1)$ and/or (P-001)	V_R = E_V or E_e =	X		µA		
S(1), S(2) (P-001)	V_R = E_e = λ_p = $\Delta\lambda$ =	X		A/W		
m (for arrays) (P-001)	V_R = E_V or E_e =		X	—		
SUB-GROUP A3						
$I_R(2)$ (P-002)	V_R = $E_e = 0$ T_{amb} =		X	µA	II	1,5 %

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