SLOVENSKI STANDARD
SIST EN 120006:2002

01-september-2002

Blank detail specification: PIN-photodiodes for fibre optic applications

Blank Detail Specification: PIN-photodiodes for fibre optic applications

VFB: Pin-Photodioden für faseroptische Anwendungen (LWL)

SPC: Photodiodes pin pour fibres optiques

Ta slovenski standard je istoveten z: **EN 120006:1992**

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment

SIST EN 120006:2002 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 120006

July 1992

UDC:

Supersedes CECC 20006 Issue 1:1986

Descriptors: Quality, electronic components, photodiodes

English version

Blank Detail Specification: PIN-photodiodes for fibre optic applications

Spécification Particulière Cadre: Photodiodes PIN pour fibres optiques

Vordruck für Bauartspezifikation: PIN-Photodioden für faseroptische Anwendungen (LWL)

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 120006:1992 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 20006 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)3008 the following documents were approved by CECC as EN 120006 on 27 January 1992:

CECC 20006 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**

Contents

CECC 20 006

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:

PIN-PHOTODIODES FOR FIBRE OPTIC APPLICATIONS

Système Harmonisé d'Assurance de la Qualité des Composants Electroniques

SPECIFICATION PARTICULIERE CADRE:

PHOTODIODES PIN POUR FIBRES OPTIQUES

Harmonisiertes Gütebestätigungssystem für Bauelemente der Elektronik

VORDRUCK FÜR BAUARTSPEZIFIKATION:

PIN-PHOTODIODEN FÜR FASEROPTISCHE ANWENDUNGEN (LWL)

1 Edition
Issue
Ausgabe

CECC 20006

1986

blank

PIN PHOTODIODES FOR FIBRE OPTIC APPLICATIONS

[Name (address) of responsible ONH (and possible of body from which specification is available)] ①	Page of	CECC 20006 ② [CECC detail specification number plus issue number and/or date]
ELECTRONIC COMPONENT OF ASSESSED QUALITY ③ IN ACCORDANCE WITH: CECC 20000, issue ...[and national references if different]	[National number of detail specification. This box may not be used if national number includes CECC number] ④	

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)

[Characteristics of the optical port of the device, defined in relation with its mechanical axis.

Information on input optical fibre (pigtail fibre) structure, fibre minimum bend radius, fibre maximum pull strength, and the end preparation of the optical fibre including connector (fibre type core diameter, numerical aperture and length of the input optical fibre).]

[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

PIN PHOTODIODE WITH/WITHOUT FIBRE PIGTAIL
Semiconductor material: S1/InGaAs/...
Encapsulation: metal/glass/plastic/...
Fibre type, coating: (if appropriate)

[Some important quick reference data my be added]

3 Level(s) of quality assessment ⑧

[if relevant]

4 Limiting values (Absolute maximum rating system) ⑨

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

Clause CECC 20006	[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
4.5.1	***Admissible irradiance***	E_e		X	W/mm^2
or					
4.5.2	***Admissible radiant flux into the fibre pigtail core***	ϕ_e		X	mW

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 20006	Measured	Characteristics and conditions, at T_{amb} = 25 °C and V_R [specified] unless otherwise stated	Symbol	Value		Unit
				min.	max.	
5.1	A2b	Responsivity at specified λ_p, $\Delta\lambda$ (see note 4)	s	X	(X)	A/W
5.2	A2b	Dark current at E_e or $\phi_e = 0$ (see note 4)	$I_R(1)$		X	nA
5.3	C2b	Dark current at $T_{amb} = T_{amb}$ max. and E_e or $\phi_e = 0$ (see note 4)	$I_R(2)$		X	µA
5.4	A2a	Forward voltage at I_F specified	V_F		X	V
5.5	C2a	Capacitance at specified f and E_e or $\phi_e = 0$ (see note 4) [In addition, a curve may also be given: see **9.2**.]	C_{tot}		X	pF
5.6		Noise characteristic at specified λ_p, $\Delta\lambda$ or spectral distribution and specified I_R R_L (if other than 50 Ω), f_0 and Δf_N				
5.6.1	C2a	Noise equivalent power } where appropriate	NEP		X	$pW/Hz^{\frac{1}{2}}$
or						
5.6.2	C2a	Noise current }	I_N		X	$pA/Hz^{\frac{1}{2}}$
either:						
5.7.1	C2a	Rise time at specified $I_{R(H)}$ or $I_{R(E)}$, V_R, R_L, t_w, δ, λ_p and $\Delta\lambda$ of the source radiation	t_r		X	ns
and						
5.7.2	C2a	Fall time (same conditions as for **5.7.1**)	t_f		X	ns
or						
5.7.3	C2a	Cut-off frequency at specified R_L, λ_p, $\Delta\lambda$ and E_e or ϕ_e (see note 4) In addition, a curve for the frequency response of the device may be given.	f_c	X		MHz
5.8		Directional characteristic at specified E_e or ϕ_e (see note 4) see **9.3**				
5.9		Relative responsivity versus wavelength at specified E_e or ϕ_e (see note 4) see **9.4**				

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 particular.

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, references 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 and V_R [specified] 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)	E_e or ϕ_e = 0 (see note 4)		X	nA		
S (P-001)	λ = ; Δλ = ; E_e or ϕ_e = (see note 4)	X	(X)	A/W		
Sub-group A3 (If required by the detail specification)					I	1,5 %
either:						
t_r } (P-004)	$I_{R(H)}$ or $I_{R(E)}$ = ; V_R = ; R_L = ; t_w = ; δ = ; λ_p = ; Δλ =		X	ns		
t_f } (P-004)			X	ns		
or:						
f_c (P-006)	R_L = ; λ_p = ; Δλ = ; E_e or ϕ_e = (see note 4)	X		MHz		
C_{tot} (P-005)	f = ; E_e or ϕ_e = 0		X	pF		

Notes on page 7