



IEC 60122-3

Edition 4.0 2010-10

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

Quartz crystal units of assessed quality –  
**IEC STANDARD PREVIEW**  
Part 3: Standard outlines and lead connections  
(standards.iteh.ai)

Résonateurs à quartz sous assurance de la qualité –  
**IEC 60122-3:2010**  
Partie 3: Encombrements normalisés et connexions des sorties  
<https://standards.iteh.ai/catalog/standards/sis/980e48c2-b7cc-405f-adff-c1cf2d2e39d8/iec-60122-3-2010>





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IEC 60122-3:2010  
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## QUARTZ CRYSTAL UNITS OF ASSESSED QUALITY –

## Part 3: Standard outlines and lead connections

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International Standard IEC 60122-3 has been prepared by IEC Technical Committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

This fourth edition cancels and replaces the third edition published in 2001. This fourth edition constitutes a technical revision.

The main changes with respect to the previous edition are as follows:

- 12 of the 48 enclosure types contained in the previous edition have been deleted.

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

CDV	Report on voting
49/886/CDV	49/904/RVC

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

A list of all parts of IEC 60122 series, published under the general title, *Quartz crystal units of assessed quality*, can be found on the IEC website.

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- withdrawn,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.

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## INTRODUCTION

The third edition of IEC 60122-3 (2004) contained 48 enclosure types showing the dimensional and geometrical characteristics of these enclosures. Since its release, due to progress in technology, many of the enclosures given in the standard have become obsolete.

Bearing this in mind, the following 12 enclosure types have been deleted from the third edition of IEC 60122-3.

AA, AB, BC, BC/1, BF, BF/1, CX, CY, CY/1, CZ, DA, DC.

Therefore, this new version (the fourth edition) contains the following 36 enclosure types ; CK, CM, CN, CP, DK, DL, DP, EH, DQ, DR, DZ, DV, DW, ED, EB, EJ, EK, CU 01A, CU 01B, CU 01C, CU 01D, CU 01E, CU 01F, CU 02A, CU 02B, CU 02C, CU 02D, CU 02E, CU 02F

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## QUARTZ CRYSTAL UNITS OF ASSESSED QUALITY –

### Part 3: Standard outlines and lead connections

#### 1 Scope

This part of IEC 60122 specifies the outline drawing for quartz crystal units with lead enclosures.

#### 2 Guidance for the standardization of outline drawings for frequency control and selection devices

##### 2.1 General

In order to achieve a uniform presentation of all outline drawings for frequency control and selection devices the following guide shall be considered:

**2.2** An outline drawing shall show all dimensional and geometrical characteristics of an enclosure necessary to ensure mechanical interchangeability with all other enclosures of the same outline. Enlarged detailed view may be used, if necessary.

#### THE STANDARD PREVIEW

##### 2.3 The outline drawing shall consist of three parts (standards.iteh.ai)

**2.3.1** A drawing with dimensional symbols (capital letter) as shown in Figure 1 below with applicable notes, if necessary. <http://standards.iteh.ai/catalog/standards/sist/986e48c2-b1ce-403f-ad1f-c1cf2d2e39d8/iec-60122-3-2010>

**2.3.2** A tabular listing relating to the drawing symbols to the actual dimensions. Where possible this shall be shown on the same page as the drawing.

**2.3.3** An "actual-size" sketch (scale 1:1).

**2.4** The outline drawing shall be executed in the third angle projection.

**2.5** The function and identification of the lead connections (termination) shall be determined by agreement between the supplier and user. They shall not be defined on the outline drawing.

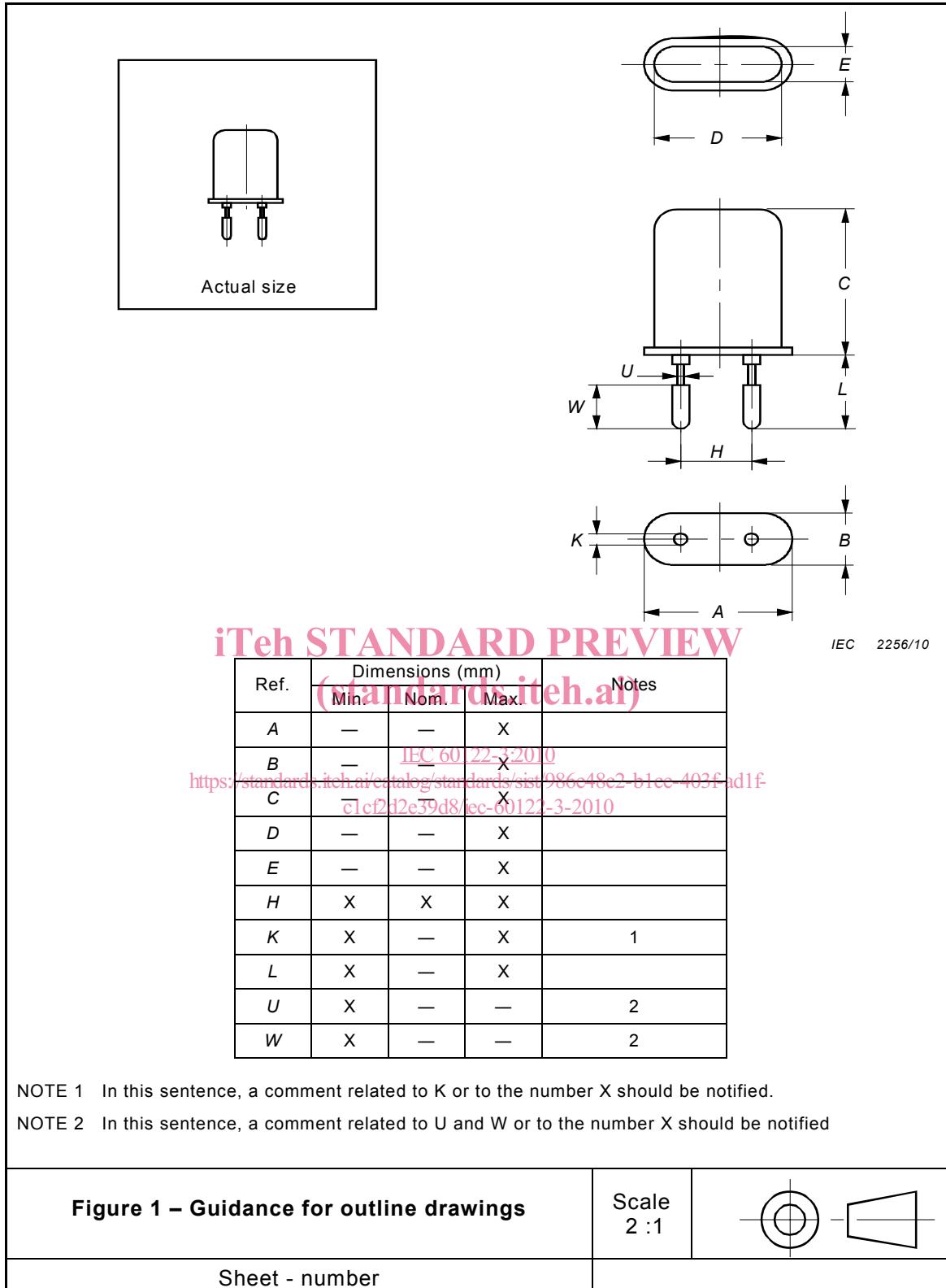
**2.6** Descriptive notes may be used at the bottom of/ or adjacent to, the drawing with proper reference to the body of the drawing.

**2.7** All dimensions shall be in millimeters.

**2.8** Outline dimensions *A*, *B*, *C*, *D* and *E* shall be listed with maximum values only.

**2.9** Lead (termination) cross-sectional dimensions shall be listed with minimum and maximum values. If applicable, nominal dimensions may be added.

**2.10** The spacing of the leads (termination) – symbol *H* – shall be listed with minimum, nominal and maximum dimensions.



**2.11** If leads (terminations) are provided with an undercut dimensions *U* and *W* shall be listed with minimum dimensions only.

### 3 Dimensions of quartz crystal unit enclosures

The dimensions in this standard apply to the completed quartz crystal units.

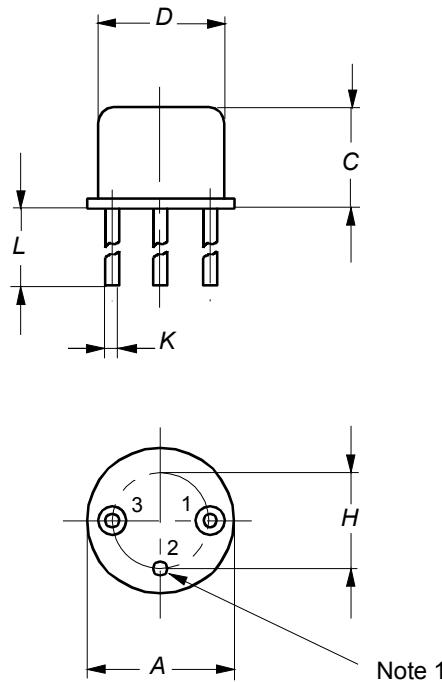
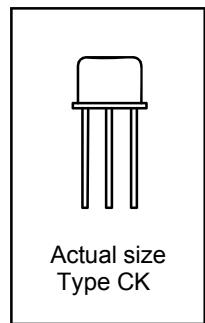
Only those dimensions which meet the requirements of the guidance for standardization of outline drawings are given (see Clause 2).

#### 4 Designation of quartz crystal unit enclosures

See Table 1.

**Table 1 – Designation of quartz crystal unit enclosures**

No.	Type	Sheet No.	Description
1	CK, CM CN, CP	Sheet 1	Metal, welded, three-lead crystal unit outline
2	DK	Sheet 2	Metal, welded, three-lead crystal unit outline
3	DL	Sheet 3	Metal, welded, two-lead crystal unit outline
4	DP EH	Sheet 4	Metal, welded, two-lead crystal unit outline
5	DQ	Sheet 5	Metal, welded, two-lead crystal unit outline
6	DR	Sheet 6	Metal, welded, four-lead crystal unit outline
7	DZ	Sheet 7	Metal, welded, two-lead crystal unit outline
8	DV	Sheet 8	Metal, solder-diffusion-sealed, two-lead, two-lead cylindrical unit outline <i>iTeah STANDARD PREVIEW (standards.iteh.ai)</i>
9	DW	Sheet 9	Metal, solder-diffusion-sealed, two-lead cylindrical crystal unit outline <i>https://standards.iteh.ai/catalog/standards/sist/086e48c2-b1ce-403f-ad1f-</i>
10	ED	Sheet 10	Metal, solder <i>HF</i> -diffusion-sealed, two-lead cylindrical crystal unit outline <i>https://standards.iteh.ai/catalog/standards/sist/086e48c2-b1ce-403f-ad1f-</i>
11	EB, EJ, EK	Sheet 11	Metal, welded, two-lead crystal unit outline <i>c1cf2d2e39d8/iec-60122-3-2010</i>
12	CU 01A. CU 01B. CU 01C. CU 01D. CU 01E. CU 01F.	Sheet 12	Metal, welded, two-lead crystal unit outline for automatic handling
13	CU 02A. CU 02B. CU 02C. CU 02D. CU 02E. CU 02F.	Sheet 13	Metal, welded, two-lead crystal unit outline for automatic handling
14	CU 04A. CU 04B. CU 04C. CU 04D.	Sheet 14	Metal, welded, two-lead crystal unit outline for automatic handling
15	CU 05A. CU 05B. CU 05C.	Sheet 15	Metal, welded, two-lead crystal unit outline for automatic handling



IEC 2257/10

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### (standard draft)

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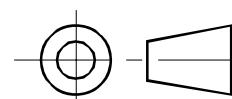
Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	9,39	
C	—	—	6,60	Type CK
C	—	—	25,40	Type CM
C	—	—	39,37	Type CN
C	—	—	59,69	Type CP
D	—	—	8,51	
H	4,83	5,08	5,33	
K	0,40	—	0,48	
L	15,24	—	—	

NOTE 1 Lead No. 2 is grounded to case.

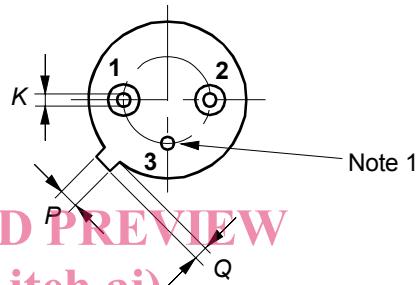
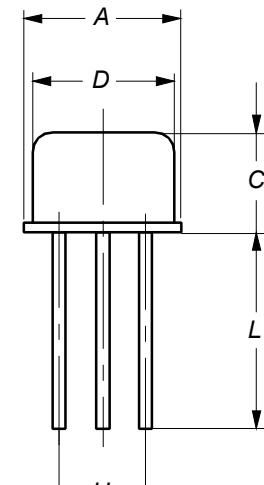
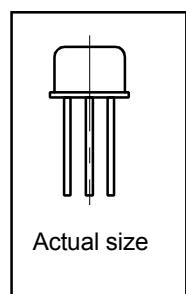
NOTE 2 The crystal unit outline shown in this sheet can be manufactured in either “cold-welded” or “resistance-welded” form and is distinguished by the letter “C” for the cold-welded or the letter “R” for the resistance-welded form by adding the letter at the end of the type code (e.g. CKC or CKR).

Metal, welded, three-lead crystal unit outline-  
Type CK, CM, CN and CP

Scale  
2:1



Sheet 1



IEC 2258/10

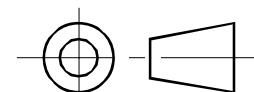
Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	10,70	
C	—	c1c12dze39d8/iec-60122-3-2010	6,60	
D	—	—	8,50	
H	4,83	5,08	5,33	
K	0,40	—	0,48	
L	12,70	—	—	
P	—	—	0,90	2
Q	—	—	0,95	2

NOTE 1 Lead No. 3 is grounded to case.

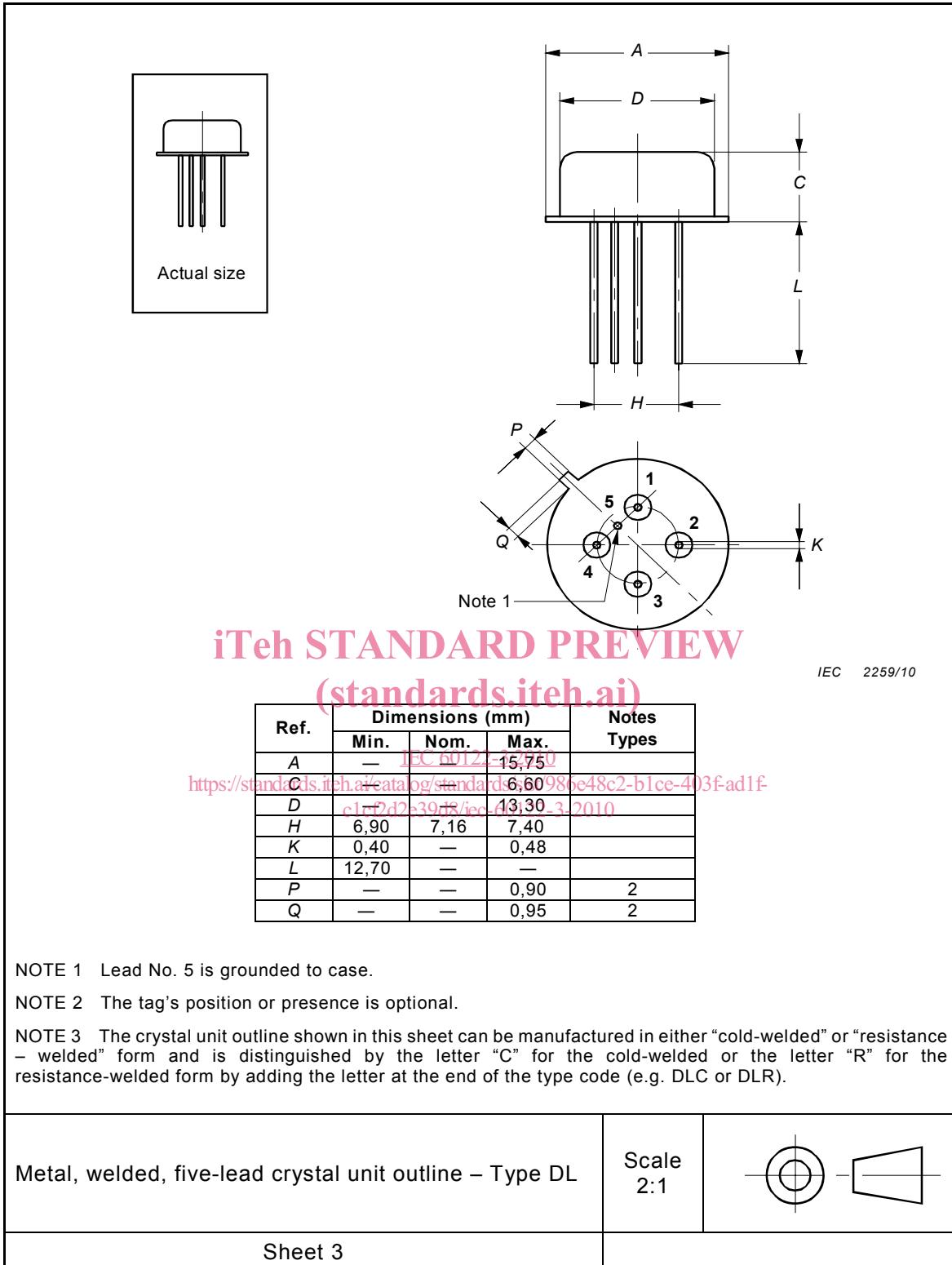
NOTE 2 The tag's position or presence is optional.

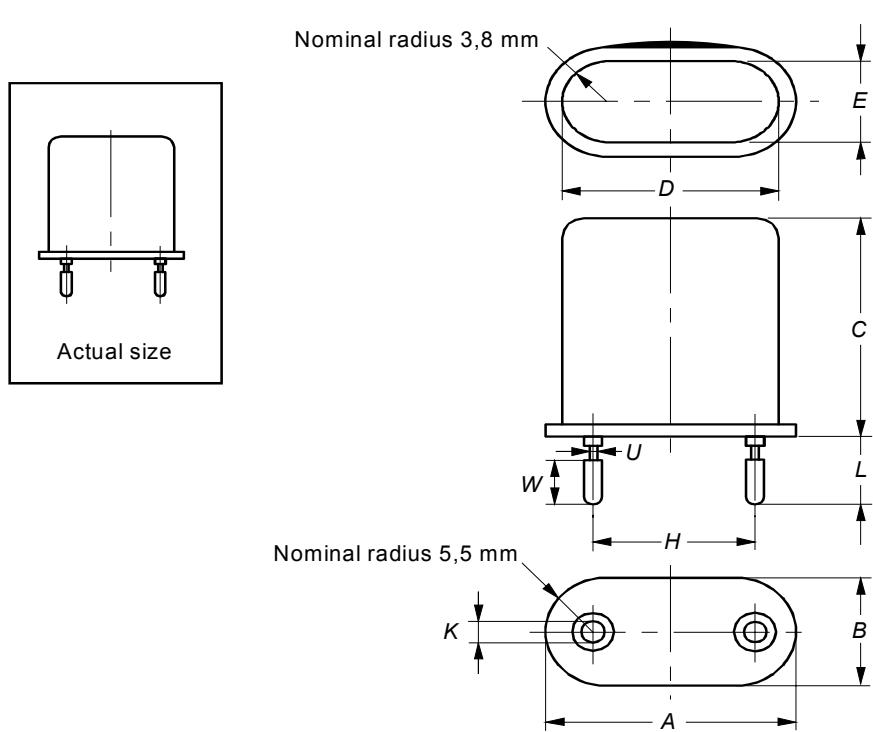
NOTE 3 The crystal unit outline shown in this sheet can be manufactured in either "cold-welded" or "resistance-welded" form and is distinguished by the letter "C" for the cold-welded or the letter "R" for the resistance-welded form by adding the letter at the end of the type code (e.g. DKC or DKR).

Metal, welded, three-lead crystal unit outline – Type DK

Scale  
2:1

Sheet 2





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IEC 2260/10

Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	19,40	
B	—	—	9,10	
C	—	—	19,75	
D	—	IEC 60122-4-10	18,05	
E	—	—	7,65	
H	12,14	12,35	12,55	IEC 60122-4-10
K	1,22	1,27	1,32	
L	5,66	—	6,30	1
U	0,76	—	—	2
W	4,45	—	—	2

<https://standards.itech.ai/catalog/standards/60122-3-198be48c2-b1ce-403f-ad1f>

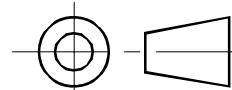
NOTE 1 Lead ends rounded.

NOTE 2 Shape of undercut at the discretion of the manufacturer.

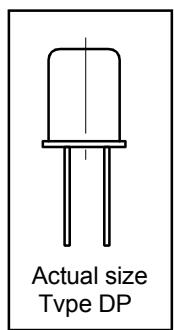
NOTE 3 The crystal unit outline shown in this sheet can be manufactured in either "cold-welded" or "resistance-welded" form and is distinguished by the letter "C" for the cold-welded or the letter "R" for the resistance-welded form by adding the letter at the end of the type code (e.g. DNC or DNR).

Metal, welded, two-lead crystal unit outline – Type DN

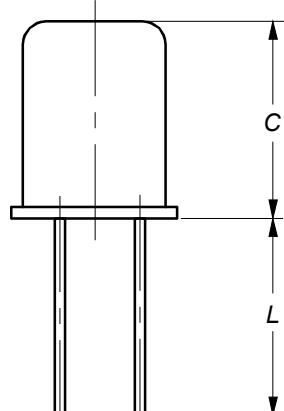
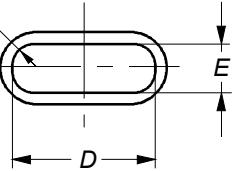
Scale  
2:1



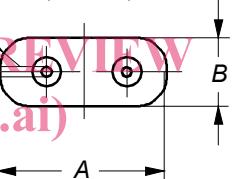
Sheet 4



Nominal radius 1,8 mm



Nominal radius 2,5 mm



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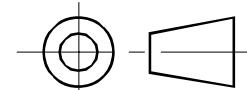
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IEC 2261/10

Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	11,10	
B	—	—	5,00	
C <sub>1</sub>	—	—	11,50	Type EH
C <sub>2</sub>	—	—	13,50	Type DP
D	—	—	10,20	
E	—	—	3,80	
H	4,46	4,90	5,08	
K	0,40	—	0,48	
L	12,70	—	—	

NOTE The crystal unit outline shown in this sheet can be manufactured in either “cold-welded” or “resistance-welded” form and is distinguished by the letter “C” for the cold-welded or the letter “R” for the resistance-welded form by adding the letter at the end of the type code (e.g. DPC or DPR).

Metal, welded, two-lead crystal unit outline – Type DP and EH

Scale  
2:1

Sheet 5