

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

Quartz crystal controlled oscillators of assessed quality –  
Part 3: Standard outlines and lead connections

(standards.iteh.ai)

Oscillateurs pilotés par quartz sous assurance de la qualité –  
Partie 3: Encombrements normalisés et connexions des sorties

IEC 60679-3:2012  
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Edition 3.0 2012-12

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## CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Guidance for the standardization of outline drawings for frequency control and selection devices .....	5
3 Dimensions of crystal oscillator enclosure .....	7
4 Lead connections .....	7
5 Designation of crystal oscillator enclosure .....	7
Annex A (normative) Lead connections of crystal oscillators – Type CO 02 to CO 43.....	23
Bibliography.....	25
Figure 1 – Guidance for outline drawings .....	6
Table 1 – Designation of crystal oscillator enclosures .....	7
Table A.1 – Lead connections of crystal oscillators – Type CO 02 to CO 43 (1 of 2) .....	23

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OF ASSESSED QUALITY –****Part 3: Standard outlines and lead connections****FOREWORD**

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International Standard IEC 60679-3 has been prepared by IEC technical committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

This third edition cancels and replaces the second edition issued in 2001. This edition constitutes a technical revision.

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

- CO 01, CO 07, CO 10, CO 17 and CO 18 were deleted;
- The current pin layout of CO 06 was deleted. And new pin layout of CO 06 was added as CO 40;
- New layout of CO 15 was added as CO 41;
- Two new enclosures, CO 42 and CO 43 were added.

Therefore revised edition includes 15 types of enclosures as in Table 1 of Clause 5.

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

FDIS	Report on voting
49/1009/FDIS	49/1021/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60679 series, published under the general title *Quartz crystal controlled oscillators 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

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- withdrawn,
- replaced by a revised edition, or
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## QUARTZ CRYSTAL CONTROLLED OSCILLATORS OF ASSESSED QUALITY –

### Part 3: Standard outlines and lead connections

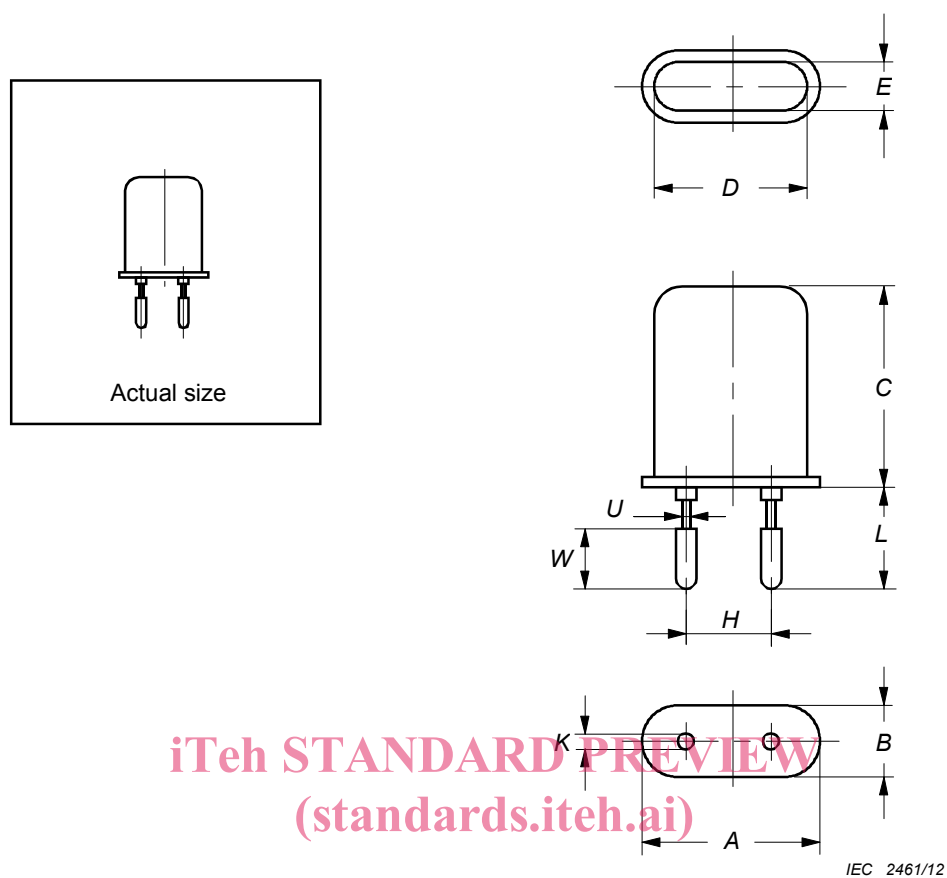
#### 1 Scope

This part of IEC 60679 specifies the outline dimensions and lead connections for quartz crystal controlled oscillators with lead enclosures.

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

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

- a) 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 and detailed view may be used, if necessary.
- b) The outline drawing shall consist of three parts:
  - 1) A drawing with dimensional symbols (capital letter) as shown in Figure 1 with applicable footnotes, if necessary.
  - 2) A tabular listing relating to the drawing symbol to the actual dimensions. Where possible, this shall be shown on the same page as the drawing.
  - 3) An "actual-size" sketch (scale 1:1).
- c) The outline drawing shall be executed in the third-angle projection.
- d) 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.
- e) Descriptive footnotes may be used at the bottom of/ or adjacent to, the drawing with proper reference to the body of the drawing.
- f) All dimensions shall be in millimeters.
- g) Outline dimensions *A*, *B*, *C*, *D* and *E* shall be listed with maximum values only.
- h) If there are plural identical enclosures with different height (*C*), *C* shall be expressed with a suffix number such as *C*<sub>1</sub>, *C*<sub>2</sub>, etc. The following letter and number after the basic type number (four digits) indicate the enclosure height and lead length. The identity references are given in the table in the sheet.
- i) Lead (termination) cross-sectional dimensions shall be listed with minimum and maximum values. If applicable, nominal dimensions may be added.
- j) The spacing of the leads (termination) – symbol *H* – shall be listed with minimum, nominal and maximum dimensions.



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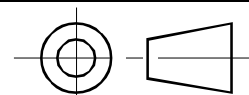
Ref.	Dimensions (mm)			Footnotes
	Min.	Nom.	Max.	
A	—	—	X	
B	—	—	X	
C	—	—	X	
D	—	—	X	
E	—	—	X	
H	X	X	X	
K	X	—	X	1
L	X	—	X	
U	X	—	—	2
W	X	—	—	2

1

2

**Figure 1 – Guidance for outline drawings**

Scale  
2:1



Sheet – number



- k) Leads (terminations) for soldering application shall be specified with the minimum length dimensions (symbol  $L$ ) only.

Lead (termination) for plug-in application shall be specified with minimum and maximum length dimensions.

- l) If leads (terminations) are provided with an undercut, dimensions  $U$  and  $W$  shall be listed with minimum dimensions only.

### 3 Dimensions of crystal oscillator enclosure

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

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

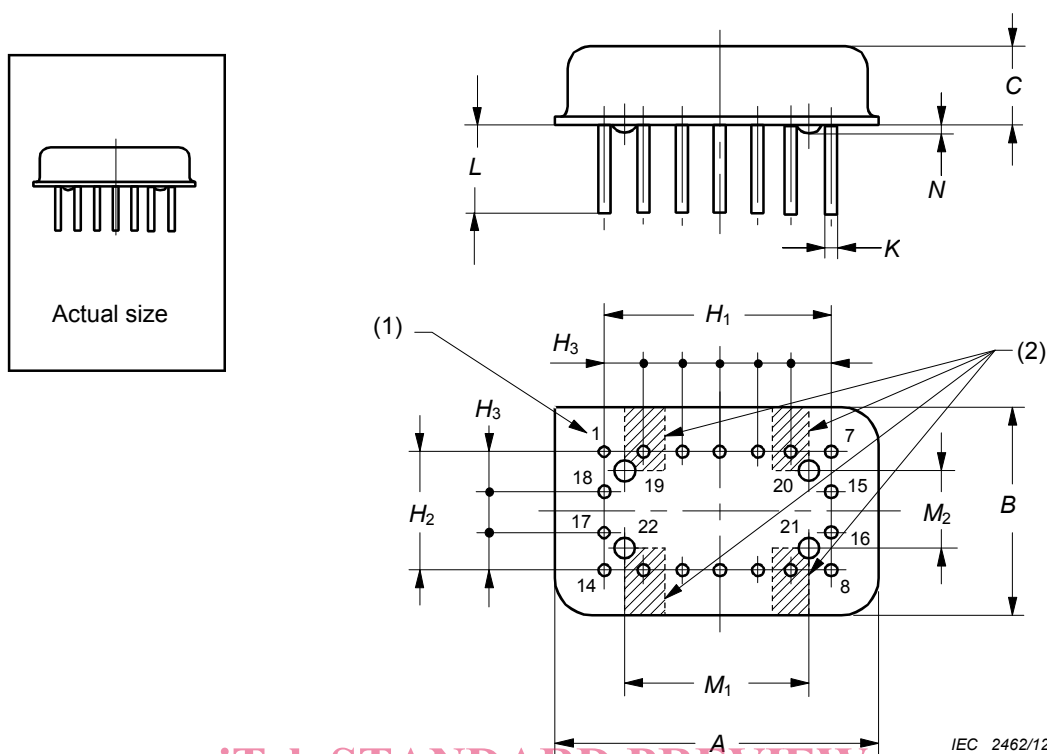
### 4 Lead connections

Recommendations for the lead connections of quartz crystal controlled oscillators are given in Annex A to this standard. Lead connections shall always be given in the detail specification.

### 5 Designation of crystal oscillator enclosure

**Table 1 – Designation of crystal oscillator enclosures**  
(standards.iteh.ai)

No.	Type	Sheet No.	Description
1	CO 02 A1 CO 02 B1	Sheet 1	Metal enclosure, welded, 4 to 18 lead crystal oscillator outline
2	CO 05 B1	Sheet 2	Metal enclosure, welded, eight lead crystal oscillator outline
3	CO 08 A1 CO 08 B1 CO 08 C1	Sheet 3	Metal enclosure, five lead crystal oscillator outline
4	CO 09 A1 CO 09 B1	Sheet 4	Metal enclosure, five lead crystal oscillator outline
5	CO 15 B1 CO 15 C1	Sheet 5	Metal enclosure, five lead crystal oscillator outline
6	CO 16 A1 CO 16 B1 CO 16 C1	Sheet 6	Metal enclosure, four lead crystal oscillator outline
7	CO 19 A1 CO 19 B1	Sheet 7	Metal enclosure, five lead crystal oscillator outline
8	CO 21 A1	Sheet 8	Metal enclosure, welded, four lead crystal oscillator outline
9	CO 22 A1	Sheet 9	Plastic, moulded or ceramic, solder-glass sealed eight lead crystal oscillator outline
10	CO 23 B1	Sheet 10	Metal enclosure, welded, eight lead crystal oscillator outline
11	CO 24 A1	Sheet 11	Metal enclosure, four lead crystal oscillator outline
12	CO 40	Sheet 12	Metal enclosure, five lead crystal oscillator outline
13	CO 41 A1 CO 41 B1	Sheet 13	Metal enclosure, four lead crystal oscillator outline
14	CO 42	Sheet 14	Metal enclosure, four lead crystal oscillator outline
15	CO 43 A1 CO 43 B1 CO 43 C1	Sheet 15	Metal enclosure, five lead crystal oscillator outline



Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	20,70		
B	—	—	13,10		
C <sub>1</sub>	—	—	5,10	CO 02 A.	5
C <sub>2</sub>	—	—	6,60	CO 02 B.	5
H <sub>1</sub>	14,94	15,24	15,54		
H <sub>2</sub>	7,32	7,62	7,92		
H <sub>3</sub>	2,30	2,54	2,70		
K	0,40	—	0,53		3
L	5,85	—	—	CO 02 .1	5
M <sub>1</sub>	—	12,20	—		2
M <sub>2</sub>	—	4,58	—		2
N	—	—	0,75		

#### Key

(1) An indication shall be provided to locate the position of lead No.1 (a 90° corner is shown on the drawing as an example).

(2) If required, insulating standoffs shall be located within corner areas defined in the table by  $M_1$  and  $M_2$ .

If insulating tape standoffs are used, shaded areas as indicated are preferred and the tape may encircle the leads.

3 Leads with solderable finish shall not exceed  $K_{max}$ .

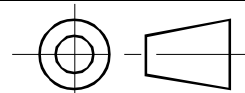
4 Ground leads may be created by a brazed or welded joint(s) to the base.

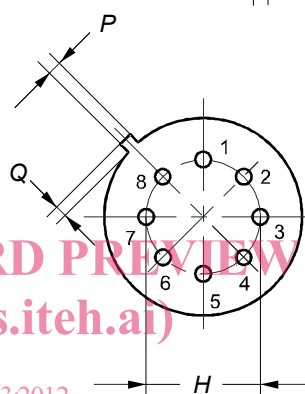
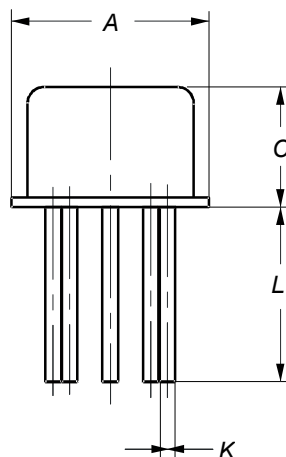
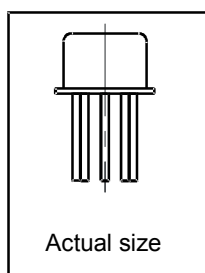
5 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

EXAMPLE CO 02 B1 is the complete identity for the enclosure CO 02 with enclosure height  $C_2$  and lead length  $L$ .

**Metal enclosure, welded, 4 to 18 lead crystal oscillator outline – Type CO 02**

Scale  
2:1





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IEC 2463/12

Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	13,20		
C	—	—	8,90	CO 05 B.	2
H	6,70	7,10	7,50		
K	0,40	—	0,53		1
L	11,70	—	—	CO 05 .1	2
P	0,70	—	0,90		
Q	0,60	—	0,80		

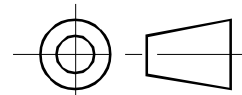
1 Leads with solderable finish shall not exceed  $K_{\max}$ .

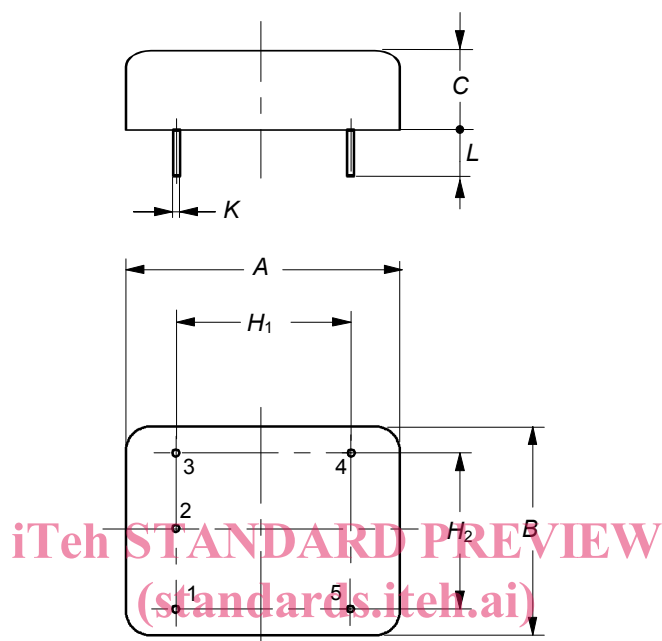
2 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

EXAMPLE CO 05 B1 is the complete identity for the enclosure CO 05 with enclosure height C and lead length L.

**Metal enclosure, welded, eight lead crystal oscillator outline – Type CO 05**

Scale  
2:1





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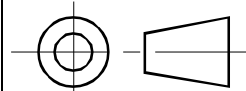
Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	36,10		
B	—	—	27,20		
C <sub>1</sub>	—	—	10,20	CO 08 A.	1
C <sub>2</sub>	—	—	12,80	CO 08 B.	1
C <sub>3</sub>	—	—	19,40	CO 08 C.	1
H <sub>1</sub>	25,25	25,40	25,65		
H <sub>2</sub>	17,55	17,80	18,05		
K	0,70	—	0,90		
L	4,50	—	—	CO 08 .1	1

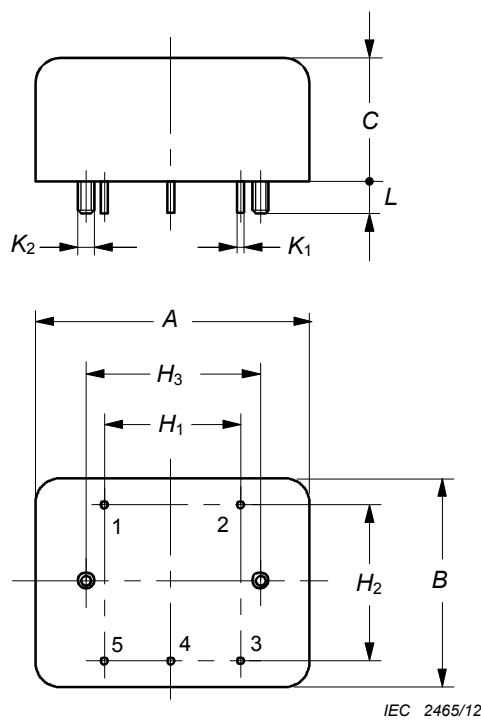
1 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

EXAMPLE CO 08 A1 is the complete identity for enclosure CO 08 with enclosure height C1 and lead length L.

**Metal enclosure, five lead crystal oscillator outline – Type CO 08**

Scale  
1:1





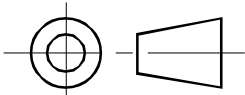
Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	36,10		
B	—	—	27,20		
C <sub>1</sub>	—	16,10	16,10	CO 09 A.	1
C <sub>2</sub>	—	19,40	19,40	CO 09 B.	1
H <sub>1</sub>	17,75	17,80	18,05		
H <sub>2</sub>	20,15	20,35	20,55		
H <sub>3</sub>	22,65	22,90	23,15		
K <sub>1</sub>	0,70	—	0,90		
K <sub>2</sub>	—	M2	—		
L	4,50	—	—	CO 09 .1	1

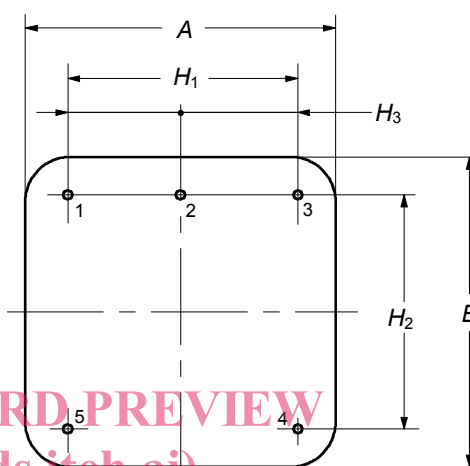
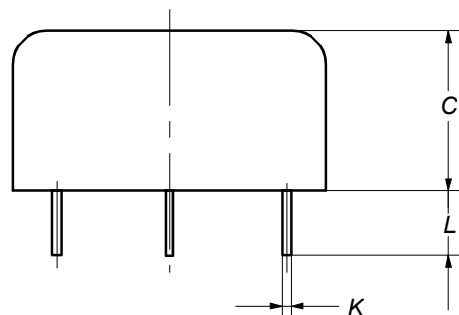
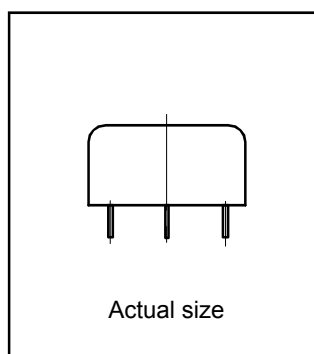
1 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

EXAMPLE CO 09 A1 is the complete identity for enclosure CO 09 with enclosure height C1 and lead length L.

Metal enclosure, five lead crystal oscillator outline –  
Type CO 09

Scale  
1:1





IEC 2466/12

Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	20,50		
B	—	—	20,50		
C <sub>1</sub>	—	—	15,50	CO 15 B.	1,2
C <sub>2</sub>	—	—	20,50	CO 15 C.	1,2
H <sub>1</sub>	14,70	—	15,54		
H <sub>2</sub>	14,70	—	15,54		
H <sub>3</sub>	7,20	7,50	7,80		
K	0,40	—	0,60		
L	4,00	—	—	CO 15 .1	1

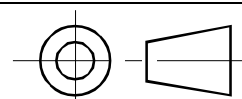
1 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

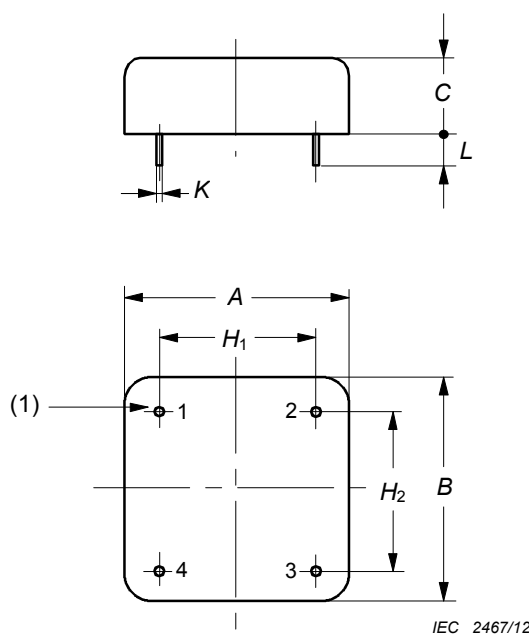
EXAMPLE CO 15 B1 is the complete identity for enclosure CO 15 with enclosure height C<sub>1</sub> and lead length L.

2 The same pin layout of CO 15 but optionally with four of insulating standoffs is in CO 41 in Sheet 13.

**Metal enclosure, five lead crystal oscillator outline – Type CO 15**

Scale  
2:1





IEC 2467/12

Ref.	Dimensions (mm)			Identity reference	Footnotes
	Min.	Nom.	Max.		
A	—	—	31,00	CO 16 A.	2
B	—	—	31,00	CO 16 B.	2
C <sub>1</sub>	—	—	11,00	CO 16 C.	2
C <sub>2</sub>	—	—	16,00	CO 16 C.	2
C <sub>3</sub>	—	—	21,00	CO 16 C.	2
H <sub>1</sub>	21,70	22,00	22,30	CO 16 C.	2
H <sub>2</sub>	21,70	22,00	22,30	CO 16 C.	2
K	0,70	—	0,90	CO 16 .1	2
L	4,00	—	—	CO 16 .1	2

**Key**

(1) An indication shall be provided to locate the position of lead No. 1.

2 The complete identity for any oscillator outline is a six digit type number consisting of the basic type number (four digits) followed by a letter indicating the enclosure height and a number indicating the lead length. The identity references are given in the table, where a dot indicates the missing information, which is given on another line.

EXAMPLE CO 16 A1 is the complete identity for enclosure CO 16 with enclosure height C<sub>1</sub> and lead length L.

**Metal enclosure, four lead crystal oscillator  
outline – Type CO 16**

Scale  
1:1

