BS EN 60368-3:2010

BSI Standards Publication

Piezoelectric filters of assessed quality

Part 3: Standard outlines and lead connections

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 60368-3:2010. It is identical to IEC 60368-3:2010. It supersedes BS EN 60368-3:2002, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/49, Piezoelectric devices for frequency control and selection.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 66747 3

ICS 31.140

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2011.

Amendments issued since publication

Amd. No.	Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60368-3

December 2010

ICS 31.140

Supersedes EN 60368-3:2001

English version

Piezoelectric filters of assessed quality - Part 3: Standard outlines and lead connections

(IEC 60368-3:2010)

Filtres piezoélectriques sous assurance de la qualité -
Partie 3: Encombrements normalisés et connexions des sorties
(CEI 60368-3:2010)

Piezoelektrische Filter mit bewerteter Qualität -
Teil 3: Norm-Gehäusemaße und Anschlussdrähte
(IEC 60368-3:2010)

This European Standard was approved by CENELEC on 2010-12-01. CENELEC members are bound to comply with the 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60368-3:2010 E

Foreword

The text of document 49/887/CDV, future edition 4 of IEC 60368-3, prepared by IEC TC 49, Piezoelectric, Dielectric and Electrostatic Devices and Associated Materials for Frequency Control, Selection and Detection, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60368-3 on 2010-12-01.

This European Standard supersedes EN 60368-3:2001.

This EN 60368-3:2010 includes the following significant technical changes with respect to EN 60368-3:2001:

a) four enclosure types (CF05, CF06, CF07 and CF09) have been deleted from EN 60368-3:2001;

b) now standardized enclosures are totally 16 types. These are listed in Table.1.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2011-09-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-12-01

Endorsement notice

The text of the International Standard IEC 60368-3:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60368-1:2000	NOTE	Harmonized as 60368-1:2000 (not modified).
IEC 60368-1:2000/A1:2004	NOTE	Harmonized as EN 60368-1:2000/A1:2004 (not modified).
IEC 60368-2-2:1996	NOTE	Harmonized as EN 60368-2-2:1999 (not modified).
IEC 60368-4:2000	NOTE	Harmonized as EN 60368-4:2000 (not modified).
IEC 60368-4-1:2000	NOTE	Harmonized as EN 60368-4-1:2000 (not modified).

CONTENTS

PIEZOELECTRIC FILTERS OF ASSESSED QUALITY –

Part 3: Standard outlines and lead connections

1 Scope

This part of IEC 60368 specifies the outline drawing for piezoelectric filters 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 all outline drawings for frequency control and selection devices the following guide shall be considered:

2.1 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.

2.2 The outline drawing shall consist of three parts:

2.2.1 A drawing with dimensional symbols (capital letter) as shown in Figure 1 below with applicable notes, if necessary.

2.2.2 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.

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

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

2.4 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.

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

2.6 All dimensions shall be in millimeters.

2.7 0utline dimensions *A*, *B*, *C*, *D* and *E* shall be listed with maximum values only.

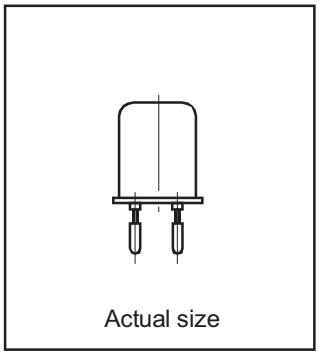
2.8 Lead (termination) cross-sectional dimensions shall be listed with minimum and maximum values. If applicable, nominal dimensions may be added.

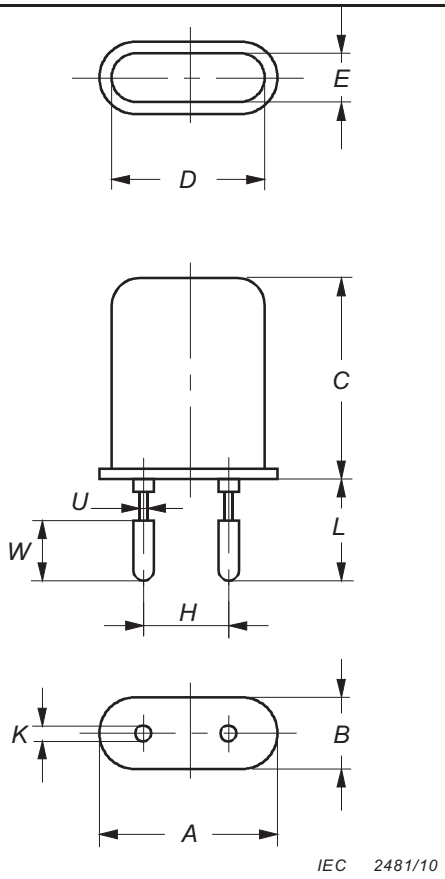
2.9 The spacing of the leads (termination) – symbol *H* – shall be listed with minimum, nominal and maximum dimensions.

2.10 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.

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

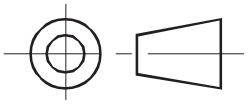




Ref.	Dimensions (mm)			Notes
	Min.	Nom.	Max.	
A	—	—	X	
B	—	—	X	
C	—	—	X	
D	—	—	X	
E	—	—	X	
H	X	X	X	
K	X	—	X	1
L	X	—	X	
U	X	—	—	2
W	X	—	—	2

NOTE 1 In this sentence, a comment related to K or to the number X should be notified.

NOTE 2 In this sentence, a comment related to U and W or to the number X should be notified

Figure 1 – Guidance for outline drawings	Scale 2 :1	
Sheet - number		

3 Dimensions of piezoelectric filter enclosures

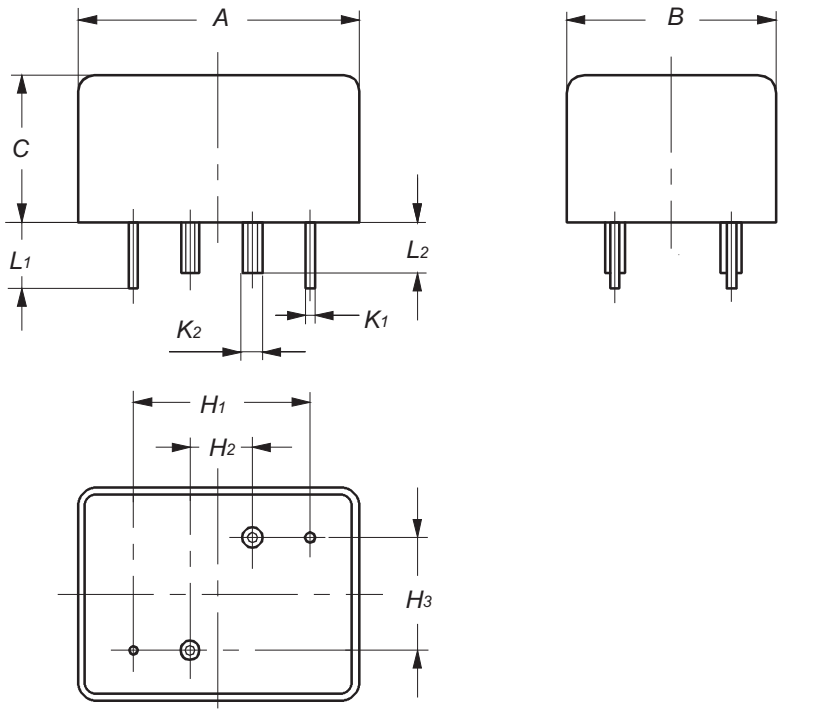
The dimensions in this standard apply to the competed piezoelectric filters.

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

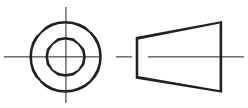
4 Designation of piezoelectric filter enclosures

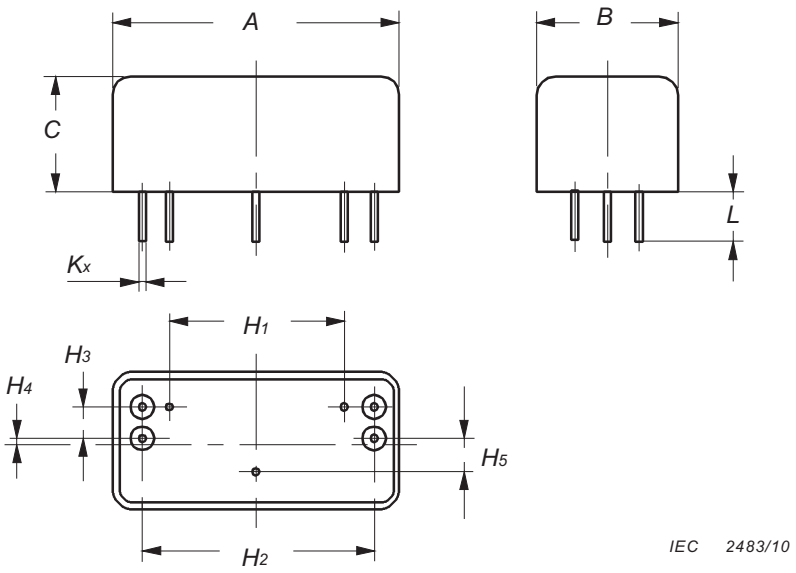
Table 1 – Designation of piezoelectric filter enclosures

No.	Type	Sheet No.	Description
1	F 01	Sheet 1	Metal enclosure, soldered, two-lead crystal filter outline
2	F 02	Sheet 2	Metal enclosure, soldered, seven-lead crystal filter outline
3	F 03	Sheet 3	Metal enclosure, soldered, four-lead crystal filter outline
4	F 04 F 05 F06 F 07 F 08	Sheet 4	Metal enclosure, soldered, four-lead crystal filter outline
5	F 12	Sheet 5	Metal enclosure, soldered, four-lead crystal filter outline
6	F 14 F 15	Sheet 6	Metal enclosure, welded, three-lead crystal filter outline
7	F 16	Sheet 7	Metal enclosure, welded, three-lead crystal filter outline
8	CF 01 CF 02 CF 03 CF 04	Sheet 8	Metal enclosure, soldered, four-lead piezoelectric ceramic filter outline



Ref.	Dimensions (mm)			Identity reference	Notes Types
	Min.	Nom.	Max.		
A	—	—	36,10		
B	—	—	27,20		
C	—	—	19,40		
H_1	22,61	22,86	23,11		
H_2	7,37	7,62	7,87		
H_3	14,75	15,00	15,49		
K_1	0,95	—	1,05		
K_2	—	M3	—		
L_1	2,50	—	—		
L_2	3,50	—	6,40		

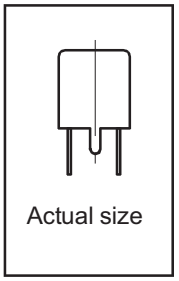
Metal enclosure, soldered, two-lead crystal filter outline – Type F 01	Scale 1:1	
Sheet 1		

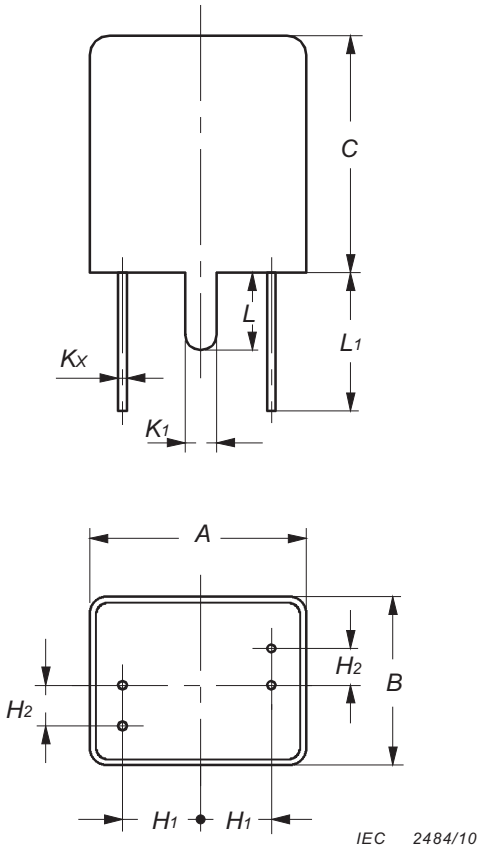


Ref.	Dimensions (mm)			Identity reference	Notes Types
	Min.	Nom.	Max.		
A	—	—	38,40		
B	—	—	18,20		
C	—	—	15,90		
H_1	23,76	24,00	24,25		
H_2	31,75	32,00	32,25		
H_3	3,75	4,00	4,25		
H_4	0,75	1,00	1,25		
H_5	4,75	5,00	5,25		
K_1	0,70	—	0,85	a	1
K_2	0,90	—	1,10	b	1
L	2,70	—	—		

NOTE 1 K_1 and K_2 are alternative lead and are identified by adding the letter a or b to the basic type designation.

Metal enclosure, soldered, seven-lead crystal filter outline – Type F 02	Scale 1:1	
Sheet 2		

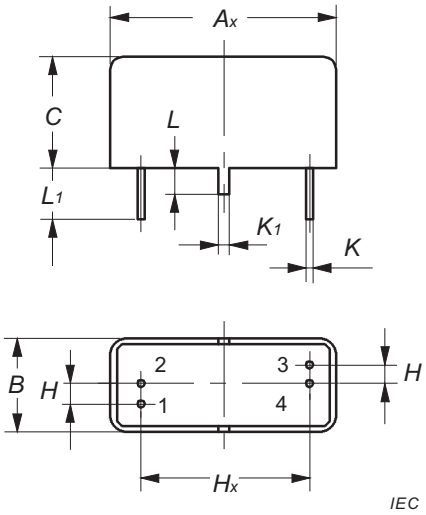




Ref.	Dimensions (mm)			Identity reference	Notes Types
	Min.	Nom.	Max.		
A	—	—	11,00		
B	—	—	8,50		
C	—	—	12,00		
H_1	3,45	3,70	3,95		
H_2	1,75	2,00	2,25		
K_1	—	—	1,60		
K_2	0,25	—	0,40	a	1
K_3	0,40	—	0,48	b	1
L	4,00	—	—		
L_1	7,00	—	—		

NOTE 1 K_2 and K_3 are alternative lead diameters and are identified by adding the letter a or b to the basic type designation.

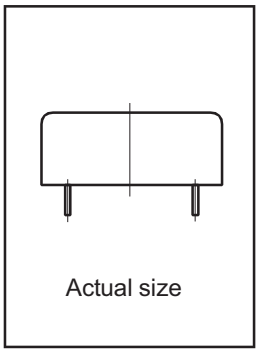
Metal enclosure, soldered, four-lead crystal filter outline – Type F 03	Scale 3:1	
Sheet 3		

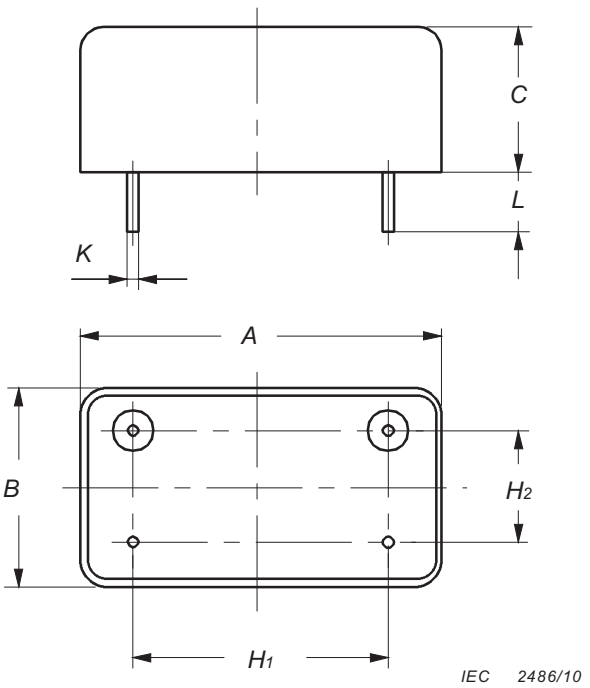


Type F 08

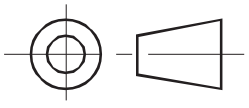
Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
B	—	—	12,00	
C	—	—	16,00	
H	2,25	2,50	2,75	
K	0,40	—	0,48	
K_1	—	—	1,60	
L	3,50	—	—	
L_1	3,50	—	—	
A_1 H_1	— 8,75	— 9,00	15,00 9,25	Type F 04
A_2 H_2	— 13,15	— 13,40	18,50 13,65	Type F 05
A_3 H_3	— 17,55	— 17,80	23,00 18,05	Type F 06
A_4 H_4	— 21,95	— 22,20	28,00 22,45	Type F 07
A_5 H_5	— 26,35	— 26,60	34,00 26,85	Type F 08

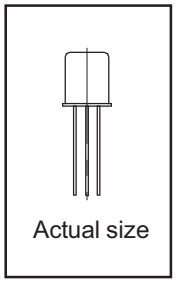
Metal enclosure, soldered, four-lead crystal filter outline – Type F 04, F 05, F 06, F 07, F 08	Scale 1:1	
Sheet 4		

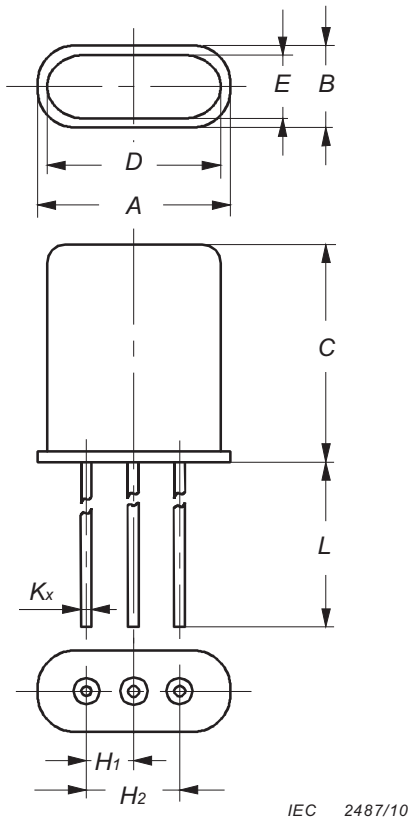




Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	25,10	
B	—	—	14,10	
C	—	—	10,00	
H_1	17,50	18,00	18,50	
H_2	7,50	8,00	8,50	
K	0,65	—	0,85	
L	3,00	—	—	

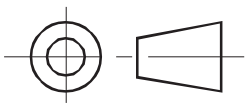
Metal enclosure, soldered, four-lead crystal filter outline – Type F 12	Scale 2:1	
Sheet 5		

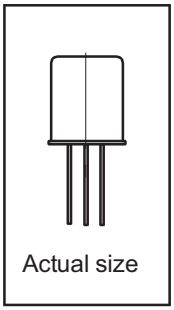


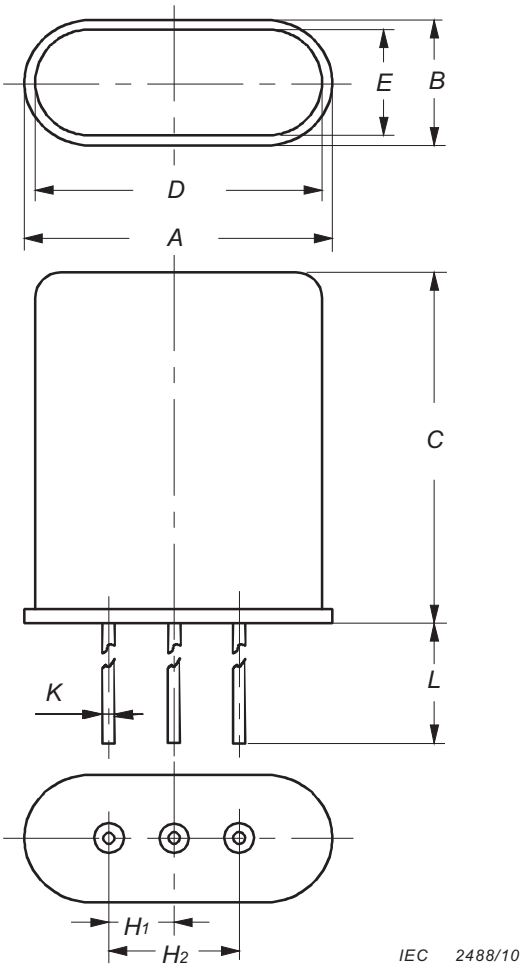


Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	8,26	
B	—	—	3,70	
C	—	—	8,80	
D	—	—	7,00	
E	—	—	2,60	
H_1	1,75	1,87	1,95	
H_2	3,60	3,75	3,90	
K_1	0,40	—	0,48	Type F 15
K_2	0,25	—	0,48	Type F 14
L	12,70	—	—	

NOTE Centre lead may be either isolated or grounded to base.

Metal enclosure, welded, three-lead crystal filter outline – Type F 14, F 15	Scale 4:1	
Sheet 6		

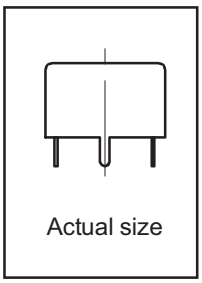




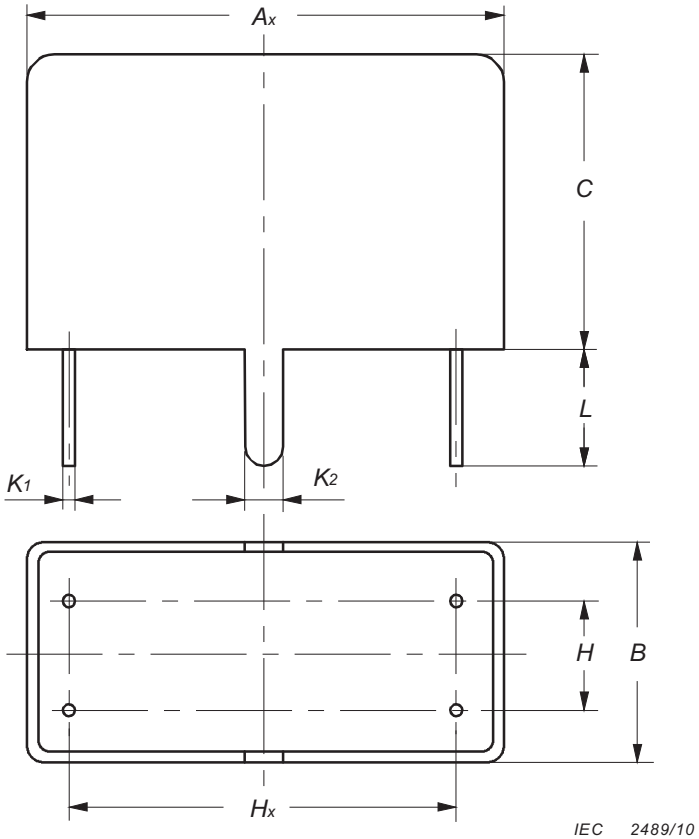
Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
A	—	—	11,10	
B	—	—	5,00	
C	—	—	13,50	
D	—	—	10,20	
E	—	—	3,80	
H_1	2,25	2,45	2,65	
H_2	4,67	4,90	5,08	
K	0,40	—	0,48	
L	12,70	—	—	

NOTE Centre lead may be either isolated or grounded to base.

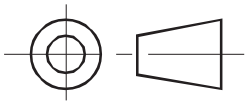
Metal enclosure, welded, three-lead crystal filter outline – Type F 16	Scale 4:1	
Sheet 7		



Type CF 01



Ref.	Dimensions (mm)			Notes Types
	Min.	Nom.	Max.	
B	—	—	8,00	
C	—	—	10,50	
H	4,00	4,20	4,40	
K_1	0,60	—	1,00	
K_2	—	—	1,70	
L	3,50	—	—	
A_1 H_1	— 13,90	— 14,20	17,00 14,50	Type CF 01
A_2 H_2	— 16,50	— 16,80	20,50 17,10	Type CF 02
A_3 H_3	— 19,70	— 20,00	24,00 20,30	Type CF 03
A_4 H_4	— 25,70	— 26,00	30,00 26,30	Type CF 04

Metal enclosure, soldered, four-lead piezoelectric ceramic filter outline – Type CF 01, CF 02, CF 03, CF 04	Scale 4:1	
Sheet 8		

Bibliography

IEC 60368-1:2000, *Piezoelectric filters of assessed quality – Part 1: Generic specification*

IEC 60368-1:2004, *Piezoelectric filters of assessed quality – Part 1: Generic specification* Amendment 1

IEC 60368-2-1:1988, *Piezoelectric filters. Part 2-1: Guide to the use of piezoelectric filters – Quartz crystal filters*

IEC 60368-2-2:1996, *Piezoelectric filters – Part 2-2: Guide to the use of piezoelectric filters – Piezoelectric ceramic filters*

IEC 60368-4:2000, *Piezoelectric filters of assessed quality – Part 4: Sectional specification – Capability approval*

IEC 60368-4-1:2000, *Piezoelectric filters of assessed quality – Part 4-1: Blank detail specification – Capability approval*

ISO 1101:1983, *Technical drawings – Geometrical tolerancing – Tolerancing of form, orientation, location and run-out – Generalities, definitions, symbols, indications on drawings*

_____

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™