IEC 61340-5-3

Edition 3.0 2022-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrostatics –
Part 5-3: Protection of electronic devices from electrostatic phenomena – Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices

Électrostatique –
Partie 5-3: Protection des dispositifs électroniques contre les phénomènes électrostatiques – Classification des propriétés et des exigences relatives à l'emballage destiné aux dispositifs sensibles aux décharges électrostatiques

IEC 61340-5-3:2022-04(en-fr)

Documents
Document Sharing Hub
Full document details: IEC 61340-5-3 2022

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, …). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

AVA Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

IEC 61340-5-3

Edition 3.0 2022-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrostatics –
Part 5-3: Protection of electronic devices from electrostatic phenomena – Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices

Électrostatique –
Partie 5-3: Protection des dispositifs électroniques contre les phénomènes électrostatiques – Classification des propriétés et des exigences relatives à l'emballage destiné aux dispositifs sensibles aux décharges électrostatiques

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.99; 29.020

ISBN 978-2-8322-1100-5

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviated terms 7
3.1 Terms and definitions 7
3.2 Abbreviated terms 9
4 Tailoring 9
5 Packaging application requirement 9
5.1 General 9
5.2 Inside an EPA 9
5.3 Outside an EPA 9
6 Classification of ESD packaging material properties 10
6.1 General 10
6.2 Material resistance properties 10
6.2.1 General 10
6.2.2 Resistance of conductive materials 10
6.2.3 Resistance of dissipative materials 10
6.2.4 Resistance of insulating materials 11
6.3 Material electrostatic shielding properties 11
6.3.1 Electrostatic discharge shielding 11
6.3.2 Electrostatic field shielding 11
7 Technical requirements for ESD protective packaging 11
7.1 Packaging and material properties 11
7.2 Packaging marking 12
7.2.1 Classification symbol 12
7.2.2 Packaging classification 13
7.2.3 Traceability 13
Annex A (informative) Guidance on ESD packaging material 14
A.1 Environment and device sensitivity 14
A.1.1 General 14
A.1.2 Environment 14
A.1.3 Device sensitivity 15
A.2 Equipotential bonding 16
A.3 Dissipative material for intimate contact 16
A.4 Packaging from incoming material to the point of use 16
A.5 Periodic verification 17
A.6 Examples of measurement procedures for qualification and verification of packaging 18
Annex B (informative) Device damage 20
B.1 Damage from ESD 20
B.2 Discharge to a device 20
B.2.1 Discharge to device from external objects 20
B.2.2 Retained charge on a packaging 20
B.3 Discharge from a floating device (CDM) 20

AVA Documents
Document Sharing Hub
Full document details: IEC 61340-5-3 2022

B.3.1 Discharges from devices in an electric field 20
B.3.2 Discharges from tribo-electrified devices 20
Annex C (informative) Guidance on electric field shielding 21
Annex D (informative) Low charging material property 22
Bibliography 23

Figure 1 – Example of packaging label (*Primary function code) 13
Figure A.1 – Examples of EPA configurations 15
Figure A.2 – Application of ESD protective packaging 17

Table 1 – Test methods for electrostatic protective packaging 12
Table 2 – Test methods and requirements for electrostatic discharge shielding packaging 12
Table 3 – Primary function code and ESD classification symbol 13
Table A.1 – Packaging characteristics for environmental consideration 14
Table A.2 – Examples of qualification and verification of packaging 18

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROSTATICS –

Part 5-3: Protection of electronic devices from electrostatic phenomena – Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61340-5-3 has been prepared by IEC technical committee 101: Electrostatics. It is an International Standard.

This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

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

a) reference to IEC 61340-4-10[1] [1][2] was removed;
b) material resistance property "electrostatic field shielding" was removed;

[1] Withdrawn.

[2] Numbers in square brackets refer to the bibliography.

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

c) the requirement for electrostatic discharge shielding was changed from 50 nJ to 20 nJ;

d) Table 1 – footnote "b" was changed to mention the two-point probe in IEC 61340-2-3;

e) "shall be marked" was changed to "should be marked" in 7.2.2 and 7.2.3;

f) Table 3 – the classification symbol and the primary function code F was removed;

g) Table A.2 – references to IEC TS 61340-5-4 [2] and IEC TR 61340-5-5 [3] were added;

h) Annex C – guidance regarding electric field shielding was added;

i) Annex D – low charging material property was added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
101/649/FDIS	101/660/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 61340 series, published under the general title *Electrostatics*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

INTRODUCTION

Packaging is necessary to protect electrostatic discharge sensitive devices (ESDSs) from static electricity and electrostatic discharge (ESD) damage as well as physical and environmental damage during manufacture, transportation and storage.

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

ELECTROSTATICS –

Part 5-3: Protection of electronic devices from electrostatic phenomena – Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices

1 Scope

This part of IEC 61340 defines the ESD protective packaging properties required to protect ESD sensitive devices (ESDSs) through all phases of production, rework and maintenance, transport and storage. Test methods are referenced to evaluate packaging and packaging materials for these product and material properties. Performance limits are provided.

This document does not address protection from electromagnetic interference (EMI), electromagnetic pulsing (EMP) or protection of electrically initiated explosive materials or devices.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61340-2-3, *Electrostatics – Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation*

IEC 61340-4-8, *Electrostatics – Part 4-8: Standard test methods for specific applications – Electrostatic discharge shielding – Bags*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
electrostatic discharge
ESD
rapid transfer of charge between bodies at different electrostatic potentials

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

3.1.2
ESD sensitive device
ESDS
sensitive device, integrated circuit or assembly that can be damaged by electrostatic fields or electrostatic discharge

Note 1 to entry: See Clause B.2 and Clause B.3 in Annex B.

3.1.3
ESD protected area
EPA
area in which an ESDS can be handled with acceptable risk of damage caused by electrostatic discharge or fields

SEE: Figure A.1 in Annex A.

3.1.4
unprotected area
UPA
area outside an EPA

SEE: Figure A.1 in Annex A.

3.1.5
intimate packaging
material which makes contact with an ESDS

3.1.6
proximity packaging
material not making contact with an ESDS and which is used to enclose one or more devices

3.1.7
secondary packaging
material used primarily to give additional physical protection to the outside of proximity packaging

3.1.8
volume resistance
R_V
ratio of a DC voltage (V) applied between two electrodes placed on two (opposite) surfaces of a specimen and the current (A) between the electrodes

Note 1 to entry: Volume resistance is expressed in Ω.

3.1.9
point-to-point resistance
$R_{p\text{-}p}$
ratio of a DC voltage (V) applied between two electrodes on a surface of a specimen and the current (A) between the electrodes

Note 1 to entry: The electrode configuration for point-to-point resistance measurements is usually a pair of circular faced electrodes with a defined distance apart.

Note 2 to entry: Point-to-point resistance is expressed in Ω.

AVA Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

3.1.10
surface resistance
R_S
ratio of a DC voltage (V) applied between two electrodes in a defined configuration on a surface of a specimen and the current (A) between the electrodes

Note 1 to entry: The electrode configuration for surface resistance measurement is usually a pair of parallel rectangular electrodes or a pair of circular concentric electrodes.

Note 2 to entry: Surface resistance is expressed in Ω.

3.2 Abbreviated terms

CDM charged device model

EMI electromagnetic interference

EMP electromagnetic pulsing

EPA ESD protected area

ESD electrostatic discharge

ESDS electrostatic discharge sensitive device

HBM human body model

UPA unprotected area

4 Tailoring

This document, or portions thereof, does not necessarily apply to all applications. Tailoring is accomplished by evaluating the applicability of each requirement for the specific application. Upon completion of the evaluation, requirements may be added, modified or deleted.

Tailoring decisions, including rationale, shall be documented.

5 Packaging application requirement

5.1 General

Transportation and storage of ESDSs require packaging that provides protection from electrostatic hazards (for example from an electrostatic discharge). Within an EPA in which all ESD risks are well controlled, it is possible that ESD protective packaging will not be necessary.

5.2 Inside an EPA

Packaging used within an EPA shall consist of dissipative or conductive materials for intimate contact.

Additional protection can be necessary for items sensitive to < 100 V for HBM, < 200 V for CDM and < 35 V for isolated conductors, depending on application and program plan requirements.

NOTE Dissipative materials are preferred for intimate packaging in situations where charged device model (CDM) damage is a concern.

5.3 Outside an EPA

Transportation and storage of sensitive products outside of an EPA shall be done in packaging that provides both

a) dissipative or conductive materials for intimate contact,

b) a structure that provides electrostatic discharge shielding.

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

If electrostatic field shielding materials are used to provide discharge shielding, a material that provides a barrier to current flow should be used in combination with the electrostatic field shielding material.

NOTE Dissipative materials are preferred for intimate packaging in situations where charged device model (CDM) damage is a concern.

6 Classification of ESD packaging material properties

6.1 General

Materials and packaging that are useful in preventing damage to ESD sensitive devices exhibit certain properties. These properties include:

a) resistance properties:
   – conductive;
   – dissipative;
b) shielding properties:
   – electrostatic discharge;
   – electrostatic field;
c) low charging properties:

See Annex D.

6.2 Material resistance properties

6.2.1 General

Most standard packaging materials are electrically insulating and insulating materials retain charge. Making the packaging less insulating provides a path for the charge to dissipate from the packaging to a material at a lower potential.

Specific ranges of resistance are useful for different purposes. Packaging can be classified by these resistance ranges of the material used in its construction.

6.2.2 Resistance of conductive materials

Conductive materials can be surface conductive, volume conductive or both.

a) Surface conductive materials

   Surface conductive materials shall have a surface resistance of $< 1 \times 10^4$ Ω.

b) Volume conductive materials

   Volume conductive materials shall have a volume resistance of $< 1 \times 10^4$ Ω.

NOTE The thickness of the material can have a significant influence on the measured value of volume resistance.

6.2.3 Resistance of dissipative materials

Dissipative materials can be surface dissipative, volume dissipative or both.

a) Surface dissipative materials

   Surface dissipative materials shall have a surface resistance $\geq 1 \times 10^4$ and $< 1 \times 10^{11}$ Ω.

b) Volume dissipative materials

   Volume dissipative materials shall have a volume resistance $\geq 1 \times 10^4$ and $< 1 \times 10^{11}$ Ω.

NOTE The thickness of the material can have a significant influence on the measured value of volume resistance.

AVA Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

6.2.4 Resistance of insulating materials

Electrostatic insulating materials can be surface insulating, volume insulating or both.

a) Surface insulating materials

Electrostatic surface insulating materials have a surface resistance ≥ 1 × 10^{11} Ω.

b) Volume insulating materials

Electrostatic volume insulating materials have a volume resistance ≥ 1 × 10^{11} Ω.

6.3 Material electrostatic shielding properties

NOTE Electrostatic shielding materials protect packaged ESDSs from the effects of electrostatic discharges and fields that are external to the packaging.

6.3.1 Electrostatic discharge shielding

Electrostatic discharge shielding packaging is capable of attenuating an electrostatic discharge. The calculated energy allowed inside an electrostatic discharge shielding bag shall be less than 20 nJ when tested according to IEC 61340-4-8 or equivalent test method modified to accommodate the product.

6.3.2 Electrostatic field shielding

Electrostatic field shielding packaging is capable of attenuating an electrostatic field.

See Annex C.

7 Technical requirements for ESD protective packaging

7.1 Packaging and material properties

Table 1 and Table 2 provide test methods for determining material classifications for finished packaging and materials. When possible, testing shall be performed on the finished packaging. When testing cannot be performed on a finished packaging, the material classification shall be defined by the bulk material used for the production of the final packaging.

Other probes (electrodes) may be used providing the results correlate with the specified probes (electrodes). In case of dispute, the probe (electrode) assemblies specified in IEC 61340-2-3 shall be used.

Documents
Document Sharing Hub

Full document details: IEC 61340-5-3 2022

Table 1 – Test methods for electrostatic protective packaging

Material classification	Test method [a]	Method description		Limits
Surface conductive	IEC 61340-2-3 [e]	R_S	Surface resistance	< 1 × 10^4 Ω
	IEC 61340-2-3 [b,e]	R_{p-p}	Point-to-point resistance	< 1 × 10^4 Ω [c]
Volume conductive	IEC 61340-2-3 [e]	R_V	Volume resistance	< 1 × 10^4 Ω [d]
Surface dissipative	IEC 61340-2-3 [e]	R_S	Surface resistance	≥ 1 × 10^4 to < 1 × 10^{11} Ω
	IEC 61340-2-3 [b,e]	R_{p-p}	Point-to-point resistance	≥ 1 × 10^4 to < 1 × 10^{11} Ω [c]
Volume dissipative	IEC 61340-2-3 [e]	R_V	Volume resistance	≥ 1 × 10^4 to < 1 × 10^{11} Ω [d]
Surface insulating	IEC 61340-2-3 [e]	R_S	Surface resistance	≥ 1 × 10^{11} Ω
	IEC 61340-2-3 [b,e]	R_{p-p}	Point-to-point resistance	≥ 1 × 10^{11} Ω [c]
Volume insulating	IEC 61340-2-3 [e]	R_V	Volume resistance	≥ 1 × 10^{11} Ω [d]

[a] For product qualification of packaging materials, the environmental conditions for preconditioning and testing shall be 23 °C ± 2 °C and 12 % ± 3 % relative humidity. The preconditioning before the measurement shall be ≥ 48 h.

[b] IEC 61340-2-3 describes point-to-point resistance measurements using two 2,5 kg electrodes. It also describes a two-point probe for point-to-point resistance measurements for non-planar materials and products with small structures. Either of these two test methods may be used.

[c] The results of a measurement of R_{p-p} according to IEC 61340-2-3 can be different compared to the results of a measurement of R_S according to IEC 61340-2-3 due to the usage of different probes.

[d] The thickness of the material can have a significant influence on the values of a measured volume resistance. The requirement is the same despite the thickness of the material.

[e] IEC 61340-2-3 describes test methods for the determination of the electrical resistance and resistivity of solid materials in the range from 10^4 Ω to 10^{12} Ω, and refers to other standards for measurements outside this range. However, it is possible that the other test methods referred to will not be appropriate for measuring packaging materials or products. Therefore, for the purposes stated in this table, any of the electrodes specified in IEC 61340-2-3 shall be used. The instrumentation used shall be able to measure to below 10^3 Ω; it is acceptable for the open circuit voltage or voltage under load of the instrumentation used to be less than 10 V.

Table 2 – Test methods and requirements for electrostatic discharge shielding packaging

	Packaging system	
	Shielding bags	**Other ESD shielding packaging design**
Test method	IEC 61340-4-8	User defined
Requirement	Energy < 20 nJ	– intimate packaging shall be dissipative or conductive – a barrier layer or a defined air gap attenuating ESD energy shall be included [a]

[a] No component of the packaging system shall cause ESD risk when taken within an EPA.

7.2 Packaging marking

7.2.1 Classification symbol

ESD protective packaging should be marked with the ESD classification symbol given in IEC 60417-6202:2013-06 [4] and as shown in Figure 1 or in accordance with customer contracts, purchase orders, drawings or other documentation.

AVA Documents Document Sharing Hub

IEC 60417-6202:2013-06

Figure 1 – Example of packaging label (*Primary function code)

7.2.2 Packaging classification

The primary function code should be marked below the ESD classification symbol given in IEC 60417-6202:2013-06 [4] and as shown in Table 3:

S electrostatic discharge shielding;

C electrostatic conductive;

D electrostatic dissipative.

Table 3 – Primary function code and ESD classification symbol

Primary function code *	Primary function	ESD classification symbol
S	Electrostatic discharge shielding	
C	Electrostatic conductive	
D	Electrostatic dissipative	

7.2.3 Traceability

Packaging should be supplied with information that allows traceability to the packaging manufacturer and to the manufacturer's date and lot code information.

Documents
Document Sharing Hub
Full document details: IEC 61340-5-3 2022

Annex A
(informative)

Guidance on ESD packaging material

A.1 Environment and device sensitivity

A.1.1 General

Environment and device sensitivity are two primary considerations for selecting ESD packaging materials.

A.1.2 Environment

Since the threat to a sensitive item is usually undetermined when the item is outside an EPA, the ESDS should be placed in ESD protective packaging whenever the item is in a UPA – see Table A.1.

Table A.1 – Packaging characteristics for environmental consideration

Item to be packed	EPA		UPA	
	Intimate	Proximity	Intimate	Proximity
ESDS	Electrostatic conductive or dissipative [a]	Electrostatic conductive or dissipative	As for inside EPA and electrostatic discharge shielding [b]	As for inside EPA and electrostatic discharge shielding [c]

[a] For battery operated ESDSs, the selection of the material or the design of the packaging should ensure that the battery does not become discharged.

[b] Electrostatic discharge shielding property is only required when proximity packaging is not electrostatic discharge shielding.

[c] Electrostatic discharge shielding property is only required when intimate packaging is not electrostatic discharge shielding.

Documents
Document Sharing Hub
Full document details: IEC 61340-5-3 2022