

Standard data element types with associated classification scheme for electric components —

Part 4: Data element type definitions

The European Standard EN 61360-4:1997 has the status of a
British Standard

ICS 29.100.20;31.020

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 408 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 August 1997

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Amendments issued since publication

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ICS 29.100.20; 31.020

Descriptors: IEC reference, collection of standard data elements, component classes

English version

Standard data element types with associated classification
scheme for electric components
Part 4: IEC reference collection of standard data
element types, component classes and terms

(IEC 61360-4:1997)

Types normalisés d'éléments de
données avec plan de classification
pour composants électriques
Partie 4: Collection de référence CEI
des types normalisés d'éléments de
données, des classes de composants
et des termes
(CEI 61360-4:1997)

Genormte Datenelementtypen mit
Klassifikationsschema für elektrische
Bauteile
Teil 4: IEC Nachschlagewerk für
genormte Datenelementtypen,
Bauteilklassen und Terme
(IEC 61360-4:1997)

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

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Foreword

The text of document 3D/48/FDIS, future edition 1 of IEC 61360-4, prepared by SC 3D, Data sets for libraries of electric component data, of IEC TC 3, Documentation and graphical symbols, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61360-4 on 1997-03-11.

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) 1998-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-01-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, Annex A to Annex J and Annex ZA are normative and Annex K is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61360-4:1997 was approved by CENELEC as a European Standard without any modification.

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1 General

1.1 Scope and object

This part of IEC 61360 specifies within three dictionaries:

- the definitions of data element types for electric components and materials used in electrotechnical equipment and systems;
- the definitions of the component classes with associated classification scheme;
- the definitions of the terms used to clarify this classification scheme and those terms used in the data element type definitions which could possibly be misunderstood.

These definitions are related to electric components including electronic and electromechanical components and materials used in electrotechnical equipment and systems.

The object of this standard is to provide a set of uniquely-identified data element types with

- an unambiguously defined meaning;
- a defined value format, and
- a prescribed value domain for the non-quantitative data element types.

The classification scheme for components, the component class definitions (whereby the relevant and the valid characteristic properties by specific data element types are assigned to each class of components) and the terms definitions are used to define the data element types unambiguously and to make the entire set of data element types manageable.

The collection of data element types from this International Standard are meant for use in computerized systems for component selection and component management, parts list processing and computer-aided design, -manufacturing and -testing.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61360. At the time of publication, the edition indicated was valid. All normative documents are subject to revision, and parties to agreements based on this part of 1360 are encouraged to investigate the possibility of applying the most recent editions of the normative documents below. Members of and ISO maintain registers of currently valid International Standards.

IEC 61360-1:1995, *Standard data element types with associated classification scheme for electric components — Part 1: Definitions — Principles and methods.*

IEC 3D/38/CDV, *Standard data element types with associated classification scheme for electric components — Part 2: EXPRESS dictionary schema.* (future IEC 61360-2)

IEC 61360-3:1995, *Standard data element types with associated classification scheme for electric components — Part 3: Maintenance and validation procedures.*

1.3 Informative references

All mentioned references in the definitions of the entities in this document are listed in the informative Annex K.

2 Definitions

For the purpose of this part of IEC 61360, the definitions as given in clause 2 of IEC 61360-1 as well as those given in Annex G apply.

3 Maintenance and validation methodology

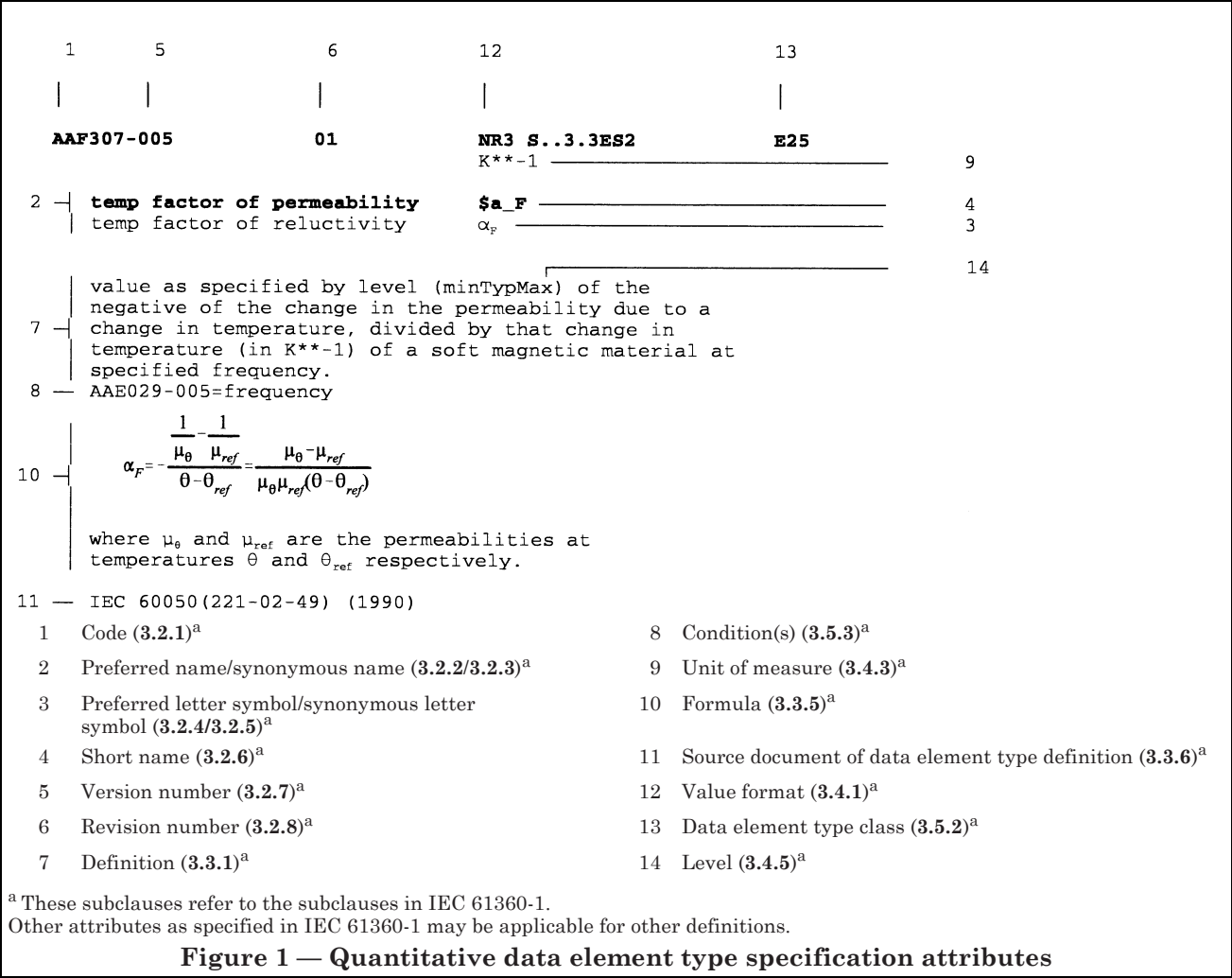
The collection of entities as defined in this standard is a dynamic collection which needs actively to be maintained.

IEC 61360-3 specifies the procedures that shall be followed by the Validation Agency and the Maintenance Agency of the IEC vocabulary of standard technical data element types with associated classification scheme, component classes as defined by this classification scheme and terms associated with the value meaning of classifying data element types used to clarify the classification scheme and those terms used in the data element type definitions which could possibly be misunderstood.

4 Data element types

4.1 Data element type specification attributes

The various attributes of the data element types are explained with the aid of Figure 1. For a detailed description of the various attributes of the data element type definitions, see IEC 61360-1.



4.2 Data element type definitions

In Annex A the definitions of the data element types of materials and electric components, including electronic components, are given.

The definitions are presented in an alphanumerical sequence of the data element type identifier.

4.2.1 Index on letter symbol and/or short name

In Annex B an index is given presenting the data element type definitions sorted with the letter symbol and/or short name as primary key. The letter symbol/short name are sorted according to: bracket <<(>>, dollar sign <<\$>>, commercial add <<@>>, absolute sign <<|>> and alphabetic. Greek letters are sorted according to the <<Latin writing>> of the Greek characters. The layout of this index as used in this standard is given in Figure 2.

Short name/letter symbol	Identifier
drive feature	AAF014-005
dV _{com} /dt	AAE741-005
dV _{com} /dt	AAE741-005
dV _D /dt	AAE740-005
dV _D /dt	AAE741-005
dV _D /dt	AAE740-005
E	AAE180-005
E series	AAE030-005
E _{abs}	AAE430-005

Figure 2 — Index on letter symbol and/or short name

4.2.2 Index on keywords from the preferred names and synonymous names

In Annex C an index is presented in which the significant keywords from the preferred names and synonymous names of the data element type definitions are taken as primary keys. The keywords are sorted according to: bracket <<(>> and further alpha-numeric. The layout of this index as used in this standard is given in Figure 3.

Keyword	Preferred name/synonymous names	Identifier
(2-tau)	spurious signal level (2-tau)	AAE888-005
(3-tau)	spurious signal level (3-tau)	AAE879-005
(air)	(air) gap length	AAE778-005
(BH)_max	field strength at (BH)_max	AAF289-005
	flux density at (BH)_max	AAF293-005
(cap)	circuit application (cap)	AAE034-005
	temperature coefficient (cap)	AAE067-005
(capacitor)	(capacitor) dielectric	AAE004-006
(ceramic)	dielectric class (ceramic cap)	AAE038-005
(IEC)	resistance law (IEC)	AAE141-005
	voltage at class current (IEC)	AAE319-005

Figure 3 — Index on keywords from the preferred names and synonymous names

5 Component classes

5.1 Component classification principles

For the classification of components the principle of dividing the whole set of components into parts has been applied repeatedly, thereby creating a hierarchical tree of several levels of classes.

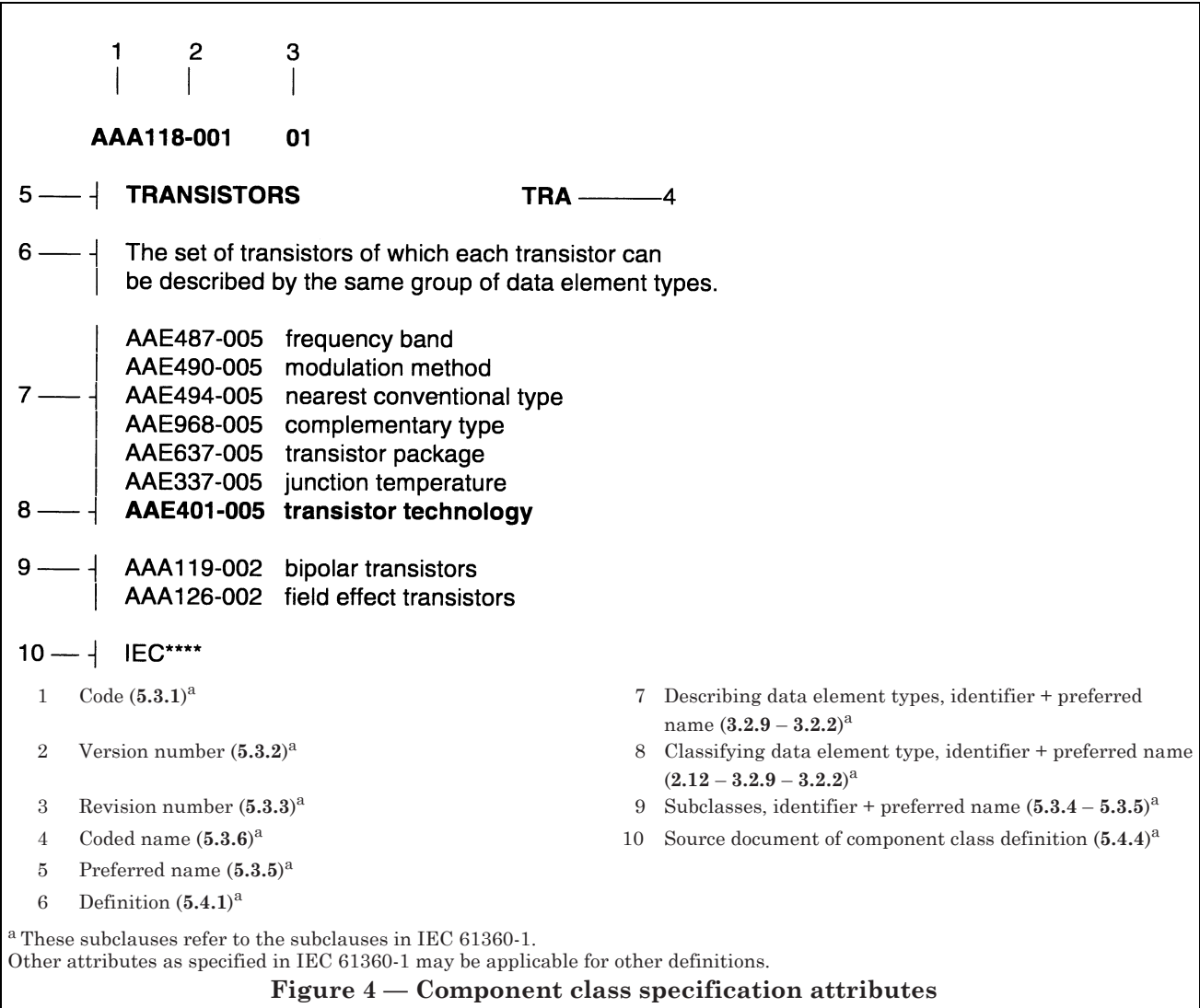
The goal of this classification scheme of components is to arrange the data element types in an unambiguous-structured way.

A detailed description of the classification principles is given in IEC 61360-1.

5.2 Component class attributes

The various attributes of the component classes are explained with the aid of Figure 4. The layout is shown as used in this standard.

For a detailed description of the various attributes of the component class definitions see IEC 61360-1.



Preferred name	Identifier of component class
BIPOLAR TRANSISTORS	AAA119-002
BREAKOVER DIODES	AAA045-001
BRIDGE RECTIFIERS	AAA043-001
CABLES	AAA035-001
CAPACITIVE ANTENNAS	AAA014-002
CAPACITORS	AAA020-001
CHARGE COUPLED DEVICE IC's	AAA066-001
CHOKES	AAA226-001
COILS	AAA227-001

Figure 5 — Index on preferred names of component classes

6 Terms

In this clause, the definition of each term associated with the value meaning of classifying data element types used to clarify the classification scheme and the terms used in the data element type definitions which could possibly be misunderstood are given.

A detailed description of the information model of a term, the various attributes and the relationships between terms and data element types and component classes are defined in IEC 61360-1.

6.1 Term attributes

The various attributes of the terms are explained with the aid of Figure 6, which describes the layout as used in this standard.

For a more detailed description of the various attributes of the term definitions see IEC 61360-1.

1 —	thermistor	
	temperature dependent resistor	
2 —	TDR	
3 —	A thermally sensitive (semiconductor) resistor whose primary function is to exhibit a change in electrical resistance with a change in its temperature	
4 —	IEC/TC 40 (Sec) 2250 (516.06.40) (1986)	
1	Preferred name/synonymous name (6.2.1/6.2.2) ^a	3 Definition (6.3.1) ^a
2	Abbreviated name (6.2.3) ^a	4 Source document of term definition (6.3.6) ^a

^aThese subclauses refer to the relevant subclauses in IEC 61360-1.
Other attributes as specified in IEC 61360-1 may be applicable for other definitions.

Figure 6 — Term specification attributes

6.2 Term definitions

The term definitions are presented in Annex G of this standard. Subclause 6.1 presents the format that is used in this presentation.

6.2.1 Index on keywords

An index on keywords is presented in Annex H for which the presentation format is given below.

Keyword	Preferred name/synonymous name
AC	AC
	AC coupled amplifier
accumulator	accumulator
acoustical	acoustical
AD	AD
address	address
	base address
	direct address
	immediate address
	indexed address
	indirect address
	relative address
aerial	aerial
air	air capacitor
	air gap

Figure 7 — Example index on keywords in terms

6.2.2 Index on abbreviations

An index on abbreviations is presented in Annex J for which the presentation is given below.
The first column presents the abbreviation (= value code of the value of a classifying data element type),
the second column the term (= value meaning of the value of a classifying data element type).

Abbreviation	Value meaning
AC	AC
ACA	AC coupled amplifier
ACO	acoustical
AD	AD
AIR	air capacitor
AMP	amplifier
ANA	analogue
ANT	antenna
AVA	avalanche diode
BAR	bare conductor

Figure 8 — Example index on abbreviations

Annex A (normative)

Data element type definitions

AAE001-005	01	X..3	A52
main class of component		main class	

Code of the main functional class to which a component belongs.

EE	=	EE (electric-electronic)
EM	=	electromechanical
ME	=	mechanical
MP	=	magnetic part

AAE002-005	01	X..3	A52
category EE component		category EE	

Code of the category to which an electric-electronic component belongs.

AMP	=	amplifier
ANT	=	antenna (aerial)
BAT	=	battery
CAP	=	capacitor
CND	=	conductor
DEL	=	delay line
DID	=	diode device
FIL	=	filter
IC	=	IC
IND	=	inductor
LAM	=	lamp
LCD	=	liquid crystal display
OPT	=	optoelectronic device
OSC	=	oscillator
PE	=	piezoelectric device
RES	=	resistor
SEN	=	sensor
TFM	=	transformer
TRA	=	transistor
TRG	=	trigger device
TUB	=	tube
TUN	=	tuner

AAE003-005	01	X..3	A56
adjustability type		adjustability	

Code of the type of mechanical adjustability of a capacitor, resistor, or transformer.

FIX	=	fixed
VAR	=	variable

AAE004-007 **01** **X..8** **A57**

dielectric material type

(capacitor) dielectric

dielectric type

Code of the type of dielectric material of a fixed capacitor.

IEC/TC 40(Sec)2250(516.02.66)

AIR	=	air capacitor
CER	=	ceramic capacitor
ELC	=	electrolytic capacitor
FLM	=	film capacitor
GLS	=	glass capacitor
MIC	=	mica capacitor
PAP	=	paper capacitor

AAE005-006 **01** **X..3** **A51**

transducer principle

drive unit type

trans principle

Code of the transducer principle of a loudspeaker.

IEC/TC 84(Sec)38(13.1.1) (1986)

MVC	=	moving conductor loudspeaker
MGD	=	magnetodynamic loudspeaker
ION	=	ionic loudspeaker
ELM	=	electromagnetic loudspeaker
PNM	=	pneumatic loudspeaker
PXE	=	piezoelectric loudspeaker
ELS	=	electrostatic loudspeaker
MGS	=	magnetostriction loudspeaker

AAE006-006 **01** **M..8** **A55**

mounting features

mtg feature

Code of the mounting features which are designed to fasten a component to its counterpart.

INS	=	inserted
SMD	=	surface mounted
TAP	=	tapped hole
STD	=	stud
HOL	=	through hole
BRC	=	with bracket
C20	=	width 20 mm
C30	=	width is 30 mm
C40	=	width is 40 mm
C50	=	width is 50 mm
35 × 7.5	=	width is 35 mm, height is 7.5 mm
35 × 15	=	width is 35 mm, height is 15 mm
75 × 25	=	width is 75 mm, height is 25 mm

AAE007-005	01	M..3	A58
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terminal shape**terminal shape**

Code of the shape of the terminals of an electric/electronic or electromechanical component.

BUS	= bus
CAP	= end cap
FLT	= flat
SOL	= solid-lead
STL	= stranded-lead
PIN	= printed wiring pin
SCR	= screw
STD	= stud
TAG	= solder tag

AAE008-005	01	M..8	A58
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terminal placement**terminal place**

Code indicating the placement of the terminals of an electric-electronic or electromechanical component.

AXIAL	= axial
SEND	= single ended
CIRC	= on circle
DIL	= dual in line
SIL	= single in line
QIL	= quadruple in line
GA	= grid array
RAD	= radial

AAE009-005	01	M..3	A59
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performance grade**performance grd**

IEC standard code identifying the performance grade of a fixed capacitor.

IEC 60384-2(1.5.1) (1982)

1	= long-life
2	= general purpose

REMARKS:

See IEC 60384-2(4) (1982) and IEC 60384-4(4) (1985) for requirements per test.

AAE010-005	02	M..17	A59
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climatic category**climatic cat**

IEC standard code indicating the climatic category to which a resistor or capacitor belongs.

IEC 60068-1(8) (1988)

REMARKS:

The category is indicated by a series of three sets of digits separated by oblique strokes corresponding respectively to the temperatures, both cold and hot, and to the number of days of exposure to damp heat (steady state) they will withstand.

(In the first set the digits denote the temperature below zero in Cel, unless otherwise indicated.)

- First set: Two digits denoting the minimum ambient temperature of operation (cold test).
- Second set: Three digits denoting the maximum temperature of operation (dry heat test). Where the temperature requires the use of only two digits, they shall be prefixed by the figure “0” to make up the three digit group.
- Third set: Two digits denoting number of days of the damp heat (steady state) test (Ca). Where the duration requires the use of only one digit, it shall be prefixed by the figure “0” to make up the two digit group.

AAE012-005	02	M..35 internat std	A61
International Standard			
Reference to an International Standard describing a component.			
REMARKS:			
Examples of formats for reference to IEC publications:			
IEC 60147-1D(VI.1.5.1) (1978) = IEC publication			
IEC/TC47(CO)797(5.1) (1981) = Publ. of Central office			
IEC/TC47(Sec)797(5.1) (1981) = Publ of Secretariat			
Examples of formats for reference to ISO publications:			
ISO9999 (1985) = ISO publication			
ISO/DP999 (1985) = Draft proposal			
ISO/DIS9999 (1985) = Draft Intern. standard			
AAE013-005	01	NR3 S..3.3ES2 V	E06
voltage (dc)		@U_dc @U_{dc}	
The direct voltage (in V) applied to an electric/electronic or electromechanical component, as a variable.			
AAE014-005	02	NR1 S..4 Cel	H02
ambient temperature		@T_amb	
ambient free air temperature		@T_{amb} @T_a	
The ambient free air temperature (in Cel) of a component, as a variable.			
IEC 60068-1(4.6.2) (1988)			
REMARKS:			
IEC 60068-1(4.4) (1988)			
For a heat-dissipating specimen in free air conditions, the ambient temperature is the temperature of the air at such distance from the specimen that the effect of the dissipation is negligible.			
AAE017-005	01	NR1 S..4 Cel	H02
reference temperature		T_ref T_{ref}	
The reference ambient temperature (in Cel) applied to a component.			
NOTE T _{ref} may be used when a number of characteristics are specified at a common ambient temperature.			
AAE018-001	01	NR2 S..3.3 %	E09
capacitance lower tolerance %		C_lt(%) C_{lt} (%)	
The lower tolerance percentage (in %) of the rated capacitance of a fixed capacitor.			
AAE019-005	01	NR3..3.3ES2 m	T03
body length		l_body l_{body}	
The value as specified by level (miNoMax) of the length (in m) of the body of a component in the x-direction.			

AAE020-005	01	NR3..3.3ES2 m	T03
body height		h_body h_{body}	
The value as specified by level (miNoMax) of the height (in m) of the body of a component in the z-direction.			
AAE021-005	01	NR3..3.3ES2 m	T03
body breadth		b_body b_{body}	
The value as specified by level (miNoMax) of the breadth (in m) of the body of a component in the y-direction.			
AAE022-005	01	NR3..3.3ES2 m	T03
outside diameter		d_out d_{out}	
The value as specified by level (miNoMax) of the out side diameter (in m) of a component with a body of circular cross-section.			
AAE023-005	01	NR3..3.3ES2 m	T03
terminal diameter		d_term d_{term}	
The value as specified by level (miNoMax) of the diameter (in m) of the terminals of an electric-electronic or electromechanical component.			
AAE024-005	01	NR3.. 3.3ES2 m	T03
terminal pitch		p_term p_{term}	
The nominal pitch (in m) of the terminals of an electric-electronic or electromechanical component.			
IEC 60050(411) (1973)			
AAE027-005	01	NR3..3.3ES2 m	T03
mounted height		h_mnt h_{mnt}	
mounting height			
seated height			
The value as specified by level (miNoMax) of the mounted height of a component (in m), referred to the seating plane.			
REMARKS:			
BSI: mounted height (seated height):			
The distance of the furthest part of the component above the reference plane measured in a direction perpendicular to that plane.			
BSI: seating plane (reference plane):			
The surface plane of the circuit on which the component is mounted.			

AAE028-005	02	NR3..3.3ES2	T07
duration		s	
time interval		@dt	
		@dt	
The time (in s) during which an input quantity (current, voltage, etc.) is applied to a component, as a variable.			

AAE029-005	01	NR3..3.3ES2	F03
frequency		Hz	
		@f	
		@f	
The frequency (in Hz) of a sinusoidal input quantity (current, power, voltage, etc.) applied to an electric/electronic or electromechanical component, as a variable.			

AAE030-005	02	M..8	A52
E series		E series	
IEC code which identifies the preferred value series to which the resistance of a resistor or the capacitance of a capacitor belongs.			
IEC 60063(Amd2) (1963)			
E192	=	E192	
E96	=	E96	
E48	=	E48	
E24	=	E24	
E12	=	E12	
E6	=	E6	
E3	=	E3	

REMARKS:

The E192 series is composed of rounded values of the theoretical numbers $10^{**n/192}$ in which the exponent n is a whole positive or negative number.

The E96 series is derived from the E192 series by omitting alternate terms.

The E48 series is derived from the E96 series by omitting alternate terms.

The E24 series is composed of rounded values of the theoretical numbers $10^{**n/24}$ in which the exponent n is a whole positive or negative number.

The E12 series is derived from the E24 series by omitting alternate terms.

The E6 series is derived from the E12 series by omitting alternate terms.

The E3 series is derived from the E6 series by omitting alternate terms.

For tables see IEC 60063 (1977)

AAE031-005	02	M..3	A55
electrode technology		electrode techn	
Code identifying the technology by which the electrodes of a fixed film capacitor are made.			
MFL	=	metal foil	
MLZ	=	metallized	

AAE033-005	02	M..3	A56
voltage application		voltage appl	
Code of the voltage application(s) for which a fixed film capacitor is designed.			
AC	=	ac, designed essentially for alternating volts	
DC	=	dc, designed essentially for direct voltages	
PL	=	pulse, for use with current or voltage pulses	

AAE034-005 **02** **M..3** **A56**

circuit application (cap)

circuit appl

Code of the circuit application(s) for which a fixed capacitor is designed.

CPL	=	coupling
DFL	=	deflection
DEL	=	delay
DCL	=	decoupling
FLT	=	filtering
RIS	=	radio-interference-suppression
SMT	=	smoothing
TC	=	temperature-compensating
TIM	=	timing
TUN	=	tuning

AAE035-005 **01** **M..8** **A56**

temperature coefficient code

\$a

α

IEC standard code of the temperature coefficient of the capacitance of a fixed class1 ceramic capacitor.

IEC 60384-8(2.2.5) (1988)

P100	=	+ 100 *10**−6/K
NP0	=	0
N33	=	− 33
N75	=	− 75
N150	=	− 150
N220	=	− 220
N330	=	− 330
N470	=	− 470
N750	=	− 750
N1000	=	− 1000
N1500	=	− 1500
N2200	=	− 2200
N3300	=	− 3300
N4700	=	− 4700
N5600	=	− 5600

AAE036-005 **01** **M..3** **A56**

safety class

safety class

IEC standard code of the safety/voltage class of a fixed capacitor for radio interference suppression.

X1	=	no shock danger on failure; > 1.2 kV pulse
X2	=	no shock danger on failure; ≤ 1.2 kV pulse
U	=	shock danger on failure; ≤ 125 V mains voltage
Y	=	shock danger on failure; 125–250 V mains voltage

AAE037-005 **01** **M..3** **A56**

EIA temp characteristic code**EIA TCh code**

EIA code of the temperature characteristic of a fixed class2 ceramic capacitor.

REMARKS:

First (alphabetic) character indicates T_amb-min:

X = - 55 degree C

Y = - 30 degree C

Z = + 10 degree C

Second (numeric) character indicates T_amb-max:

2 = + 45 degree C

4 = + 65 degree C

5 = + 85 degree C

6 = + 105 degree C

7 = + 125 degree C

Third (alphabetic) character indicates cap. change:

A = +/- 1 %

B = +/- 1.5 %

C = +/- 2.2 %

D = +/- 3.3 %

E = +/- 4.7 %

F = +/- 7.5 %

P = +/- 10 %

R = +/- 15 %

S = +/- 22 %

T = + 22/- 33 %

U = + 22/- 56 %

V = + 22/- 82 %

X7R corresponds to IEC sub-class 2B4

Y5V corresponds to IEC sub-class 2F4

AAE038-005 **02** **X..3** **A57**

dielectric class (ceramic cap)**ceram diel cls**

IEC standard code of the dielectric material class of a fixed ceramic capacitor (with regard to permittivity, losses and temperature stability).

CL1 = class1 ceramic capacitor

CL2 = class2 ceramic capacitor

AAE039-005 **03** **M..8** **A57**

film dielectric material**film diel mat**

ISO standard code of plastics, used to identify the dielectric material of a fixed film capacitor.

PC = polycarbonate

PETP = polyethylene-terephthalate

PP = polypropylene

PS = polystyrene

AAE040-005 **02** **M..8** **A57**

electrode material type**electrode mat**

Code of the type of electrode material of an electrolytic capacitor.

A1 = aluminium

SA1 = solid aluminium

NSA1 = non-solid aluminium

Ta = tantalum

AAE041-005	02	NR1..4 h	T07
shelf life		shelf life shelf life	
Duration of storage test (in h) at specified ambient temperature of a fixed electrolytic capacitor. After test and reconditioning the capacitor shall meet stated requirements for change in capacitance, loss angle, dc leakage current, and impedance. AAE014-005 = ambient temperature			
IEC 60384-1(4.25.1) (1982)			
REMARKS:			
This is a modification of the IEC Dry heat test, with extended duration.			
AAE042-005	02	NR3..3.3ES2 A	E01
leakage current short term		I_{leak(st)} I _{leak(st)}	
The maximum leakage current (in A) of a fixed electrolytic capacitor, after the rated voltage has been applied for a specified duration at specified ambient temperature, determined according to IEC 60384-1(4.9) (1984).			
AAE028-005 = duration			
AAE014-005 = ambient temperature			
IEC/TC 40(Sec)2250(516.02.62) (1986)			
REMARKS:			
For leakage current during continuous operation, see AAE043-005.			
AAE043-005	02	NR3..3.3ES2 A	E01
leakage current continuous		I_{leak (cont)} I _{leak(cont)}	
The maximum leakage current (in A) of a fixed electrolytic capacitor during continuous operation at the rated voltage at specified ambient temperature, determined according to IEC 60384-1(4.9) (1984).			
AAE014-005 = ambient temperature			
IEC/TC 40(Sec)2250(516.02.62) (1986)			
REMARKS:			
For leakage current after a given duration: see AAE042-005.			
AAE044-005	01	NR3..3.3ES2 V	E06
rated voltage (dc)		U_{Rdc} U _{Rdc}	
The maximum direct voltage (in V) which may be applied continuously to a capacitor at any operating ambient temperature below the rated temperature.			
IEC/TC 40(Sec)2250(516.02.90) (1986)			

AAE045-005	01	NR3..3.3ES2 V	E06
rated voltage (ac) ac voltage		U_Rac U _{Rac}	
The maximum rms alternating voltage (in V), of mains frequency (50–60 Hz), which may be applied continuously to a film capacitor at any operating ambient temperature below the rated temperature. NOTE IEC has changed its definition from rms into peak value in IEC/TC 40(Sec)2250(02.90) (1986). IEC/TC 40(Sec)2250(516.02.90) (1986)			
REMARKS: For ac capacitors: rated voltage (ac). For dc capacitors: max. ac voltage.			
AAE046-005	01	NR3..3.3ES2 F	E09
capacitance		C C	
The value as specified by level (miNoMax) of the capacitance (in F) of a fixed capacitor at specified frequency and at reference conditions. AAE029-005 = frequency AAE995-005 = reference conditions IEC/TC 40(Sec)2250(516.02.06) (1986)			
AAE047-001	01	NR2 S..3.3 %	E09
capacitance upper tolerance %		C_ut(%) C _{ut} (%)	
The upper tolerance percentage (in %) of the rated capacitance of a fixed capacitor.			
AAE048-005	03	NR2..3.3 W	E49
maximum noise power power handling capacity rated power		P_n P _n	
The maximum noise power (in W) of a moving conductor loudspeaker calculated from the formula: maximum noise voltage squared over the rated impedance. IEC/TC 84(Sec)38(18.4) (1986)			
AAE049-005	02	NR1..4 Ohm	E33
rated impedance		R R	
The nominal substituted dc resistance (in Ohm) of a moving conductor loudspeaker. NOTE Used when defining the available electric power of the source. IEC/TC 84(Sec)38(16.1) (1986)			
AAE050-005	01	NR3..3.3ES2 Hz	F03
resonance frequency lowest resonance frequency fundamental resonance freq		f_rsn f _{rsn}	
The maximum value of the lowest resonance frequency of a moving conductor loudspeaker (in Hz), at specified mounting of loudspeaker. AAE342-005 = mounting of loudspeaker IEC/TC 84(Sec)38(19.2) (1986)			

AAE051-005	01	NR3..3.3ES2	T03
centre pole diameter core diameter		d_pole d _{pole}	
The rounded nominal diameter (in m) of the centre pole of a moving conductor loudspeaker.			
AAE053-005	01	M..8	A57
magnet material magnet		magnet material	
Code of the material type of the magnet of a moving conductor loudspeaker.			
CER	=	ceramic	
RES	=	rare earth	
STA	=	steel alloy	
AAE054-005	01	NR3..3.3ES2	T03
baffle hole length		l_bfl l _{bfl}	
Recommended nominal length (in m) of the baffle hole of a moving conductor loudspeaker. IEC 60268-14(4) (1980)			
AAE055-005	01	M..8	A56
frequency application		frequency appl	
Code indicating the application frequency range recommended for a moving conductor loudspeaker.			
FULLR	=	full range	
SQUAW	=	squawker (medium range)	
TWEET	=	tweeter (high range)	
WOOF	=	woofer (low range)	
AAE056-005	01	NR3..3.3ES2	T03
baffle hole breadth		b_bfl b _{bfl}	
Recommended nominal breadth (in m) of the baffle hole of a moving conductor loudspeaker. IEC 60268-14(4) (1980)			
AAE060-005	01	X..3	A52
category EM component		category EM	
Code of the category to which an electromechanical component belongs.			
CON	=	connector	
FUS	=	fuse	
LSP	=	loudspeaker	
MIC	=	microphone	
MOT	=	motor	
REL	=	relay	
SWI	=	switch	

AAE061-005 01 M..3 A58

shape of flange

flange shape

Code of the outer shape of the flange of a moving conductor loudspeaker.

IEC 60268-14 (1980)

ELT	=	elliptical
CRC	=	circular
RCT	=	rectangular
OCT	=	octagonal
SQR	=	square
ELE	=	elliptical with ears
CRE	=	circular with ears

AAE063-005 03 NR3..3.3ES2 E33

Ohm

insulation resistance

R_{ins}

R_{ins}

The minimum insulation resistance (in Ohm) between terminals of a fixed capacitor, determined according to IEC 60384-1(4.5) (1984) at reference conditions.

AAE995-005 = reference conditions

IEC/TC 40(Sec)2250(516.02.87) (1986)

REMARKS:

1. The insulation resistance is measured after a voltage has been applied for 1 min +/- 5 s. The relationship between this voltage and the rated voltage (dc) is prescribed in IEC 60384-1(Amd2) (4.5.2) (1987).

voltage rating of capacitor

measuring voltage

U_R or U_C < 10 V

U_R or U_C +/- 10 %

10 V <= U_R or U_C < 100 V

10 +/- 1 V

100 V <= U_R or U_C < 500 V

100 +/- 15 V

500 V <= U_R or U_C

500 +/- 50 V

2. AAE063-005 is prescribed by IEC for specific capacitor types. See also AAE066-005

AAE064-005 02 NR3..3.3ES2 E44

Ohm

equivalent series resistance

ESR

ESR

The maximum equivalent series resistance (in Ohm) of an electrolytic capacitor at specified frequency and at the reference conditions.

NOTE The ESR corresponds to the real part of the impedance.

AAE029-005 = frequency

AAE995-005 = reference conditions

IEC/TC 40(Sec)2250(516.02.86) (1986)

AAE065-005	03	NR3..3.3ES2	E44
		1	
tangent of loss angle		tanδ	
dissipation factor		tanδ	
The tangent of the loss angle of a capacitor at specified frequency and at reference conditions.			
NOTE The tangent of the loss angle is equal to the equivalent series resistance divided by the capacitive reactance.			
AAE029-005 = frequency			
AAE995-005 = reference conditions			
IEC/TC 40(Sec)2250(516.02.96) (1986)			
REMARKS:			
[IEC 60418-3(III.9) (1976)]: The rotor should be set at minimum and maximum positions for the tan delta test on variable capacitors.			
IEC requires the voltage to be specified.			
N.B. Reciprocal of tan delta is quality factor Q.			
AAE066-005	01	NR3..3.3ES2	F02
		s	
time constant (of capacitor)		RC	
RC product		RC	
The minimum product (in s) of the insulation resistance between terminals and the nominal capacitance of a fixed capacitor.			
IEC/TC 40(Sec)2250(516.02.99) (1986)			
REMARKS:			
According to IEC, this DE-type is used for the following groups of capacitors:			
polycarbonate film		> 0.33 uF	
polyethylene-terephthalate		> 0.33 uF	
polypropylene film		> 0.33 uF	
polypropylene film/foil		> 0.1 uF	
polystyrene		> 0.1 uF	
mica		> 0.01 uF	
ceramic class1		> 10 nF	
ceramic class2		> 25 nF	
radio interference suppr.		> 0.33 uF	
For lower values use R_ins (AAE063-005)			
AAE067-005	01	NR3 S..3.3ES2	H03
		K**-1	
temperature coefficient (cap)		TC	
		TC	
The value as specified by level (miNoMax) of the temperature coefficient (in K**-1), relative to the nominal capacitance, of a fixed capacitor.			
IEC 60384-1(2.2.30.2) (1982)			
REMARKS:			
The temperature coefficient of variable capacitors is measured at rotor settings and temperatures as given in IEC 60418-1(III.13) (1974).			
AAE068-005	01	NR3..3.3ES2	E09
		F	
maximum capacitance		C_max	
		C_max	
The value as specified by level (miNoMax) of the maximum capacitance (in F) obtainable by moving the actuating device of a variable capacitor.			
IEC/TC 40(Sec)2250(516.03.18) (1986)			

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AAE074-005

03

M..8

A56

IC application field**IC appl field**

Code identifying the equipment in which an application oriented IC is used.

AO	= application field
AUD	= audio
ARI	= traffic warning system
CAR	= car radio
CD	= compact disc
HAID	= hearing aid
PASY	= paging system
RR	= radio receiver
RC	= radio recorder
REC	= recorder
REM	= remote control
SPS	= speech synthesizer
AUT	= automotive
CLWTCH	= clocks and watches
TCOM	= telecommunications
TEL	= telephony
DIAL	= dialler
MOB	= mobile telephony
MTR	= multi-tone ringer
SPS	= speech synthesizer
DCOM	= data communications
VID	= video
CREC	= camera recorder
CAM	= camera
DIS	= display
GAM	= games
VCR	= recorder
REM	= remote control
TV	= television receiver
E/W	= east/west correction
SYNC	= synchronization
HOR	= horizontal
VERT	= vertical
V-DEFL	= vertical deflection
TXT	= teletext
GP	= general purpose

AAE076-005	01	M..3	A57
dielectric sub-class2		diel sub class2	
IEC standard code of the sub-class of a fixed class2 ceramic capacitor, as determined by the temperature characteristic of capacitance.			
IEC 60384-9(1.5.2) (1988)			
REMARKS:			
First (numeric) character is always 2 (see AAE038-005)			
Second (alphabetic) character indicates maximum capacitance change in per cent with respect to C _R at 20 degree C:			
U _{dc} = 0	U _{dc} = U _R (dc)		
B = +/- 10	+ 10/- 15		
C = +/- 20	+ 20/- 30		
D = + 20/- 30	+ 20/- 40		
E = + 20/- 56	+ 20/- 70		
F = + 30/- 80	+ 30/- 90		
R = +/- 15	+ 15/- 40		
X = +/- 15	+ 15/- 25		
Third (numeric) character indicates temperature range:			
1 = - 55/+ 125 degrees C			
2 = - 55/+ 85 degrees C			
3 = - 40/+ 85 degrees C			
4 = - 25/+ 85 degrees C			
6 = + 10/+ 85 degrees C			
AAE077-005	01	X..3	A56
signal type		signal type	
Code identifying a function on an IC according to the type of signal being treated.			
IEC/TC 47(CO)1262(702.04) (1987)			
ANA	= analogue		
DIG	= digital		
AD	= AD (analogue/digital)		
PER	= periodic/dc		
AAE084-005	03	M..8	A56
analogue function		analog function	
Code identifying an analogue signal function of an IC.			
AMP	= amplifier		
BDP	= band pass		
DCC	= dc controlled		
OPAMP	= operational		
PREAMP	= preamplifier		
DEC	= decoder		
ENC	= encoder		
MOD	= modulator		
DEM	= demodulator		
COMP	= comparator		
FIL	= filter		
RED	= noise reduction		
DOLBY	= Dolby		
SUP	= interference suppression		
TUN	= tuner		
FS	= frequency synthesizer		
MIX	= mixer		
PRESC	= prescaler		

AAE085-005	01	X..3	A56
digital function		dig function	
Code identifying a digital function of an IC.			
CSI = CSI (combinatorial sequential interface)			
MUC = microcontroller			
MUP = microprocessor			
PLD = PLD (programmable logic device)			
STO = storage			
AAE086-005	01	NR2 S..3.3	E06
supply voltage lim		V	
dc supply voltage		V _{sup}	
The value as specified by level (minMax) of the limiting direct supply voltage (in V) applied to an IC.		V _{sup}	
REMARKS:			
Commonly known supply voltage symbols:			
V _{CC} for TTL, NMOS and HCMOS circuits			
V _{DD} for CMOS circuits			
V _P for analogue circuits			
V _{EE} for ECL circuits			
AAE092-005	01	NR2 S..3.3	E06
HIGH-state output voltage		V	
HIGH-level output voltage		V _{OH}	
output voltage HIGH		V _{OH}	
The value as specified by level (minTypMax) of the HIGH-state dc output voltage (in V) of a digital function of an IC, at specified supply voltage, output current, logic input voltages and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE102-005 = supply voltage			
AAE226-005 = output current			
AAE958-005 = temperature T ₁			
AAE959-005 = temperature T ₂			
IEC 60748-2(III.5.1) (1985)			
REMARKS:			
It is required that the value of the logic input voltages falls within either the V _{IH} or the V _{IL} range.			
AAE093-005	01	NR2 S..3.3	E06
HIGH-state output voltage ref		V	
HIGH-level output voltage		V _{OHref}	
output voltage HIGH		V _{OHref}	
The value as specified by level (minTypMax) of the guaranteed HIGH-state dc output voltage (in V) of a digital function of an IC, at reference input voltages, specified supply voltage and output current, and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE102-005 = supply voltage			
AAE226-005 = output current			
AAE958-005 = temperature T ₁			
AAE959-005 = temperature T ₂			
IEC 60748-2(III.5.1) (1985)			
REMARKS:			
It is required that the value of the reference input voltages is either zero (GND/V _{SS}), or equal to the supply voltage (V _{CC} /V _{DD}).			

AAE094-005	01	NR2 S..3.3 V	E06
LOW-state output voltage ref LOW-level output voltage output voltage LOW		V_OLref V _{OLref}	
The value as specified by level (minTypMax) of the guaranteed LOW-state dc output voltage (in V) of a digital function of an IC, at reference input voltages, specified supply voltage and output current, and in a temperature range between specified temperatures (T₁ and T₂). AAE102-005 = supply voltage AAE226-005 = output current AAE958-005 = temperature T₁ AAE959-005 = temperature T₂ IEC 60748-2(III.5.1) (1985) REMARKS: It is required that the value of the reference input voltages is either zero (GND/V_{SS}), or equal to the supply voltage (V_{CC}/V_{DD}).			
AAE097-005	01	NR2 S..3.3 V	E06
LOW-state output voltage LOW-level output voltage		V_OL V _{OL}	
The value as specified by level (minTypMax) of the LOW-state dc output voltage (in V) of a digital function of an IC, at specified supply voltage, output current, logic input voltages and in a temperature range between specified temperatures (T₁ and T₂). AAE102-005 = supply voltage AAE226-005 = output current AAE958-005 = temperature T₁ AAE959-005 = temperature T₂ IEC 60748-2(III.5.1) (1985) REMARKS: It is required that the value of the logic input voltages falls within either the V_{IH} or the V_{IL} range.			
AAE102-005	01	NR2 S..3.3 V	E06
supply voltage dc supply voltage		@V _{sup} @V _{sup}	
The direct supply voltage (in V) applied to an IC, as a variable.			
REMARKS: Commonly known supply voltage symbols: V_{CC} for TTL, NMOS and HCMOS circuits V_{DD} for CMOS circuits V_P for analogue circuits V_{EE} for ECL circuits			
AAE106-005	03	NR1.. 4 1	Q56
number of functions		N_func N _{func}	
Number of identical functions of a multiple function component.			
REMARKS: Such as identical functions on one IC.			

AAE111-005	01	M..3	A53
packing type		packing type	
Code of the packing type at specified packing level for products.			
AMM	=	ammopack	
BAG	=	bag	
BOX	=	box	
BLI	=	blister	
CAS	=	cassette	
CON	=	container	
PAL	=	pallet	
RAL	=	rail	
RL	=	reel	
TRA	=	tray	
REMARKS:			
This data element type must be used in combination with AAF270-005 (packing level).			
AAE112-005	02	M..3	A53
taping		taping	
Code of taping for automatic handling of products.			
AX	=	axial (tape for axial leads)	
BL	=	blister (tape for SMD)	
CB	=	cardboard (tape for SMD)	
RD	=	unidirectional (tape for radial leads)	
AAE113-006	01	NR3..3.3ES2	H03
		K**−1	
temperature coefficient		\$a	
		α	
The maximum reversible variation of the resistance (in K**−1) of a fixed linear resistor or a potentiometer.			
IEC 60115-1(2.2.20.2) (1982)			
AAE114-007	01	X..8	A57
linearity of a fixed resistor		linearity	
Code of linearity class to which a fixed resistor belongs.			
LIN	=	linear	
NLN	=	non-linear	
AAE115-005	01	NR1..4	H02
		Cel	
maximum surface temperature		T_{surf}	
maximum body temperature		T_{surf}	
hot spot temperature			
The maximum surface temperature (in Cel) of a fixed resistor.			
IEC 60115-1(2.2.12) (1982)			

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AAE124-005	01	NR3..3.3ES2 Ohm	E33
light resistance		R_L R _L	
The value as specified by level (minMax) of the value of the light resistance (in Ohm) of a light dependent resistor.			
AAE125-005	01	NR2..3.3 A	E01
current (pulse)		@I_{pul} @I _{pul}	
The peak value of a pulse current (in A) passed through an electric-electronic or electromechanical component, as a variable.			
AAE126-005	01	X..3 TDR type	A56
thermistor type			
Code of the sign of the temperature coefficient belonging to a thermistor.			
NTC	=	NTC	
PTC	=	PTC	
AAE127-005	01	NR3..3.3ES2 Ohm	E33
resistance at 25 Cel		R₂₅ R ₂₅	
The value as specified by level (miNoMax) of the resistance of a thermistor at an ambient temperature of 25 Cel.			
AAE130-005	01	NR2..3.3 W/K	H07
dissipation factor		\$D Δ	
The ratio of the power dissipation change to the resultant body temperature change (in W/K) of a thermistor at a specified ambient temperature. AAE014-005 = ambient temperature IEC 60539(4.19) (1976)			
AAE131-005	01	NR2..3.3 s	F02
thermal time constant		\$t τ τ _{th}	
The nominal thermal time constant (in s) of a thermistor. REMARKS: IEC 60539(4.20) (1976) The time required for the temperature of a thermistor to change by 63.2 % of the difference between its initial and final temperatures when subjected to a step function change in temperature under zero-power conditions (for measuring conditions, see Sub-clause 12.7).			

AAE132-005	01	NR1..4 K	H01
therm sensitivity index B_{25/85} B _{25/85} value			
The value as specified by level (miNoMax) of the mean temperature sensitivity index (in K) of an NTC thermistor between 25 and 85 Cel. IEC 60539(4.13) (1976)			
AAE135-005	02	NR3..3.3ES2 J/K	H15
heat capacity			
The nominal heat capacity (in J/K) of a PTC resistor or piezoelectric device. ISO 31-4 (1992)			
AAE136-005	01	NR3..3.3ES2 A	E01
trip current			
The minimum rms ac current (in A) that will trip a PTC thermistor from the low resistance region to the high resistance region, at specified ambient temperature. AAE014-005 = ambient temperature			
AAE137-005	01	NR3..3.3ES2 A	E01
non-trip current			
The maximum rms ac current (in A) at which a PTC thermistor will stay in the low resistance region, at specified ambient temperature. AAE014-005 = ambient temperature			
AAE138-005	01	NR1..4 Cel	H02
switching temperature switch temperature			
The nominal temperature (in Cel), under zero power conditions, at which the resistance value of a PTC thermistor is twice the R _{min} value.			
AAE139-005	01	X..3	A52
number of terminals			
Code of the number of terminals identifying a variable resistor.			
TT = two-terminal variable resistor			
POT = potentiometer (3 or more terminals)			

AAE141-005	01	M..8	A52
resistance law (IEC)		resistance law	
IEC code of the resistance law of a potentiometer.			
IEC/TC 40(CO)506(2.2.37) (1982)			
law-A = linear law			
law-B = logarithmic law			
law-C = inverse logarithmic law			
REMARKS:			
The relationship of the measured resistance value between terminations a and b or of the output ratio U_{ab}/U_{ac} to the mechanical position of the moving contact.			
AAE142-005	01	M..3	A52
actuator type		actuator type	
moving contact actuator type			
Code of the moving contact actuator type of a potentiometer.			
ROT = rotary			
SLD = slide			
AAE144-005	01	M..3	A58
mounting position		mtg position	
Code of the (intended) mounting position of a potentiometer with printed wiring pins.			
HOR = horizontal version			
VER = vertical version			
AAE145-005	01	M..3	A57
spindle material of potmeter		spindle mat	
spindle material			
Code of the spindle material of a rotary potentiometer.			
MTL = metal			
PLA = plastic			
AAE146-005	01	NR1..4	E06
		dB	
ganging tolerance		ganging tol	
		ganging tol	
The maximum ganging tolerance (in dB) of a tandem potentiometer.			
AAE147-005	01	NR3..3.3ES2	T03
		m	
spindle length		l_{spin}	
		l_{spin}	
The nominal length (in m) of the spindle of a rotary potentiometer.			
REMARKS:			
The spindle length is measured with reference to the mounting surface of the potentiometer.			

AAE148-005 **01** **NR3..3.3ES2** **T03**

spindle diameter

m
d_{spin}
d_{spin}

The nominal diameter (in m) of the spindle of a rotary potentiometer.

AAE149-006 **02** **M..17** **A59**

safety approval

safety approval

The abbreviated name of the office which has approved the safety of an electric-electronic or electromechanical component.

BEAB(BSI)	=	British Electrical Approvals Board
CEBEC	=	Comite Electrotechnique Belge (Belgium)
CSA	=	Canadian Standards Association
DEMKO	=	Danmarks Elektriske Materiellkontrol
FIMKO	=	FIMKO LDT (Finland)
HHS	=	Health and human services (USA)
JIS	=	Japanese Industrial Standards (Committee)
KEMA	=	Keuring van Elektrotechnische Materialen
LCIE	=	Laboratoire Central Industries Electrique
MED	=	Medizin Geraete Verordnung (West Germany)
NEMKO	=	Norges Elektriske Materiellkontrol (Norway)
OEVE	=	Oesterreichischer Elektrotechnischer Verein
ROV	=	Rontgen Verordnung (West Germany)
SEMKO AB	=	Svenska Elektriska Materielkontrollanstalten
SEV	=	Schweizerischer Elektrotechnischer Verein
UL	=	Underwriters' Laboratories Inc. (USA)
VDE	=	Verband Deutscher Elektrotechnischer Verein

AAE150-005 **01** **NR3..3.3ES2** **E06**

voltage (ac)

@U_{ac}
@U_{ac}

V

The rms sinusoidal voltage (in V) applied to an electric-electronic or electromechanical component, as a variable.

AAE151-005 **01** **M..8** **A52**

winding configuration
separation

winding config

Code of the winding configuration of a transformer or inductive antenna.

AUTO	=	auto
SEPRT	=	separate

AAE152-005 **01** **X..3** **A56**

power/signal

power/signal

Code of the application of a transformer or cable.

POW	=	power
SIG	=	signal

AAE155-005	01	NR3..3.3ES2 Ohm	E33
insulation resistance		R_{ins} R _{ins}	
The minimum insulation resistance (in Ohm) between the live and non-live parts of a switch, relay, transformer or connector.			
IEC 60068(2-3) (1969)			
REMARKS:			
IEC 60742(17.2) (1983)			
The insulation resistance is measured with dc voltage of approximately 500 V applied, the measurement being made 1 min after application of the voltage.			
AAE156-005	01	NR3..3.3ES2 Hz	F03
upper frequency		f_{upr} f _{upr}	
The nominal upper frequency (in Hz) of a signal transformer.			
AAE157-005	01	NR1..4 Hz	F03
lower frequency		f_{low} f _{low}	
The nominal lower frequency (in Hz) of a signal transformer.			
AAE158-005	01	NR3..3.3ES2 m	T03
clearance to earth		clearance	
spark gap		clearance	
spark distance			
The minimum clearance to earth (in m) of a power transformer.			
IEC 60050(441-17-33) (1984)			
AAE159-005	01	NR3..3.3ES2 m	T03
creepage distance		d_{crpg}	
leakage path		d _{crpg}	
The minimum creepage distance (in m) between live and non-live parts of a power transformer or connector.			
IEC 60742(2.48) (1983)			
AAE160-005	01	NR1 S..4 A	E01
nominal output current		I_{out} I _{out}	
The nominal output current (in A) of a power transformer, at nominal input voltage and nominal frequency.			
IEC 60742(2.14) (1983)			
REMARKS:			
For variable power transformers, the nominal output current is valid over the whole range.			

AAE163-005	01	NR1..4 V	E06
input voltage			
supply voltage		U_{in} U _{in}	
The value as specified by level (miNoMax) of the rms sinusoidal input voltage (in V) of a power transformer.			
REMARKS:			
IEC 60742(2.11) (1983):			
For polyphase supply, the line voltage is intended.			
AAE164-005	01	NR1..4 V	E06
no-load output voltage			
		U_{out} (open) U _{out(open)}	
The maximum rms no-load output voltage (in V) at nominal input voltage and at nominal frequency.			
IEC 60742(2.19) (1983)			
AAE165-005	02	NR3..3.3ES2 VA	E49
output power			
		P_{out} P _{out}	
The nominal rms power (in VA) of a power transformer.			
IEC 60076-1(3.4.6) (1993)			
AAE166-005	01	NR3..3.3ES2 Hz	F03
operating frequency			
		f_{oper} f _{oper}	
The value as specified by level (miNoMax) of the frequency (in Hz) of a power transformer.			
IEC 60076-1(3.4.5) (1993)			
AAE167-005	02	M..3 tfm model	A56
transformer model			
Code of the model of a variable power transformer.			
BNC = bench (protective housing)			
LBR = laboratory (bench model with handle, cable, fuse)			
PNL = panel (not protected live parts)			
AAE168-005	01	NR1..4 A	E01
maximum output current			
continuous overload		I_{out} I _{out}	
The maximum continuous sinusoidal rms output current (in A) in the most favourable brush position of a variable power transformer at nominal input voltage and nominal frequency.			
AAE169-005	02	NR1..4 V	E06
output voltage			
		U_{out} U _{out}	
The nominal rms sinusoidal output voltage (in V) at total rotation angle of a variable power transformer.			
IEC 60186(4.9) (1987)			

AAE170-005	02	NR3..3.3ES2 1	Q59
brush life		N_turn N_{turn}	
The minimum guaranteed number of two-way turns of the brush of a variable power transformer.			
NOTE After the test the contact resistance shall be within its tolerance.			
AAE171-005	02	NR3..3.3ES2 1	Q59
brush life expectation		N_turn (exp) $N_{turn(exp)}$	
The minimum expectation of the number of two-way turns of the brush of a variable power transformer.			
AAE172-005	02	NR1..4 1	Q56
ganging number number of variable elements		N_gang N_{gang}	
The number of variable elements (capacitors, resistors, power transformers) with a common actuating device.			
AAE173-005	01	NR1..4 deg	T01
total mechanical rotation angle of mechanical rotation		\$a_rot α_{rot}	
The nominal angle of the total rotation (in deg) of the moving contact actuator of a rotary potentiometer or a variable power transformer.			
IEC/TC 40(CO)506(2.2.49.1) (1982)			
AAE174-005	01	M..3	A51
magnet type magnetization system magnet material		magnet type	
Code of the magnet type of the iron armature of a motor.			
ELM	=	electromagnet	
HBD	=	hybrid	
NOM	=	no magnet	
PMM	=	permanent magnet	
AAE175-005	01	M..3	A51
coil connection		coil connection	
Code of the coil connection of a motor.			
CMP	=	compound	
SRS	=	series	
SHP	=	shunt (parallel)	
AAE176-005	01	M..3	A51
armature material		armature mat	
Code of the type of material of the armature of a motor.			
IRN	=	iron	
IRL	=	iron-less	

AAE177-005	03	M..8	A51
integrated component		integr comp	

Code indicating a component integrated with a motor or relay.

BRAKE	=	brake
EBRAKE	=	brake electromagnetic
PBRAKE	=	brake permanent magnetic
MBRAKE	=	brake mechanical
ENCOD	=	encoder
GEAR	=	gearbox
LGEAR	=	gearbox linear
RGEAR	=	gearbox rotational
PINION	=	pinion
SPARKS	=	spark suppressor
TACHO	=	tachogenerator

AAE178-005	01	X..3	A52
supply current type		I_{sup} type	

Code of the supply current type for which a motor has been designed.

AC	=	ac
DC	=	dc
STP	=	stepping motor (pulse)
UNI	=	universal motor (ac or dc)

AAE179-005	01	X..3	A52
trajectory of motion		trajectory	

Code of the trajectory of motion of the armature of a motor.

LIN	=	linear
ROT	=	rotational

AAE180-005	01	NR3..3.3ES2	E06
electromotive force		E	
		E	

The nominal rated induced voltage in {V/(r/min)} in the winding of a motor as a result of the magnetic field and the motion.

IEC 60050(131-01-38) (1978)

AAE182-005	02	NR3..3.3ES2	E49
input power		W	
		P_{in}	
		P_{in}	

The nominal electric power (in W) supplied to a motor.

IEC 60050(151-03-04) (1978)

AAE183-005	02	M..8	A52
ac motor synchronism		motor syn	
Code indicating the synchronism of an ac motor.			
ASYN	=	asynchronous	
SYN	=	synchronous	
SREL	=	reluctance	
AAE184-005	01	NR3..3.3ES2	E06
		V	
rated input voltage (ac)		U_{ac}	
driving voltage		U _{ac}	
The nominal rms alternating voltage (in V) at the terminals of an ac motor.			
NOTE For polyphase supply, the line voltage is intended.			
IEC 60034-1(9.1) (1994)			
AAE186-005	01	NR3..3.3ES2	E06
		V	
rated input voltage (dc)		U_{dc}	
		U _{dc}	
The nominal direct voltage (in V) at the terminals of a dc motor.			
IEC 60034(1-9.1) (1994)			
AAE187-005	01	NR3..3.3ES2	F02
		s	
mechanical time constant		\$t	
		τ	
The minimum value of the time (in s) an unloaded dc motor needs, starting from rest, to reach 63 % of the unloaded speed at the rated input voltage.			
AAE188-005	02	M..3	A56
direction of rotation		dir rot	
Code of the direction of rotation as seen from the spindle of a rotational motor.			
CCW	=	anti-clockwise (counter-clockwise)	
CW	=	clockwise	
REV	=	reversible	
REMARKS:			
The sense of rotation when looking along the shaft from the drive end of the motor towards the non-drive end.			
AAE189-005	02	NR3..3.3ES2	K07
		kg*m**2	
rotor inertia		I	
		I	
		J	
The nominal rotor moment of inertia (in kg*m*m) of a rotational motor.			

AAE190-005	02	NR2..3.3 N	K09
maximum radial force		F_{rad} F _{rad}	
The maximum radial force (in N) on the spindle of a motor.			
AAE191-005	02	NR3..3.3ES2 N.m	K12
rated torque max working torque max load torque		T_{rat} T _{rat}	
The nominal torque (in N.m) of a rotational motor. IEC 60050(411-18-01) (1973)			
AAE192-005	02	NR3..3.3ES2 N.m	K12
torque		@T @T	
Torque (in N.m) of a rotational motor, as a variable.			
AAE193-005	01	NR3..3.3ES2 r/min	F03
speed		@v @v	
Speed (in r/min) of a rotational motor, as a variable.			
AAE194-005	01	NR1..4 r/min	F03
synchronous speed		v_{syn} V _{syn}	
The nominal speed of rotation (in r/min) of a synchronous rotational ac motor.			
NOTE This is a result of the system to which the machine is connected and either the number of poles or the number of projections in the machine, at a given (fixed) frequency. IEC 60050(411-16-05) (1973)			
AAE195-005	01	NR3..3.3ES2 r/min	F03
rated speed		v_{rat} V _{rat}	
The nominal speed (in r/min) of a rotational ac asynchronous or dc motor at the rated input voltage and rated torque.			
AAE196-005	02	NR3..3.3ES2 N.m	K12
starting torque		T_{strt} T _{strt}	
The minimum starting torque (in N.m) which a rotational ac motor develops with the rated input voltage-ac applied.			
NOTE For capacitor motors, the capacitance has to be specified. IEC 60050(411-18-05) (1973)			

AAE197-005	01	NR3..3.3ES2 A	E01
rated input current		I I	
The nominal direct input current (in A) of a rotational dc motor at rated input voltage and at rated working torque.			
AAE199-005	02	NR3..3.3ES2 N.m	K12
starting torque		T_strt T _{strt}	
The minimum starting torque (in N.m) which a rotational dc motor develops with the rated input voltage (dc) applied.			
IEC 60050(411-18-05) (1973)			
AAE200-005	02	NR2..3.3 N	K09
maximum axial force		F_ax F _{ax}	
The maximum axial force (in N) on the spindle of a rotational motor.			
NOTE Axial means in line with the shaft (pull or push).			
AAE201-005	02	NR2..3.3 N.m	K12
pull-out torque		T_pull-out	
breakdown torque		T _{pull_out}	
maximum work torque			
The maximum torque (in N.m) that a rotational stepping motor can develop while running at a given stepping rate without losing steps.			
AAE209-005 = stepping rate			
IEC 60050(411-18-10) (1973)			
AAE202-005	02	NR3..3.3ES2 N.m	K12
pull-in torque		T_pull-in	
max pull-in		T _{pull-in}	
The maximum torque (in N.m) that a rotational stepping motor can develop when starting at a given stepping rate without losing steps.			
AAE209-005 = stepping rate			
IEC 60050 (411-18-08) (1973)			
AAE203-005	01	NR3..3.3ES2 A	E01
current per phase		I_ph I _{ph}	
The nominal rms input current (in A) of a linear stepping motor.			

AAE204-005	01	NR3..3.3ES2 V	E06
rated input voltage (pulse)		U_pul U_{pul}	
The nominal pulse voltage (in V) at the terminals of a stepping motor. IEC 60034(1.9.1) (1994)			
AAE205-005	01	NR1..4 step/s	F03
pull-in rate		pull-in rate pull-in rate	
The maximum switching rate (in step/s) at which an unloaded stepping motor can start without losing steps.			
AAE206-005	01	NR1..4 step/s	F03
pull-out rate		pull-out rate pull-out rate	
The maximum switching rate (in step/s) which an unloaded stepping motor can follow without losing steps.			
AAE207-005	02	NR3..3.3ES2 N.m	K12
holding torque		T_hold T_{hold}	
The maximum steady torque (in N.m) that can be externally applied to the spindle of an excited motor without causing continuous rotation.			
AAE208-005	01	NR1 S..4 deg	T01
step angle		\$a_step α_{step}	
The nominal angle (in deg) between adjacent step positions of a stepping motor or a mechanical rotary switch.			
AAE209-005	02	NR3..3.3ES2 step/s	F03
stepping rate		@step rate @step rate	
Number of steps/s of a rotational stepping motor, as a variable.			
AAE210-005	01	NR2 S..3.3 V	E06
input voltage lim		V_Ilim V_{Ilim}	
The value as specified by level (minMax) of the limiting direct input voltage (in V) applied to an IC.			
AAE212-005	01	NR3..3.3ES2 Ohm	E33
load resistance		@R_L @R _L	
Load resistance (in Ohm) at the output of an electric/electronic or electromechanical component, as a variable.			

AAE214-005	01	NR2..3.3 W	H07
power dissipation per out		P/out	
dc power dissipation/output		P/out	
The maximum permissible power dissipation per output (in W) of an IC at specified ambient temperature.			
AAE014-005 = ambient temperature			
AAE217-005	01	NR3 S..3.3ES2 A	E01
input current lim		I_IIlim	
dc input diode current		I _{IIlim}	
input clamping current		I _{INlim}	
		I _{IKlim}	
The maximum limiting dc input current (in A) of a digital function of an IC.			
REMARKS:			
For ICs containing protection diodes, clamping occurs when the applied input voltage exceeds the supply voltage, or drops below GND or V _{SS} level.			
AAE218-005	01	NR3 S..3.3ES2 A	E01
output current lim		I_Olim	
dc output diode current		I _{Olim}	
output clamping current		I _{OKlim}	
The maximum limiting dc output current (in A) of a digital function of an IC.			
REMARKS:			
For ICs containing protection diodes, clamping occurs when the applied output voltage exceeds the supply voltage, or drops below GND or V _{SS} level.			
AAE223-005	01	NR3 S..3.3ES2 A	E01
input leakage current		I_I	
		I _I	
		I _{IN}	
The maximum guaranteed input leakage current (in A) of a digital function of an IC, at specified supply voltage and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE102-005 = supply voltage			
AAE958-005 = temperature T ₁			
AAE959-005 = temperature T ₂			
REMARKS:			
Required input condition (V _I):			
For CMOS and HCMOS, zero (GND/V _{SS}) or supply voltage (V _{CC} /V _{DD}).			
For TTL, only valid for an input voltage equal to V _{CC} .			
AAE224-005	01	NR2 S..3.3 V	E06
input voltage		@V_I	
		@V _I	
The dc input voltage (in V) of an IC, as a variable.			

AAE225-005	02	NR3..3.3ES2	T07
rise time		s @t _r @t _r	
The rise time (in s) of a step function change (10 % to 90 %) of a signal applied to an electric-electronic or electromechanical component, as a variable.			
AAE226-005	01	NR3 S..3.3ES2	E01
output current		A @I _O @I _o	
The dc output current (in A) of an IC, as a variable.			
AAE228-005	01	NR2 S..3.3	E06
output voltage		V @V _o (dc) @V _o (ac)	
The dc output voltage (in V) of an IC, as a variable.			
AAE231-005	02	NR3..3.3ES2	T07
propagation delay		s t _{PD}	
delay time		t _{PD}	
The value as specified by level (minTypMax) of the propagation delay time (in s) of a combinatorial, sequential or interface function of an IC in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
AAE233-005	02	NR3..3.3ES2	T07
HIGH to LOW propagation time		s t _{PHL}	
HIGH to LOW delay time		t _{PHL}	
The value as specified by level (minTypMax) of the HIGH to LOW propagation time (in s) of a combinatorial, sequential or interface function of an IC in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
IEC 60748-2(II.1.4.7) (1985)			

AAE235-005	02	NR3..3.3ES2	T07
		s	
output fall time		t_f	
HIGH to LOW transition time		t _f	
switching time		t _{THL}	
The maximum guaranteed HIGH-level to LOW-level transition time (in s) at the output of a digital function of an IC at specified load capacitance, supply voltage and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE256-005	=	load capacitance	
AAE102-005	=	supply voltage	
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
IEC 60748-2(II.1.4.8) (1985)			
REMARKS:			
The voltage level specified for the beginning of the slope is 10 %, that for the end of the slope is 90 %.			
AAE237-005	02	NR3..3.3ES2	T07
		s	
LOW to HIGH propagation time		t_{PLH}	
LOW to HIGH delay time		t _{PLH}	
The value as specified by level (minTypMax) of the LOW to HIGH propagation time (in s) of a combinatorial, sequential or interface function of an IC in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
IEC 60748-2(II.1.4.7) (1985)			
AAE238-005	02	NR3..3.3ES2	T07
		s	
output rise time		t_r	
LOW to HIGH transition time		t _r	
switching time		t _{TLH}	
The maximum guaranteed LOW-level to HIGH-level transition time (in s) at the output of a digital function of an IC at specified output capacitance, supply voltage and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE256-005	=	load capacitance	
AAE102-005	=	supply voltage	
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
IEC 60748-2(II.1.4.8) (1985)			
REMARKS:			
The voltage level specified for the beginning of the slope is 10 %, that for the end of the slope is 90 %.			

AAE239-005	02	NR3 S..3.3ES2	E01
		A	

HIGH OFF-state output current

3-state output leakage current

OFF-state current

I_OZHI_{OZH}I_{OZ}

The maximum guaranteed HIGH OFF-state dc output current (in A), of a 3-state digital function of an IC, at the maximum supply voltage and in a temperature range between specified temperatures (T₁ and T₂).

AAE958-005 = temperature T₁AAE959-005 = temperature T₂

IEC 60748-2(III.5.1.4) (1985)

REMARKS:

Applies to digital ICs with 3-state outputs.

It is assumed that the required external HIGH-state output voltage (V_{OH} or V_{CC} or V_{DD}) is applied, as well as the appropriate input condition (V_{IL} and/or V_{IH}).

AAE240-005	02	NR3 S..3.3ES2	E01
		A	

LOW OFF-state output current

3-state output leakage current

OFF-state current

I_OZLI_{OZL}I_{OZ}

The maximum guaranteed LOW OFF-state dc output current (in A), of a 3-state digital function of an IC, at maximum supply voltage and in a temperature range between specified temperatures (T₁ and T₂).

AAE958-005 = temperature T₁AAE959-005 = temperature T₂

IEC 60748-2(III.5.1.4) (1985)

REMARKS:

Applies to digital ICs with 3-state outputs.

It is assumed that the required external LOW-state output voltage (V_{OL} or V_{SS} or GND) is applied, as well as the appropriate input condition (V_{IL} and/or V_{IH}).

AAE254-005	02	NR3 S..3.3ES2	E01
		A	

LOW-state output current

LOW-level output current

output sink current

I_OLI_{OL}

The minimum guaranteed LOW-state dc output current (in A) of a digital function of an IC, at specified supply voltage, output voltage and in a temperature range between specified temperatures (T₁ and T₂).

AAE102-005 = supply voltage

AAE228-005 = output voltage

AAE958-005 = temperature T₁AAE959-005 = temperature T₂

IEC 60748-2(III.5.3.1) (1985)

REMARKS:

Refers to the minimum current sinking capacity of the output of a digital IC, at which a specified output voltage (V_{OL}) is still maintained, while the inputs are either at zero (GND/V_{SS}) or at supply voltage level (V_{CC}/V_{DD}).

AAE255-005	02	NR3 S..3.3ES2	E01
HIGH-state output current		A	
HIGH-level output current		I_{OH}	
output source current		I_{OH}	
The minimum guaranteed HIGH-state dc output current (in A) of a digital function of an IC, at specified supply voltage, output voltage and in a temperature range between specified temperatures (T ₁ and T ₂).			
AAE102-005	=	supply voltage	
AAE228-005	=	output voltage	
AAE958-005	=	temperature T ₁	
AAE959-005	=	temperature T ₂	
IEC 60748-2(III.5.3.1) (1985)			
REMARKS:			
Refers to the minimum current sourcing capacity of the output of a digital IC, at which a specified output voltage (V _{OH}) is still maintained, while the inputs are either at zero (GND/V _{SS}) or at supply voltage level (V _{CC} /V _{DD}).			
AAE256-005	01	NR3..3.3ES2	E09
load capacitance		F	
		@C_L	
		@C_L	
Load capacitance (in F) at the output of an electric/electronic or electromechanical component, as a variable.			
AAE257-005	01	NR2..3.3	H07
power dissipation		W	
		P	
		P	
The maximum power (in W) of an electric-electronic or electromechanical component which may be dissipated continuously at specified temperature of a temperature type.			
AAE685-005	=	temperature	
AAE683-005	=	temperature type	

AAE259-005

01

M..8

A58

shape/size code BSI**shape/size**

BSI code of the shape/size of an electric-electronic or electromechanical component for placement on printed circuits.

BS 6943 (1988)

BR	=	bead package, two radial leads
CS	=	cylindrical package, single-ended, two leads
CT	=	cylindrical package, stud mounting
DA	=	disc package, two axial leads
DD	=	disc package, double tag
DL	=	dual in-line package, multi-lead
DP	=	disc package, printed circuit board mounting
DR	=	disc package, two radial leads
DS	=	disc package, stud mounting
DT	=	disc package, potting tag
FP	=	flat pack, multi-lead
PA	=	potentiometer, panel mounting
PB	=	potentiometer, panel mounting
PC	=	potentiometer, panel mounting
PD	=	potentiometer, panel mounting
PE	=	potentiometer, panel mounting
PF	=	potentiometer, panel mounting
PP	=	rectangular package, three leads, horizontal adjuster
PQ	=	rectangular package, three leads, vertical adjuster
RA	=	rectangular package, two axial leads
RC	=	rectangular package, metallized ends (SMD)
RR	=	rectangular package, two radial leads
RS	=	rectangular package, two strip leads
TA	=	tubular package, two axial leads
TR	=	tubular package, two radial leads
XA	=	oval package, two mounting holes, two leads
XB	=	stud-mounted package, one fixed tag
XC	=	cylindrical metal-can package, multi-lead
XD	=	top-hat package, axial leads
XE	=	stud-mounted package, two fixed tags
XF	=	stud-mounted package, one flexible lead with tag
XG	=	stud-mounted package, two flexible leads with tag
XH	=	stud-mounted package, one flexible lead
XK	=	flat package, three in-line leads
XL	=	near-cylindrical package, three leads on circle
XM	=	flat package, mounting hole, two/three leads
XN	=	flat package, three pre-formed leads
XP	=	moulded case, three mounting feet
XR	=	flat package with flange, mounting hole, 2/3 leads

REMARKS:

The complete code consists of three parts:

- a two-letter drawing code, followed by
- a numeric code giving a salient property, which may be either a major dimension or the number of leads, followed by
- a hyphen and a serial number to distinguish components with the same drawing and numeric codes.

For reference drawings see source document.