

# Zertifikat *Certificate*

**Zertifikatsnummer Certificate No.:**

R 60186743 0001

**Berichtsnummer Report No.:**

HU26JA7Y 001

**Genehmigungsinhaber License Holder:**

Knowles (UK) Ltd  
Hethel Engineering Centre,  
Chapman Way, Hethel,  
Norwich, Norfolk,  
NR14 8FB  
United Kingdom

**Fertigungsstätte Manufacturing Site:**

Knowles Electronics  
(Suzhou) Co. Ltd.  
No 20 Chunxing Road  
Xiangcheng District  
215131 Suzhou  
P.R. China

**Prüfzeichen Test Mark:**

**Geprüft nach Tested according to:**

EN IEC 60384-14:2023

**Geräteidentifikation**
*Product Identification*
**Produkt:**

Capacitor

*Product:*

(Multi-Layer Ceramic Capacitor)

**Modell:**

Modelle sind auf nächste(r) Seite(n) gelistet

*Type:*
*Type designation(s) are listed on the next page(s)*
**Technische Daten:**

Rated voltage.....: 250 V a.c. or  
250 V a.c./250 V a.c.

*Technical Data:*

Rated frequency....: 50/60 Hz  
Dielectric class...: Class II (X7R)  
Type code.....: SP or PY2 or B16 or B17 or B53 or  
B56 or M16 or M53 or M56  
Class.....: X1 or X2 or Y2/X1

Trademark.....: SYFER, knowles

**Gültig ab:**
*Valid from:*
**Zertifizierungsstelle:**
*Certification body:*
**Ausstellungsdatum:** 2026-03-30

*Date of issue:*

Mózes Tibor



Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

*This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.*

**TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg**
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**TÜVRheinland®**  
Precisely Right.

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**Produkt Product:** Capacitor  
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**Modell Type:** **Bezeichnung Designation:**  
 X2: 1808bA25ddddefgSP; 2220bA25ddddeXgB17  
 X1: 1808bA25ddddefgPY2; 1812bA25ddddefgPY2  
 Y2/X1: 2211bA25ddddeXgSP; 2215bA25ddddeXgSP; 2220bA25ddddeXgB16;  
 2220bA25ddddeXgB56; 2220bA25ddddeXgB53; 2220bA25ddddeXgM16;  
 2220bA25ddddeXgM56; 2220bA25ddddeXgM53

## Type nomenclature

1808 b A25 dddd e f g SP, where

- "1808" is Type number / Size reference
- "b" means the Protection termination, can be:
  - Y: FlexiCap termination base with Ni Barrier. RoHS compliant. (100% matte tin plating)
  - J: Silver base with Nickel Barrier. RoHS compliant. (100% matte tin plating)
- "A25" means the Voltage rating: 250 V a.c.
- "ddd" means the Capacitance value, can be:
  - First digit: 0
  - Second digit: First significant figure of capacitance value
  - Third digit: Second significant figure of capacitance value
  - Fourth digit: Number of zeros following, e.g. 0471 = 470 pF.
- "e" means the Capacitance tolerance code, can be:
  - J =  $\pm 5\%$       • K =  $\pm 10\%$       • M =  $\pm 20\%$
- "f" means the Dielectric/release code, can be:
  - X: X7R
- "g" means the Packaging, can be:
  - T: 178mm (7") reel      • R: 330mm (13") reel      • B: Bulk pack - tubs
- "SP" means Safety tested surge protection capacitor



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**Produkt** *Product:*

Capacitor  
(Multi-Layer Ceramic Capacitor)

**Modell** *Type:*

**Bezeichnung** *Designation:*

2220 b A25 dddd e f g hhh \*\*\*, where

- "2220" is Type number / Size reference
- "b" means the Protection termination, can be:
  - Y: FlexiCap termination base with Ni Barrier. RoHS compliant. (100% matte tin plating)
  - H: FlexiCap termination base with Ni Barrier. (Tin/lead plating with a minimum of 10% lead)
  - J: Silver base with Nickel Barrier. RoHS compliant. (100% matte tin plating)
  - A: Silver base with Nickel Barrier. (Tin/lead plating with a minimum of 10% lead)
- "A25" means the Voltage rating: 250 V a.c.
- "dddd" means the Capacitance value, can be:
  - First digit: 0 (or, if capacitance <10 pF, first significant figure of capacitance value)
  - Second digit: First significant figure of capacitance value (or, if cap <10 pF, "P" to signify units of pF)
  - Third digit: Second significant figure of capacitance value
  - Fourth digit: Number of zeros following, e.g. 0102 = 1000 pF.
- "e" means the Capacitance tolerance code, can be:
  - J = ±5%      • K = ±10%      • M = ±20%
- "f" means the Dielectric/release code, can be:
  - X: X7R Precious metal      • J: X7R Base metal
- "g" means the Packaging, can be:
  - T: 178mm (7") reel      • R: 330mm (13") reel      • B: Bulk pack - tubs
- "hhh" means Type of capacitors, can be:
  - B16, B53 and B56: Syfer Type A (Y2/X1)
  - M16, M53 and M56: Syfer Type A Open Mode (Y2/X1)
  - B17: Syfer Type B (X2)

\*\*\* Represents a three character suffix code, which will be allocated by Knowles when needed for specific customer requirements. This does not change the specifications defined hereon, complies with Knowles safety capacitor req. and also is in accordance with IEC 60384-14.



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**Produkt** *Product:*

Capacitor  
(Multi-Layer Ceramic Capacitor)

**Modell** *Type:*

**Bezeichnung** *Designation:*

aaaa b A25 dddd e f g PY2, where

- "aaaa" is Type number / Size reference, can be:
  - 1808      • 1812
- "b" means the Protection termination, can be:
  - Y: FlexiCap termination base with Ni Barrier. RoHS compliant.  
(100% matte tin plating)
  - J: Silver base with Nickel Barrier. RoHS compliant.  
(100% matte tin plating)
  - P: ProtectiCap. FlexiCap termination base with Nickel Barrier.  
(100% matte tin plating)
- "A25" means the Voltage rating: 250 V a.c.
- "dddd" means the Capacitance value, can be:
  - First digit: 0
  - Second digit: First significant figure of capacitance value
  - Third digit: Second significant figure of capacitance value
  - Fourth digit: Number of zeros following, e.g. 0102 = 1000 pF.

For values that do not fit the model above, insert the capacitance code letter for the decimal point. e.g. 8P20 = 8.2 pF
- "e" means the Capacitance tolerance code, can be:
  - J =  $\pm 5\%$       • K =  $\pm 10\%$       • M =  $\pm 20\%$
- "f" means the Dielectric/release code, can be:
  - X: X7R
- "g" means the Packaging, can be:
  - T: 178mm (7") reel      • R: 330mm (13") reel      • B: Bulk pack - tubs
- "PY2" means Safety tested surge protection capacitor



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**Modell** *Type:*

**Bezeichnung** *Designation:*

aaaa b A25 dddd e f g SP \*\*\*, where

- "aaaa" is Type number / Size reference, can be:
  - 2211      • 2215
- "b" means the Protection termination, can be:
  - Y: FlexiCap termination base with Ni Barrier. RoHS compliant. (100% matte tin plating)
  - H: FlexiCap termination base with Ni Barrier. (Tin/lead plating with a minimum of 10% lead)
  - J: Silver base with Nickel Barrier. RoHS compliant. (100% matte tin plating)
  - A: Silver base with Nickel Barrier. (Tin/lead plating with a minimum of 10% lead)
- "A25" means the Voltage rating: 250 V a.c.
- "dddd" means the Capacitance value, can be:
  - First digit: 0 (or, if cap <10 pF, first significant figure of cap value)
  - Second digit: First significant figure of capacitance value (or, if cap <10 pF, "P" to signify units of pF)
  - Third digit: Second significant figure of capacitance value
  - Fourth digit: Number of zeros following, e.g. 0102 = 1000 pF.
- "e" means the Capacitance tolerance code, can be:
  - J = ±5%      • K = ±10%      • M = ±20%
- "f" means the Dielectric/release code, can be:
  - X: X7R
- "g" means the Packaging, can be:
  - T: 178mm (7") reel      • R: 330mm (13") reel      • B: Bulk pack - tubs
- "SP" means Safety tested surge protection capacitor

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**Modell** *Type:*

**Bezeichnung** *Designation:*

## Detailed ratings

Type designation	Rated voltage (UR)	Type code	Class	Capacitance range
1808bA25ddddefgSP	250 V a.c.	SP	X2	150 pF - 4,7 nF
2220bA25ddddeXgB17	250 V a.c.	B17	X2	150 pF - 33 nF
1808bA25ddddefgPY2	250 V a.c.	PY2	X1	150 pF - 1,5 nF
1812bAddddefgPY2	250 V a.c.	PY2	X1	150 pF - 4,7 pF
2211bA25ddddeXgSP	250 V a.c. / 250 V a.c.	SP	Y2/X1	100 pF - 3,9 nF
2215bA25ddddeXgSP	250 V a.c. / 250 V a.c.	SP	Y2/X1	2,7 nF - 3,9 nF
2220bA25ddddeXgB16	250 V a.c. / 250 V a.c.	B16	Y2/X1	150 pF - 10 nF
2220bA25ddddeXgB56	250 V a.c. / 250 V a.c.	B56	Y2/X1	150 pF - 10 nF
2220bA25ddddeXgB53	250 V a.c. / 250 V a.c.	B53	Y2/X1	150 pF - 4,7 nF
2220bA25ddddeXgM16	250 V a.c. / 250 V a.c.	M16	Y2/X1	150 pF - 10 nF
2220bA25ddddeXgM56	250 V a.c. / 250 V a.c.	M56	Y2/X1	150 pF - 10 nF
2220bA25ddddeXgM53	250 V a.c. / 250 V a.c.	M53	Y2/X1	150 pF - 4,7 nF

