



**Electromagnetic Interference Suppression Capacitors  
Class X2 305/310VAC**

**TECHNICAL SPECIFICATION**

**Metallized Polypropylene Film Capacitors (MKP)**

**Type: KNB1580**

***RoHS compliant***

**Issue: April 2018**

**ISKRA, d.d.**

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design	13.4.18	Šuklje	<b>TECHNICAL SPECIFICATION</b> <b>Metallized Polypropylene Film Capacitors (MKP)</b> <b>Type <big>KNB1580 305/310VAC</big> Class X2</b> <i>RoHS compliant</i>								scale
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# 1. Safety Approvals

**Country: Europe**

**ENEC – VDE**

Standard: IEC 60384-14:2013/AMD1:2016

SIST EN 60384-14:2014

Subject: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains

Type: KNB1580

Rated voltage: 310VAC

File No.: 40046925

Mark:  

**Country: U.S.A. and Canada**

**c-UL-us** (Underwriters Laboratories)

Standard: UL 60384-14 and CSA E60384-14:2014

Subject: Component – Across-the-Line Capacitors, Antenna-Coupling Components Line-Bypass Components and Fixed Capacitors for Use in Electronic Equipment, Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains

Type: KNB1580

Rated voltage: 305/310VAC

File No.: E145156

Mark: 

**Country: China**

**CQC**

Standard: IEC 60384-14:2013

Subject: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains

Type: KNB1580



Rated voltage: 310VAC

File No.: CQC18001187940

Mark: 

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## 2. Features

- Self-healing metallized polypropylene film
- Used in interference suppression circuit (Across-the-line connection)
- Used in series connection with the supply mains (Capacitive dropper)
- High capacitance stability under severe ambient conditions (THB test)
- Can withstand peak pulse voltage up to 2.5 kV (Class X2)

## 3. Specifications (Ambient temperature 20°C)

Rated AC voltage $U_R$	305V, 310V, 50/60Hz
Capacitance range	0.01 – 15 $\mu$ F
Capacitance tolerance	$\pm 20\%$ for $C \leq 0.1\mu\text{F}$ ( $\pm 10\%$ on request) $\pm 10\%$ for $C > 0.1\mu\text{F}$ ( $\pm 5\%$ on request)
Dissipation factor	$\leq 10^{-3}$ at 1kHz
Test voltage (between terminals)	Production test: 2200VDC, 1s for $C \leq 1\mu\text{F}$ 1900VDC, 1s for $C > 1\mu\text{F}$ up to $\leq 2.2\mu\text{F}$ 1600VDC, 2s for $C > 2.2\mu\text{F}$ Qualification approval test: 4.3· $U_R = 1333\text{VDC}$ , 60s (Performance: No abnormality)
Test voltage (terminals to case)	2120Vrms 50/60Hz, 60s (Performance: No abnormality)
Insulation resistance (between terminals)	$R_i \geq 15000\text{M}\Omega$ at 100VDC, 60s for $C \leq 0.33\mu\text{F}$ $R \cdot C \geq 5000\text{s}$ at 100VDC, 60s for $C > 0.33\mu\text{F}$
Insulation resistance (terminals to case)	$\geq 30000\text{M}\Omega$ at 100VDC
Operating temperature	-40°C to +110°C
Climatic category	40/110/56
Passive flammability	Category B
Max. pulse rise time	550V/ $\mu\text{s}$ for PCM = 7.5mm 500V/ $\mu\text{s}$ for PCM = 10mm 400V/ $\mu\text{s}$ for PCM = 15mm and $C \leq 0.022\mu\text{F}$ 250V/ $\mu\text{s}$ for PCM = 15mm and $C > 0.022\mu\text{F}$ 150V/ $\mu\text{s}$ for PCM = 22.5mm 100V/ $\mu\text{s}$ for PCM = 27.5mm 100V/ $\mu\text{s}$ for PCM = 37.5mm

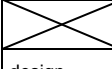
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#### 4. Technical Data and Ordering Code

Capacitance (μF)	L (mm)	H (mm)	W (mm)	PCM (mm)	Ø (mm)	Rated current at 310VAC 50Hz (mA)	Part number
0.01	10.5	9.0	4.0	7.5	0.6	1.0	NBA01002++1C10**#S
0.015	10.5	9.0	4.0	7.5	0.6	1.5	NBA01502++1C10**#S
0.022	10.5	9.0	4.0	7.5	0.6	2.1	NBA02202++1C10**#S
0.033	10.5	10.0	5.0	7.5	0.6	3.2	NBA03302++1D10**#S
0.047	10.5	11.0	5.5	7.5	0.6	4.6	NBA04702++1F10**#S
0.056	10.5	12.0	6.0	7.5	0.6	5.5	NBA05602++1G10**#S
0.01	13.0	9.0	4.0	10.0	0.6	1.0	NBA01002++2A10**#S
0.015	13.0	9.0	4.0	10.0	0.6	1.5	NBA01502++2A10**#S
0.022	13.0	9.0	4.0	10.0	0.6	2.1	NBA02202++2A10**#S
0.033	13.0	9.0	4.0	10.0	0.6	3.2	NBA03302++2A10**#S
0.033	13.0	10.5	5.0	10.0	0.6	3.2	NBA03302++2C10**#S
0.047	13.0	10.5	5.0	10.0	0.6	4.6	NBA04702++2C10**#S
0.047	13.0	11.5	6.0	10.0	0.6	4.6	NBA04702++2F10**#S
0.068	13.0	11.0	5.5	10.0	0.6	6.6	NBA06802++2E10**#S
0.1	13.0	12.0	6.0	10.0	0.6	9.7	NBA01003++2G10**#S
0.01	18.0	11.0	5.0	15.0	0.8	1.0	NBA01002++3A20**#S
0.015	18.0	11.0	5.0	15.0	0.8	1.5	NBA01502++3A20**#S
0.022	18.0	11.0	5.0	15.0	0.8	2.1	NBA02202++3A20**#S
0.033	18.0	11.0	5.0	15.0	0.8	3.2	NBA03302++3A20**#S
0.047	18.0	11.0	5.0	15.0	0.8	4.6	NBA04702++3A20**#S
0.068	18.0	11.0	5.0	15.0	0.8	6.6	NBA06802++3A20**#S
0.1	18.0	11.0	5.5	15.0	0.8	9.7	NBA01003++3B20**#S
0.12	18.0	12.0	6.0	15.0	0.8	11.7	NBA01203++3C20**#S
0.15	18.0	13.0	7.0	15.0	0.8	14.6	NBA01503++3F20**#S
0.22	18.0	14.5	8.2	15.0	0.8	21.4	NBA02203++3H20**#S
0.27	18.0	14.5	9.0	15.0	0.8	26.3	NBA02703++3K20**#S
0.33	18.0	16.0	9.5	15.0	0.8	32.1	NBA03303++3N20**#S
0.47	18.0	18.5	11.0	15.0	0.8	45.8	NBA04703++3P20**#S
0.56	18.0	20.0	12.5	15.0	0.8	54.5	NBA05603++3T20**#S
0.15	26.5	14.0	6.0	22.5	0.8	14.6	NBA01503++4A20**#S
0.22	26.5	14.0	6.0	22.5	0.8	21.4	NBA02203++4A20**#S
0.27	26.5	15.0	6.0	22.5	0.8	26.3	NBA02703++4B20**#S
0.33	26.5	16.0	7.0	22.5	0.8	32.1	NBA03303++4F20**#S
0.47	26.5	17.0	8.5	22.5	0.8	45.8	NBA04703++4K20**#S
0.56	26.5	18.5	9.0	22.5	0.8	54.5	NBA05603++4N20**#S
0.68	26.5	18.5	10.0	22.5	0.8	66.2	NBA06803++4O20**#S
1	26.5	21.5	12.5	22.5	0.8	97.4	NBA01004++4U20**#S
0.47	31.5	16.0	7.5	27.5	0.8	45.8	NBA04703++5A20**#S
0.56	32.0	17.0	9.0	27.5	0.8	54.5	NBA05603++5C20**#S
0.68	32.0	17.0	9.0	27.5	0.8	66.2	NBA06803++5C20**#S
1	32.0	20.0	11.0	27.5	0.8	97.4	NBA01004++5G20**#S
1.5	31.5	23.5	14.0	27.5	0.8	146.1	NBA01504++5N20**#S
2.2	31.5	26.5	17.0	27.5	0.8	214.3	NBA02204++5R20**#S
2.7	31.5	32.0	18.0	27.5	0.8	263.0	NBA02704++5U20**#S
3.3	31.5	32.0	18.0	27.5	0.8	321.4	NBA03304++5U20**MS
3.3	32.0	33.0	20.0	27.5	0.8	321.4	NBA03304++5X20**#S
3.9	32.0	33.0	20.0	27.5	0.8	379.8	NBA03904++5X20**#S
4.7	32.0	39.0	24.0	27.5	0.8	457.7	NBA04704++5320**#S
5.6	32.0	39.0	24.0	27.5	0.8	545.4	NBA05604++5320**#S

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Capacitance (μF)	L (mm)	H (mm)	W (mm)	PCM (mm)	Ø (mm)	Rated current at 310VAC 50Hz (mA)	Part number
1.5	41.5	22.0	14.0	37.5	0.8	146.1	NBA01504++6A20**#S
2.2	41.5	23.0	14.0	37.5	0.8	214.3	NBA02204++6B20**#S
3.3	41.5	26.0	18.0	37.5	0.8	321.4	NBA03304++6F20**#S
3.9	41.5	31.0	18.0	37.5	0.8	379.8	NBA03904++6H20**#S
4.7	41.5	32.0	19.0	37.5	0.8	457.7	NBA04704++6K20**#S
5.6	41.5	38.0	21.0	37.5	1.0	545.4	NBA05604++6N30**#S
6.8	41.5	38.0	21.0	37.5	1.0	662.2	NBA06804++6N30**#S
8.2	41.5	43.0	28.0	37.5	1.0	798.6	NBA08204++6P30**#S
10.0	41.5	43.0	28.0	37.5	1.0	973.9	NBA01005++6P30**#S
10.0	42.0	45.0	30.0	37.5	1.0	973.9	NBA01005++6R30**#S
15.0	42.0	50.0	36.0	37.5	1.0	1460.8	NBA01505++6U30**#S

Notes: "++" = Rated voltage code:

2B = 305 VAC, 1K = 310 VAC (Default code: 1K)

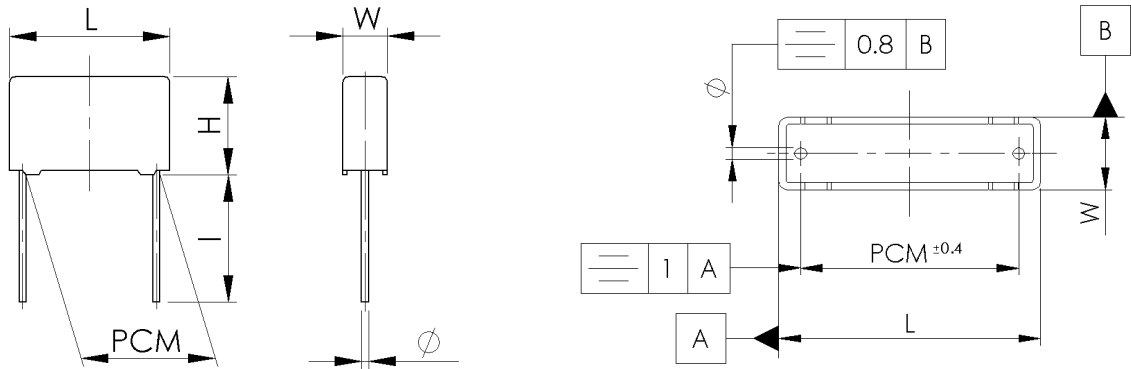
"\*\*" = Lead length or taping code:

AE =  $3^{+0.5/-0}$  mm, AN =  $4^{±0.5}$  mm, AV =  $6^{+0/-1}$  mm, A2 =  $9^{+1/-0}$  mm, A8 =  $15^{±2}$  mm, BA =  $20^{±2}$  mm, BC =  $25^{+5/-0}$  mm, BE =  $30^{+5/-0}$  mm, R1 = Reel pack, M1 = Ammo pack (Default code: BC)

"#" = Capacitance tolerance code:

M = ±20%, K = ±10%, J = ±5% (Default code: M for C ≤ 0.1μF, K for C > 0.1μF)

## 5. Outline Drawing




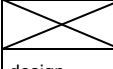
**Note:** Standard lead length (I) is  $25^{+5/-0}$  mm. Other lead lengths  $3^{+0.5/-0}$ ,  $4^{±0.5}$ ,  $6^{+0/-1}$ ,  $9^{+1/-0}$ ,  $15^{±2}$ ,  $20^{±2}$ ,  $30^{+5/-0}$  mm are available on request.

**E.T.C.:** Tolerance of lead wires located from the center of thickness and from the center of length in mm.

Terminal dimensions				Maximum case dimensions		
PCM (mm)	Tol. (mm)	Ø (mm)	Tol. (mm)	L <sub>max</sub> (mm)	H <sub>max</sub> (mm)	W <sub>max</sub> (mm)
7.5	±0.4	0.6	±0.05	L +0.2	H +0.1	W +0.1
10.0	±0.4	0.6	±0.05	L +0.2	H +0.1	W +0.2
15.0	±0.4	0.8	±0.05	L +0.3	H +0.1	W +0.2
22.5	±0.4	0.8	±0.05	L +0.3	H +0.1	W +0.3
27.5	±0.4	0.8	±0.05	L +0.3	H +0.1	W +0.3
37.5	±0.4	0.8 or 1	±0.05	L +0.3	H +0.1	W +0.3

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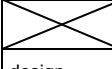


## 6. Efficiency Tests

Test. No.	Application item	Performance	Test method (IEC 60384-14)
1.	Test voltage Terminal to terminal	No defect	Ref. item 4.2.1 1333VDC, 1 min.
	Terminal to body	No defect	2120Vrms, 1 min.
2.	Capacitance	Shall be within the tolerance	Ref. item 4.2.2 at 1kHz up to $U_R$ max.
3.	Insulation resistance Terminal to terminal	15000M $\Omega$ min. for $C \leq 0.33\mu\text{F}$ 5000s min. for $C > 0.33\mu\text{F}$	Ref. item 4.2.5 Measured at 100VDC, 1 min. and 20°C
	Terminal to body	30000M $\Omega$ min.	
4.	Dissipation factor	Reference value only. The increase after specified test shall be: 0.008 max. for $C \leq 1\mu\text{F}$ 0.005 max. for $C > 1\mu\text{F}$	Ref. item 4.2.3 Measured at 10kHz for $C \leq 1\mu\text{F}$ and at 1kHz for $C > 1\mu\text{F}$
5.	Robustness of terminations	No visible damage	Ref. item 4.3 Test $U_{a1}$ – Tensile Severity: $F=10\text{N}$ , $t=10\text{s}$
6.	Resistance to soldering heat	Appearance: No abnormality Cap. Drift: within $\pm 5\%$ of initial value	Ref. item 4.4 Test $T_b$ , Method A1 Use $1.5 \pm 0.5\text{mm}$ thick glass epoxy board as a holder. Soldering temp. $(260 \pm 5)^\circ\text{C}$ , dipping duration $(10 \pm 1)\text{s}$
7.	Solderability	Soldering time: 1.5s max.	Ref. item 4.5 IEC 60068-2-20, Test $T_a$ , Method 3: Solder globule at $235^\circ\text{C}$
8.	Rapid change of temperature	Appearance: No abnormality	Ref. item 4.6 IEC 60062-2-14, Test $N_a$ $T_A = +110^\circ\text{C}$ $T_B = -40^\circ\text{C}$ 5 cycles

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stand.										6/15	





Test. No.	Application item	Performance	Test method (IEC 60384-14)
9.	Vibration	Appearance: No abnormality	Method of mounting: see note below Ref. item 4.7 IEC 60068-2-6, Test Fc Amplitude 0.75mm or 98m/s <sup>2</sup> Add XYZ 3 directions for 2h per direction Frequency range: 10Hz to 2000Hz
		No open or short circuit	
10.	Bump	Appearance: No abnormality	Method of mounting: see note below Ref. item 4.8 IEC 60068-2-29, Test Eb 4000 bumps at 390m/s <sup>2</sup> Impulse duration: 6ms
		No open or short circuit	
11.	Damp heat, steady state	Appearance: No abnormality	Ref. item 4.12 IEC 60068-2-3, Test Ca Temperature 40°C and relative humidity 90-95% for 56 days with no voltage applied
		Cap. Drift: within ±5% of initial value	
		Dissipation factor The increase: - 0.008 max. for C ≤ 1μF measured at 10kHz - 0.005 max. for C > 1μF measured at 1kHz	
		Voltage proof: No permanent breakdown or flash-over	
		Insulation resistance: min. 50% of No.3 value	
12.	Impulse voltage	Appearance: No abnormality No permanent breakdown or flash-over	Ref. item 4.13 Max. 24 impulses with a peak value: 2.5kV up to C ≤ 1μF, 2.5kV/√C for C > 1μF and with wave-shape 1.2/50μs

**Note:** The capacitor shall be mechanically fixed by the soldered leads and the stand-off pips (ridges) shall be in good contact with the printed-wiring board, the body of capacitors with a mass > 6g shall be clamped to the printed-wiring board.

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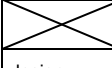
Test. No.	Application item	Performance	Test method (IEC 60384-14)
13.	Endurance	Appearance: No abnormality	Ref. item 4.14 Temp. 110°C, 387.5VAC (1.25·U <sub>R</sub> ) shall be applied continuously for 1000h. During the test 1000VAC for 0.1s per hour shall be applied.
		Cap. Drift: within ±10% of initial value	
		Dissipation factor The increase: - 0.008 max. for C ≤ 1μF measured at 10kHz - 0.005 max. for C > 1μF measured at 1kHz	
		Voltage proof: No permanent breakdown or flash-over	
		Insulation resistance: min. 50% of No.3 value	
14.	Charge and discharge	Cap. Drift: within ±10% of initial value	Ref. item 4.15 10000 pulses at 100V/μs with charge voltage $\sqrt{2}$ U <sub>R</sub> at a rate of one cycle per s
		Dissipation factor: The increase 0.008 max. of initial value measured at 10kHz for C ≤ 1μF The increase 0.005 max. of initial value measured at 1kHz for C > 1μF	
		Insulation resistance: min. 50% of No.3 value	
15.	Passive flammability	Max. permitted burning time: - 10s category B	Ref. item 4.17 category B Flame exposure time depends on cap. volume Flame: Needle-flame test according to IEC 60695-2-2
16.	Active flammability	The cheese-cloth around the capacitor shall not burn with a flame	Ref. item 4.18 20 surge pulses at 2.5kV are applied with the interval of 5s During the test, a potential of rated AC voltage is applied across the cheese-cloth wrapped capacitor under test
17.	Component solvent resistance	No visible damage	Ref. item 4.19 Solvent: isopropyl alcohol +R 113 Solvent temperature: 23±5°C Method 2 (IEC 60068-2-45) without recovery

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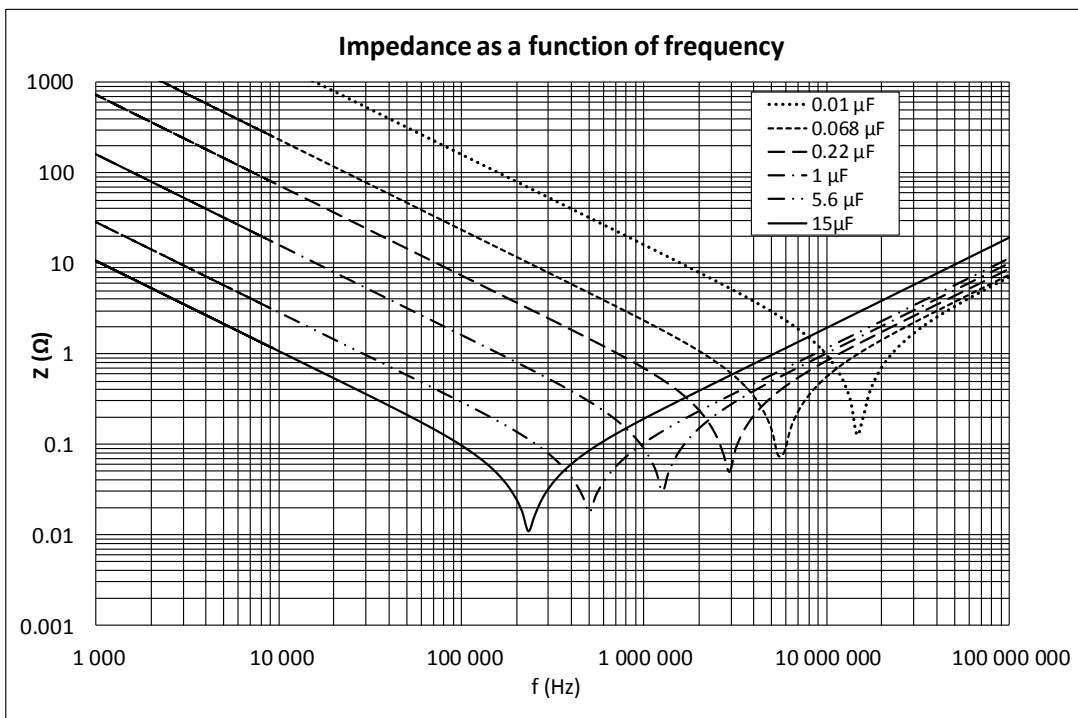
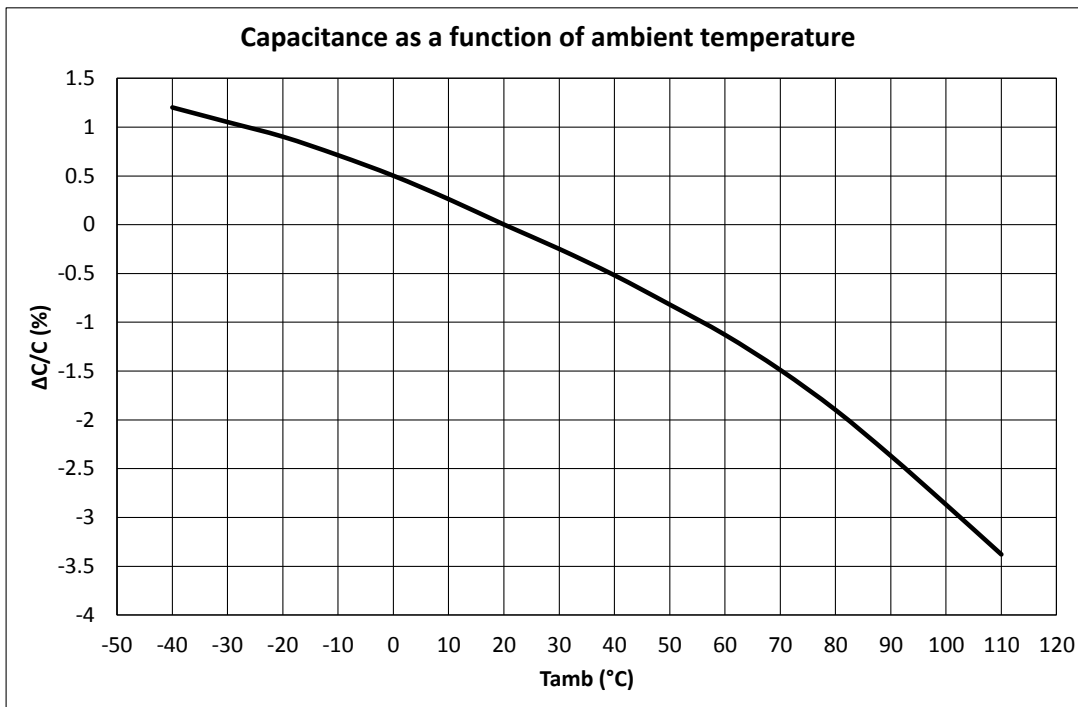


Test. No.	Application item	Performance	Test method (IEC 60384-14)
18.	Solvent resistance of marking	Marking shall remain legible	Ref. item 4.20 Solvent: isopropyl alcohol +R 113 Solvent temperature: 23±5°C Method 1 (IEC 60068-2-45) without recovery Rubbing material: cotton wool
19.	Rapid damp test	Cap. drift: within ±5% of the initial value	Internal requirements: Temp. 98-102°C and relative humidity 96-100% for 96 hours with applied voltage 385VAC
		Dissipation factor The increase: - 0.01 max. of initial value measured at 1kHz	
		Insulation resistance: min. 50% of No.3 value	
20.	Reliability test	Cap. drift: within ±5% of initial value	Internal requirements: Temp. 58-62°C for 2000 hours with applied voltage 275VAC
		Dissipation factor The increase: - 0.01 max. of initial value measured at 1kHz	
		Insulation resistance: min. 50% of No.3 value	
21.	Temperature, Humidity and Bias (THB), 500h	Cap. drift: within ±10% of the initial value	Annex I Test condition B, Grade II: Temp. 85°C ± 2°C and relative humidity 85% ± 2% for 500 hours with applied voltage 310VAC
		Dissipation factor The increase: - 0.024 max. for C ≤ 1µF measured at 10kHz - 0.015 max. for C > 1µF measured at 1kHz	
		Insulation resistance: min. 50% of No.3 value	
22.	Temperature, Humidity and Bias (THB), 1000h	Cap. drift: within ±10% of initial value	Internal requirements: Temp. 85°C ± 2°C and relative humidity 85% ± 2% for 1000 hours with applied voltage 240VAC
		Insulation resistance: min. 50% of No.3 value	

material		protection		standard			issue			 Iskra, d.d. PE Kondenzatorji			
changes	1	2	3	4	5	6	7	8	9		10		
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	date	sign.	TECHNICAL SPECIFICATION Metallized Polypropylene Film Capacitors (MKP) Type <b>KNB1580 305/310VAC</b> Class X2 RoHS compliant							identification No.			
design	13.4.18	Šuklje								scale		page	
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stand.													

## 7. Electrical Characteristics



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<del>X</del>	date	sign.	name <b>TECHNICAL SPECIFICATION</b> <b>Metallized Polypropylene Film Capacitors (MKP)</b> <b>Type <i>KNB1580 305/310VAC</i> Class X2</b> <i>RoHS compliant</i>							identification No.	
design	13.4.18	Šuklje								scale	page
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## 8. Marking

Marking data:

- a) Trade mark of **ISKRA**
- b) Type designation **KNB1580**
- c) The symbol **MKP** (metallized polypropylene film cap.)
- d) Nominal capacitance
- e) Capacitance tolerance if different from  $\pm 20\%$
- f) Capacitor Class **X2**
- g) Rated voltage indicated by **305VAC** or **310VAC**
- h) Climatic category in accordance with standard IEC 60068-1 indicated by **40/110/56**
- i) Passive flammability category indicated by **B** at climatic category according to IEC 60384-14
- j) Safety approval marks
- k) Manufacturing code (YEAR, MONTH) according to IEC 60062
- l) Additional mark: without or **T** (for halogen-free version)

### Production date code marking system

The date code is indicated by two-character codes for year and month in a twenty-year cycle (according to IEC 60062, 8.2.2). The 1<sup>st</sup> character (letter) indicates the year and the 2<sup>nd</sup> character (number or letter) indicates the month.

Year	1 <sup>st</sup> character (letter)
2010	A
2011	B
2012	C
2013	D
2014	E
2015	F
2016	H
2017	J
2018	K
2019	L
2020	M
2021	N
2022	P
2023	R
2024	S
2025	T
2026	U
2027	V
2028	W
2029	X
2030	A


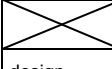
Month	2 <sup>nd</sup> character (number/letter)
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	O
November	N
December	D

Examples:

2014 June = **E6**  
 2015 October = **FO**  
 2017 September = **J9**  
 2018 April = **K4**

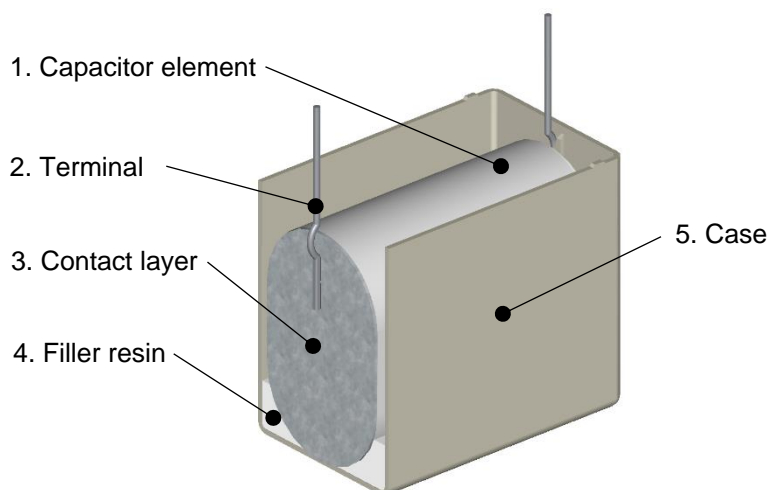
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	date	sign.	name <b>TECHNICAL SPECIFICATION</b> <b>Metallized Polypropylene Film Capacitors (MKP)</b> <b>Type <b>KNB1580 305/310VAC</b> Class X2</b> <i>RoHS compliant</i>							identification No.	
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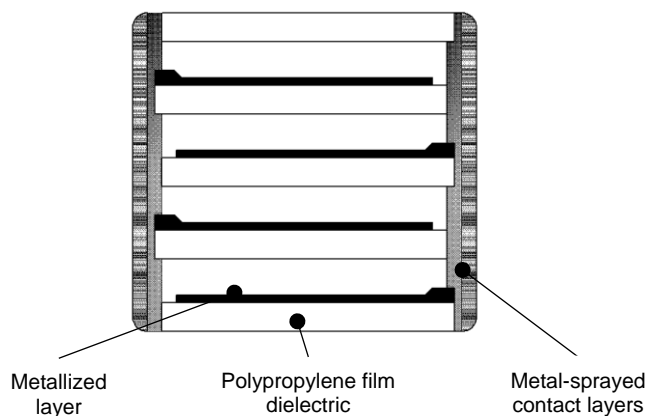


## 9. Structure Drawing




No.	Article	Materials	Flame resistance
1.	Capacitor element	Metallized PP film (Al/Zn)	
2.	Terminals	Solid tinned copper wire	
3.	Contact layer	Sprayed metal (Zn)	
4.	Filler resin	Flame-retardant epoxy	UL 94 V-0 approved
5.	Case	Polypropylene – PP or Polybutylene terephthalate – PBT (Halogen-free version)	UL 94 V-0 approved

## 10. Winding Construction



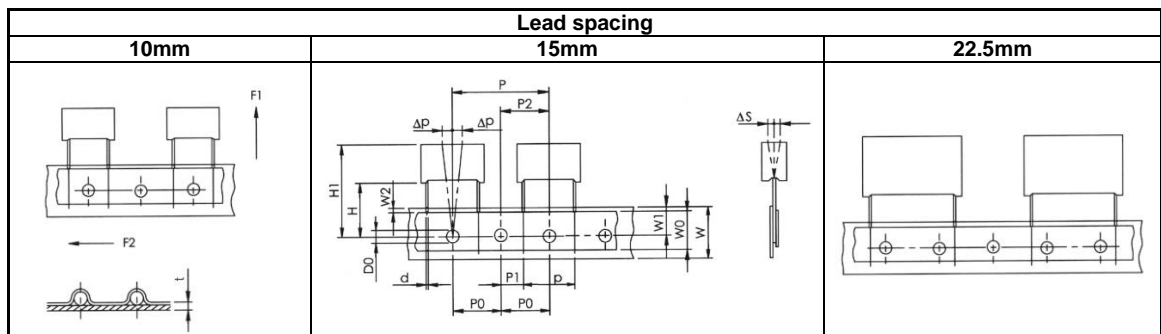
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# 11. Taping Specification According to IEC 60386-2

Description	Symbol	Dimensions (mm)			Tolerances (mm)
Lead spacing	<b>p</b>	10	15	22.5	+0.6/-0.1
Carrier tape width	<b>W</b>	18	18	18	+1/-0.5
Hold-down tape width	<b>W<sub>o</sub></b>	12 or 6	12 or 6	12 or 6	±0.5
Hole position	<b>W<sub>1</sub></b>	9	9	9	±0.5
Hold-down tape position	<b>W<sub>2</sub></b>	3	3	3	max
Feed hole diameter	<b>D<sub>o</sub></b>	4	4	4	±0.2
Pitch of component	<b>P</b>	25.4	25.4	38.1	±1
Feed hole pitch	<b>P<sub>o</sub></b>	12.7	12.7	12.7	±0.2
Feed hole centre to lead	<b>P<sub>1</sub></b>	7.7	5.2	7.8	±0.7
Free hole centre to component centre	<b>P<sub>2</sub></b>	12.7	12.7	19.05	±1.3
Height from feed hole center to the component body	<b>H</b>	18.5	18.5	18.5	±0.5
Component alignment	<b>Δp</b>	0	0	0	±1.3
	<b>Δs</b>	0	0	0	±2
Lead wire diameter	<b>d</b>	0.6	0.8	0.8	±0.05
Total tape tickness	<b>t</b>	0.7	0.7	0.7	±0.2
Component height	<b>H<sub>1</sub></b>	31	34	39	max
Extraction force of the tape	<b>F<sub>1</sub></b>	5 N	5 N	5 N	min
Break force of the tape	<b>F<sub>2</sub></b>	15 N	15 N	15 N	min



Lead spacing	Capacitor width	Ammo pack (P/N digit 15 to 16: M1)		Reel pack (P/N digit 15 to 16: R1)	
		pcs/box	Packing dimensions	pcs/reel	Packing dimensions
10	4; 4.3	900		900	
	5	768		700	
	6	648		550	
15	5	768		600	
	5.5	696		600	
	6	648		500	
	7	552		450	
	7.5	504		400	
	8.5	444		400	
22.5	9	420		400	
	6	424		370	
	6.5	392		350	
	7	368		300	
	8.5	304		250	
	10	256		200	
	10.5	240	200		

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	date	sign.	name							identification No.	
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## 12. Part Number System


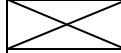
Type code				Capacitance					Pitch and case size				Lead length				Packing	
NBA= KNB1580				1002 = 0.01 $\mu F$ 2202 = 0.022 $\mu F$ 1003 = 0.1 $\mu F$ 4703 = 0.47 $\mu F$ 1004 = 1 $\mu F$ 6804 = 6.8 $\mu F$ 1005 = 10 $\mu F$ 1505 = 15 $\mu F$ ...					1G = 10.5x12x6 PCM 7.5 2A = 13x9x4 PCM 10 3A = 18x11x5 PCM 15 4K = 26.5x17x8.5 PCM 22.5 4O = 26.5x18.5x10 PCM 22.5 5A = 31.5x16x7.5 PCM 27.5 6A = 41.5x22x14 PCM 37.5 6U = 42x50x36 PCM 37.5 ...				AE = 3 <sup>+0.5</sup> AN = 4 <sup>+0.5</sup> AV = 6 <sup>-1</sup> A2 = 9 <sup>+1</sup> A8 = 15 <sup>+2</sup> BC = 25 <sup>+5</sup> R1 = Reel pack M1 = Ammo pack ...				S = Standard ...	
Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
P/N	N	B	A	0	4	7	0	3	2	B	4	K	2	0	B	C	K	S
Version				Rated voltage					Lead diameter				Capacitance tolerance					
0 = Standard H = Halogen-free				2B = 305 VAC 1K = 310 VAC					10 = $\varnothing 0.6$ mm 20 = $\varnothing 0.8$ mm 30 = $\varnothing 1.0$ mm				J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$					

Example:

Description	Part number
KNB1580 U47 10% 305V L25 R22.5 $\varnothing 0.8$ (Dim.: 26.5x17x8.5)	NBA047032B4K20BCKS

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design	13.4.18	Šuklje	<b>TECHNICAL SPECIFICATION</b> Metallized Polypropylene Film Capacitors (MKP) Type <b>KNB1580 305/310VAC</b> Class X2 RoHS compliant								scale
approv.	13.4.18	Štravs									page
stand.											15/15