



Film Capacitors

EMI Suppression Capacitors

Series/Type: **B3201*A5/B5/C5**

Date: May 2026

Typical applications

- Y1 class for interference suppression
- "Line to Ground" applications
- Severe ambient conditions

Climatic

- Max. operating temperature: 125°C
- Climatic category (IEC 60068-1:2023): 40/110/56/B

Construction

- Dielectric: polypropylene (MKP)
- Plastic case (UL 94 V-0)
- Epoxy resin sealing (UL 94 V-0)

Features

- AEC-Q200E compliant
- Small dimensions
- Good self-healing properties
- Excellent THB feature
- RoHS-compatible
- High voltage capability

Terminals

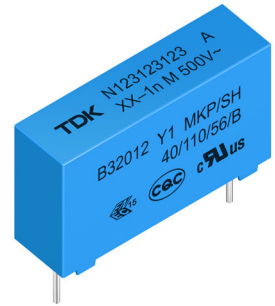
- Parallel wire leads, lead-free tinned
- Special lead length available on request

Marking

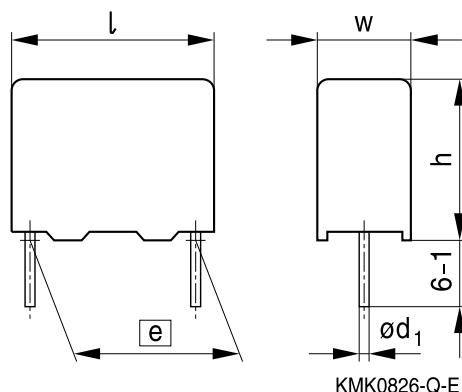
Manufacturer's logo, lot number, date code, rated capacitance (coded), capacitance tolerance (code letter), rated AC voltage (IEC), series number, sub-class (Y1), dielectric code (MKP), climatic category, passive flammability category, approvals (see marking example on page 3)

Delivery mode

- Bulk (untaped)
- Taped (Ammo pack or reel)
For taping details, refer to chapter "Taping and packing".



Dimensional drawing

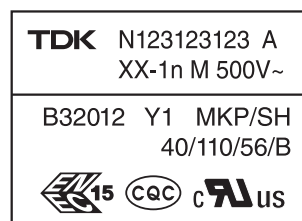


Dimensions and types

Pin	Lead spacing $e \pm 0.4$ mm	Lead diameter $d_1 \pm 0.05$ mm	Type
2	15	0.8	B32012A/B/C5
2	22.5	0.8	B32013A/B/C5

Marking example

(position of marks may vary)



Approvals

Approval mark	Standards	Certificate
	EN IEC 60384-14:2023	ENEC-05540 (approved by UL)
	UL 60384-14:2025 CSA E60384-14	E97863 (approved by UL)
	GB/T6346.14-2023	CQC26001500399

Overview of available types

Lead spacing	15 mm	22.5 mm
Type	B32012	B32013
C_R (nF)		
0.47		
0.68		
1.0		
1.5		
2.2		
3.3		
4.7		
5.6		
6.8		
10		
15		
22		
33		

Ordering codes and packing units

Lead spacing mm	C _R nF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Ammo pack pcs./MOQ	Reel pcs./MOQ	Untaped pcs./MOQ
15	0.47	5.0 x 10.5 x 18.0	B32012A5471+***	9360	10400	8000
	0.68	5.0 x 10.5 x 18.0	B32012A5681+***	9360	10400	8000
	1.0	5.0 x 10.5 x 18.0	B32012A5102+***	9360	10400	8000
	1.5	5.0 x 10.5 x 18.0	B32012A5152M***	9360	10400	8000
	2.2	6.0 x 12.0 x 18.0	B32012A5222M***	7680	8800	8000
	3.3	7.0 x 12.5 x 18.0	B32012A5332M***	6640	7200	8000
	4.7	8.5 x 14.5 x 18.0	B32012A5472+***	5440	5600	4000
	6.8	9.0 x 17.5 x 18.0	B32012A5682M***	5120	5600	4000
	10	11.0 x 18.5 x 18.0	B32012A5103M***	-	4400	2400
22.5	5.6	6.0 x 15.0 x 26.5	B32013A5562+***	5440	5600	5760
	6.8	7.0 x 16.0 x 26.5	B32013A5682+***	4640	4800	5040
	10	8.5 x 16.5 x 26.5	B32013A5103+***	3840	4000	4080
	15	10.5 x 16.5 x 26.5	B32013A5153M***	3120	3200	4320
	22	10.5 x 20.5 x 26.5	B32013A5223M***	-	-	4320
	22	11.0 x 20.5 x 26.5	B32013B5223+***	-	-	4080
	33	13.0 x 22.0 x 26.5	B32013A5333M***	-	-	1760
	33	14.0 x 23.5 x 26.5	B32013B5333+***	-	-	1600

MOQ = Minimum Order Quantity, consisting of 8 packing units.
Further intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

K = ±10%

M = ±20%

*** = Packaging code

289 = Straight terminals, Ammo pack

189 = Straight terminals, Reel

003 = Straight terminals, untaped
(lead length 3.2 ±0.3 mm)

000 = Straight terminals, untaped
(lead length 6.0 –1.0 mm)

Technical data and specifications

Reference standard: UL/IEC 60384-14:2023.

All data given at T = 20 °C unless otherwise specified.

Rated AC voltage V_{RMS} (up to 110 °C)	500 V AC (50/60 Hz)		
Rated DC voltage V_{DC} (up to 110 °C)	1500 V DC		
Max. operating temperature $T_{op,max}$ ($T_{op} = T_{amb} + \text{self-heating}$)	+125 °C Note: At $T_{op} > 110$ °C derating for V_R (AC or V DC) should be 1.5 %/°C. Duration time ≤ 1000 h.		
Max. rated temperature T_R (as per IEC 60384-14 ed5)	+110 °C		
Maximum continuous DC voltage	3000 V DC at 85 °C (1000 h), +85 °C to +125 °C, 1.5% /°C derating		
Maximum continuous AC voltage (at T_{op} max)	750 V AC (1000 hrs at 125 °C)		
DC test voltage between terminals ¹⁾	4800 V, 2 s		
Dissipation factor $\tan \delta$ (in 10^{-3}) at 20 °C (upper limit values)	2.0 at 1 kHz		
Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 100 V DC, 20 °C, rel. humidity $\leq 65\%$ and for 60 s (minimum as-delivered values)	30000 MΩ		
Passive flammability category	B		
Capacitance tolerances	$\pm 10\%$ (K), $\pm 20\%$ (M)		
Operating AC Voltage V_{op} at high temperature	$T_{op} \leq 110$ °C	$V_{op} = V$ AC	continuously
		$V_{op} = 1.7$ V AC	for 1000 hrs
THB test	Test conditions Temperature: +85 °C ± 2 °C Relative humidity (RH): 85% $\pm 2\%$ Voltage value: 500 V AC, 50 Hz Test duration: 500 hours		
Limit values after damp heat test	Capacitance change $ \Delta C/C $: $\leq 10\%$		
	Dissipation factor change $ \Delta \tan \delta $: ≤ 0.01 (at 1 kHz)		
	Insulation resistance R_{ins} : ≥ 0.2 GΩ		

1) The repetition of this DC voltage test may damage the capacitor. Special care must be taken in case of use several capacitors in a parallel configuration.

Pulse handling capability

"dV/dt" represents the maximum permissible voltage change per unit of time for non-sinusoidal voltages, expressed in V/ μ s.

"k₀" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V²/ μ s.

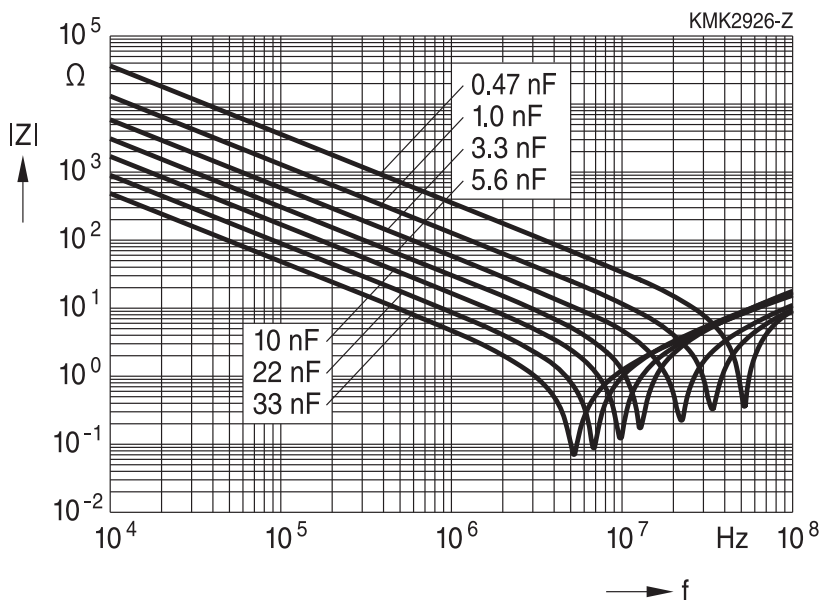
Note:

The values of dV/dt and k₀ provided below must not be exceeded in order to avoid damaging the capacitor. These parameters are given for isolated pulses in such a way that the heat generated by one pulse will be completely dissipated before applying the next pulse. For a train of pulses, please refer to the curves of permissible AC voltage-current versus frequency.

dV/dt and k₀ values

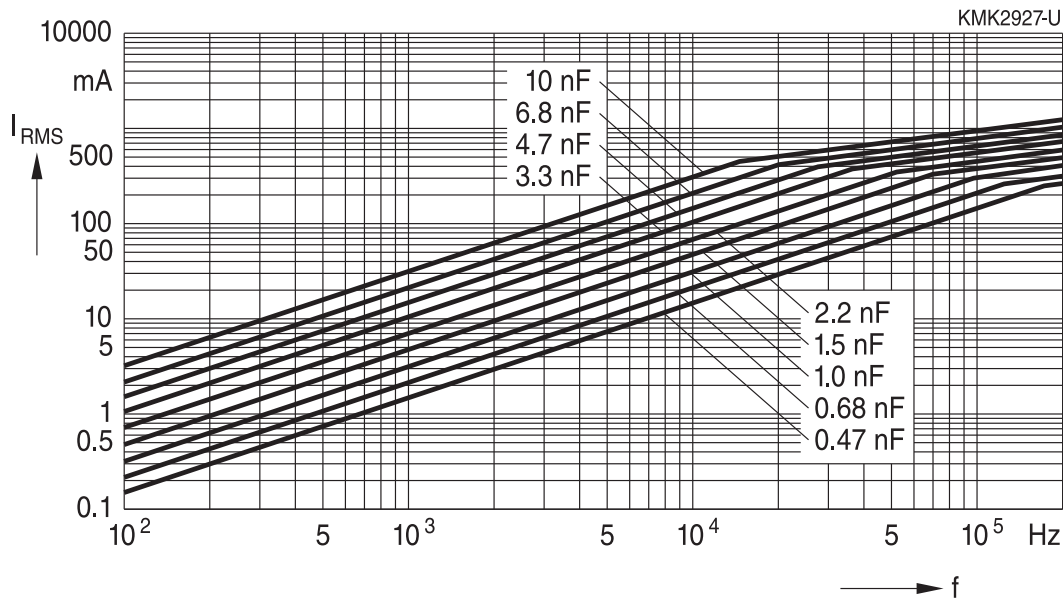
Lead spacing (mm)	15	22.5
dV/dt (V/ μ s)	3000	1000
k ₀ (V ² / μ s)	2100000	700000

Impedance Z versus frequency f (typical values)

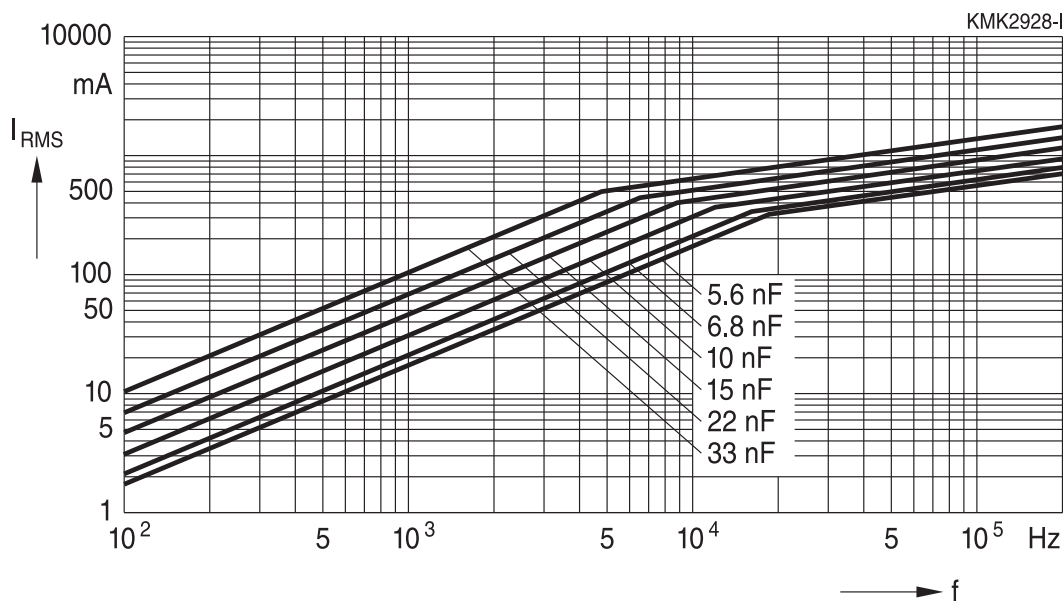


Permissible AC current I_{RMS} (A) versus frequency f (Hz)
(for sinusoidal waveforms $T_A \leq 90^\circ\text{C}$ and $\Delta ESR < 100\%$ from receipt condition)

Lead spacing 15 mm



Lead spacing 22.5 mm



Testing and standards

Test	Reference	Conditions of test	Performance requirements
Electrical parameters	IEC 60384-14:2023	Voltage proof between terminals: 4000 V AC , 1 min Terminals and enclosure: 4000 V AC, 1 min. Insulation resistance R_{INS} Capacitance, C_R Dissipation factor $\tan \delta$	Within specified limits
Robustness of terminations	IEC 60068-2-21	Tensile strength (test Ua1)	Capacitance and $\tan \delta$ within specified limits
		Wire diameter Tensile force $0.5 < d_1 \leq 0.8 \text{ mm}$ 10 N	
Resistance to soldering heat	IEC 60068-2-21, test Tb, method 1A	Solder bath temperature at $260 \pm 5 \text{ }^\circ\text{C}$, immersion for 10 seconds	$ \Delta C/C_0 \leq 5\%$ $\tan \delta$ within specified limits
Rapid change of temperature	IEC 60384-14:2023	Lower category temperature = $-55 \text{ }^\circ\text{C}$ Upper category temperature = $+110 \text{ }^\circ\text{C}$ Five cycles, duration $t = 30 \text{ min}$	No visible damage $ \Delta C/C_0 \leq 5\%$ $ \Delta \tan \delta \leq 0.0080$ $R_{INS} \geq 50\%$ of initial limit
Vibration	IEC 60384-14:2023	Test F_C : vibration sinusoidal Displacement: 0.75 mm Acceleration: 98 m/s^2 Frequency: 10 Hz ... 500 Hz Test duration: 3 orthogonal axes, 2 hours each axe	No visible damage
Bump	IEC 60384-14:2023	Test Eb: Total 4000 bumps with 400 m/s^2 mounted on PCB 6 ms duration	No visible damage $ \Delta C/C_0 \leq 5\%$ $\tan \delta$ within specified limits
Damp heat, steady state	IEC 60384-14:2023	Test without voltage $40 \text{ }^\circ\text{C}$ / 93% RH / 56 days	No visible damage $ \Delta C/C_0 \leq 5\%$ $ \Delta \tan \delta \leq 0.0080$ $R_{INS} \geq 50\%$ of initial limit
		Test with rated AC voltage $40 \text{ }^\circ\text{C}$ / 93% RH / V_R / 21 days	No visible damage $ \Delta C/C_0 \leq 10\%$ $ \Delta \tan \delta \leq 0.0080$ $R_{INS} \geq 50\%$ of initial limit
Impulse test endurance	IEC 60384-14:2023	3 impulses $T_B/1.7 V_R/1000 \text{ hrs}$ $1000 V_{RMS}$ for 0.1 s every hour	No visible damage $ \Delta C/C_0 \leq 10\%$ $ \Delta \tan \delta \leq 0.008$ Voltage proof $R_{ins} \geq 50\%$ of initial limit

Test	Reference	Conditions of test	Performance requirements
Passive flammability	IEC 60384-14:2023	Flame applied for a period of time depending on capacitor volume	B
Charge discharge	IEC 60384-14:2023	$dv/dt = 100 \text{ V}/\mu\text{s}$ cycles = 10000	No visible damage $ \Delta C/C_0 \leq 10\%$ $ \Delta \tan \delta \leq 0.008$ $R_{\text{ins}} \geq 50\%$ of initial limit
High temperature exposure (storage)	AEC-Q200 E	110 °C for 1000 h	No visible damage $ \Delta C/C_0 \leq 10\%$ $ \Delta \tan \delta \leq 0.008$ $R_{\text{ins}} \geq 50\%$ of initial limit
Biased humidity test	AEC-Q200 E	40 °C / 93% relative humidity / 500 V AC / 1000 h	$ \Delta C/C_0 \leq 10\%$ $ \Delta \tan \delta \leq 0.0100$ at 1 kHz $R_{\text{ins}} \geq 0.2 \text{ G}\Omega$
Temperature cycling	AEC-Q200 E	Lower category temperature = -55 °C Upper category temperature = +110 °C 1000 cycles, duration t = 30 min, transition <1min	No visible damage $ \Delta C/C_0 \leq 5\%$
Solderability	AEC-Q200 E	J-STD-002, electrical test not required	A minimum of 95% of each of the surface being tested shall be exhibit good wetting. The balance of the surface may contain only small pin holes, dewetted areas, and rough spots provided such defects are not concentrated in one area. There shall be no non-wetting or exposed base metal within the evaluated area.
Terminal strength	AEC-Q200E	MIL-STD-202 method 211, test THT component lead integrity only, conditions A (pull test), conditions C (wire-lead bend test)	No visible damage $ \Delta C/C_0 \leq 2\%$ $ \Delta \tan \delta \leq 0.0015$ $R_{\text{ins}} \geq 50\%$ of initial limit

Test	Reference	Conditions of test	Performance requirements
Mechanical shock	AEC-Q200 E	MIL-STD-202 method 213, figure 1 of method 213, condition C, peak value 100 g, duration 6 ms, half-sine wave	No visible damage $ \Delta C/C_0 \leq 3\%$ $ \Delta \tan \delta \leq 0.004$ $R_{ins} \geq 50\%$ of initial limit
Vibration	AEC-Q200 E	5 g's for 20 min, 12 cycles each of 3 orientations, use 8"X5" PCB, 0.031" thick, 7 secure points on one 8" side and 2 secure points at corners of opposite sides, parts mounted within 2" from any secure point, test from 10-2000 Hz	No visible damage

Soldering

Solderability of leads

The solderability of terminal leads is tested to IEC 60068-2-20:2021, test Ta, method 1.

Before a solderability test is carried out, terminals are subjected to accelerated ageing (to IEC 60068-2-2:2007, test B: 4 h exposure to dry heat at 155 °C). Since the ageing temperature is far higher than the upper category temperature of the capacitors, the terminal wires should be cut off from the capacitor before the ageing procedure to prevent the solderability being impaired by the products of any capacitor decomposition that might occur.

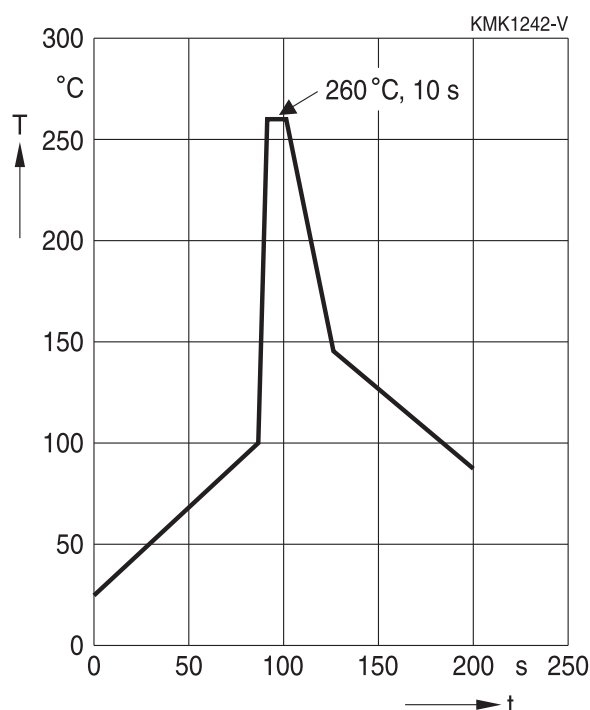
Solder bath temperature	245 ±3 °C
Soldering time	3.0 ±0.3 s
Immersion depth	2.0 +0/−0.5 mm from capacitor body or seating plane
Evaluation criteria: Visual inspection	Wetting of wire surface by new solder 95%, free-flowing solder

Resistance to soldering heat

Resistance to soldering heat is tested to IEC 60068-2-20:2021, test Tb, method 1.

Conditions:

Series	Solder bath temperature	Soldering time
MKT boxed (except 2.5 × 6.5 × 7.2 mm) coated uncoated (lead spacing >10 mm)	260 ±5 °C	10 ±1 s
MFP		
MKP (lead spacing >7.5 mm)		
MKT boxed (case 2.5 × 6.5 × 7.2 mm)		5 ±1 s
MKP (lead spacing ≤7.5 mm)		<4 s
MKT uncoated (lead spacing ≤10 mm) insulated (B32559)		recommended soldering profile for MKT uncoated (lead spacing ≤10 mm) and insulated (B32559)



Immersion depth	2.0 +0/−0.5 mm from capacitor body or seating plane
Shield	Heat-absorbing board, (1.5 ±0.5) mm thick, between capacitor body and liquid solder
Evaluation criteria:	
Visual inspection	No visible damage
$\Delta C/C_0$	2% for MKT/MKP/MFP 5% for EMI Suppression Capacitors
$\tan \delta$	As specified in sectional specification

General notes on soldering

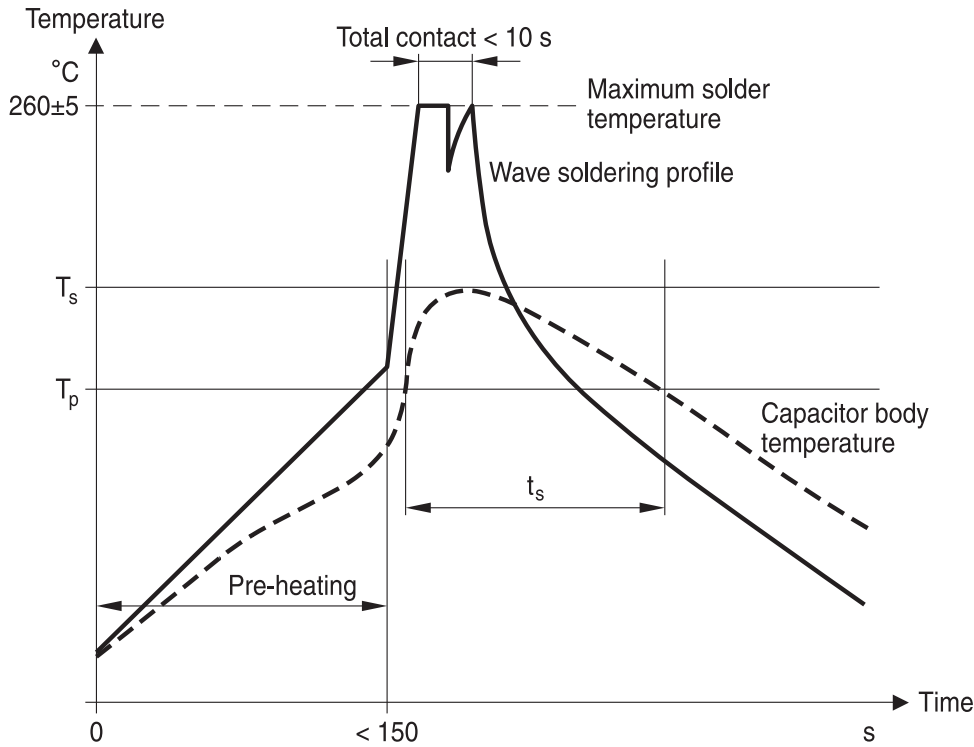
Permissible heat exposure loads on film capacitors are primarily characterized by the upper category temperature $T_{\max}$. Long exposure to temperatures above this type-related temperature limit can lead to changes in the plastic dielectric and thus change irreversibly a capacitor's electrical characteristics. For short exposures (as in practical soldering processes) the heat load (and thus the possible effects on a capacitor) will also depend on other factors like:

- Pre-heating temperature and time
- Forced cooling immediately after soldering
- Terminal characteristics:
diameter, length, thermal resistance, special configurations (e.g. crimping)
- Height of capacitor above solder bath
- Shadowing by neighboring components
- Additional heating due to heat dissipation by neighboring components
- Use of solder-resist coatings

The overheating associated with some of these factors can usually be reduced by suitable countermeasures. For example, if a pre-heating step cannot be avoided, an additional or reinforced cooling process may possibly have to be included.

Recommendations

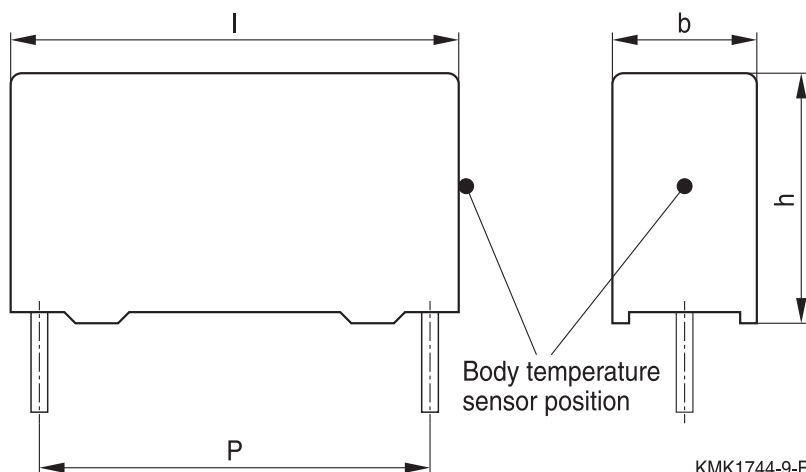
As a reference, the recommended wave soldering profile for our film capacitors is as follows:



T_s : Capacitor body maximum temperature at wave soldering

T_p : Capacitor body maximum temperature at pre-heating

KMK1745-A-E



KMK1744-9-E

Body temperature should follow the description below:

- MKP capacitor
During pre-heating: $T_p \leq 110\text{ °C}$
During soldering: $T_s \leq 120\text{ °C}$, $t_s \leq 45\text{ s}$
- MKT capacitor
During pre-heating: $T_p \leq 125\text{ °C}$
During soldering: $T_s \leq 160\text{ °C}$, $t_s \leq 45\text{ s}$

When SMD components are used together with leaded ones, the film capacitors should not pass into the SMD adhesive curing oven. The leaded components should be assembled after the SMD curing step.

Leaded film capacitors are not suitable for reflow soldering.

In order to ensure proper conditions for manual or selective soldering, the body temperature of the capacitor (T_s) must be $\leq 120\text{ °C}$.

One recommended condition for manual soldering is that the tip of the soldering iron should be $< 360\text{ °C}$ and the soldering contact time should be no longer than 3 seconds.

For uncoated MKT capacitors with lead spacings $\leq 10\text{ mm}$ (B32560/B32561) the following measures are recommended:

- pre-heating to not more than 110 °C in the preheater phase
- rapid cooling after soldering

Cleaning

To determine whether the following solvents, often used to remove flux residues and other substances, are suitable for the capacitors described, refer to the table below:

Type	Ethanol, isopropanol, n-propanol	n-propanol-water mixtures, water with surface tension-reducing tensides (neutral)
MKT (uncoated)	Suitable	Unsuitable
MKT, MKP, MFP (coated/boxed)		Suitable

Even when suitable solvents are used, a reversible change of the electrical characteristics may occur in uncoated capacitors immediately after they are washed. Thus it is always recommended to dry the components (e.g. 4 h at 70 °C) before they are subjected to subsequent electrical testing.

Caution:

Consult us first if you wish to use new solvents!

Embedding of capacitors in finished assemblies

In many applications, finished circuit assemblies are embedded in plastic resins. In this case, both chemical and thermal influences of the embedding ("potting") and curing processes must be taken into account.

Our experience has shown that the following potting materials can be recommended: non-flexible epoxy resins with acid-anhydride hardeners; chemically inert, non-conducting fillers; maximum curing temperature of 100 °C .

Caution:

Consult us first if you wish to embed uncoated types!

Capacitor markings

Depending on the capacitor size, the markings are positioned either on the side and/or the top of the component. The coded forms specified in IEC 60062:2004 are used to indicate the rated capacitance, capacitance tolerance and date of manufacture.

The lot number (production batch number) ensures unique identification of a particular capacitor and allows, together with the date of manufacture, exact assignment to the process data of the entire production run (traceability).

For all EMI capacitors:

If the capacitor is wide enough, the entire marking will be on the top. In this case, the stamping will contain the following information:

1st line: Manufacturer's logo, lot number, revision status

2nd line: Date code, capacitance, cap. tolerance, rated voltage

3rd line: Type number, interference suppression, sub class, style/self-healing

4th line: Climatic category

5th line: Marks of conformity

If the capacitor is not wide enough for the entire marking, the information in the marking will be split between the top and side. In this case, the following partial information will be found on the top:

Manufacturer's logo — **TDK** N123123123 A — Lot number, revision status
 XX-1n M 500V~ — Date code, capacitance, cap. tolerance, rated voltage

Codes for rated capacitance

Rated capacitance	To IEC 60062	Short code
100 pF	100p	n1
150 pF	150p	n15
1.0 nF	1n0	1n
1.5 nF	1n5	
10 nF	10n	
100 nF	100n	μ1
150 nF	150n	μ15
1.0 μF	1μ0	1μ
1.5 μF	1μ5	
10 μF	10μ	
15 μF	15μ	

Codes for capacitance tolerance

Capacitance tolerance	Code letter	Remark
±5%	J	
±10%	K	
±20%	M	

Codes for date of manufacture (to IEC 60062:2016)

Code for year				Code for month					
Year	Code letter		Year	Code letter	Month	Code numeral		Month	Code numeral/letter
2018	K		2024	S	January	1		July	7
2019	L		2025	T	February	2		August	8
2020	M		2026	U	March	3		September	9
2021	N		2027	V	April	4		October	O
2022	P		2028	W	May	5		November	N
2023	R		2029	X	June	6		December	D

E.g.: U5 2026 May

Marking types

The capacitors may have either an ink-jet marking or a laser marking. The main advantage of laser marking is that it cannot be removed by solvents, which ensures the reliable identification of the capacitor. Moreover, because the laser marking process reduces the amount of chemicals used, it is an environmentally friendly marking solution.

Ordering code system

A component and the packing in which it is to be delivered are defined by the ordering code, which has 15 digits (plus 3 additional digits for internal use). For all capacitors the ordering codes are explicitly stated (together with the corresponding tolerance and/or packing variants) in the data sheets.

Should there be any doubt about the coding system, however, then it is better to order the capacitor using a plain text description (i.e. without a code).

Basic structure of the ordering code:

Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
18	B																	
	Block 1						Block 2					Block 3			Block 4 (for internal use)			

Digit	Meaning
1	B = Passive components
2,3	32 = Metallized film capacitors, EMI suppression capacitors 81 = EMI suppression capacitors
4 ... 6	Type (block 1 is termed the "type number")
7	Revision status
8	Rated DC voltage, coded (not for EMI suppression capacitors)
9 ... 11	Rated capacitance (coding method for value in pF) Examples:
	Digit 1 0 3 K = 10 • 10³ pF = 10 nF B 3 2 0 12 A 5
12	Code letter for capacitance tolerance
13 ... 15	Codes for lead and taping parameters (refer to respective data sheet)
16 ... 18	Internal use

Cautions and warnings

- Do not exceed the upper category temperature (UCT).
- Do not apply any mechanical stress to the capacitor terminals.
- Avoid any compressive, tensile or flexural stress.
- Do not move the capacitor after it has been soldered to the PC board.
- Do not pick up the PC board by the soldered capacitor.
- Do not place the capacitor on a PC board whose PTH hole spacing differs from the specified lead spacing.
- Do not exceed the specified time or temperature limits during soldering.
- Avoid external energy inputs, such as fire or electricity.
- Avoid overload of the capacitors.
- Consult us if application is with severe temperature and humidity condition.
- There are no serviceable or repairable parts inside the capacitor. Opening the capacitor or any attempts to open or repair the capacitor will void the warranty and liability of TDK Electronics.
- Please note that the standards referred to in this publication may have been revised in the meantime.

The table below summarizes the safety instructions that must always be observed. A detailed description can be found in the relevant sections of the chapters “General technical information” and “Mounting guidelines”.

Topic	Safety information	Reference chapter “General technical information”
Storage conditions	Make sure that capacitors are stored within the specified range of time, temperature and humidity conditions.	4.5 “Storage conditions” **
Flammability	Avoid external energy, such as fire or electricity (passive flammability), avoid overload of the capacitors (active flammability) and consider the flammability of materials.	5.3 “Flammability”
Resistance to vibration	Do not exceed the tested ability to withstand vibration. The capacitors are tested to IEC 60068-2-6:2007. TDK Electronics offers film capacitors specially designed for operation under more severe vibration regimes such as those found in automotive applications. Consult our catalog “Film Capacitors for Automotive Electronics”.	5.2 “Resistance to vibration”
Soldering	Do not exceed the specified time or temperature limits during soldering.	1 “Soldering”
Cleaning	Use only suitable solvents for cleaning capacitors.	2 “Cleaning”
Embedding of capacitors in finished assemblies	When embedding finished circuit assemblies in plastic resins, chemical and thermal influences must be taken into account. Caution: Consult us first, if you also wish to embed other uncoated component types!	3 “Embedding of capacitors in finished assemblies”

** Maximum duration 2 years

Display of ordering codes for TDK Electronics products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications, on the company website, or in order-related documents such as shipping notes, order confirmations and product labels. The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products.

Detailed information can be found on the Internet under www.tdk-electronics.tdk.com/orderingcodes.

Correlation of data sheet values and modelling tool outputs

Data sheet values and results of design tools may deviate as they have not been derived in the same context.

While data sheets show individual parameter statements without considering a possible dependency to other parameters. Tools model a complete given scenario as input and processed inside the tool.

Furthermore as we constantly strive to improve our models, the results of tools can change over time and be a non-binding indication only.

Symbols and terms

Symbol	English	German
α	Heat transfer coefficient	Wärmeübergangszahl
α_C	Temperature coefficient of capacitance	Temperaturkoeffizient der Kapazität
A	Capacitor surface area	Kondensatoroberfläche
β_C	Humidity coefficient of capacitance	Feuchtekoeffizient der Kapazität
C	Capacitance	Kapazität
C_R	Rated capacitance	Nennkapazität
ΔC	Absolute capacitance change	Absolute Kapazitätsänderung
$\Delta C/C$	Relative capacitance change (relative deviation of actual value)	Relative Kapazitätsänderung (relative Abweichung vom Ist-Wert)
$\Delta C/C_R$	Capacitance tolerance (relative deviation from rated capacitance)	Kapazitätstoleranz (relative Abweichung vom Nennwert)
dt	Time differential	Differentielle Zeit
Δt	Time interval	Zeitintervall
ΔT	Absolute temperature change (self-heating)	Absolute Temperaturänderung (Selbsterwärmung)
$\Delta \tan \delta$	Absolute change of dissipation factor	Absolute Änderung des Verlustfaktors
ΔV	Absolute voltage change	Absolute Spannungsänderung
dV/dt	Time differential of voltage function (rate of voltage rise)	Differentielle Spannungsänderung (Spannungsflankensteilheit)
$\Delta V/\Delta t$	Voltage change per time interval	Spannungsänderung pro Zeitintervall
E	Activation energy for diffusion	Aktivierungsenergie zur Diffusion
ESL	Self-inductance	Eigeninduktivität
ESR	Equivalent series resistance	Ersatz-Serienwiderstand
f	Frequency	Frequenz
f_1	Frequency limit for reducing permissible AC voltage due to thermal limits	Grenzfrequenz für thermisch bedingte Reduzierung der zulässigen Wechselspannung
f_2	Frequency limit for reducing permissible AC voltage due to current limit	Grenzfrequenz für strombedingte Reduzierung der zulässigen Wechselspannung
f_r	Resonant frequency	Resonanzfrequenz
F_D	Thermal acceleration factor for diffusion	Therm. Beschleunigungsfaktor zur Diffusion
F_T	Derating factor	Deratingfaktor
i	Current (peak)	Stromspitze
I_C	Category current (max. continuous current)	Kategoriestrom (max. Dauerstrom)
I_{RMS}	(Sinusoidal) alternating current, root-mean-square value	(Sinusförmiger) Wechselstrom
i_z	Capacitance drift	Inkonstanz der Kapazität
k_0	Pulse characteristic	Impulskennwert
L_S	Series inductance	Serieninduktivität
λ	Failure rate	Ausfallrate

Symbol	English	German
λ_0	Constant failure rate during useful service life	Konstante Ausfallrate in der Nutzungsphase
λ_{test}	Failure rate, determined by tests	Experimentell ermittelte Ausfallrate
P_{diss}	Dissipated power	Abgegebene Verlustleistung
P_{gen}	Generated power	Erzeugte Verlustleistung
Q	Heat energy	Wärmeenergie
ρ	Density of water vapor in air	Dichte von Wasserdampf in Luft
R	Universal molar constant for gases	Allg. Molarkonstante für Gas
R	Ohmic resistance of discharge circuit	Ohmscher Widerstand des Entladekreises
R_i	Internal resistance	Innenwiderstand
R_{ins}	Insulation resistance	Isolationswiderstand
R_p	Parallel resistance	Parallelwiderstand
R_s	Series resistance	Serienwiderstand
S	severity (humidity test)	Schärfegrad (Feuchtetest)
t	Time	Zeit
T	Temperature	Temperatur
τ	Time constant	Zeitkonstante
$\tan \delta$	Dissipation factor	Verlustfaktor
$\tan \delta_D$	Dielectric component of dissipation factor	Dielektrischer Anteil des Verlustfaktors
$\tan \delta_p$	Parallel component of dissipation factor	Parallelanteil des Verlustfaktors
$\tan \delta_s$	Series component of dissipation factor	Serienanteil des Verlustfaktors
T_A	Temperature of the air surrounding the component	Temperatur der Luft, die das Bauteil umgibt
T_{max}	Upper category temperature	Obere Kategorietemperatur
T_{min}	Lower category temperature	Untere Kategorietemperatur
t_{OL}	Operating life at operating temperature and voltage	Betriebszeit bei Betriebstemperatur und -spannung
T_{op}	Operating temperature, $T_A + \Delta T$	Betriebstemperatur, $T_A + \Delta T$
T_R	Rated temperature	Nenntemperatur
T_{ref}	Reference temperature	Referenztemperatur
t_{SL}	Reference service life	Referenz-Lebensdauer
V_{AC}	AC voltage	Wechselspannung
V_C	Category voltage	Kategoriespannung
$V_{\text{C,RMS}}$	Category AC voltage	(Sinusförmige) Kategorie-Wechselspannung
V_{CD}	Corona-discharge onset voltage	Teilentlade-Einsatzspannung
V_{ch}	Charging voltage	Ladespannung
V_{DC}	DC voltage	Gleichspannung
V_{FB}	Fly-back capacitor voltage	Spannung (Flyback)

Symbol	English	German
V_i	Input voltage	Eingangsspannung
V_o	Output voltage	Ausgangssspannung
V_{op}	Operating voltage	Betriebsspannung
V_p	Peak pulse voltage	Impuls-Spitzenspannung
V_{pp}	Peak-to-peak voltage Impedance	Spannungshub
V_R	Rated voltage	Nennspannung
$\hat{V}_R$	Amplitude of rated AC voltage	Amplitude der Nenn-Wechselspannung
V_{RMS}	(Sinusoidal) alternating voltage, root-mean-square value	(Sinusförmige) Wechselspannung
V_{SC}	S-correction voltage	Spannung bei Anwendung "S-correction"
V_{sn}	Snubber capacitor voltage	Spannung bei Anwendung "Beschaltung"
Z	Impedance	Scheinwiderstand
e	Lead spacing	Rastermaß

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The following applies to all products named in this publication:

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Important notes

- 8 The trade names EPCOS, CarXield, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, FilterCap, FormFit, InsuGate, LeaXield, MediPlas, MiniBlue, MiniCell, MKD, MKK, ModCap, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PiezoBrush, PlasmaBrush, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SurfIND, ThermoFuse, WindCap, XieldCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

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