CapXon

BRONZE | Top 35%
ecovadis
Sustainability Rating
MAY 2026

ELECTROLYTIC CAPACITORS.

PULSE & FLASH CAPACITORS



2027

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For further information please contact sales@capxon.org

10 FACTS ABOUT CAPXON



Founded 1980
by Victor Lin

Established in Taipei
Taiwan

Family owned and
independent

> 40 years experience in
electrolytic capacitors

2500 professional
employees

Fully owned factories
E-cap and foil factories

ISO9001, ISO14001
and IATF 16949 certified

Patented production
process

Belongs to the TOP 10
manufacturers in e-caps

Production of more than
1 bio pcs per month

TECHNICAL TERMS

Item	Description	SI units
V_R	Rated voltage	V
V_S	Surge voltage	V
$V_{Reverse}$	Reverse voltage	V
V_A	Application voltage, operating voltage	V
V_{PD}	Post discharge voltage	V
I_{Leak}	Leakage current	A
T_{0_Max}	Upper category temperature	°C
T_{0_Min}	Lower category temperature	°C
T_A	Application temperature, operating temperature	°C
T_S	Capacitor surface temperature	°C
DRR	Discharge repetition rate (cycles)	-
t_D	Discharge repetition rate	s
R_C	Discharge resistance	Ω
t_C	Discharge time	s
I_D	Discharge current	A
C_R	Rated capacitance	F
ΔC	Capacitance tolerance	%
C/C_R	Capacitance drift	-
tan δ	Dissipation factor	-
Z	Impedance	Ω
ESR	Equivalent series resistance	Ω
ESL	Equivalent series inductance	H
X_C	Capacitive reactance	Ω
X_L	Inductive reactance	Ω
f	Frequency	Hz
ω	Angular frequency	Hz
λ	FIT = failure in time	-
L_A	Expected lifetime at application conditions (charges/discharges)	-

ALUMINUM ELECTROLYTIC CAPACITORS FOR PULSE APPLICATIONS

Pulse capacitors based on aluminum electrolyte represent a specialty among widely used electrolytic capacitors. They are used wherever very high discharge currents are required for very short periods. This is particularly advantageous in professional flash generators, camera flash tubes, IPL (Intense Pulsed Light) hair removal devices, laser power supplies, and signal or warning lights, as these applications utilize the high capacity of the electrolytic capacitor.

Illustration	Application
	**Professional flash generators, photo flash tubes**
	**Hair removal devices using pulsed light (IPL)**
	**Laser power supplies**
	**Signal and warning beacons**
	**Pulse welding and pulse hardening machines**
	**Electrical discharge machines**
	**Plasma physical systems**

Table 1: Applications of pulse capacitors

For conventional aluminum electrolytic capacitors, which are mostly used for buffering in DC links or for filtering in power supplies or electric drives, a wide temperature range, usually from -40°C to 105°C or higher, is a key selection criterion. The permissible rated AC current also plays a crucial role for the application.

In the applications mentioned above, high energy levels are drawn from the pulse capacitor for short periods. In the example of lightning generators, they are responsible for the emitted light, which is proportional to the capacity and the square of the voltage. The capacitor releases its energy content

$$(1) \qquad E = \frac{1}{2} \cdot C \cdot V^2$$

into the load, such as a flash tube in the example above, with very low resistance (10^{-6} to 10^{1} Ω) within a very short time (10^{-6} to 10^{-3} s).

The electrolytic capacitor therefore has a significant influence on the application and must be calculated, constructed, and designed accordingly, according to the requirements placed upon it

REQUIREMENTS FOR PULSE CAPACITORS

In the applications illustrated in Table 1, the user expects a very high pulse rate (charging and discharging cycles) combined with high efficiency and the smallest possible device dimensions (i.e., component dimensions).

Equation 1 shows that the energy stored in the capacitor increases quadratically with the maximum achievable charging voltage V, but only linearly with the capacitor's capacity C.

Consequently, high voltage ratings with minimal dimensions, high-capacity values, a low loss factor, low impedance, and, very importantly, the lowest possible leakage current are necessary.

Operating temperatures are not so critical and range from -20°C to +60°C.

In particular, the high switching durability due to numerous charging and discharging cycles presents further challenges for such capacitors. This extends to ranges up to 1 Hz, leading to operating conditions that push the capacitor to its limits, both electrically and thermally. The latter also depends on the waveform.

Requirements	Characteristics
High voltage withstand capability	**Ability to deliver very high energy, as it is proportional to the square of the capacity**
Low ESR	**Low electrical losses in the form of heat**
Low ESL	**Rapid energy release**
Small dimensions	**Large volume capacity**
Tight capacity tolerances	**Ability to deliver high energy, as it is proportional to the capacity**
Robust design	**High reliability**
Wide capacity range	**Suitable for a wide range of applications**
Low leakage current	**Long operating time in battery-powered applications**

Table 2: Requirements and properties of pulse capacitors

CapXon, with over 40 years of experience as a manufacturer of high-quality aluminum electrolytic capacitors and corresponding know-how in the development and production of electrochemically etched and sintered anode foils, offers a wide range of pulse capacitors in radial (RF series), snap-in (SF series) or screw terminal (RZ series) can designs.



RF series | SF series | RZ series

Figure 1: Pulse capacitors in radial, snap-in and screw terminal packages

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KNOW-HOW, MATERIAL AND SPECIALIST KNOWLEDGE

The materials required and used for pulse capacitors differ significantly from conventional aluminum electrolytic capacitors and require corresponding expertise in design as well as many years of know-how in the manufacturing of such special components.

DESIGN FEATURES

To achieve optimal heat transfer from the capacitor winding to the housing, thinner aluminum foils and a reduced thickness of the oxide layer are necessary compared to standard electrolytic capacitors.

Because the winding must be positioned very close to the capacitor housing for the aforementioned heat dissipation reasons, the pressure relief valve can be in the component's sealing rubber and not in the can bottom as with standard electrolytic capacitors.

Standard Electrolytic Capacitor	Pulse Capacitor
Vent in alu can	Vent **optional** in rubber stopper
	

Figure 2: Vent position in standard and pulse capacitors

The use of separator papers with lower density and higher absorbency, as well as highly conductive electrolytes, ensures low loss factors (tanδ) and correspondingly low ESR values.

In addition, in the snap-in versions, all connection contacts are cold-welded to the metallic aluminum foils of the capacitor winding. Capacitors with diameters greater than 30 mm are constructed using a multi-flange technique. This effectively prevents hot spots caused by high pulse currents.

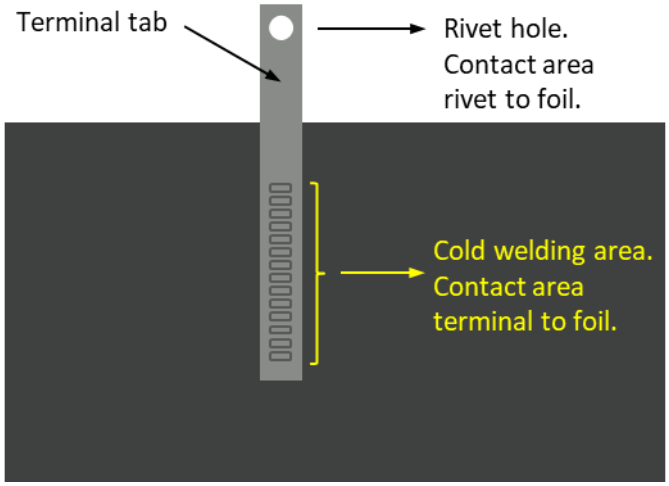


Figure 3: Cold welding process for attaching the connecting tabs to the aluminum foils in the snap-in design

For the radial designs, specially developed connecting wires are attached to the aluminum foils of the capacitor winding using a high-quality piercing process.

As already mentioned, pulse capacitors must have very low self-inductance due to the rapid current rises. This is primarily determined by the leads to the capacitor winding. The self-inductance of the winding itself, on the other hand, is negligible.

To reduce the inductance caused by the inner leads of the winding, the distance in the longitudinal direction of the aluminum foil between the two connecting lugs to the anode and cathode foil, as well as the design of the conductor routing to the outer connection pins, was optimized.

The previously explained charging/discharging processes cause more or less significant capacity losses. These can only be kept to a minimum through appropriate design of the current-supply film on the cathode side.

For this purpose, the capacitor's charging/discharging curve must be considered. This curve follows the rule set

Charging

(2) $$v_c(t) = V_0 \cdot \left(1 - e^{-\frac{t}{R \cdot C}}\right)$$

(3) $$i_c(t) = I_0 \cdot e^{-\frac{t}{R \cdot C}}$$

Discharging

(4) $$v_c(t) = V_0 \cdot e^{-\frac{t}{R \cdot C}}$$

(5) $$i_c(t) = -I_0 \cdot e^{-\frac{t}{R \cdot C}}$$

and looks graphically like this

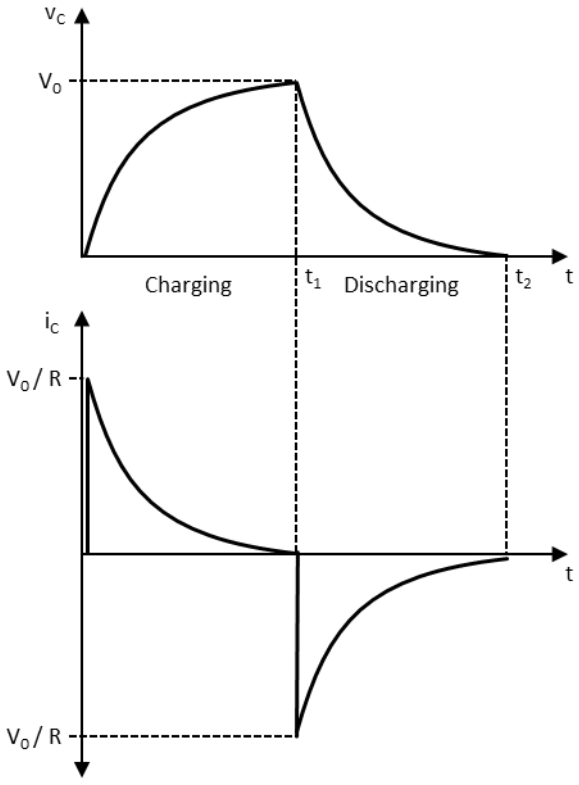


Figure 4: Charging and discharging processes in the capacitor

At time t1, the current direction reverses. This causes a reversal of the direction of the continuously decaying formation process in the capacitor during the period t2 = 5π, i.e., the duration of the discharge current. This can lead to the formation of the current-supply foil on the cathode side. The worst case would be a capacitor failure during discharge, which can only be avoided by a sufficiently high surface capacitance and a sufficiently high formation voltage of the current-supply foil on the cathode side.

The higher area capacitance reduces power loss on the cathode side, thereby increasing the pulse voltage at the same charging/discharging current.

Combining the right material mix requires considerable expertise and access to the necessary technologies on the part of the manufacturer.

To reduce the leakage current caused by defects in the oxide layer to the values required by the user, appropriate forming processes of the aluminum foil as well as in the post-forming of the finished capacitor are necessary.

This is where the pre-formed and etched foils produced in CapXon's own factories prove their worth. Unlike conventional electrolytic capacitors, the post-forming process—the "healing" of the unavoidable, unformed cut edges on the capacitor winding during production—is carried out in a pulsed process rather than a step-by-step process. Only a seamless and precise aluminum oxide layer results in a capacitor of the highest quality.

SELECTING THE CORRECT ANODE FOIL

A deep understanding of the development, processing and production of anode and cathode foils is a basic requirement for outstanding properties of pulse capacitors. The term "cathode foil" should be placed in quotation marks, however, because the actual cathode of the electrolytic capacitor consists of the liquid electrolyte, impregnated with one or more layers of separator paper and an aluminum current-supply foil. This current-supply foil is commonly referred to as the cathode foil, even though it only constitutes a portion of the cathode.

The challenge with pulse capacitors lies particularly in the compact dimensions required by the

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user and thus the relationship between the rated voltage (V_R) and the capacity (C_R).

To better understand the relationships, one must visualize the electrolytic capacitor as a series circuit consisting of two capacitances (the anode to the electrolyte and the cathode-side current-supply foil to the electrolyte) and the resistance of the electrolyte/paper winding.

The equivalent circuit diagram looks like this.

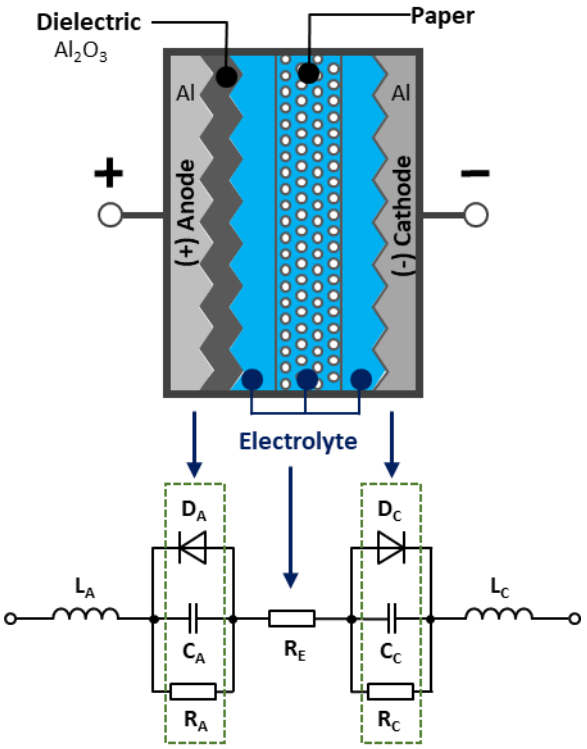


Figure 5: Equivalent circuit diagram of an aluminum electrolytic capacitor

D_A and D_C are the diode effects due to the oxide layer on the anode and cathode side.
R_A and R_C are the internal resistance of the oxide layer on the anode and cathode side.
L_A and L_C are the inductance coming from the anode and cathode terminals

The total capacity C is composed of the series connection of C_A and C_C.

$$(6) \qquad C = \frac{C_A \cdot C_C}{C_A + C_C} = \frac{C_A}{\frac{C_A}{C_C} + 1}$$

If we now, consider the following area capacities as a basis

Foil	Specific Capacitance
Anode (C_A)	0.84 µF/cm^2
Cathode (C_C)	65 µF/cm^2

Table 3: Typical specific capacitance of 400V anode and cathode foil

Is the total capacity largely or almost exclusively dependent on the anode capacity.

$$(7) \qquad C_A \ll C_C \rightarrow \frac{C_A}{C_C} \approx 0 \rightarrow C \approx C_A$$

The selection of a suitable anode foil is therefore of paramount importance for the overall result, as explained above.

CapXon has access to the necessary resources through its own foil development, with corresponding patents, and its own production facilities. **ELECTROCHEMICAL ETCHED** aluminum foils and **SINTERED** aluminum foils are available for pulse capacitors.

The aluminum surface of **ELECTROCHEMICAL ETCHED FOILS** is heavily grayed using acids and electricity, resulting in a surface area increase of more than two orders of magnitude and thus a dramatic reduction in the overall size of the capacitor. Between each manufacturing step, the foil is repeatedly cleaned and stabilized.

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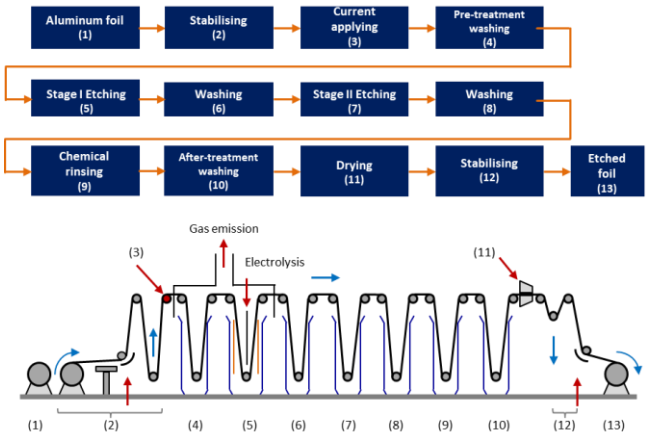


Figure 6: Etching process of electrochemical aluminum foil

To produce SINTERED anode foils based on aluminum, aluminum powder with grain diameters of 3 to 10 µm is first mixed with an adhesive solvent. This mixture is then applied to the bare aluminum substrate in a powder coating process, with a thickness of 30 µm or more. After the coating process, the thickness of the aluminum powder is 50 µm or greater if required. The aluminum substrate and the aluminum powder mixture are then sintered at high temperatures of 600 to 660°C. The resulting foil layer thickness is then 130 µm or thicker.

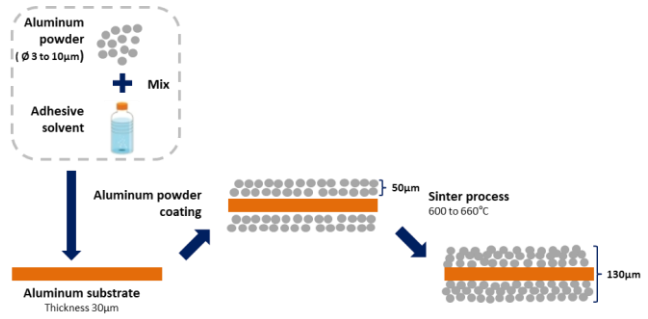


Figure 7: Production process of sintered aluminum foil

Both the electrochemical etched foil and the sintered foil are subsequently subjected to a forming process in which an oxide layer grows on the surface of the film as the dielectric of the capacitor under the influence of current and forming voltage V_F.

Sintered anode foils achieve significantly higher specific capacitances than electrochemically etched foils.

The following table shows an overview of various foil thicknesses for rated voltages of 400 V with forming voltages V_F = 560 V.

Type	Formed Foil		
	Tickness (µm)	Specific Capacitance (µF/cm²)	Enlargement (%)
Electro-chemical foil	130	0.84	**Base level**
	140	0.90	**7.1**
	150	0.96	**14.3**
Sintered foil	130	0.96	**14.3**
	140	1.07	**27.4**
	150	1.16	**38.1**

Table 4: Capacitance enlargement comparison of electrochemical foil and sintered foil

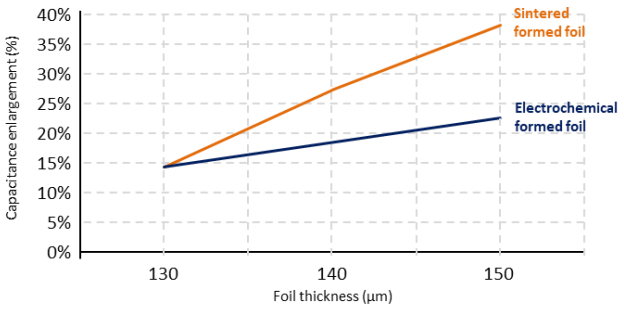


Figure 8: Capacitance enlargement comparison of electrochemical foil and sintered foil

The potential increase in capacitance when using sintered anode foils for pulse capacitors is clearly visible. Capxon is able to provide suitable solutions for all applications with regard to reliability, electrical and mechanical requirements, and cost.

For further information please contact sales@capxon.org

OVERVIEW RADIAL, SNAP IN AND SCREW TERMINAL SERIES

Performance Features			
Type			
	Radial (RF-Series)	**Snap-In (SF-Series)**	**Screw Terminal (RZ-Series)**
Operating Temperature Range	-20 ~ 55°C	-20 ~ 55°C	-20 ~ 55°C
Rated Voltage Range	200 ~ 450V DC	200 ~ 450V DC	200 ~ 450V DC
Capacitance Range	3.3 ~ 1000 µF	110 ~ 10000 µF	470 ~ 56000 µF
Capacitance Tolerance	On request	On request	On request
Max. Leakage Current at 20°C	≤ 1xC [µA] max. after 5 minutes with applied rated voltage	≤ 1xC [µA] max. after 5 minutes with applied rated voltage	≤ 1xC [µA] max. after 5 minutes with applied rated voltage
Dissipation Factor	On request	On request	On request
Number of pulses	Depending on the appli-cation	On request - Depending on the application	On request - Depending on the application
Further capacitance, voltage, and tolerance combinations are available upon request.			

Table 5: Electrical parameters of the standard series

QUESTIONNAIRE ▪ APPLICATION SPECIFICATIONS

Since pulse capacitors are customer-specific components, it is necessary to describe the application specifications in more detail on the following pages. Only with detailed answers to the following questionnaire can we optimally adapt the capacitor to your specific application.

However, it should be considered that the production of pulse capacitors is only carried out on request and only under economically justifiable minimum quantities.

Capacitor Electrical Parameters			Notes
Minimum capacity		µF	
Capacity tolerance		%	
Rated capacitor voltage		V DC	
Leakage Current (I_{LEAK})		µA	
ESR typ.		mΩ	
Dissipation factor ▪ tanδ typ.		%	
Impedance ▪ Z max.		mΩ	
ESL typ.		nH	

Capacitor Mechanical Parameters			Notes
Maximum can diameter ØD **including** tolerance		mm	
Maximum can height L **including** tolerance		mm	
Lead or terminal configuration			See chapter available lead treatments or terminals
Hand sketch or dimensioned drawing			

For further information please contact sales@capxon.org

QUESTIONNAIRE ▪ APPLICATION SPECIFICATIONS

Applied Operating Conditions			Notes
Maximum ambient temperature		°C	
Maximum applied voltage (V_A)		V DC	See example capacitor discharge characteristics – Page 8
Post discharge voltage (V_{PD})		V DC	See example capacitor discharge characteristics – Page 8
Discharge rate / discharge repetition time (t_D)		sec	
Number of discharges within a single operating cycle (n)			See example discharges over complete product lifetime – Page 8
Break time between operating cycles (t_B)		sec	See example discharges over complete product lifetime – Page 8
Number of operating cycles within 24 hours			
Total number or required discharges			See example discharges over complete product lifetime – Page 8
Charge time (t_C)		sec	
Discharge resistance (R_D)		Ω	
Discharge current (I_D)		A	See example capacitor discharge Characteristics / current – Page 8
Storage temperature range		°C	
Use as a single capacitor or as a capacitor bank			A circuit diagram is required for series and/or parallel connection
Testing and evaluation conditions			
Special requirements			

Project Details	Notes
Application	
Customer	
Customer contact	
Annual demand	
One-off demand / ongoing demand	
Number of sample capacitors for testing purposes or pilot production runs	
Start of Production	

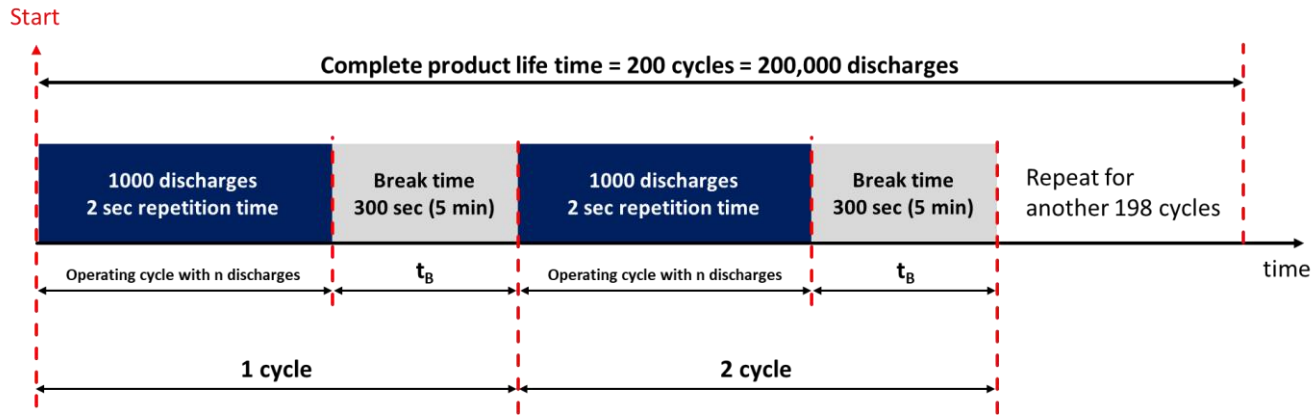
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QUESTIONNAIRE ▪ EXAMPLE

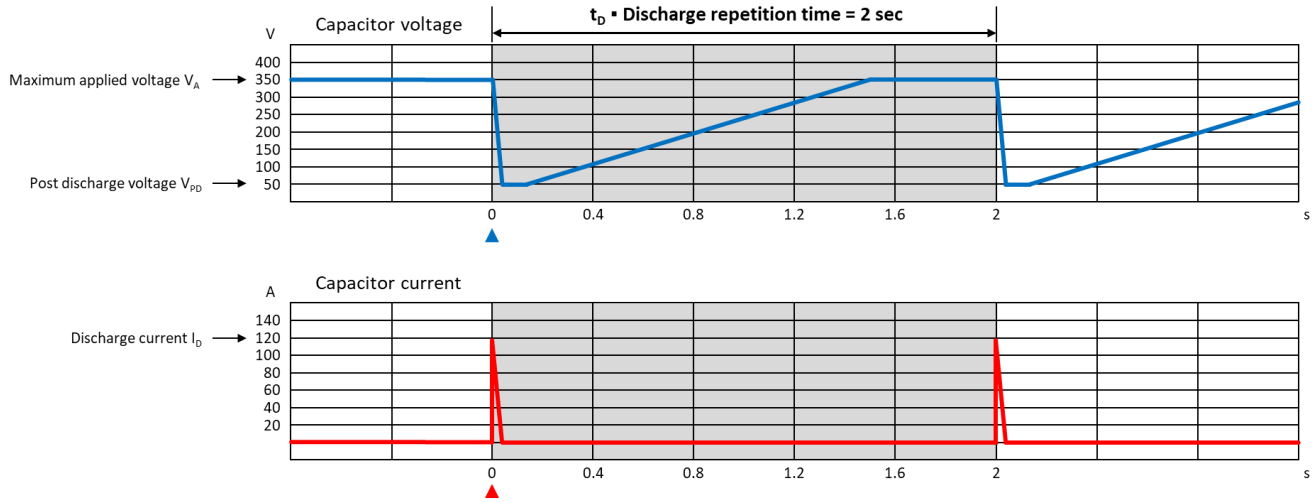
To make the questionnaire with all the necessary parameters easier to understand, some explanations are given below for an example.

The illustrations are not to scale and are for illustrative purposes only.

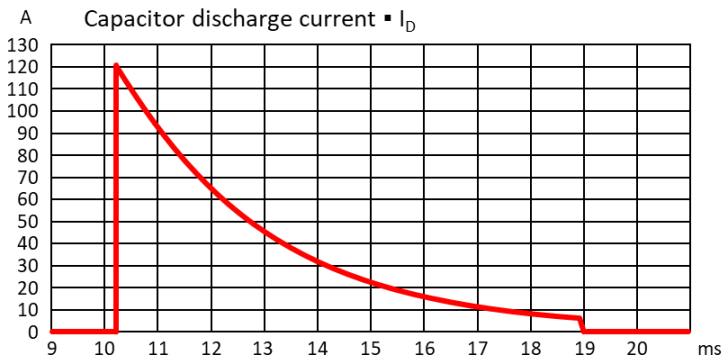
Example for discharges over complete product lifetime



Example discharge characteristics ▪ Image not to scale and for illustrative purposes only



Example discharge current ▪ Image not to scale and for illustrative purposes only



For further information please contact sales@capxon.org

RF SERIES ▪ PULSE & PHOTO-FLASH TYPE



KEY FEATURES

PHOTO FLASH

- **ALUMINUM ELECTROLYTIC CAPACITOR** ▪ THT type
- Small dimensions and low leakage current
- Optimized material combination to achieve low ESR and low dissipation factor
- Especially for impulse applications as photo flash generators, intense pulse light hair removers, laser power supplies and warning beacons

HF Halogen Free

RoHS & REACH COMPLIANT

SPECIFICATIONS

Items		Performance Characteristics
Operating Temperature Range		-20 ~ +55°C
Rated Voltage Range	V_R	200 ~ 450V DC
Capacitance Range	C_R	3.3 ~ 1000µF
Cap. Tolerance	ΔC	On request (120Hz ▪ 20°C)
Leakage Current (20°C ▪ V_R applied)	I_{LEAK}	≤ 1·C_R (µA) ▪ After 5 minutes [I_{LEAK} (µA) ; C_R (µF)]
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	On request

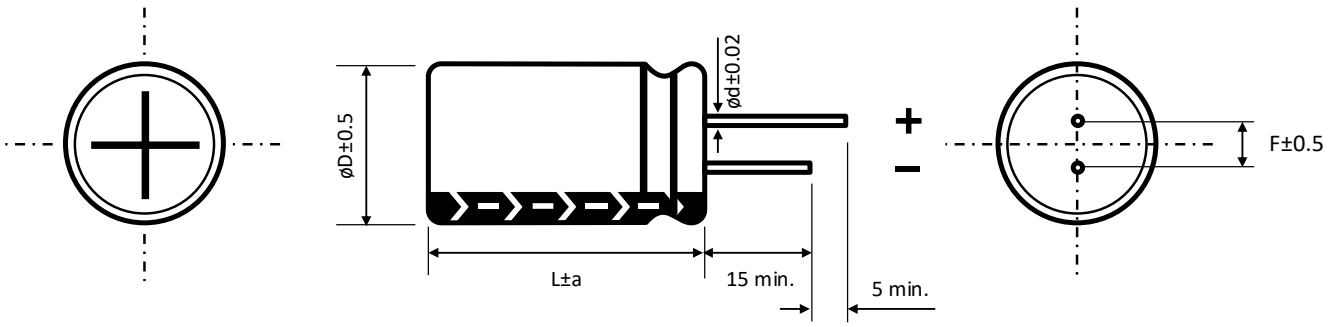
Lifetime Test			
Charge and Discharge 5 ~ 30°C (V_R & I_P applied)	Test	**On request**	Duration time
	Cycles	To be defined	Charge and discharge cycles
	R_D	To be defined	Discharge resistance
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
Shelf Life 55°C (V_R = 0)	Test	**1000 hours**	
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
	Before measurement: Restore capacitor to 20°C, apply V_R for 30 min according JIS-C-5101-4		

Pulse and flash-light capacitors are specially adapted to the application.

Flash generators	Hair remover - IPL	Laser power supplies	Signal beacons	Pulse welding machines	Electrical dis-charge machines	Plasma physical systems

The data listed in the upper table and the following page are therefore **only a guide** for possible designs of the capacitance, voltage, dimensions, pulse frequency. **Please contact our CapXon product specialists for further details and use the QUESTIONNAIRE in the pulse and flash capacitor catalog.**

DIMENSIONS ▪ All dimensions in mm



ø D	8	10	12	13	14	16	18	20
L	11.5 ~ 50	9 ~ 60	16 ~ 40	13 ~ 60	13 ~ 60	16 ~ 50	20 ~ 50	35 ~ 40
F	3.5	5	5	5	5	7.5	7.5	7.5
ø d	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8
a	1.5							

PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

General Precautions & Guidelines	Packaging Information	3D Models	Reliability Tests

DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

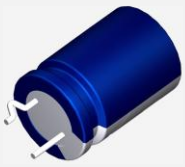
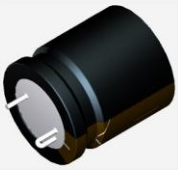
For further information, please visit our website www.capxongroup.com or contact CapXon directly.

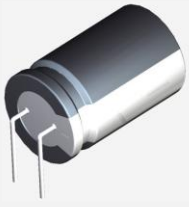
AVAILABLE LEAD TREATMENTS ▪ THT PULSE & FLASH CAPACITORS

In addition to the taped versions, the following lead treatments are also possible.
Please contact your local CapXon representative if you have any further questions.

CA	CE	CF / CG / CH / CI	FA / FE
Cutted Leads Standard Lead Spacing	Cutted Leads Wide Lead Spacing ≤ 2.5mm	Cutted Leads Wide Lead Spacing ≥ 2.5mm	Wide Lead Spacing > 5mm Long Anode
			

FB / FC / FD	KA	KE	KF
Wide Lead Spacing ≤ 3.5mm Long Anode	Kinked Anode and Cathode Standard Lead Spacing	Kinked Anode and Cathode Wide Lead Spacing ≤ 2.5mm	Kinked Anode and Cathode Wide Lead Spacing 5mm
			

EF	CK	JI	CD
Double Kinked Anode and Cathode Lead Spacing 5mm	Kinked Anode	Polarity Protected Footprint Cathode Bended	Polarity Protected Footprint Anode Pressed
			

CR	CL	CZ	CS
Bended Leads Cathode Right	Bended Leads Cathode Left	Quasi SMD ▪ Bended Leads Cathode Right	Quasi SMD ▪ Bended Leads Cathode Left
			

SF SERIES ▪ PULSE & PHOTO-FLASH TYPE

KEY FEATURES

PHOTO FLASH



- **ALUMINUM ELECTROLYTIC CAPACITOR** ▪ Snap-In type
- Small dimensions and low leakage current
- Optimized material combination to achieve low ESR and low dissipation factor
- Especially for impulse applications as photo flash generators, intense pulse light hair removers, laser power supplies and warning beacons

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Items		Performance Characteristics
Operating Temperature Range		-20 ~ +55°C
Rated Voltage Range	V_R	200 ~ 450V DC
Capacitance Range	C_R	110 ~ 10000µF
Cap. Tolerance	ΔC	On request (120Hz ▪ 20°C)
Leakage Current (20°C ▪ V_R applied)	I_{LEAK}	≤ 1·C_R ▪ After 5 minutes [I_{LEAK} (µA) ; C_R (µF)]
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	On request

Lifetime Test			
Charge and Discharge 5 ~ 30°C (V_R & I_P applied)	Test	**On request**	Duration time
	Cycles	To be defined	Charge and discharge cycles
	R_D	To be defined	Discharge resistance
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
Shelf Life 55°C (V_R = 0)	Test	**1000 hours**	
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
	Before measurement: Restore capacitor to 20°C, apply V_R for 30 min according JIS-C-5101-4		

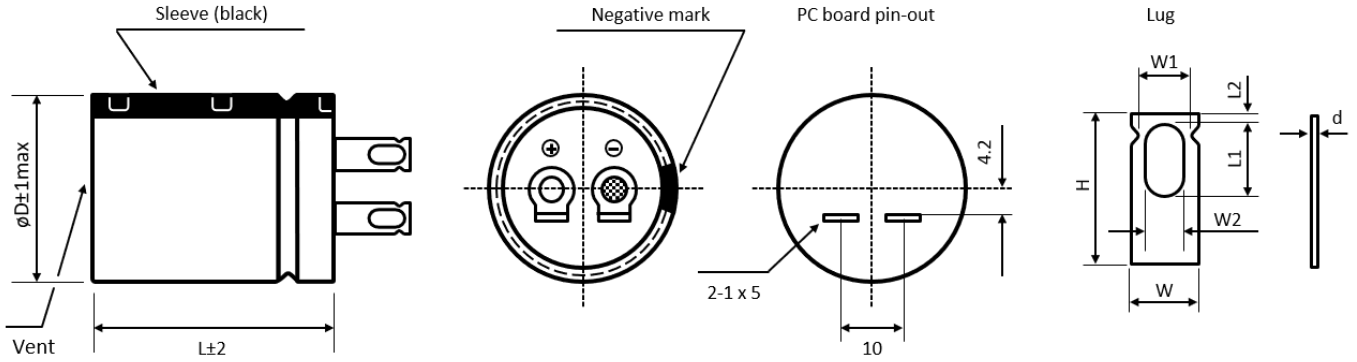
Pulse and flash-light capacitors are specially adapted to the application.

Flash generators	Hair remover - IPL	Laser power supplies	Signal beacons	Pulse welding machines	Electrical dis-charge machines	Plasma physical systems

The data listed in the upper table and the following page are therefore **only a guide** for possible designs of the capacitance, voltage, dimensions, pulse frequency. **Please contact our CapXon product specialists for further details and use the QUESTIONNAIRE in the pulse and flash capacitor catalog.**

DIMENSIONS ▪ All dimensions in mm

Lug type version ▪ Standard type



ØD	L	H ± 0.5	L1 ± 0.1	L2 ± 0.2	W ± 0.2	W1 ± 0.2	W2 ± 0.2	d ± 0.1
25	25 ~ 60	8	3.5	1	4.6	3.7	2	0.8
30	25 ~ 85	8	3.5	1	4.6	3.7	2	0.8
35	25 ~ 90	8	3.5	1	4.6	3.7	2	0.8
40	35 ~ 100	8	3.5	1	4.6	3.7	2	0.8

Further possible terminal styles can be found in our packaging information liquid snap-in.

PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

General Precautions & Guidelines	Packaging Information	Vibration Test Profiles	3D Models	Reliability Tests

DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

For further information, please visit our website www.capxongroup.com or contact CapXon directly.

AVAILABLE TERMINALS ▪ SNAP-IN PULSE & FLASH CAPACITORS

Snap-In capacitors are available with the following terminals.
Please contact your local CapXon representative if you have any further questions.

PP	ZP	YP
2-Pin Standard Type ▪ ØD = 20 to 45mm	3-Pin Polarity Protection ▪ ØD = 20 to 45mm	Multi-Pin Polarity Protection ▪ ØD = 20 to 45mm
		

LP	CP	HP
Slim Terminal ØD = 20 to 45mm	Lug Type Robust Terminals ▪ ØD = 30 to 45mm	Lug Type Robust Terminals ▪ ØD = 30 to 45mm
		

TP ▪ Right	TP ▪ Left	VP
Long Terminal Bended Cathode Right Side ▪ ØD = 20 to 45mm	Long Terminal Bended Cathode Left Side ▪ ØD = 20 to 45mm	Lug Type for Soldered Wires ØD = 20 to 45mm
		

RZ SERIES ▪ PULSE & PHOTO-FLASH TYPE



KEY FEATURES

PHOTO FLASH

- **ALUMINUM ELECTROLYTIC CAPACITOR** ▪ Screw terminal type
- Very robust construction and low leakage current
- Optimized material combination to achieve low ESR and low dissipation factor
- Especially for impulse applications as photo flash generators, intense pulse light hair removers, laser power supplies and warning beacons

HF Halogen Free

RoHS & REACH COMPLIANT

SPECIFICATIONS

Items		Performance Characteristics
Operating Temperature Range		-20 ~ +55°C
Rated Voltage Range	V_R	200 ~ 450V DC
Capacitance Range	C_R	470 ~ 56000µF
Cap. Tolerance	ΔC	On request (120Hz ▪ 20°C)
Leakage Current (20°C ▪ V_R applied)	I_{LEAK}	≤ 1·C_R ▪ After 5 minutes [I_{LEAK} (µA) ; C_R (µF)]
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	On request

Lifetime Test			
Charge and Discharge 5 ~ 30°C (V_R & I_P applied)	Test	**On request**	Duration time
	Cycles	To be defined	Charge and discharge cycles
	R_D	To be defined	Discharge resistance
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
Shelf Life 55°C (V_R = 0)	Test	**1000 hours**	
	△C/C_R	≤ ±10% of initial measured value	
	tanδ	≤ 150% of initial specified value	
	I_{Leak}	≤ 150% of initial specified value	
	Before measurement: Restore capacitor to 20°C, apply V_R for 30 min according JIS-C-5101-4		

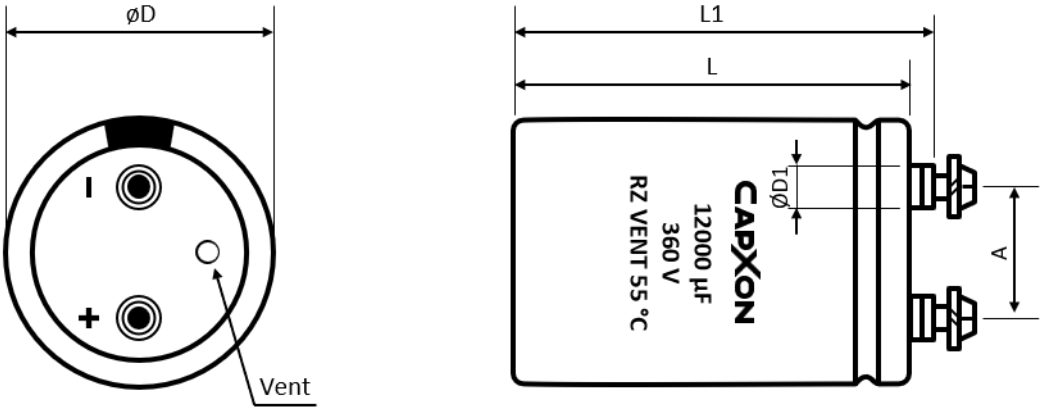
★ Remark: For **Halogen Free** products see chapter **SLEEVE AND PRINTING** selection.

Pulse and flash-light capacitors are specially adapted to the application.

Flash generators	Hair remover - IPL	Laser power supplies	Signal beacons	Pulse welding machines	Electrical dis-charge machines	Plasma physical systems

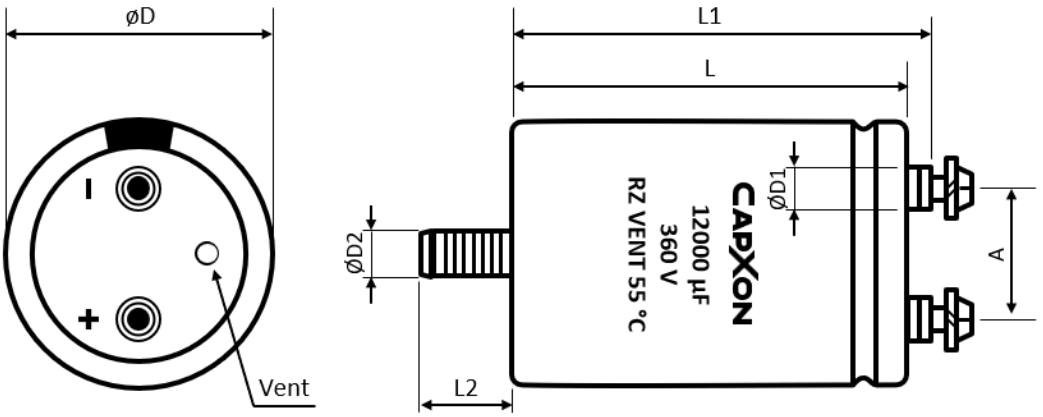
The data listed in the upper table and the following page are therefore **only a guide** for possible designs of the capacitance, voltage, dimensions, pulse frequency. **Please contact our CapXon product specialists for further details and use the QUESTIONNAIRE in the pulse and flash capacitor catalog.**

DIMENSIONS ▪ Ring clamp mounting ▪ All dimensions in mm



Terminal	Dimensions (mm) with insulating sleeve					Min. Full Thread (mm)	Max. Torque (Nm)	Terminal code
	D ± 2	L ± 3	L1 ± 3	D1 max.	A ± 0.5			
M5	35	50 ~ 120	56.5 ~ 126.5	8.3	12.7	8	2	A50
M5	51	50 ~ 140	56.5 ~ 146.5	10.3	22	8	2	A50
M5	63.5	80 ~ 140	86.5 ~ 146.5	10.3	28.6	8	2	A50
M5	63.5	80 ~ 140	86.5 ~ 146.5	13	28.6	8	2	A53
M5	76.2	100 ~ 240	106.5 ~ 246.5	10.3	31.8	12	2.5	A50
M5	76.2	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A57
M6	76.2	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A67
M6	89	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A67
M8	100	100 ~ 240	110 ~ 250	17.5	41.5	16	5	A87

DIMENSIONS ▪ Threaded stud mounting ▪ All dimensions in



For further information please contact sales@capxon.org

DIMENSIONS ▪ Threaded stud mounting ▪ All dimensions in mm

Terminal	Dimensions (mm) with insulating sleeve							Min. Full Thread (mm)	Max. Torque (Nm)	Terminal code
	D ± 2	L ± 3	L1 ± 3	L2 ± 1	D1 max.	D2	A ± 0.5			
M5	35	50 ~ 120	56.5 ~ 126.5	12	8.3	M8	12.7	8	2	E50
M5	51	50 ~ 140	56.5 ~ 146.5	16	10.3	M12	22	8	2	E50
M5	63.5	80 ~ 140	86.5 ~ 146.5	16	10.3	M12	28.6	8	2	E50
M5	63.5	80 ~ 140	86.5 ~ 146.5	16	13	M12	28.6	8	2	E53
M5	76.2	100 ~ 240	106.5 ~ 246.5	16	10.3	M12	31.8	12	2.5	E50
M5	76.2	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E57
M6	76.2	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E67
M6	89	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E67
M8	100	100 ~ 240	110 ~ 250	16	17.5	M12	41.5	16	5	E87

SLEEVE AND PRINTING SELECTION TABLE

Diameter ØD (mm)	Sleeve Material	Sleeve Printing	CapXon Standard	Halogen Free	Product Code Suffix	Product Code Example
35	PET	Ink	Yes	Yes	-	RZ[ ][ ][ ][ ][ ][ ][ ]PA00E50
> 35	PVC	Thermo	Yes	No	-	RZ[ ][ ][ ][ ][ ][ ][ ]SA20E50
> 35	PET	Thermo	No	No	(*) Note	RZ[ ][ ][ ][ ][ ][ ][ ]SA20E50*
> 35	PET	Ink	No	Yes	(**) Note	RZ[ ][ ][ ][ ][ ][ ][ ]SA20E50**

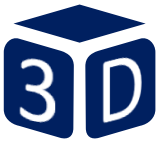
Note: (*) and (**) consult CapXon for further details.

ACCESSORIES

- The capacitors are supplied with suitable screws, serrated washers and plain washers. Accessories are not fastened to the capacitor.
- Suitable ring clamps and further assembly material see packaging information “Accessories”.

PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

			
General Precautions & Guidelines	Packaging Information	3D Models	Reliability Tests

For further information please contact sales@capxon.org

CapXon

IATF 16949

AEC-Q200

ISO 9001

ISO 14001

QC 080000

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