PRODUCTS
& Solutions










EXXELIA

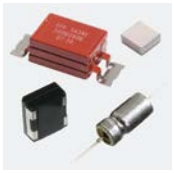
PRESENTATION

EXXELIA is a leading designer and manufacturer of **high-reliability passive components** and **electromechanical solutions**. EXXELIA was born in 2009 from the merge of several long-established companies with complementary activities and know-hows.

This powerful alliance of expertise enables the Group to provide a **unique and complete product portfolio** commonly used for power electronics, power generation, energy storage, and signal filtering functions in **harsh environments**.

EXPANDING PRODUCT PORTFOLIO

Film & Electrolytic Capacitors



Ceramic & Tantalum Capacitors

Magnetics

RF & Microwave Components

EMI/EMC Filters

Position Sensors & Slip Rings

Precision Mechanics

FROM STANDARD TO CUSTOM DESIGNS

EXXELIA has earned international recognition in designing and manufacturing custom passive components that deliver the required performance for any application. As a high-end supplier, EXXELIA is involved in most major programs in space, defense and civil aviation industries.

7 MARKETS

Civil aviation

Space

Defense

Transport & Energy

Telecom

Medical

Industry

10 COMPANIES, 1 BRAND

Eurofarad	Exxelia Technologies
Microspire	Exxelia Magnetics
N'Ergy	Exxelia Magnetics
Firadec	ExxeliaTantalum
Sic-Safco	Exxelia Sic Safco
Temex Ceramics	Exxelia Temex
Astema	Exxelia Maroc
Dearborn	Exxelia Dearborn
Raf Tabtronics	Exxelia Raf Tabtronics
DeYoung Mfg	Exxelia DeYoung

is now

EXXELIA AT A GLANCE

1600 Employees

13 Manufacturing Locations

Expertise since **1921**

ISO 9001
EN 9100
AS 9100
Certified

In more than **30 countries**

1 Stop Shopping

OUR APPROACH

EXXELIA focuses its know-how on challenging markets that require high level of technicity and reliability. Our approach is based on three key principles:

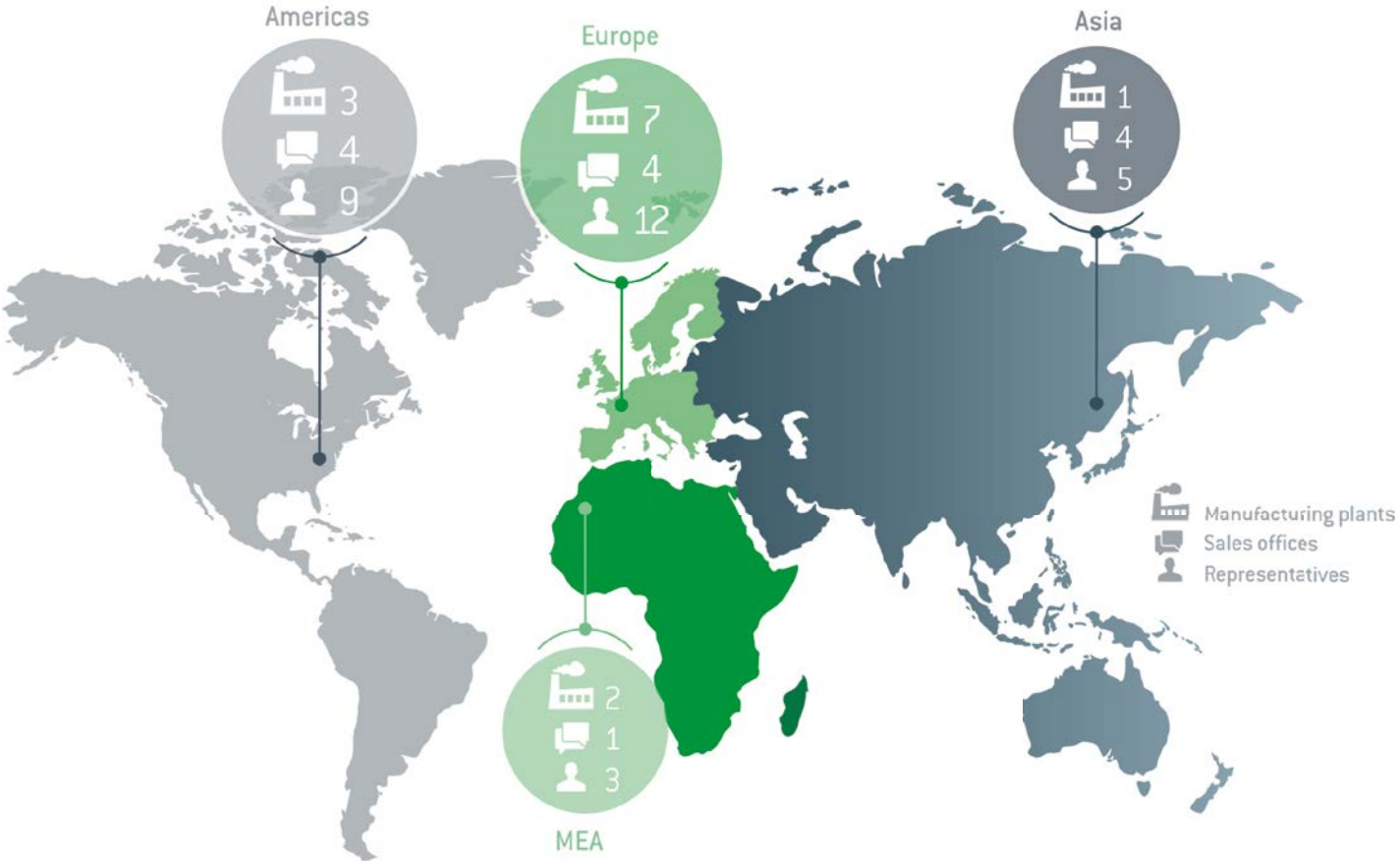
FOCUS: serving a limited number of defined markets to deeply understand the needs of those markets.

INNOVATION: Provide new and creative value propositions combining the right products with the expected level of service.

RESPONSIVENESS: Worldwide presence of our sales, design and production departments for optimized response time.

EXXELIA WORLDWIDE

EXXELIA is a global company with manufacturing sites strategically located to cover all continents. Three assembly plants are established in competitive manufacturing countries, enabling the group to provide cost-effective solutions. Thanks to an extensive sales network covering more than 30 countries, **EXXELIA** is able to provide prompt in-depth technical expertise throughout a project and remain close to its clients at all stages from design to production.



CERAMIC CAPACITORS

CERAMIC CAPACITORS:

The term «Ceramic capacitor» refers to the dielectric used to make capacitors. The type of ceramic used is a synthetic material obtained by submitting a mixture of carefully selected oxides to a high temperature treatment.

Multi-layer ceramic capacitors are made in the form of monolithic block and contain interleaved metal electrodes. These electrodes are alternately exposed on opposite sides of the package.

Their excellent temperature resistance, high volume/capacitance ratio, electrical properties and reliability make these components ideal for a wide range of applications including medical implants, aircraft flight controls, switch-mode power supply in harsh environments, core samplers for petroleum exploration, and space vehicles.

CUSTOM DESIGN CAPACITORS:

As the world's leading manufacturer of specific passive components, we stand apart through our ability to quickly evaluate the application specific engineering challenges and provide a cost-effective and efficient solutions.

For requirements that cannot be met by catalog products, we offer leading edge solutions in custom configuration: custom geometries, packaging, characteristics, all is possible thanks to our extensive experience and robust development process, while maintaining the highest level of reliability.

Where necessary, special testing is done to verify requirements, such as low dielectric absorption, ultra-high insulation resistance, low dissipation factor, stability under temperature cycling or under specified environmental conditions, etc.

		T°	Product range (space grade available in green)
Standard	Chips	−55°C+125°C	CEC... / CNC ...
			CEC ... Y (polymer termination)
			CNC ... Y (polymer termination)
	Custom chips	−55°C +125°C	CER / CNR 14 - 2 - 12 - CEL / CNL 14 - 2 - 12
			C 3 E - C 4 E - C 3 N - C 4 N
			BPM 12 - BPM 22 - TBC 177... - TBC 277... - BPM 224 - BPM 24
	Molded class 1	−55°C +125°C	TCE 11 - TCE 13 - TCE 61 to TCE 64
			TCE 50/60 - CC 05/06
			TCE 52 to TCE 54
			TCE 72 to TCE 80
			LA 1 to LA 5
	Molded class 2	−55°C +125°C	TCN 52 to TCN 55
			TCN 72 to TCN 80
			TCN 19 - TCN 50/60 - TCN 30 - TCN 31 - TCN 61 to TCN 64
			LA 6 A - LA 6 B
			CK 05 - CK 06
Non magnetic	Chips	−55°C+125°C	R14 to S47
	Rad.		S43 to S47
High voltage	Chips	−55°C +125°C	C 178 to 189 - C 278 to 289
			C 479 to 488
	Stacks		CS 181 to CS 188 - CS 281 to CS 288
			CS 481 to CS 488
	Molded		TCF 178 to 188 -TCF 278 to 288 - TKD 179 to 185 - TKD 279 to 285
			TCK 179 to 188-TCK 279 to 288 - TCL 179 to 188 - TCL 279 to 288
			TCF 479 to 488 - TCK 479 to 488 - TCL 479 to 488
High capacitance	Chips	−55°C +125°C	R2225 to R45107
	Radial		R2225 to R8060
			TEP/TEV 53 to 65
	Stacks		SC00 to SC18 - SV01 to SV07 - CNC31 to 34
			CNC53 to CNC 65
			CEC53 to 65
	Block		TCN83 - TCN86 - TCN87
High temperature	Chips	−55°C +250°C	CEC 203 to CEC 233 - CNC 203 to CNC 233 - CE/CN2X - CE/CN5X
	Mold.	−55°C +200°C	TCE/TCN 201 to 204 - TCE/TCN 252 to 254
	Self prot.		TCE 212 to TCE 216 - TCN 212 to TCN 216
			TCE 263 to TCE 266 - TCN 263 to TCN 266
	Rad.		TCH 279 to TCH 285
	Stacks	−55°C +215°C	SCT00 to SCT18
Power capacitors	Chips/Rad. or ribbon leads	−55°C +125°C	SPT 519
			CAW 54 to CAW 65
			CEW 54 to CEW 65
			CNW 32

Dielectric material	Capacitance	Voltage	For space grade		Tolerance	Use
			Capacitance	Voltage		
NP0 - 2C1 - X7R	1 pF ⇨ 10 µF	16 V ⇨ 1 000 V	1 pF ⇨ 3.9 µF	10 V ⇨ 1 000 V	±1% ⇨ ±20%	Precision, stability, decoupling, SMD.
NP0	1 pF ⇨ 180 nF	16 V ⇨ 1 000 V	1 pF ⇨ 68 nF	10 V ⇨ 100 V	±1% ⇨ ±20%	
2C1 - X7R	10 pF ⇨ 10 µF	16 V ⇨ 1 000 V	10 pF ⇨ 3.9 µF	10 V ⇨ 100 V	±5% ⇨ ±20%	
NP0 - 2C1 - X7R	1 pF ⇨ 270 nF	16 V ⇨ 100 V			±1% ⇨ ±20%	Low inductance, Low profile.
NP0 - 2C1 - X7R	4.7 pF ⇨ 33 nF	25 V ⇨ 200 V			±1% ⇨ ±20%	Capacitance arrays.
NP0 - X7R	10 pF ⇨ 4.7 µF	25 V ⇨ 500 V			±5% ⇨ ±20%	Feed through filters.
NP0 - N150	0.5 pF ⇨ 47 nF	50 V ⇨ 100 V			±1% ⇨ ±20%	Precision, stability, epoxy resin molded, through hole components. Axial & Radial leads.
NP0	1 pF ⇨ 22 nF	50 V ⇨ 200 V			±1% ⇨ ±10%	
NP0	1 pF ⇨ 10 nF	63 V ⇨ 100 V			±0.5% ⇨ ±20%	
NP0	1 pF ⇨ 100 nF	63 V ⇨ 200 V			±1% ⇨ ±20%	
Several	1 pF ⇨ 680 nF	25 V ⇨ 63 V			±1% ⇨ ±20%	
2C1 - X7R	10 pF ⇨ 470 nF	63 V ⇨ 500 V			±5% ⇨ ±20%	Decoupling, epoxy resin molded, through hole components. Axial and radial leads.
2C1 - 2C2	22 pF ⇨ 4.7 µF	50 V ⇨ 200 V			±10% ⇨ ±20%	
2C1	10 pF ⇨ 2.2 µF	25 V ⇨ 250 V			±5% ⇨ ±20%	
2C1	100 pF ⇨ 1 µF	25 V ⇨ 63 V			±5% ⇨ ±20%	
BX	10 pF ⇨ 1 µF	50 V ⇨ 200 V			±10% ⇨ ±20%	
X7R - NP0	10 pF ⇨ 1 µF	63 V ⇨ 500 V			±1% ⇨ ±20%	Non magnetic components for Medical applications: • MRI systems and RF generators for MRI • X-ray systems & power suppliers for X-ray
X7R - NP0	180 pF ⇨ 1 µF	63 V ⇨ 500 V			±1% ⇨ ±20%	
NP0 - X7R	10 pF ⇨ 39 µF	200 V ⇨ 10 000 V	10 pF ⇨ 6.8 µF	250 V ⇨ 10 000 V	±1% ⇨ ±20%	Power supply, voltage multiplier, radars. • aeronautic • space • defense • railways
N2200	22 pF ⇨ 10 µF	200 V ⇨ 5 000 V	22 pF ⇨ 10 µF	200 V ⇨ 5 000 V	±5% ⇨ ±20%	
NP0 - X7R	1 nF ⇨ 15 µF	1 000 V ⇨ 10 000 V			±10% ⇨ ±20%	
N2200	1.2 nF ⇨ 47 µF	200 V ⇨ 5 000 V			±5% ⇨ ±20%	
NP0 - X7R	10 pF ⇨ 39 µF	200 V ⇨ 10 000 V	10 pF ⇨ 6.8 µF	250 V ⇨ 10 000 V	±5% ⇨ ±20%	
NP0 - X7R	10 pF ⇨ 39 µF	200 V ⇨ 10 000 V	10 pF ⇨ 6.8 µF	250 V ⇨ 10 000 V	±5% ⇨ ±20%	
N2200	22 pF ⇨ 10 µF	200 V ⇨ 5 000 V			±5% ⇨ ±20%	
X7R	47 nF ⇨ 270 µF	50 V ⇨ 500 V			±10% ⇨ ±20%	Power supply, filtering, smoothing, decoupling. • aeronautic • space • defense
X7R	47 nF ⇨ 270 µF	50 V ⇨ 500 V			±10% ⇨ ±20%	
NP0	10 nF ⇨ 6.8 µF	63 V ⇨ 500 V			±10% ⇨ ±20%	
X7R	47 nF ⇨ 400 µF	16 V ⇨ 500 V	1.2 µF ⇨ 68 µF	16 V ⇨ 25 V	±10% ⇨ ±20%	
X7R	100 nF ⇨ 180 µF	50 V ⇨ 500 V	100 nF ⇨ 180 µF	50 V ⇨ 500 V		
NP0	10 nF ⇨ 6.8 µF	63 V ⇨ 500 V	10 nF ⇨ 6,8 nF	50 V ⇨ 500 V	±10% ⇨ ±20%	
X7R	680 nF ⇨ 120 µF	50 V ⇨ 500 V			±10% ⇨ ±20%	
NP0 - X7R	1 pF ⇨ 5.6 µF	16 V ⇨ 100 V			±1% ⇨ ±20%	High temperature, • SMD • high capacitance • high voltage • self protected oil drilling, motor control.
NP0 - X7R	1 pF ⇨ 1.5 µF	50 V ⇨ 100 V			±1% ⇨ ±20%	
NP0 - X7R	10 pF ⇨ 3.9 µF	50 V ⇨ 100 V			±5% ⇨ ±20%	
NP0 - X7R	1 pF ⇨ 3.3 µF	25 V ⇨ 500 V			±2% ⇨ ±20%	
X7R	100 pF ⇨ 2.7 µF	200 V ⇨ 3 000 V			±10% ⇨ ±20%	
X7R	47 nF ⇨ 400 µF	16 V ⇨ 500 V			±10% ±20%	
NP0	10 pF ⇨ 5600 pF	550 V ⇨ 6 300 V			±5% ⇨ ±10%	HF - VHF transmission, antenna tuning. • low losses • high current • high voltage
P100	1 pF ⇨ 10 nF	1 000 V ⇨ 3 600 V			±5% ⇨ ±10%	
NP0	4.7 pF ⇨ 15 nF	1 000 V ⇨ 3 600 V			±5% ⇨ ±10%	
X7R	10 nF ⇨ 1 µF	100 V ⇨ 300 V			±10% ⇨ ±20%	

High-Q CAPACITORS

Wide choice of ceramic multi-layer and single layer capacitors mostly intended for applications requiring low losses (low ESR - high Q factor) in a given range of working frequencies and for a specified DC or RF voltage . Capacitors are available either as "chip" or with leads or ribbons. **EXXELIA** TEMEX is also providing special connections for customized solutions.

The very well known **"High Q" series** CHA (0505) and CHB (1111) widely used in the world are completed with the "super High Q SHA & SHB" ultra-stable NP0 dielectric for a direct superseding when needed. EIA sizes 0402 (SHL) 0603 (SHS) 0805 (SHF) 1206 (SHN) and 1210 (SHT) 250 to 1000 V rated versus selected capacitance are also available. These sizes are mainly used in base stations, power amplifiers, filters and broadcasting.

Frequency range : some MHz up to several GHz. All ranges are RoHS and are also available with non-magnetic terminations.

For High power, high Voltage applications (MRI, NMR, RF generators for laser, plasma applications, power filters), **EXXELIA** TEMEX propose CP and CL series with two stable dielectric types (NP0 and P90) with voltages ranging from 1000 to 7000 V (special range for 5 000 Vrms or more guaranteed). Special assemblies with ribbons are available and can be studied with customers versus actual design consideration.

Non-magnetic terminations also available.

	T°	Type	Product range	Temperature coeff.	Extended temp.*	Capacitance	Tolerance*	Standard voltage*	Use
RF MLCC, low ESR Capacitors	−55°C +125°C	CHA	0505	P100 (100 ±30ppm/°C)		0.1 ⇨ 100 pF	±0.05pF ±10%	250 V	Cellular base station amplifier, MRI
		CHB	1111	P100 (100 ±30ppm/°C)	Up to +175°C	0.2 ⇨ 1 000 pF		500 V	
		SHA	0505	NP0 (0 ±30ppm/°C)		0.2 ⇨ 100 pF		250 V	Cellular base station equipment, Broadband, Point to point/ multi-point radios, RF generators
		SHB	1111	NP0 (0 ±30ppm/°C)	Up to +175°C	0.3 ⇨ 1 000 pF		500 V	
		SHL	0402	NP0 (0 ±30ppm/°C)		0.1 ⇨ 33 pF		200 V	
		SHS	0603	NP0 (0 ±30ppm/°C)		0.1 ⇨ 100 pF		250 V	
		SHF	0805	NP0 (0 ±30ppm/°C)		0.3 ⇨ 220 pF		250 V	
		SHN	1206	NP0 (0 ±30ppm/°C)		0.5 ⇨ 220 pF		500 V	
		SHT	1210	NP0 (0 ±30ppm/°C)		1 ⇨ 1 000 pF		500 V	
		SHD	0711	NP0 (0 ±30ppm/°C)	Up to +175°C	0.5 ⇨ 100 pF		500 V	
		SHR	0709	NP0 (0 ±30ppm/°C)	Up to +175°C	0.5 ⇨ 100 pF		500 V	
		NHB	1111	NP0 (0 ±30ppm/°C)	Up to +175°C	0.3 ⇨ 100 pF		500 V	
RF power capacitors High Q factor	−55°C +125°C	CPX	2225	P100 (100 ±30)		0.5 ⇨ 2 700pF	±0.1pF ±20%	2 500 V	RF power amplifier, Plasma chamber, MRI coils
		CPE	4040	P100 (100 ±30)		1 ⇨ 10 000 pF		3 600 V	
		CLX	2225	NP0 (0 ±30)		0.3 ⇨ 2 700 pF		2 500 V	
		CLE	4040	NP0 (0 ±30)		1 ⇨ 10 000 pF		3 600 V	

* Depending on capacitance value.
Available extended voltage on request.

MICROWAVE COMPONENTS

FREQUENCY TUNING ELEMENTS:

Those special elements are intended for adjusting a circuit made /using cavities: inserted in the cavity, their capacitive, resistive or inductive characteristics are used to tune the filter accordingly. The "self-locking" system primordial for stability in application when filters are located in outdoor cabinets High Reliability versions are available (space). Custom design upon request.

DIELECTRIC TRIMMERS:

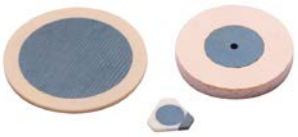
Ceramic dielectric trimmers allows a lot of combinations (capacitance ranges, voltages, temperature coefficient and also mounting methods). "Thin-Trim®, Ceratrim®, Chip trim®" are widely used for circuit trimming with high stability. Most of them are SMD and are delivered on tape, are RoHS, and can also be provided in non magnetic version.

Air dielectric trimmer capacitors are designed specifically for RF applications with concentric tubular design. They meet MIL-C-14 409 D, and ESA/SCC n°3010, and are RoHS compliant.They are ideal for applications such as mobile radios, aerospace communications, crystal oscillators and filters, radar and numerous other space, military and industrial applications.

Sapphire dielectric trimmers High "Q" characteristics, High voltage and various mechanical versions, make ideally suited to power applications in filters and high power amplifiers. They can be also offered in non-magnetic version for medical applications.

FERRITE MATERIALS:

Mostly intended for isolator & circulator widely used in radio-communication systems, Ferrite are offered in disk, triangle or custom-designed dimensions. They are based on **EXXELIA** TEMEX formulation, providing low ΔH propitious to IMD reduction. Their combination with selected dielectric material allows a choice of FDA apparatus, of repute to save space in isolator/circulator.

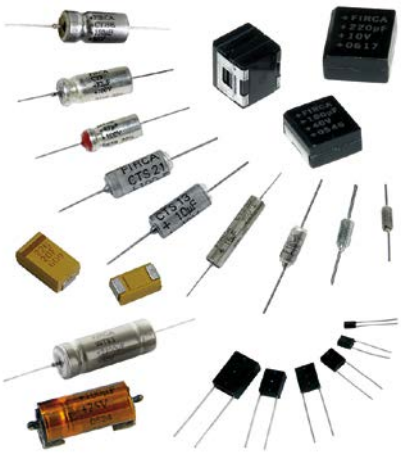


RESONATORS:

Several dielectric constant ranging www 24 to 78, provide High "Q" factor for applications 1.5 GHz to 100 GHz through materials (E2000 to E7000).
Wide range of applications in DRO's mass production for satellite reception LNB's, radio-communication, Industrial (motion detection sensor), automotive (anticollision radar) etc... Combination of resonators and tuning elements for cavity filters adjustment on request.

Coaxial resonators are generally used in filters, duplexers, CRO's and VCO's applications within a broad range of frequencies: 300 MHz to 6 GHz. They are provided with several dimensions: 2 x 2 to 12 x 12 mm, allowing the best compromise between impedance, "Q" factor and resonant frequency.

EXXELIA



TANTALUM CAPACITORS

As a result of the manufacturing technology and the constant improvements in tantalum powders, tantalum capacitors offer the highest CV (product capacitance x voltage) per volume combined with very high reliability and durability.

They are particularly used in aircraft and helicopters, radars, missiles, satellites and launchers as well as downhole tools.

EXXELIA TANTALUM develops and manufacture solid capacitors, both MnO_2 and Polymer technologies, as well as wet tantalum capacitors.

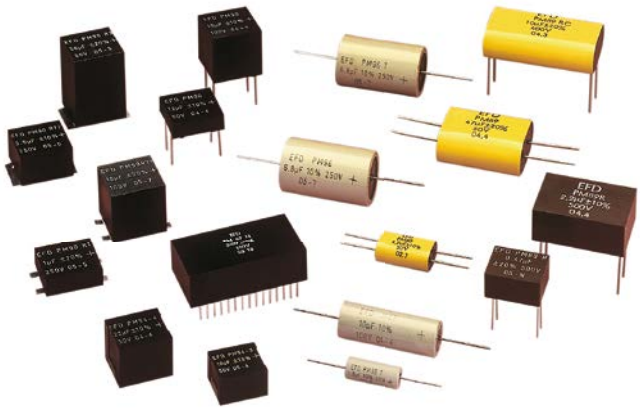
Specific interfaces, package size and characteristics are available upon request.

		Product range	Detail specification	Capacitance	Voltage	Operating Temperature	Main features
Wet tantalum capacitors	Hermetically sealed Tantalum case - Axial	CT 79 / CT 79 SMD	CECC 30202-005 / 001 / 801 ESCC 3003 / 005	1.7 µF ⇨ 1 200 µF	6 V ⇨ 150 V	–55°C+125°C	High ripple current.
		CT 79E / CT 79E SMD	CECC 30202-005 / 001 / 801 ESCC 3003 / 005	5.6 µF ⇨ 2 200 µF	6 V ⇨ 150 V	–55°C+125°C	High ripple current. Extended range of CT 79.
		ST 79 / ST 79 SMD	ESCC 3003 / 006	90 µF ⇨ 1 800 µF	25 V ⇨ 125 V	–55°C+125°C	High capacitance.
		CLR 79	MIL-PRF-39006/22	1.7 µF ⇨ 1 200 µF	6 V ⇨ 125V	–55°C+125°C	MIL qualified. Failure rate M.
		CLR 81	MIL-PRF-39006/25	6.8 µF ⇨ 680 µF	25 V ⇨ 125V	–55°C+125°C	MIL qualified. Failure rate M.
		DSCC 93026	DWG N°93026	10 µF ⇨ 1 800 µF	6 to 125V	–55°C+125°C	DSCC approved.
		CT 79 HT200 - CT 79E HT200 ST 79 HT200	CECC 30202-005 / 001 / 801	1.7 µF ⇨ 2 200 µF	6 V ⇨ 150 V	–55°C+200°C	High capacitance. High Temperature.
		WT 82	–	33 µF ⇨ 82 µF	160 V ⇨ 170 V	–55°C+70°C	High voltage.
		WT 83	–	150 µF ⇨ 10 000 µF	10 V ⇨ 125 V	–55°C+125°C	Extended Capacitance - Enhanced performance High reliability design.
	Silver cases Axial	CT 9 - CT 9CR CT 9E - CT 9ECR	CECC 30202-004	3 µF ⇨ 2 200 µF	6.3 V ⇨ 150 V	–55°C+125°C	Silver case. Glass metal seal. Extended range (CT 9E / 9ECR).
		CT 4 / CT 4E	CECC 30202-003 (CT4) BS 9073 F008 / F032 (CT 4E)	1.7 µF ⇨ 2 200 µF	6 V ⇨ 150 V	–55°C+125°C	Silver case. Seal and resin sealing. Extended range (CT 4E).
	Modules	SPE 0844 / SPE 0844S	CECC 30202-009	27 µF ⇨ 6 000 µF	6 V ⇨ 375 V	–55°C+125°C	Paralell / serial assembly of CT79 - CT79E.
		AP 31 / AP 41 / AS 31	–	27 µF ⇨ 40 000 µF	10 V ⇨ 450 V	–55°C+125°C	Paralell / serial assembly of WT 83.
Solid tantalum capacitors	Hermetially sealed metal case - Axial	CTS 1	CECC 30201-001 / 002 / 801	0.1 µF ⇨ 330 µF	6.3 V ⇨ 125 V	–55°C+125°C	Standard range. General purpose +125°C.
		CTS 13	CECC 30201-005	0.1 µF ⇨ 330 µF	6.3 V ⇨ 63 V	–55°C+85°C	Standard range. General purpose +85°C.
		CTS 32	CECC 30201-019	1 µF ⇨ 330 µF	6.3 V ⇨ 63 V	–55°C+125°C	Standard range. High surge current. Reverse voltage.
		CTS 23	CECC 30201-025	0.1 µF ⇨ 1 200 µF	6.3 V ⇨ 63 V	–55°C+125°C	Extended range. General purpose.
		CTS 33	CECC 30201-026	0.1 µF ⇨ 1 000 µF	6.3 V ⇨ 63 V	–55°C+125°C	Extended range. Low leakage current.
		CTS 21 / CTS 21E	CECC 30201-040	5.6 µF ⇨ 1 000 µF	6.3 V ⇨ 63 V	–55°C+125°C	Low ESR. High ripple current. High surge current. Extended range (CTS 21E).
		CTS 20 / CTS 20E *	CECC 30201-022 (CTS 20)	0.22 µF ⇨ 560 µF	6.3 V ⇨ 63 V	–55°C+125°C	Non-polarized (cathode to cathode coupling of 2 CTS 1 or 23)
	Moulded Radial	CTS 41 / CTS 41 RSE	CECC 30201-037	0.1 µF ⇨ 150 µF	6.3 V ⇨ 50 V	–55°C+125°C	High surge current. Low ESR (CTS 41 RSE).
		CTS 4	CECC 30201-003	0.1 µF ⇨ 150 µF	6.3 V ⇨ 50 V	–55°C+85°C	General purpose.
	Moulded cases - SMD surface mount	CTC 3 / CTC 3E	CECC 30801-009 / 801 (CTC 3)	0.1 µF ⇨ 680 µF	4 V ⇨ 50 V	–55°C+125°C	Standard chip size. General purpose. Extended range (CTC 3E).
		CTC 4	CECC 30801-011	0.1 µF ⇨ 100 µF	6.3 V ⇨ 50 V	–55°C+125°C	Standard chip size. General purpose. High surge current.
		CTC 4 RSE	–	4.7 µF ⇨ 1 000 µF	6.3 V ⇨ 50 V	–55°C+125°C	Low ESR. High ripple current. High surge current.
		CTC 21 / CTC 21E	CECC 30801-013 ESCC 3012/002 (CTC 21) 003 (CTC 21E)	5.6 µF ⇨ 680 µF	6.3 V ⇨ 100 V	–55°C+125°C	Low ESR. High ripple current. High surge current. Extended range (CTC 21E).
		SMT 47	–	47 µF ⇨ 1 500 µF	6.3 V ⇨ 63 V	–55°C+125°C	Very high capacitance. High ripple current.
		CTC 42 / CTC 42E	–	12 µF ⇨ 1 500 µF	6.3 V ⇨ 80 V	–55°C+125°C	Assembly of 2 CTC 21/CTC 21E in parallel.
	Moulded cases SMD	CTP 21 **	–	22 µF ⇨ 560 µF	16 V ⇨ 100 V	–55°C+105°C	Polymer technology : very high capacitance, very low ESR, high ripple current, high surge current.
		CTP 42 **	–	47 µF ⇨ 1 200 µF	16 V ⇨ 100 V	–55°C+105°C	Assembly of 2 CTP 21 in parallel.

* Non polarised types

** Polymer technology

FILM CAPACITORS



FILM CAPACITORS:

EXXELIA TECHNOLOGIES and **EXXELIA** DEARBORN manufacture a versatile cast of rugged, metalized-film and film foil capacitors. These include film-wrapped, premolded epoxy cased, cast and hermetically sealed metal case capacitors for applications where high-performance, reliability and economy are essential.

Features include AC ratings, high-temperature operation and exceptional stability, low-loss, close tolerances, long-life and high-reliability.

Dielectrics include Polyester (also known as Mylar), Polycarbonate, Polypropylene, kraft/paper, Polyphenylene Sulfide, Polyethylene Naphthalate, FPE, MPF and Teflon.

Configurations include Wrap and Fill, Hermetic Tubular, Axial, Radial, Bath Tub, Lugs, Brackets, Feed Through, Glass Tube, Ceramic Tube, Large Rectangular Cans, Resin Case and Custom.

409P

CQ 72

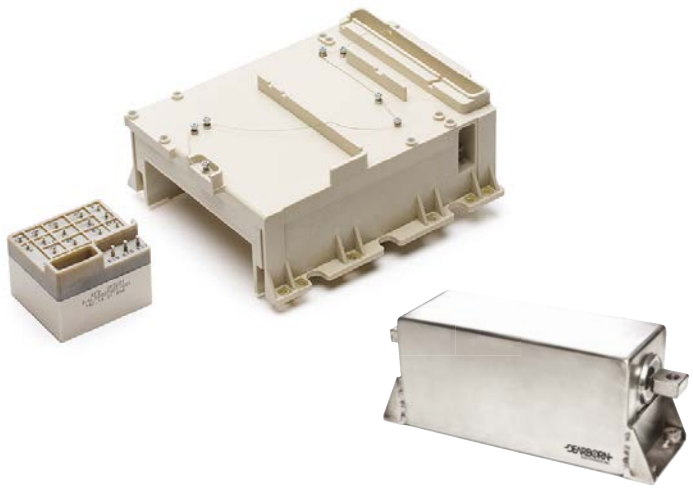
CP53/54/55

Standard operating ranges are from -55°C to +150°C depending upon dielectric and capacitance values from 0.0001 μF to 2,000 μF.

CUSTOM DESIGN CAPACITORS:

EXXELIA offers a wide range of custom design capabilities with respect to Temperature, Capacitance, Frequency and Voltage requirements.

Strong heritage, high reliability and quality of **EXXELIA** make them perfectly suitable for all challenging environmental conditions and specific interfaces.



	T (°C)	Product range (space grade available in green)
Polyester for or S.M.P.S.	−55°C +125°C (+155°C)	PM 89 - PM 90 (S) - PM 94(S)
		PM 96(S) - PM 96 T(S) - MKT(S)
		PM 948(S) - PM 907(S)
		PHM 912
Polyester	−55°C +125°C	PM 50 - PM 60
		PM 7 - PM 12 - PM 720 - PM 730
		MPA HT - MRA HT
		BIK-X2/Y - BIK P-X/Y - BIK CR
		205P
		218P
		410P
		430P
		431P
		442P
		CP53 / 54 / 55
	−65 +125	132P
	−40 +85	409P
Polycarbonate / Polyphenylene Sulfide (P.P.S. suffix T)	−55°C +125°C	A 64 S4 (T) - A 74 S4 (T) - PMR 4 (T)
		MPA 4 - MKB 4
		KCP 4 UA T
		KSP 4 UA T
		K1PE T
		KM 501-601(T) - KM 50-60(T)
		KM 111 (T)(S)
		KM 311-21-711-7 (T)
		KM 78 - 82 - 90 - 97 (T)
		PMR 64 (T) - PMA 64 (T)
		PM 67 (T) - PM 72 (T)
		KM 94 (S)
		KM 915
Polyphenylene Sulfide (P.P.S.)	−55°C +125°C	810P
		820P
		832P
		842P
		859P
		860P
		882P
		PRF-83421/06
		880P
polystyrene	−55°C +85°C	PLS 3 - PLS 5 - PLS 7 - PLS 8
High voltage	−55°C +125°C	HT 72 - HT 77
		HT 96 - HT 78(P)(S) - HT 86 (P)(S) - HT 97(P)(S)

Dielectric	Capacitance	Tolerance	Voltage	Qualification	Use
Metallized polyester (P.E.T.)	8.2 nF ⇨ 150 µF	±5 % ⇨ ±20 %	50 V ⇨ 630 V	ESA/ESCC (EPPL, QPL) in house (PM 89)	High frequency switch mode power supplies, SMD. • defense • aeronautic • space
	33 nF ⇨ 100 µF	±5 % ⇨ ±20 %	25 V ⇨ 630 V	Acc. ESA	
	22 nF ⇨ 180 µF	±10 % ±20 %	63 V ⇨ 1250 V	ESA / ESCC	
Metallized plastic film	1.8 µF ⇨ 68 µF	±10 % ±20 %	250 V ⇨ 1000 V	in house	
Metallized polyester	1 nF ⇨ 22 µF	±5 % ⇨ ±20 %	40 V ⇨ 630 V	CECC / IEC	Standard applications.
	82 pF ⇨ 10 µF	±5 % ⇨ ±20 %	63 V ⇨ 630 V	CECC / IEC	
	1 nF ⇨ 4.7 µF	±5 % ⇨ ±20 %	1000 V ⇨ 15000 V	in house	
Metallized polyester Metallized polypropylene	1 nF ⇨ 6.8 µF	±5 % ⇨ ±20 %	400 V_{DC} - 250 V_{AC}	in house	
Polyester (P.E.T.)	1 nF ⇨ 0.5 µF	±20% ⇨ ±10%	2 000 ⇨ 10 000 V		High Voltage
	1 nF ⇨ 12.0 µF	±20% ⇨ ±5%	100 ⇨ 400 V	MIL QPL	
	1 nF ⇨ 5.0 µF	+20% –10% ⇨ ±10%	50 ⇨ 600 V		
	1 nF ⇨ 10.0 µF	±20% ⇨ ±5%	63 ⇨ 16 000 V		High Voltage
	10 nF ⇨ 15.0 µF	±20% ⇨ ±5%	63 ⇨ 630 V		
	10 nF ⇨ 10.0 µF	±20% ⇨ ±5%	63 ⇨ 400 V		AC / DC Current
	50 nF ⇨ 10.0 µF	+20 –10% ⇨ ±10%	100 ⇨ 1 000 V		
	1 nF ⇨ 1.0 µF	+20% –10% ⇨ ±10%	100 ⇨ 1 000 V	MIL QPL	
	0.10 µF ⇨ 0.5 µF	+20% –10% ⇨ ±10%	50 ⇨ 1 000 V		EMI Suppression
Metall. polycarbo. / P.P.S.	1 nF ⇨ 33 µF	±1 % ⇨ ±20 %	40 V ⇨ 630 V	NF F 62 102	Safety capacitors for signalling and others railways applications.
Metallized polyester	1 nF ⇨ 22 µF	±5 % ⇨ ±20 %	40 V ⇨ 630 V	NF F 62 102	
Film-foil / P.P.S.	7.5 nF ⇨ 77.7 nF	±2 % ±5 %	630 V ⇨ 1000 V	Acc. NF F 62 102	
Film-foil / P.P.S.	10 nF ⇨ 0.2 µF	±1 % ⇨ ±20 %	400 V ⇨ 1500 V	Acc. NF F 62 102	
Metallized P.P.S.	10 nF ⇨ 3.3 µF	±1 % ⇨ ±20 %	400 V ⇨ 630 V	NF F 62 102	
Metallized polycarbonate / P.P.S.	1 nF ⇨ 22 µF	±1 % ⇨ ±20 %	40 V ⇨ 630 V	CECC	Precision capacitors (Capacitance stability, low tolerance) Measurement, control electronics. AC filtering (400 Hz and others).
	1 nF ⇨ 10 µF	±1 % ⇨ ±20 %	40 V ⇨ 400 V	ESA (EPPL) / CECC	
	1 nF ⇨ 22 µF	±1 % ⇨ ±20 %	40 V ⇨ 630 V	CECC	
	1 nF ⇨ 10 µF	±1 % ⇨ ±20 %	40 V ⇨ 208 V	in house	
	470 pF ⇨ 22 µF	±1 % ⇨ ±20 %	40 V ⇨ 630 V	in house	
	1 nF ⇨ 15 µF	±1 % ⇨ ±20 %	40 V ⇨ 208 V	in house	
Metallized P.P.S.	1 nF ⇨ 1.2 µF	±1 % ⇨ ±20 %	40 V ⇨ 100 V	ESA/ESCC (EPPL)	High stability, SMD.
	1.5 nF ⇨ 2.7 µF	±5 % ⇨ ±20 %	250 V_{DC} ⇨ 630 V_{DC} 150 V_{AC} ⇨ 400 V_{AC}		AC Filtering
Polyphenylene Sulfide (P.P.S.)	1 nF ⇨ 1.0 µF	±20% ⇨ ±5%	50 ⇨ 400 V		Precision capacitors Low TCC
	10 nF ⇨ 15.0 µF	±10% ⇨ ±1%	50 ⇨ 400 V	MIL QPL	
	1 nF ⇨ 10.0 µF	±10% ⇨ ±2%	63 ⇨ 400 V		
	10 nF ⇨ 15.0 µF	±10% ⇨ ±2%	50 ⇨ 200 V		
	10 nF ⇨ 10.0 µF	±20% ⇨ ±5%	80 ⇨ 440 V_{RMS}	MIL QPL	
	10 nF ⇨ 10.0 µF	±20% ⇨ ±5%	126 ⇨ 250 V_{RMS}	MIL QPL	
	1 nF – 0.22 µF	±10% ⇨ ±2%	200 V		
	1 nF ⇨ 22 µF	±10% ⇨ ±0.25%	30 ⇨ 400 V	MIL QPL	
	4.7 nF ⇨ 10.0 µF	±10% ⇨ ±2%	50 ⇨ 400 V		
Polystyrene + foil	10 pF ⇨ 1 µF	±1 % ⇨ ±5 %	63 V ⇨ 500 V	CCTU/CECC	Filtering, frequency tuning.
Composite resin impregnated	100 pF ⇨ 4.7 µF	±5 % ⇨ ±20 %	630 V ⇨ 25 000 V	in house	High voltage filtering. • defense • aeronautic • space
Reconstituted mica resin impregnated	100 pF ⇨ 2.2 µF	±5 % ⇨ ±20 %	630 V ⇨ 20 000 V	ESA/ESCC (QPL HT96) Acc. ESA/ESCC (HT97)	

FILM CAPACITORS

EXXELIA TECHNOLOGIES and **EXXELIA** DEARBORN film capacitors have exceptional stability, low-loss, long life, and high reliability. They are exceptional for pulse/storage, DC link, energy discharge, and custom applications.

MICA CAPACITORS:

Capacitors with mica dielectric are noted for their excellent characteristics such as: temperature performance, low loss at all frequencies, high dielectric strength and stability over time.

They are particularly recommended for use in filtering circuits, delay line circuits, oscillators, pulse circuits, H.F. generators, emission lines, D.C. blocking circuits, coupling, measurement etc.

	T° (°C)	Product range (space grade available in green)	Dielectric	Capacitance	Tolerances	Voltage range	Qualification	Use
Metallized polypropylene	(–55) –40°C +85°C (+105)	PP 04 - PP 05	Metallized polypropylene	330 pF ⇨ 6.8 µF	±5 % ±10 %	250 V ⇨ 2 500 V	in house	High current pulses, protection circuit high frequencies
		PP 3 A - PP 3 M PR 3 A - PR 3 M	Metallized polypropylene+foil	680 pF ⇨ 1 µF	±5 % ⇨ ±20 %	630 V ⇨ 3 500 V	in house	AC and pulse current
		PM 98 - PM 980 - PM 981	Metallized plastic film	25 µF ⇨ 1 600 µF	±10 % ±20 %	300 V ⇨ 1 200 V	in house	Filtering, energy storage, flash
		PP 78 A - PP 78 R - PP 78 S	Metallized polypropylene	1 nF ⇨ 10.2 µF	±1 % ⇨ ±20 %	160 V ⇨ 630 V	UTEC/NFC	AC/DC current, standard applications
		PPS 13 - PPS 16 A - PPS 16 R PP 318 - PP 418	Polypropylene + foil	100 pF ⇨ 603 nF	±1 % ⇨ ±20 %	63 V ⇨ 1000 V	in house	AC/DC and pulse current
		RA ... - PS ...	Metallized polypropylene+foil	100 pF ⇨ 22 µF	±1 % ⇨ ±20 %	630 V ⇨ 2 000 V	in house	AC and pulse current
Polypropylene (P.P)	0 +40°C	682P	Polypropylene (P.P)	5.0 µF ⇨ 100 µF	+20% –10%, ±10%	800 ⇨ 1 200 V		Energy storage
		684P		5.0 µF ⇨ 175 µF	+20% –10%, ±10%	400 ⇨ 1 000 V		
	–55 +70	730G		0.01 µF ⇨ 2.5 µF	±20% ⇨ ±5%	850 ⇨ 3 000 V		AC / & Snubber
	–55 +85	781P		18.0 µF ⇨ 400.0 µF	±20% ⇨ ±10%	600 ⇨ 1 800 V		
	–55°C +105°C	700P		0.01 µF ⇨ 1.0 µF	±20% ⇨ ±5%	200 ⇨ 800 V		
		709G		1 nF ⇨ 4.7 µF	±20% ⇨ ±5%	160 ⇨ 2 000 V		AC / DC & Pulse current
		710P		1 nF ⇨ 1.0 µF	±20% ⇨ ±5%	200 ⇨ 800 V	MIL QPL	
		730P / 731P		22 nF ⇨ 10.0 µF	±20% ⇨ ±5%	160 ⇨ 630 V		AC / DC & Pulse current
		734G		0.47 µF ⇨ 10.0 µF	±20% ⇨ ±5%	400 ⇨ 600 V		Low inductance
		735P		1.0 µF ⇨ 30.0 µF	±20% ⇨ ±5%	100 ⇨ 400 V	MIL QPL	SMPS
		744G		0.47 µF ⇨ 3.5 µF	±20% ⇨ ±5%	600 V		
		752P		0.10 µF ⇨ 2.5 µF	±20% ⇨ ±5%	800 ⇨ 3 000 V		IGBT Snubber
Paper / Foil	– 55°C +125°C	118P	Paper / Foil	1 nF ⇨ 12.0 µF	±20% to ±5%	200 ⇨ 1 000 V	MIL QPL	Bypass, coupling
		103P		1 nF ⇨ 1.0 µF	±20% to ±10%	200 ⇨ 600 V	MIL QPL	RFI
		911P		0.10 µF ⇨ 2.7 µF	10%	400 V		
		CL53/54/55		0.05 µF ⇨ 10 µF	+20% –10%. ±10%	100 ⇨ 1 000 V	MIL QPL	Bypass, coupling, filtering High temperature +200°C
	– 65°C +125°C	131P		1 nF ⇨ 1.0 µF	±20% to ±5%	200 ⇨ 1 000 V	MIL QPL	
		CQ72		0.10 µF ⇨ 15.0 µF	±20% ⇨ ±10%	400 ⇨ 12 500 V	MIL QPL	High Voltage
	0 +40°C	282P		10.0 µF ⇨ 200 µF	+20% –10%. ±10%	2 000 ⇨ 4 000 V		Energy storage
		681P		5.0 µF ⇨ 100 µF	+20% –10%. ±10%	1 000 ⇨ 2 500 V		Energy storage
Power electronics	(–55) –40°C +85°C (+100)	PPA - PPA FR - PPA M	Metallized polypropylene	1.5 µF ⇨ 260 µF	±5 % ⇨ ±20 %	260 V_{AC} ⇨ 900 V_{AC}	in house	Motor run, fluorescence, compensation
		PP 44 R/A - PP 411 PP 44 RS - 44 A2		0.1 µF ⇨ 400 µF	±5 % ⇨ ±20 %	300 V ⇨ 2400 V	in house	IGBT capacitors, protection / turn off thyristors GTO, medium frequency tuning
		PP 88 - IGB 99		47 nF ⇨ 7.5 µF	±5 % ⇨ ±20 %	800 V ⇨ 4000 V 1.5kV$_{GTO}$ ⇨ 5.6kV$_{GTO}$	in house	
		PLP ... - PAM ...	Impregnated P.P +paper	22 nF ⇨ 300 µF	±5 % ⇨ ±20 %	160 V ⇨ 10000 V	in house	Commutation, rapid discharges, energy storage, filtering, protection
		BI 73 A - BI 73 R R 73 A - R 73 R	Bi-film Polyester + foil	1 nF ⇨ 2.2 µF	±5 % ⇨ ±20 %	1000V_{DC} ⇨ 2200 V_{DC} Ucrete ⇨ 5000 V	in house	Filtering, protection
Mica	–55°C +125°C	CA 1 - CA 2 CA 17 to CA 19	Silvered mica	4.7 pF ⇨ 100 nF	±0.5 pF or ±1 % ⇨ ±10 %	500 V ⇨ 5000 V	CECC Acc. MIL C 5	Filtering circuits, delay line circuits, oscillators, pulse circuits, H.F. generators, emmission lines, D.C. blocking circuits, coupling, measurement...
		CA 15 - 20 - 30 - 40 CA 152 to 158		4.7 pF ⇨ 15 nF	±1pF or ±1 % ⇨ ±10%	63 V ⇨ 500 V		
		CM 04 to CM12 CMR 03 to CMR 07		1 pF ⇨ 91 nF	±0.5 pF or ±1 % ⇨ ±5 %	50 V ⇨ 500 V		

ELECTROLYTIC ALUMINUM CAPACITORS

Electrolytic aluminum capacitors delivers the highest capacitance levels (up to 2.2 Farad) compared to all capacitor families. They are particularly suitable for D.C voltage applications in energy storage (lighting flash-lamps, welding machines, radiology, radars) and time delay devices.

EXXELIA SIC SAFCO product portfolio includes many capacitor styles: screw terminals, radial leaded, snap in and axial. The company also manufactures its own electrolytes enabling to achieve the longest lifetime in the market and to develop high-end solutions dedicated to medical, weapons and aircraft applications.

	T° (°C)	Product range	Sizes Ø x h (mm)	Capacitance	Voltage	Main characteristics
Screw terminals	−55 +125	FELSIC 125FRS	36x52 to 90x145	220 to 150 000 µF	16 to 350 V	Low ESR, +125°C
	−55°C to +105°C	FELSIC 105TFRS	36x47 to 77x144	470 to 68 000 µF	10 to 100 V	Very low ESR
		FELSIC HV	51x81 to 90x200	1 000 to 47 000 µF	160 to 450 V	Extreme Long life, High ripple
		FELSIC 105	36x52 to 90x200	100 to 470 000 µF	16 to 450 V	Extreme Long life
		FELSIC 105 LP	90x67	1 500 to 220 000 µF	10 to 450 V	105 with Low Profile can
	−55°C to +85°C	FELSIC CAPAX	36x44 to 90x200	100 µF to 2.2 F	10 to 500 V	High energy density
		FELSIC 85	36x52 to 90x200	68 to 680 000 µF	10 to 630 V	Standard 85°C
		FELSIC 85M	36x52 to 90x200	68 to 680 000 µF	10 to 630 V	Standard 85°C ±20% tolerance
		FELSIC 039- FELSIC 037	36x47 to 77x144	100 to 150 000 µF	10 to 400 V	Standard C039 type (railway maintenance standard)
Radial leaded type	−55°C to 145°C	ALSIC 145 20g	18x20 to 22.5x25	470 to 2 200 µF	10 to 115 V	High temp. range, Long life, withstand 20g vibrations
	−55°C to +105°C	CUBISIC	35x35x16. 35x50x16	100 to 33 000 µF	10 to 450 V	Non cylindrical case, Withstand 20g vibrations, High energy density
		CUBISIC LP	45x35x12 to 45x75x12	220 to 68 000 µF	10 to 400 V	Non cylindrical case, Withstand 20g vibrations, High energy density
		ALSIC 20g	18x20 to 35.5x25	33 to 80 000 µF	10 to 500 V	Withstand 20g vibrations
Snap in type	−55 +125	Snapsic 125	22x25 to 35x50	470 to 47 000 µF	16 to 100 V	High temperature range, Long Life
	−55°C to 105°C	Snapsic HV	22x25 to 35x50	47 to 2 200 µF	160 to 500 V	Long Life, High ripple current
		Snapsic 105	22x25 to 35x50	22 to 68 000 µF	16 to 500 V	Standard 105°C type
		Snapsic 105 4P	35x50 to 45x75	330 to 150 000 µF	16 to 550 V	Standard 105°C type with 4Pins
		Snapsic 105 LP	45x21 to 45x40	150 to 68 000 µF	16 to 500 V	Low Profile 105°C with 4 Pins
	−55°C to 85°C	Snapsic Capax	22x25 to 35x50	33 to 47 000 µF	25 to 500 V	High energy density
		Snapsic	22x25 to 35x50	22 to 47 000 µF	16 to 500 V	Standard 85°C type
		Snapsic 4P	35x50 to 45x100	330 to 150 000 µF	16 to 500 V	Standard 85°C type with 4 Pins
Axial type	−55°C to +150°C	Prorelsic 145	14x30 to 25x75	6.8 to 10 000 µF	16 to 450 V	High temperature Long life
		Vacsic 150	14x30 to 16x30	6.8 to 3 300 µF	16 to 450 V	High temperature Long life, Withstand 45g vibrations
	−55 +125	Prorelsic 125	12x25 to 25x75	1 to 15 000 µF	10 to 350 V	125°C Long life
	−55 to +105°C	Sical /Sical C042	6.5x19 to 25x75	6.8 to 47 000 µF	10 to 630 V	Standard 105°C type
		Vacsic 105	12x25 to 16x30	15 to 4 700 µF	10 to 450 V	Standard 105°C type; Withstand 45g vibrations.

WOUND MAGNETICS COMPONENTS

		Standard Technologies	High Grade Technologies
COTS (Components Off The Shelves)	Power Magnetics	Power inductors Common mode Choke (CMC) Gate drive Transformers (GDT) Current Transformers (CT)	SESI 9.1 to 32 CMC17 CT01 to CT15
	Line Matching Data RF	Chip inductors Wide Band transformers Data Interface Bus Transformers Line matching transformers Common mode chokes	MPCI series WRFT MIL STD 1553 DBIT(A) series MTLM1234 mil HCESC, DLEF42
CUSTOM	Switching Power supply < 500W	Power Transformers Power inductors Common mode Choke (CMC) Gate drive Transformers (GDT) Current and Voltage measurement transformers High temperature designs Up to 240°C	TT technology molded toroids SESI technology HXMT CCM technology Planar magnetics Winding toroids on ceramic substrate (HTCC, LTCC)
	Medium Power	Power Transformers Power inductors Up to 5 000 A Common mode Choke (CMC)	
	50-400Hz	12 pulse transformers interphase inductors current transformers	
BOBBIN / MOTOR	Design & Built-to-Print	Bobbin actuators Stators/rotors Antennas Position sensors	
	Direct & indirect water cooling	**Direct water cooling**	**Indirect water cooling / with potting**

EXXELIA MAGNETICS, **EXXELIA** RAFTABTRONICS and **EXXELIA** DEYOUNG specialize in the design, manufacture and sale of magnetic components, including wound magnetics, inductors, transformers, motors, sensors and actuators for high performance applications.

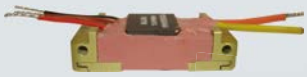
Our technology offer includes standard linear and toroidal technologies, as well as Chameleon Concept Magnetics technology (CCM), Toroidal Transfer Molded Technology (TT), SESI planar/low profile technology, and Aluminum Foil Winding technology (AFW) all optimized to meet the most demanding applications.

EXXELIA offers a complete range of products, providing solutions for highly demanding requirements such as High Voltage, High Temperature, and Power Levels up to 300 kVA.

HIGH TEMPERATURE (up to 240°C)

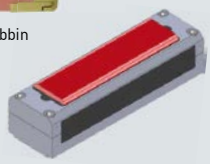
Impregnated Bare Toroid

Ceramics - HTCC



Metallic Bobbin

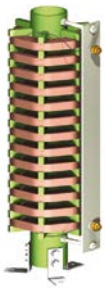
MPCI



Cute Core Technology

HIGH VOLTAGE PRODUCTS

EXXELIA MAGNETICS manufactures transformers up to 100 kV_{DWV}. This know-how ensures the right choice of materials, winding and molding processes.



Air Inductance
50 mH
5 A eff. / 5500 Hz

Traveling Wave Tube Power 15 kV
(satellite Telecom)

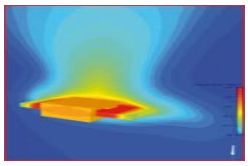
POWER (up to 300 kVA)

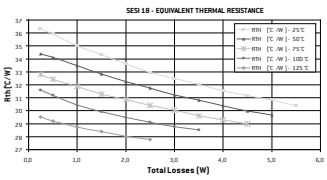
Smoothing choke
800 µH - 135 A_{DC}
32 A_{PKPK} VF 2 m/s

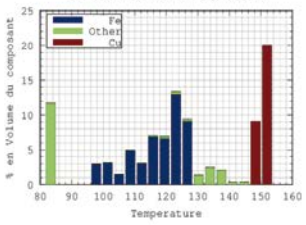
Dual Transformer - Pulsed ventilation
125 kW - 4 kHz - 500 V / 940 V

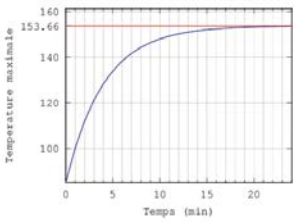
THERMAL MANAGEMENT

EXXELIA invests in R&D and makes extensive studies on the thermal management of magnetics, including loss calculations, design rules, thermal resistance and thermal modeling. We have available, a complete database of thermal resistances for all standard magnetics packages and have developed specific software for designing optimized compact components.









CATALOG PRODUCTS

	Series	Current	Inductance	Temperature Range	Frequency	Notes
Chip Inductor	MPCI 10000, 12000, 20000	15 mA ⇨ 1 000 mA	0.010 µH ⇨ 1 000 µH	–55°C ⇨ +125°C	7.9 MHz ⇨ 500 MHz	QPL, Space Qualified
	MPCI H01	100 mA ⇨ 1 500 mA	0.38 µH ⇨ 100 µH	–55°C ⇨ +125°C		QPL, Space Qualified
	MPCI 233 H01	100 mA ⇨ 1 500 mA	0.38 µH ⇨ 100 µH	up to +175°C		High Temperature
C.Mode Choke	CMC 15, CMC 18, CMC 22	0.55 A ⇨ 14.3 A	60 µH ⇨ 4 900 µH	–55°C ⇨ +125°C		QPL, Space Qualified
	CMC 14, CMC 17	1.1 A ⇨ 11.7 A	140 µH ⇨ 69 200 µH	–55°C ⇨ +125°C		
Inductor	SESI 9.1	0.045 A ⇨ 6 A	1 µH ⇨ 6 800 µH	–55°C ⇨ +125°C	max 1 MHz	QPL, Space Qualified
	SESI 14, 15	0.28 A ⇨ 14 A	1.5 µH ⇨ 2 290 µH	–55°C ⇨ +125°C	max 1 MHz	QPL, Space Qualified
	SESI 18, 22, 32	0.8 A ⇨ 24 A	4.9 µH ⇨ 4 709 µH	–55°C ⇨ +125°C	max 1 MHz	QPL, Space Qualified
	Series	**ET**	**Turn Ratio**	**Temperature Range**	**Frequency (duty cycle 50%)**	**Notes**
Gate drive transfo.	GTD 15	60/80 V.µs	1 :1.52/1 :1 :1	–55°C ⇨ +125°C	up to 500 kHz	Aeronautic, Space
	GTD 91	50/135 V.µs	1 :1/1 :1 :1	–55°C ⇨ +125°C	up to 500 kHz	Aeronautic, Space
	Series	**Current**	**Turn Ratio**	**Temperature Range**	**Frequency (Triangle Waveform)**	**Notes**
Current transfo.	CT 15	17 A pk max.	1 :50/1 :200	–55°C ⇨ +125°C	6 kHz ⇨ 100 kHz	Aeronautic, Space
	CT 91	10 A pk max.	1 :50/1 :200	–55°C ⇨ +125°C	6 kHz ⇨ 500 kHz	Aeronautic, Space
	DBIT / SBIT	MIL-STD-1553 Data Bus Transformer		–55°C ⇨ +125°C	75 kHz ⇨ 1 MHz	Aerospace, ESA / EPPL

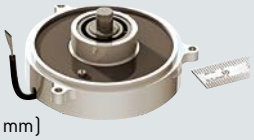
POSITION SENSORS & SLIP RINGS

EXXELIA TECHNOLOGIES designs and manufactures contact and contactless Position Sensors, Slip Rings and Hybrid Systems.

HIGH PERFORMANCE CONTACTLESS POSITION SENSORS

High accurate Optical Encoders

Size 15 (Ø 37 mm)



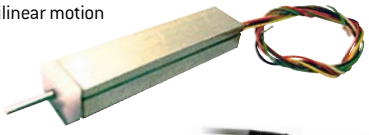
Size 23 (Ø 58 mm)

Size 09 (Ø 22 mm)

Size 11 (Ø 27 mm)

Magnetic Encoders

Rectilinear motion



Size 04
(Ø 10 mm)

Pancake type
Size 16 (Ø 40 mm)

SLIP RINGS

Hollow Shaft

Miniature Slip Ring

Electrical Slip Ring

Fibre Optic
Rotary Joints
(FORJ's)

PRECISION POTENTIOMETERS

Rectilinear motion
Potentiometer

Rectilinear Joystick

Rotary Potentiometer
single or multi-turn

Pancake Potentiometer

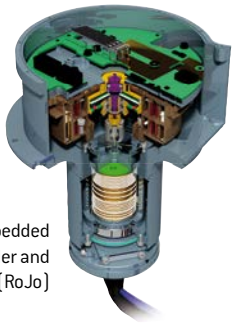
Space grade Potentiometer

HYBRID SYSTEMS

Slip Ring + FORJ

Electrical and hydraulic Slip Ring

Optical Encoder + FORJ



Slip Ring with embedded
FORJ, Optical Encoder and
RF Rotary Joint (RoJo)

Brushless LAT motor

PRECISION MECHANICS

EXXELIA's Precision Mechanics division specialises in machining complex parts, from prototypes to medium series. Our best-in-class palletized-5-axis turning and milling equipment enable us to work with all types of material including titanium, inconel, 35NCD4 etc…

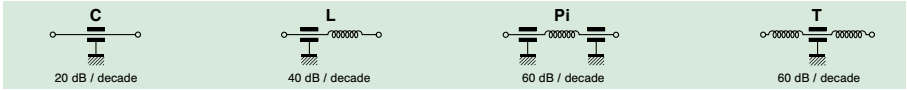
Assembly, high precision manual deburring and hydraulic tests can be carried out in our workshop.

EXXELIA

EMI-RFI FILTERS

EXXELIA TECHNOLOGIES designs and manufactures EMI-RFI filters in different low pass configurations (C, L, Pi, T, 2 x Pi, 2 x L and 2 x T) intended to protect electronic equipment from interferences.

Capacitors are a key components in a filter and thanks to its expertise in the field, **EXXELIA** TECHNOLOGIES is able to manufacture high-end solutions combining performance and reliability.



	T°	Model	Current	Voltage	Performance	Qualification	Use
EMI-RFI Filters	–55°C +125°C (up to 175°C)	Feedthrough Ø 3 - Ø 4 - Ø 6 - Ø 10 (mm)	Up to 15 A	Up to 500 V_{DC} and 115 V_{AC} 400 Hz	Up to 80dB from 10 kHz to 10 GHz	Qual. ESA, Air, Compliant MIL 461, D0160	Space, Aeronautic, Defense, Industry.
		Feedthrough Ø 17 (mm)	Up to 30 A	Up to 3 000 V_{DC} and 200 V_{AC} 400 Hz	Up to 80dB from 10 kHz to 10 GHz	Air qualified, Compliant MIL 461, D0160	Aeronautic, Defense, Industry.
		Multi ways Filters	Up to 15 A	Up to 500 V_{DC} and 115 V_{AC} 400 Hz	Up to 80dB from 10 kHz to 10 GHz	in house	Aeronautic, Defense, Industry.
		Surface mount FCMS - CFCMS	10 A (20 A for HI version)	Up to 500 V_{DC} and 115 V_{AC} 400 Hz	Up to 70 dB from 10 kHz to 10 GHz	ESA EPPL	Space, Aeronautic, Defense, Industry.
		SPF...	0.1 A ⇨ 500 A	25 V ⇨ 3 000 V eff.	1 kHz ⇨ 10 GHz	in house	Custom design

ENERGY FILTERS

Following 50 years heritage in Defense market, **EXXELIA** TECHNOLOGIES offers highly performant, robust and reliable solutions to protect from different EMC phenomenon all kind of signal such as:

- Power supply,
- Control lines,
- Data communication...

	T°	Model	Current	Voltage	Performance	Use
EMC Filters	–55°C +85°C	Feedthrough Tube filters	Up to 500 A	Up to 1 000 V_{DC} and 400 V_{AC}	Up to 100 dB Up to 18 GHz	Single lines power supply.
		Power cabinets	Up to 2 500 A	Up to 440 V_{AC} (50-800Hz)	Up to 100 dB from 10 kHz to 18 GHz	Three or single phase power supply for **TEMPEST** and **HEMP**
		Data communication	Up to 1A	–	Up to 100 dB Up to 18 GHz	Up to 100MHz bandwidth data signal for **TEMPEST** and **HEMP**
		Custom filters	Additional protection for energy and signal filtering.			

COMPONENTS & SUB-ASSEMBLIES MANUFACTURING

With two production units, separated by less than 10 km and located both in Casablanca (Morocco), **EXXELIA** MAROC offers to its customers a subcontracting capability on its two main competences fields with high technology processes as: wire bonding, vacuum metallization, RF test equipments, reliability test equipment.

Complex electronic modules or components assembly:

- RF diodes packaging,
- RF circulators assembly,
- quartz hybrid oscillators assembly,
- high frequency filters assembly,
- opto electronic components,
- antennas, sensor.

Built-to-print for overmoulding, wiring and harnessing, rotors, stators, actuators.

EXXELIA VIETNAM is locate in Ho Chi Minh City and dedicated to Medium to High volume markets requesting traceability for processes and raw materials.

EXXELIA

Headquarters
93, rue Oberkampf
75540 PARIS CEDEX 11 • FRANCE
Tel. : +33 (0)1 49 23 10 00

info@exxelia.com

www.exxelia.com

EXXELIA DEARBORN
1221 North US Highway 17-92
Longwood, FL 32750 • USA
Tel. : +1 407-695-6562

EXXELIA MAROC
Angle boulevard Alkahrabae et rue Le Caire
Quartier Industriel Ain Sebaa
CASABLANCA Sidi Bernoussi 20600 • MAROC
Tel. : +212 22 66 70 00

EXXELIA MAGNETICS
16, Parc d'Activités du Beau Vallon
F-57970 ILLANGE • FRANCE
Tel. : +33 (0)3 82 59 13 33

ZI la Levraudière,
F-85120 ANTIGNY • FRANCE
Tel. : +33 (0)2 51 69 64 25

EXXELIA RAF TABTRONICS
2854 Genesee St., Route 63
Piffard, New York 14533 • USA
Tel. : +1 585-243-4331

EXXELIA DEYOUNG
12920 NE 125th Way
Kirkland, WA 98034 • USA
Tel. : +1 425-823-4798

EXXELIA TANTALUM
Z.I. de Brais - BP 194
F-44604 SAINT-NAZAIRE CEDEX • FRANCE
Tel. : +33 (0)2 40 01 26 51

EXXELIA TECHNOLOGIES
Headquarters
93, rue Oberkampf
F-75540 PARIS CEDEX 11 • FRANCE
Tel. : +33 (0)1 49 23 10 00

Plants
Z.A.E. du Chêne Saint-Fiacre
1, rue des Temps Modernes
F-77600 CHANTELOUP-EN-BRIE • FRANCE
Tel. : +33 (0)1 60 31 70 00

105, rue du Général Leclerc - BP 33
F-67441 MARMOUTIER Cedex • FRANCE
Tel. : +33 (0)3 88 70 62 00

EXXELIA SIC SAFCO
Z.I. de Brais - BP 194
F-44604 SAINT-NAZAIRE CEDEX
FRANCE
Tel. : +33 (0)2 40 01 26 51

EXXELIA TEMEX
Parc Industriel Bersol 1
Voie Romaine
F-33600 PESSAC • FRANCE
Tel. : +33 (0)5 56 46 66 66

EXXELIA VIETNAM
Unit 2A, Standard Factory No. 2,
Road 15, The Tan Thuan EPZ,
Dist.7, Ho Chi Minh City • VIETNAM
Tel. : 00 84 8 3770 1226