



**REDEXPERT®**



DEMO STATION:

REDEXPERT – HOW MORE DATA HELPS  
YOU UNDERSTAND THE CAPACITORS

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Capacitors and Resistors - Würth Elektronik eiSos GmbH & Co. KG

Use highly accurate component  
and circuit models with  
**REDEXPERT®**

Low entry access to  
electronics design with  
**REDEXPERT®**

Data based on lab  
measurements with  
**REDEXPERT®**

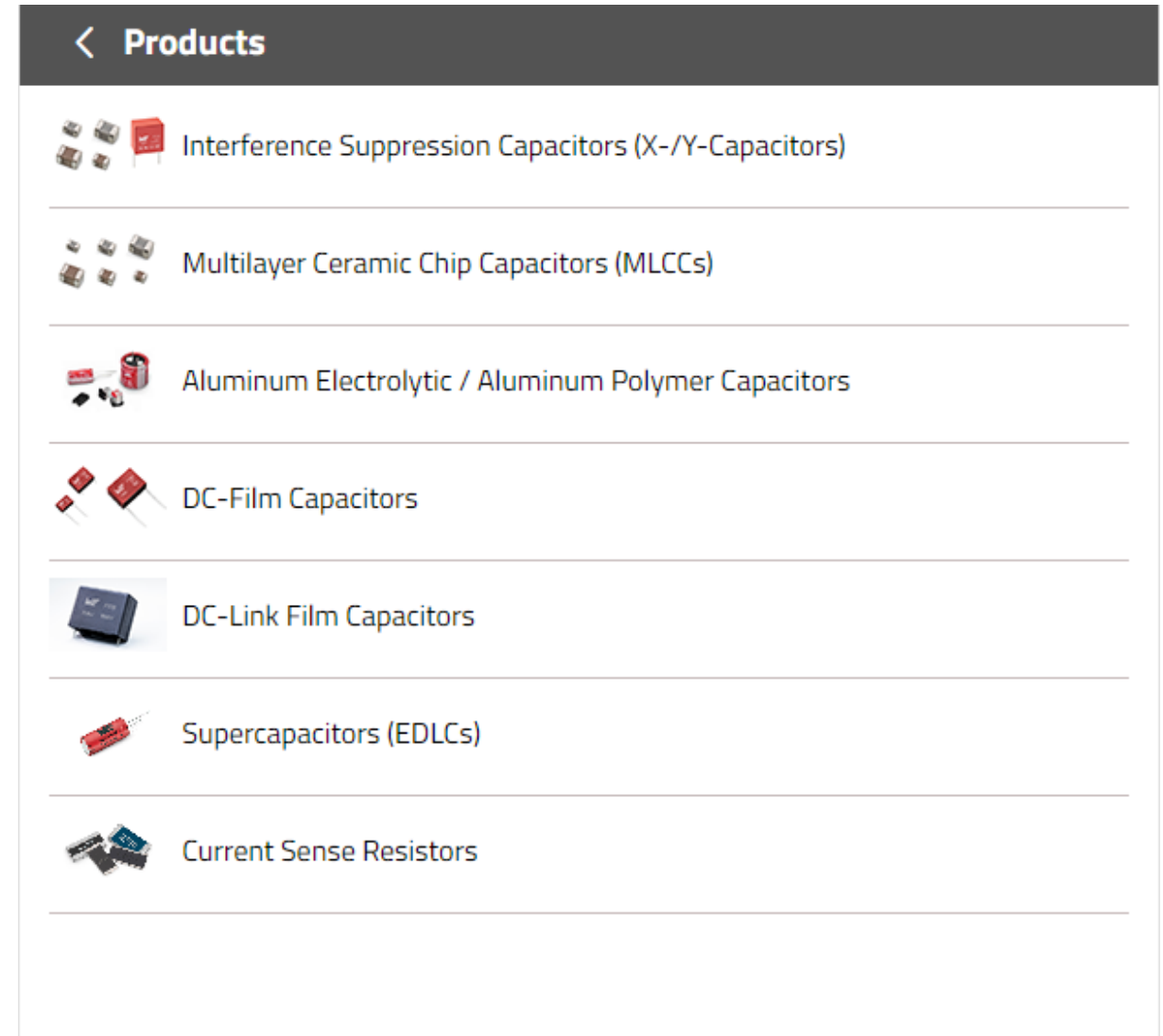
Precise determination of  
inductor loss with  
**REDEXPERT®**

From lab to desk  
in seconds with  
**REDEXPERT®**

## Capacitor and Resistor Modules

- Capacitors
  - X/Y EMI Suppression Capacitors
  - MLCCs: Multilayer Ceramic Chip Capacitors
  - Aluminum electrolytic + Polymer Capacitors
  - Supercapacitors
  - DC-Link Film Capacitors (High Power)
  - DC-Film Capacitors (General Purpose)
- Resistors
  - Current Sense Resistors

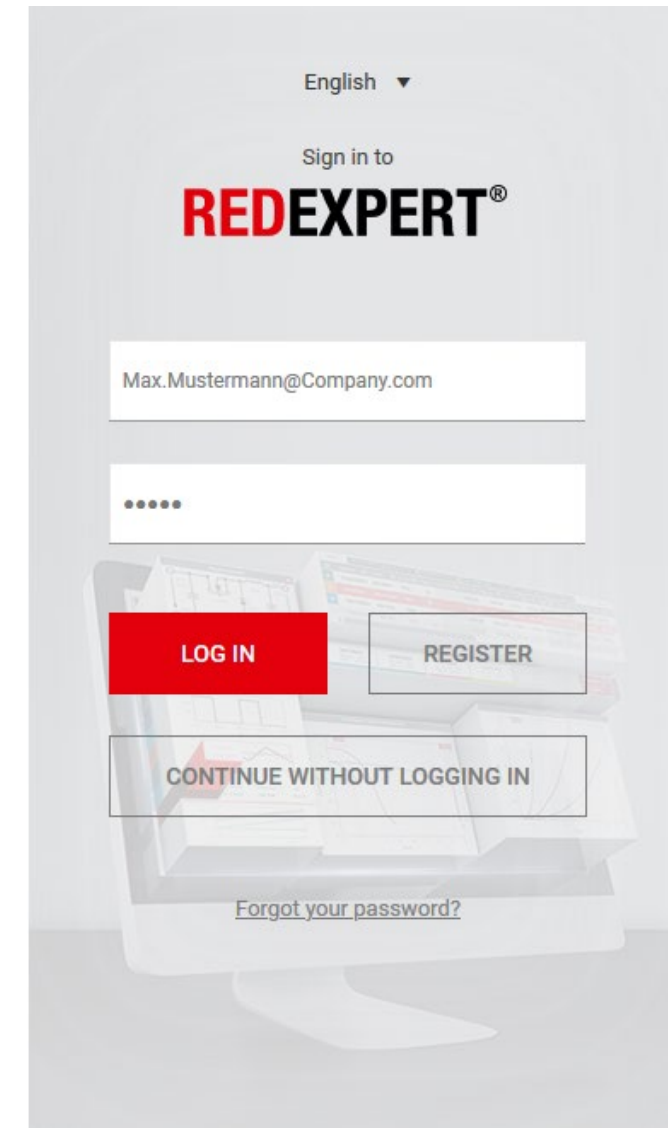
**All capacitors and resistors released in the catalogue can be found in REDEXPERT !**



# REDEXPERT®

Register and Log in / Or continue without logging in

- Registration is not mandatory
- All basic functions are available without logging in
- Registration, use and enjoyment are totally **free of charge**
- A user account does have ist perks:
  - Order free samples directly from the app
  - Get your offers sent to you automatically
  - Using of sliders for advanced search queries
- **Privacy Concers**
  - Your personal information is stored according to GDPR rules
  - We need your contact information for the samples and offers only



Information sorted with focus on engineers

100 / 2152 items

Order Code	Series	Spec	Technology...	Series Description	C	To...	V <sub>R</sub>	DF	Maximum I <sub>R</sub>	Specified
860010272001	WCAP-ATG8		Alum. Electrolytic		22.0 µF	±20%	10.0 V	< 19 %	89.8 mA	66.0
860010272002	WCAP-ATG8		Alum. Electrolytic		33.0 µF	±20%	10.0 V	< 19 %	120 mA	88.0
860010272003	WCAP-ATG8		Alum. Electrolytic		47.0 µF	±20%	10.0 V	< 19 %	143 mA	105
860010272004	WCAP-ATG8		Alum. Electrolytic		68.0 µF	±20%	10.0 V	< 19 %	180 mA	132
860010272005	WCAP-ATG8		Alum. Electrolytic		100 µF	±20%	10.0 V	< 19 %	269 mA	198
860010272006	WCAP-ATG8		Alum. Electrolytic		120 µF	±20%	10.0 V	< 19 %	261 mA	209
860010272007	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	150 µF	±20%	10.0 V	< 19 %	289 mA	231
860010273008	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	180 µF	±20%	10.0 V	< 19 %	316 mA	253
860010273009	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	220 µF	±20%	10.0 V	< 19 %	367 mA	294
860010273010	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	330 µF	±20%	10.0 V	< 19 %	454 mA	363
860010273011	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	470 µF	±20%	10.0 V	< 19 %	522 mA	418
860010274012	WCAP-ATG8		Alum. Electrolytic	THT - General Purpose +85°C	560 µF	±20%	10.0 V	< 19 %	633 mA	506

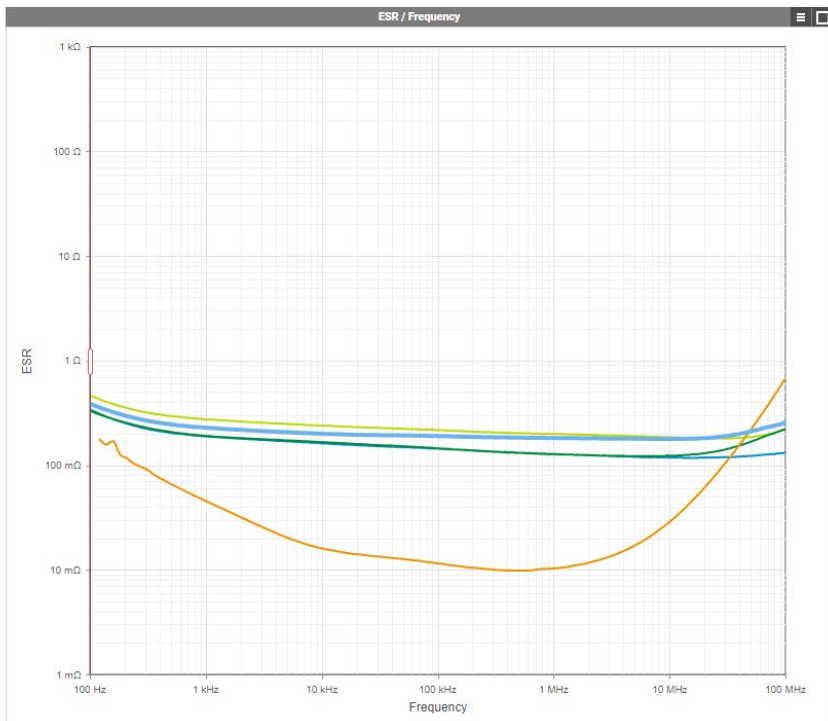
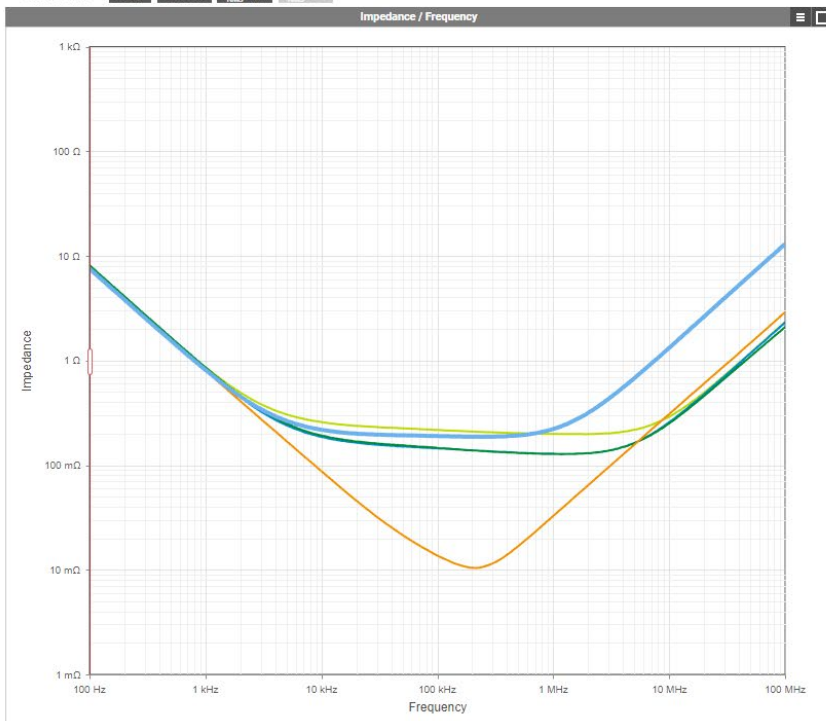
- Columns with information of interest for designers
- Use columns for filtering the list
- Use columns for sorting the list
- Column order may be altered in the horizontal axis
- Columns can be hidden (use gear symbol in the right)

Select different parts and compare the curves

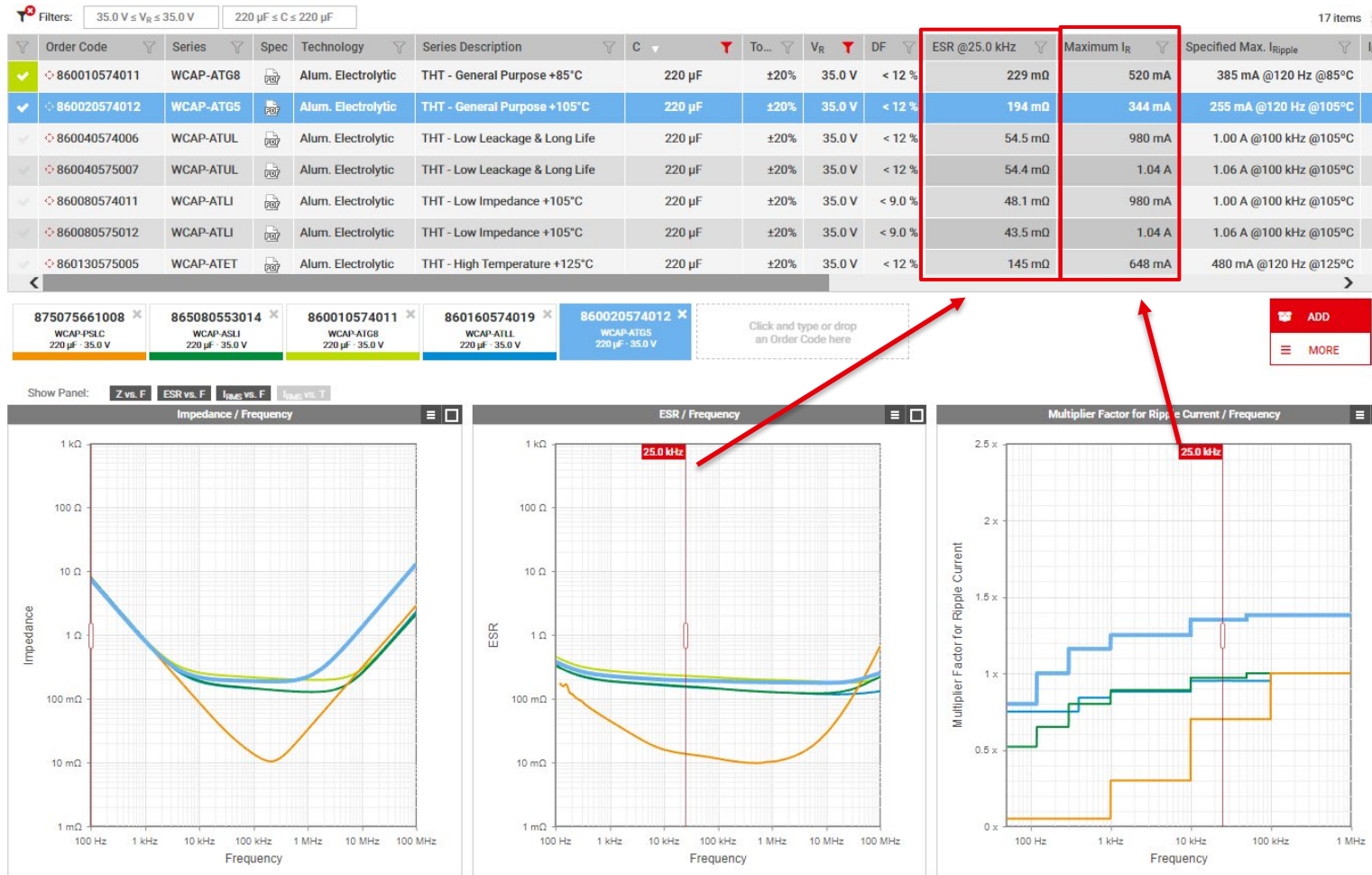
*These are the selected components*

875075661008 ✕ WCAP-PSLC 220 µF - 35.0 V	865080553014 ✕ WCAP-ASLI 220 µF - 35.0 V	860010574011 ✕ WCAP-ATGB 220 µF - 35.0 V	860160574019 ✕ WCAP-ATLL 220 µF - 35.0 V	860020574012 ✕ WCAP-ATGS 220 µF - 35.0 V	Click and type or drop an Order Code here
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Show Panel: Z vs. F ESR vs. F **I<sub>avg</sub> vs. F** I<sub>avg</sub> vs. T

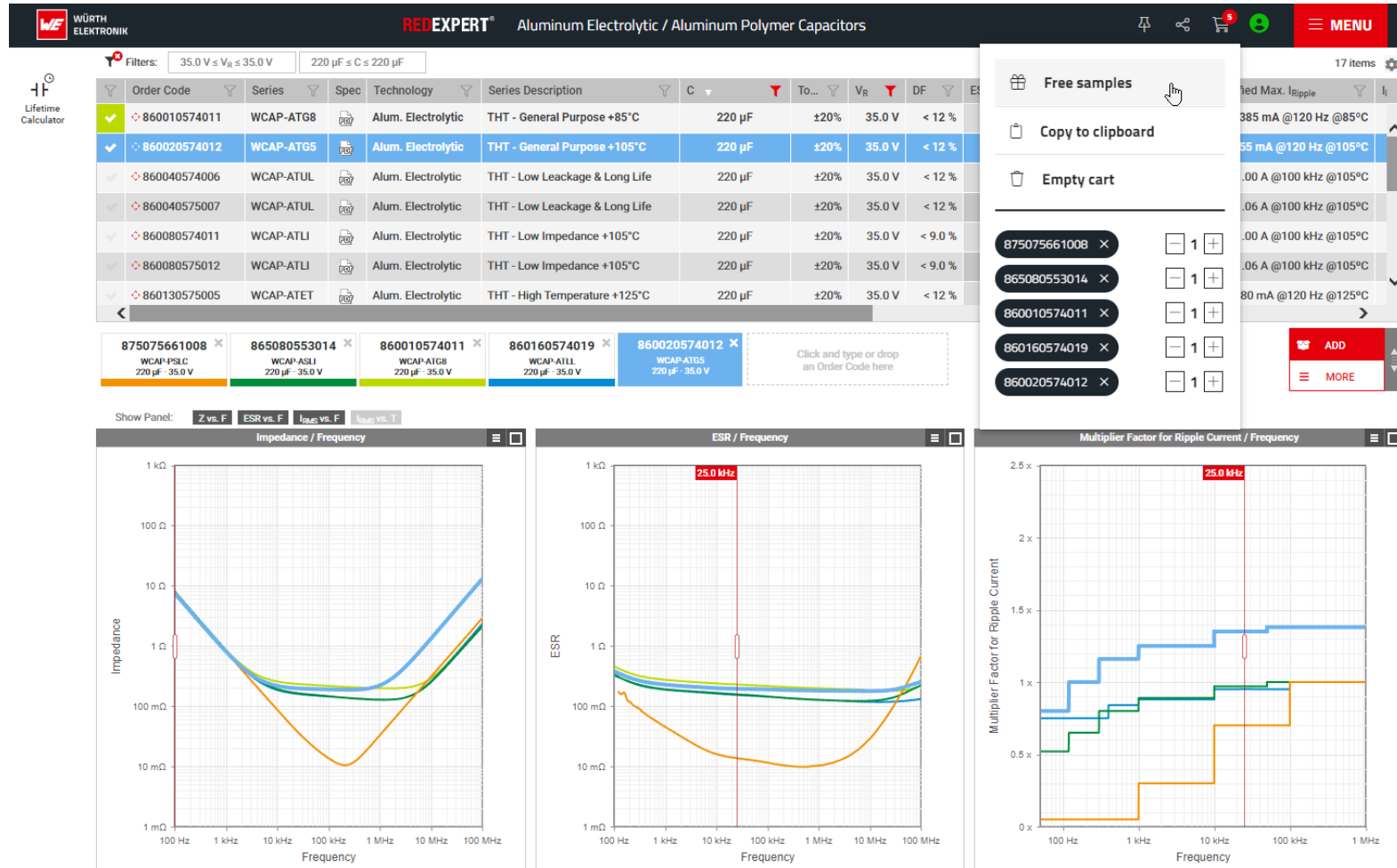


Use sliders to get the graph values in the main table (Only registered users)





Add selected components and order free samples (Only registered users)





## Comparison of MLCCs' characteristic curves

<https://we-online.com/re/5jBR7DSL6>

Filters: 100 nF ≤ C ≤ 100 nF 16.0 V ≤ V<sub>R</sub> ≤ 25.0 V Size = 0603, 0402 9 items

Order Code	Spec	Series	Description	Size	Ce...	C	Tolerance	V <sub>R</sub>	R <sub>iso</sub>	DF	T <sub>min</sub>	T <sub>max</sub>	TCC	Length	Width	Height	Technical Part Number	Assemb...
885012206071R		WCAP-CSGP	General Purpose	0603	X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	3.5 %	-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	X7R0603104K025DFCT10000	SMT
885012205085R		WCAP-CSGP	General Purpose	0402	X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	10 %	-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	X7R0402104K025DFCT10000	SMT
885012205037R		WCAP-CSGP	General Purpose	0402	X7R	100 nF	±10 %	16.0 V	> 5.00 GΩ	5.0 %	-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	X7R0402104K016DFCT10000	SMT
885012206071		WCAP-CSGP	General Purpose	0603	X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	3.5 %	-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	X7R0603104K025DFCT20000	SMT
885012206046		WCAP-CSGP	General Purpose	0603	X7R	100 nF	±10 %	16.0 V	> 5.00 GΩ	3.5 %	-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	X7R0603104K016DFCT10000	SMT
885012205085		WCAP-CSGP	General Purpose	0402	X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	10 %	-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	X7R0402104K025DFCT10000	SMT
885012205037		WCAP-CSGP	General Purpose	0402	X7R	100 nF	±10 %	16.0 V	> 5.00 GΩ	5.0 %	-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	X7R0402104K016DFCT10000	SMT

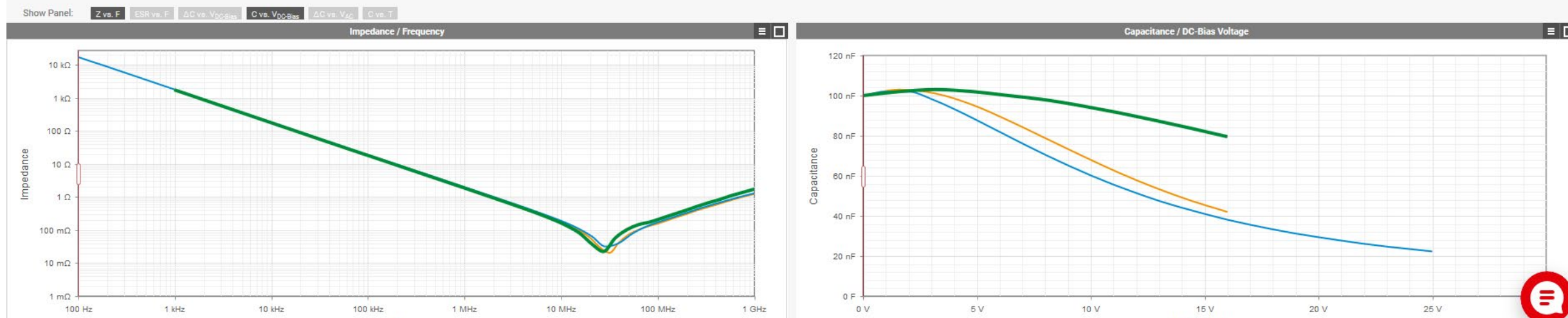
885012105018 X  
WCAP-CSGP - X7R - 0402  
100 nF - 25.0 V

885012205037 X  
WCAP-CSGP - X7R - 0402  
100 nF - 16.0 V

885012206046 X  
WCAP-CSGP - X7R - 0603  
100 nF - 16.0 V

Click and type or drop  
an Order Code here

ADD
 MORE



## Comparison of MLCCs' characteristic curves

<https://we-online.com/re/5jBT9WG4>

Filters: Ceramic = X7R 50.0 V ≤ V<sub>R</sub> ≤ 50.0 V Size = 0805 31 items

Order Code	Spec	Series	Description	Size	Ce...	C	Tol...	V <sub>R</sub>	R <sub>iso</sub>	DF	T <sub>min</sub>	T <sub>max</sub>	TCC	Length	Width	Height	Technical Part Number	Assemb...
885012207085	PDF	WCAP-CSGP	General Purpose	0805	X7R	680 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805681K050DFCT10000	SMT
885012207084	PDF	WCAP-CSGP	General Purpose	0805	X7R	470 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805471K050DFCT10000	SMT
885012207083	PDF	WCAP-CSGP	General Purpose	0805	X7R	330 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805331K050DFCT10000	SMT
885012207082	PDF	WCAP-CSGP	General Purpose	0805	X7R	220 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805221K050DFCT10000	SMT
885012207081	PDF	WCAP-CSGP	General Purpose	0805	X7R	150 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805151K050DFCT10000	SMT
885012207080	PDF	WCAP-CSGP	General Purpose	0805	X7R	100 pF	±10 %	50.0 V	> 10.0 GΩ	2.5 %	-55.0°C	125°C	±15%	2.00 mm	1.25 mm	0.800 mm	X7R0805101K050DFCT10000	SMT

885012207103 X WCAP-CSGP · X7R · 0805 1.00 µF · 50.0 V

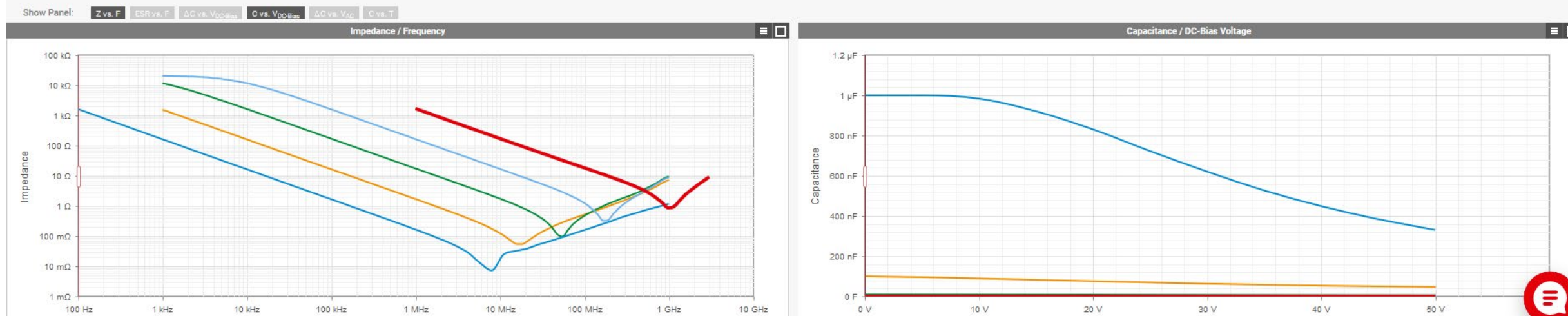
885382207007 X WCAP-CSST · X7R · 0805 100 nF · 50.0 V

885382207006 X WCAP-CSST · X7R · 0805 10.0 nF · 50.0 V

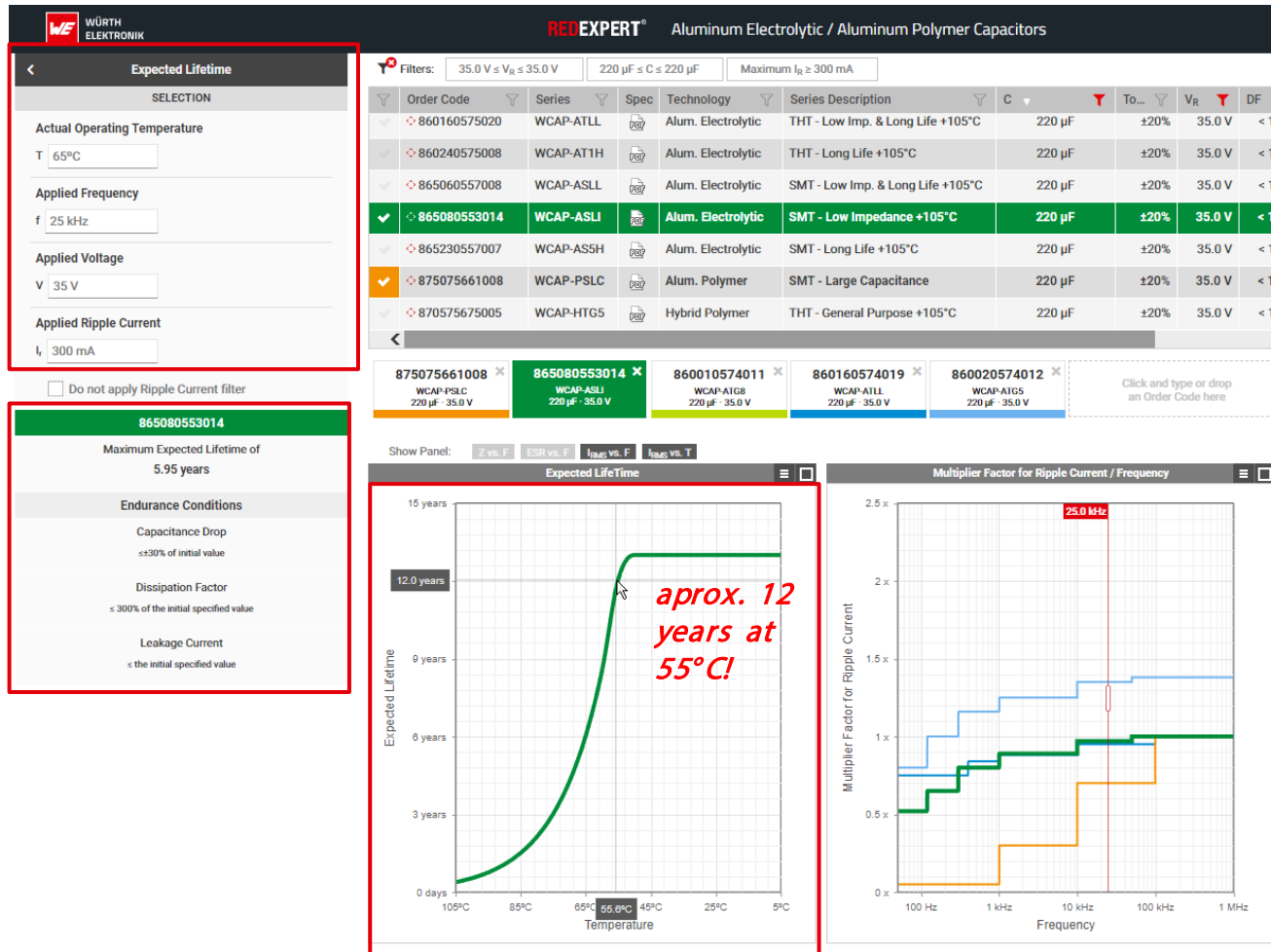
885382207004 X WCAP-CSST · X7R · 0805 1.00 nF · 50.0 V

Click and type or drop an Order Code here

ADD MORE

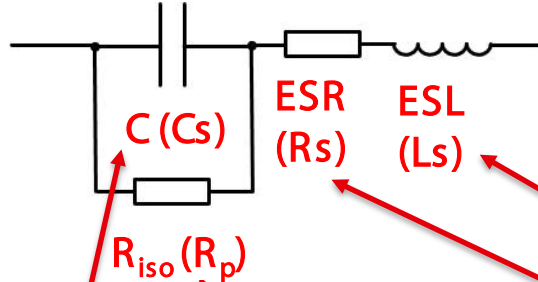















## Lifetime calculator for Aluminum Electrolytic + Aluminum Polymer Capacitors (Only registered users)



- Select a component in the list
- Input Operating conditions in the module on the left
- Get the endurance calculation at that point
  - Endurance conditions are the expected limits when the calculated lifetime had passed
- Look at the table to have an overview of the lifetime at different temperatures
  - In this example, 12 years is double lifetime only 10 degrees colder at temperature of 55°C

Find the parameters that you need for your simulation



	Order Code	Spec	Series	Description	Size	L...	Ce...	C	Tole...	V <sub>R</sub>	R <sub>iso</sub>	DF	Q	T <sub>min</sub>	T <sub>max</sub>	TCC	Length	Width	Height	R <sub>s</sub>	L <sub>s</sub>
	885012206095R		WCAP-CSGP	General Purpose	0603		X7R	100 nF	±10 %	50.0 V	> 5.00 GΩ	3.0 %		-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	15.8 mΩ	310 pH
	885012206089R		WCAP-CSGP	General Purpose	0603		X7R	10.0 nF	±10 %	50.0 V	> 10.0 GΩ	2.5 %		-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	35.9 mΩ	341 pH
	885012206083R		WCAP-CSGP	General Purpose	0603		X7R	1.00 nF	±10 %	50.0 V	> 10.0 GΩ	2.5 %		-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	258 mΩ	410 pH
	885012206075R		WCAP-CSGP	General Purpose	0603		X7R	470 nF	±10 %	25.0 V	> 1.10 GΩ	10 %		-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	10.1 mΩ	414 pH
	885012206071R		WCAP-CSGP	General Purpose	0603		X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	3.5 %		-55.0°C	125°C	±15%	1.60 mm	0.800 mm	0.800 mm	18.9 mΩ	443 pH
	885012205085R		WCAP-CSGP	General Purpose	0402		X7R	100 nF	±10 %	25.0 V	> 5.00 GΩ	10 %		-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	35.0 mΩ	766 pH
	885012205037R		WCAP-CSGP	General Purpose	0402		X7R	100 nF	±10 %	16.0 V	> 5.00 GΩ	5.0 %		-55.0°C	125°C	±15%	1.00 mm	0.500 mm	0.500 mm	16.9 mΩ	332 pH
	885012204006		WCAP-CSGP	General Purpose	0201		X7R	1.00 nF	±10 %	25.0 V	> 10.0 GΩ	3.5 %		-55.0°C	125°C	±15%	0.600 mm	0.300 mm	0.300 mm	237 mΩ	173 pH
	885012204005		WCAP-CSGP	General Purpose	0201		X7R	10.0 nF	±10 %	10.0 V	> 10.0 GΩ	5.0 %		-55.0°C	125°C	±15%	0.600 mm	0.300 mm	0.300 mm	63.1 mΩ	217 pH
	885012204004		WCAP-CSGP	General Purpose	0201		X7R	10.0 nF	±10 %	25.0 V	> 10.0 GΩ	10 %		-55.0°C	125°C	±15%	0.600 mm	0.300 mm	0.300 mm	70.9 mΩ	180 pH
	885012204003		WCAP-CSGP	General Purpose	0201		X7R	1.00 nF	±10 %	50.0 V	> 10.0 GΩ	3.0 %		-55.0°C	125°C	±15%	0.600 mm	0.300 mm	0.300 mm	251 mΩ	210 pH
	885012204002		WCAP-CSGP	General Purpose	0201		X7R	680 pF	±10 %	50.0 V	> 10.0 GΩ	3.0 %		-55.0°C	125°C	±15%	0.600 mm	0.300 mm	0.300 mm	319 mΩ	220 pH
	885012004014		WCAP-CSGP	General Purpose	0201		NP0	100 nF	±5 %	50.0 V	> 10.0 GΩ		1000	-55.0°C	125°C	±30ppm/°C	0.600 mm	0.300 mm	0.300 mm	179 mΩ	200 pH

Parameters of the equivalent circuit model / Parasitics extracted from the impedance measurement

