

EKLM

Long life and downsized, Endurance 2.000h to 8.000h at 125°C

Rated voltage range: 10V to 63V, Nominal capacitance range: 6,8µF to 10.000µF

Size range: Ø 6,8 x 12,5mm to Ø 18,0 x 36,5mm

RoHS compliant

Special types on request


Specifications

	Characteristics						
Temperature range	-55°C to +125°C (up to 150°C on request)						
Rated voltage range	10V to 63V						
Capacitance tolerance	±20%, other on request (at 20°C, 100Hz)						
Leakage current I _{ra}	I _{ra} =0,002·C _R ·V _R + 4µA, (I _{ra} [µA], C _R =Rated capacitance [µF], V _R =Rated voltage [V]) (at 20°C, 5 minutes)						
Dissipation factor tan δ (D.F.)	Rated voltage (V _R)	10V	16V	25V	35V	50V	63V
	tan δ _{max}	0,19	0,16	0,14	0,13	0,10	0,07
							(at 20°C, 100Hz)
	When nominal capacitance exceeds 1.000µF, add 0,02 to the value above for each 1.000µF increase						
Low temperature - characteristics Z _{max} -factor	Rated voltage (V _R)	10V	16V	25V	35V	50V	63V
	Z(-40°C)/(20°C)	2	2	2	2	2	2
	(100Hz)						
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2.000 hours to 8.000 hours at 125°C.						
	Capacitance change	ΔC/C0 ≤ ±30%					
	D.F. (tan δ)	Δtan δ ≤ +300% of the initial specification value					
	Leakage current (I _{ra})	I _{ra} ≤ the initial specified value					
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1.000 hours at 125°C without voltage applied.						
	Capacitance change	ΔC/C0 ≤ 30%					
	D.F. (tan δ)	Δtan δ ≤ +300% of the initial specification value					
	Leakage current (I _{ra})	I _{ra} ≤ +200% of the initial specification value					
Surge voltage test	The capacitors shall be subjected to 1.000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (R=0,1/C _R) and open-circuiting for 330 seconds at 125°C. The following specifications shall be satisfied when the capacitors are restored to 20°C.						
	Rated voltage (V _R)	10V	16V	25V	35V	50V	63V
	Surge voltage (V _S)	11,5V	18,4V	28,8V	40,3V	57,5V	72,5V
	Appearance	No significant damage					
	Capacitance change	ΔC/C0 ≤ ±10%					
	D.F. (tan δ)	tan δ ≤ the initial specified value					
	Leakage current (I _{ra})	I _{ra} ≤ the initial specified value					

FROLYT

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Aluminum-electrolytic capacitors for demanding applications, Miniaturized, Polarized, Insulated, Pulse proof, Temperature range of – 55°C to +125°C, Endurance at least 2.000h to 8.000h at +125°C

EKLM

Generic specification:
DIN EN 60384-1

Sectional specification:
DIN EN 60384-4
without quality assessment

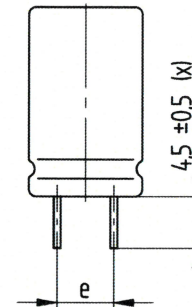
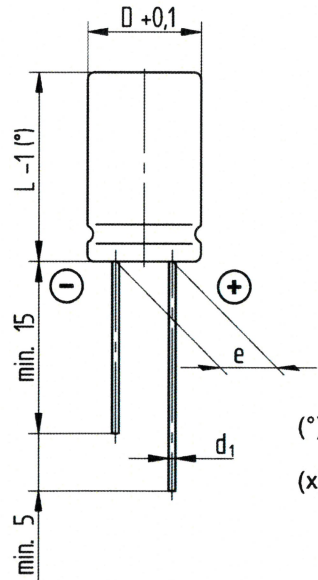
Operating temperature range:
-55 to +125°C
-55 to +150°C on request

Climatic category:
55/125/56

Capacitance range:
±20%

Surge voltage V_S :
 $V_S = 1,15 \cdot V_R$

Leakage current I_{ra} :
measured at V_R at +20°C
 $I_{ra} \leq 0,01 \cdot C_R \cdot V_R + 3\mu A$
(typical after 1 min.)
 $I_{ra} \leq 0,002 \cdot C_R \cdot V_R + 4\mu A$
(after 5 min.)



The identification of polarity is carried out by the stamp image.

Taping specifications on request

°) Ø5,5 and Ø6,8: L = -0,5
x) Ø18,0: L = ±1
other wire length on request

Dimensions (mm)						
D	6,8	8,7	10,0	12,5	16,5	18,0
d ₁ wire Ø	0,6	0,6	0,6	0,8(*)	0,8	0,8
e ± 0,5	2,5	5,0	5,0	5,0	7,5	7,5
Endurance at least						
Ambient temperature	Ø ≤ 8,7mm	Ø 10,0mm	Ø 12,5mm	Ø 16,5mm	Ø 18,0mm	
≤ +40°C	800.000h	1.200.000h	2.000.000h	3.000.000h	3.200.000h	
+85°C	32.000h	48.000h	80.000h	112.000h	128.000h	
+105°C	8.000h	12.000h	20.000h	28.000h	32.000h	
+125°C	2.000h	3.000h	5.000h	7.000h	8.000h	

(*) 0,6mm on request

Dimensions Overview D x L

Capacitance C_R [µF]	Rated voltage V_R [V]					
	10	16	25	35	50	63
6,8						6,8 x 12,5
10					6,8 x 12,5	6,8 x 12,5
15				6,8 x 12,5	6,8 x 12,5	8,7 x 12,7
22			6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	8,7 x 12,7
33		6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	8,7 x 12,7
47	6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	8,7 x 12,7	10,0 x 12,7
68	6,8 x 12,5	6,8 x 12,5	6,8 x 12,5	8,7 x 12,7	8,7 x 12,7	10,0 x 12,7
100	6,8 x 12,5	6,8 x 12,5	8,7 x 12,7	8,7 x 12,7	10,0 x 12,7	10,0 x 16,5
150	8,7 x 12,7	8,7 x 12,7	8,7 x 12,7	10,0 x 12,7	10,0 x 16,5	10,0 x 21,0
220	8,7 x 12,7	8,7 x 12,7	10,0 x 12,7	10,0 x 16,5	10,0 x 21,0	12,5 x 21,0
330	10,0 x 12,7	10,0 x 12,7	10,0 x 16,5	10,0 x 21,0	12,5 x 21,0	12,5 x 25,0
470	10,0 x 12,7	10,0 x 16,5	10,0 x 21,0	12,5 x 21,0	12,5 x 25,0	16,5 x 22,0
680	10,0 x 12,7	10,0 x 21,0	12,5 x 21,0	12,5 x 25,0	16,5 x 22,0	16,5 x 26,0
1 000	10,0 x 21,0	12,5 x 21,0	12,5 x 25,0	16,5 x 26,0	16,5 x 30,0	16,5 x 36,5
1 500	12,5 x 21,0	12,5 x 25,0	16,5 x 26,0	16,5 x 30,0	18,0 x 30,0	18,0 x 36,5
2 200	12,5 x 25,0	16,5 x 26,0	16,5 x 30,0	16,5 x 36,5	18,0 x 36,5	
3 300	16,5 x 26,0	16,5 x 30,0	16,5 x 36,5	18,0 x 36,5		
4 700	16,5 x 30,0	16,5 x 36,5	18,0 x 30,0			
6 800	18,0 x 30,0	18,0 x 36,5				
10 000	18,0 x 36,5					

Technical specifications

Rated capacitance C_R [μ F]	Rated voltage V_R [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [Ω] 100kHz		I~ [mA]* 100kHz +125°C	Ordering information for FROLYT electrolytic capacitors
				+20°C (max)	-40°C (max)		
47	10	6,8 x 12,5	0,15	0,850	7,65	210	
68	10	6,8 x 12,5	0,15	0,650	5,85	260	
100	10	6,8 x 12,5	0,15	0,500	4,50	300	
150	10	8,7 x 12,7	0,15	0,390	3,50	330	
220	10	8,7 x 12,7	0,15	0,300	2,70	410	
330	10	10,0 x 12,7	0,19	0,240	2,16	480	
470	10	10,0 x 12,7	0,19	0,185	1,66	610	
680	10	10,0 x 12,7	0,19	0,140	1,26	790	
1 000	10	10,0 x 21,0	0,21	0,107	0,96	960	
1 500	10	12,5 x 21,0	0,21	0,080	0,72	1 250	
2 200	10	12,5 x 25,0	0,21	0,055	0,50	1 500	
3 300	10	16,5 x 26,0	0,21	0,040	0,36	1 850	
4 700	10	16,5 x 30,0	0,23	0,035	0,32	2 250	
6 800	10	18,0 x 30,0	0,23	0,033	0,30	2 750	
10 000	10	18,0 x 36,5	0,23	0,032	0,29	3 240	
33	16	6,8 x 12,5	0,14	1,050	9,45	260	
47	16	6,8 x 12,5	0,14	0,840	7,56	300	
68	16	6,8 x 12,5	0,14	0,650	5,85	310	
100	16	6,8 x 12,5	0,14	0,500	4,50	360	
150	16	8,7 x 12,7	0,14	0,370	3,33	410	
220	16	8,7 x 12,7	0,14	0,270	2,43	440	
330	16	10,0 x 12,7	0,16	0,200	1,80	480	
470	16	10,0 x 16,5	0,16	0,140	1,26	580	
680	16	10,0 x 21,0	0,16	0,100	0,90	790	
1 000	16	12,5 x 21,0	0,16	0,064	0,58	960	
1 500	16	12,5 x 25,0	0,18	0,055	0,50	1 250	
2 200	16	16,5 x 26,0	0,18	0,040	0,36	1 500	
3 300	16	16,5 x 30,0	0,18	0,034	0,31	1 800	
4 700	16	16,5 x 36,5	0,20	0,031	0,28	2 200	
6 800	16	18,0 x 36,5	0,20	0,030	0,27	2 600	
22	25	6,8 x 12,5	0,12	1,090	9,81	235	
33	25	6,8 x 12,5	0,12	0,860	7,74	260	
47	25	6,8 x 12,5	0,12	0,720	6,48	300	
68	25	6,8 x 12,5	0,12	0,510	4,59	310	
100	25	8,7 x 12,7	0,12	0,370	3,33	360	
150	25	8,7 x 12,7	0,12	0,270	2,43	390	
220	25	10,0 x 12,7	0,14	0,190	1,71	420	
330	25	10,0 x 16,5	0,14	0,140	1,26	480	
470	25	10,0 x 21,0	0,14	0,110	0,99	620	
680	25	12,5 x 21,0	0,14	0,080	0,72	790	
1 000	25	12,5 x 25,0	0,14	0,055	0,50	960	
1 500	25	16,5 x 26,0	0,16	0,045	0,41	1 250	
2 200	25	16,5 x 30,0	0,16	0,040	0,36	1 500	
3 300	25	16,5 x 36,5	0,18	0,038	0,34	1 800	
4 700	25	18,0 x 30,0	0,18	0,037	0,33	2 200	
15	35	6,8 x 12,5	0,11	1,100	9,90	220	
22	35	6,8 x 12,5	0,11	0,860	7,74	250	
33	35	6,8 x 12,5	0,11	0,670	6,03	280	
47	35	6,8 x 12,5	0,11	0,447	4,02	300	
68	35	8,7 x 12,7	0,11	0,350	3,15	320	
100	35	8,7 x 12,7	0,12	0,270	2,43	480	
150	35	10,0 x 12,7	0,12	0,200	1,80	520	
220	35	10,0 x 16,5	0,12	0,150	1,35	790	
330	35	10,0 x 21,0	0,12	0,105	0,95	960	
470	35	12,5 x 21,0	0,12	0,073	0,66	1 100	
680	35	12,5 x 25,0	0,13	0,055	0,50	1 300	
1 000	35	16,5 x 26,0	0,13	0,040	0,36	1 600	
1 500	35	16,5 x 30,0	0,13	0,030	0,27	1 900	
2 200	35	16,5 x 36,5	0,14	0,027	0,24	2 350	
3 300	35	18,0 x 36,5	0,14	0,026	0,23	2 850	

Series

- Rated capacitance/ Rated voltage
- Capacitance tolerance
- Dimensions (Diameter x Length)
- Additional requirements

Ordering example: EKLM 47 μ F 50V $\pm$ 20%, 8,7 x 12,7mm, cut 4,5mm

Special requirements or special types on request

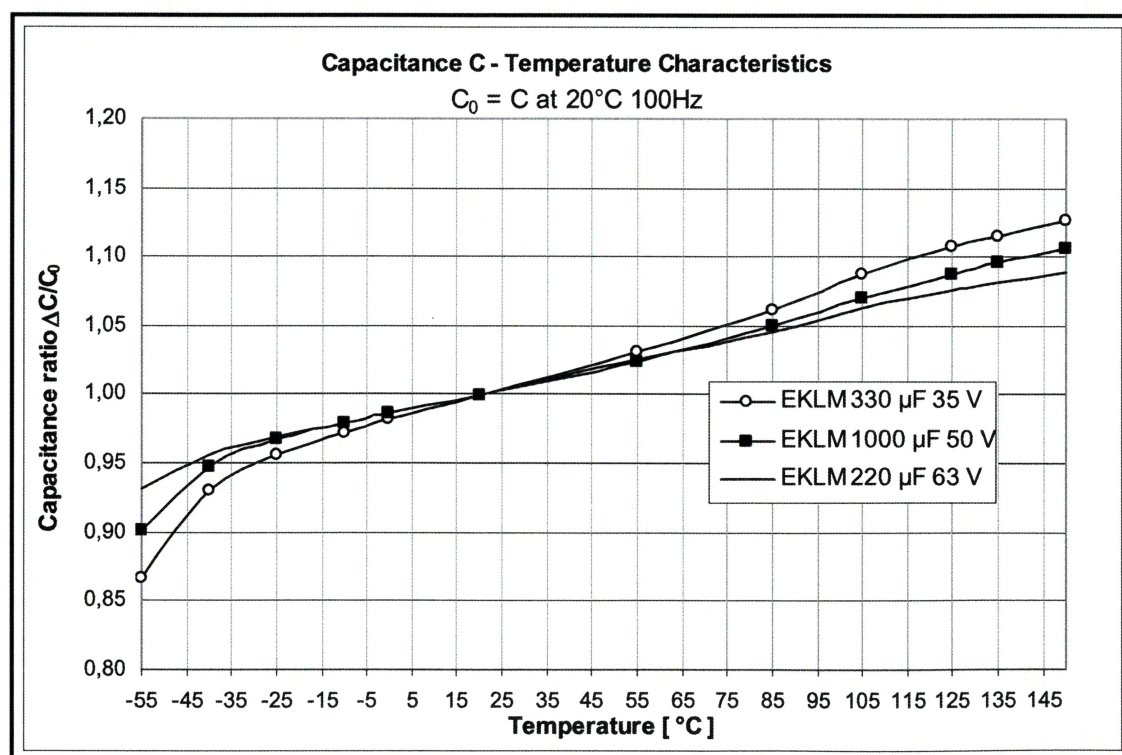
* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

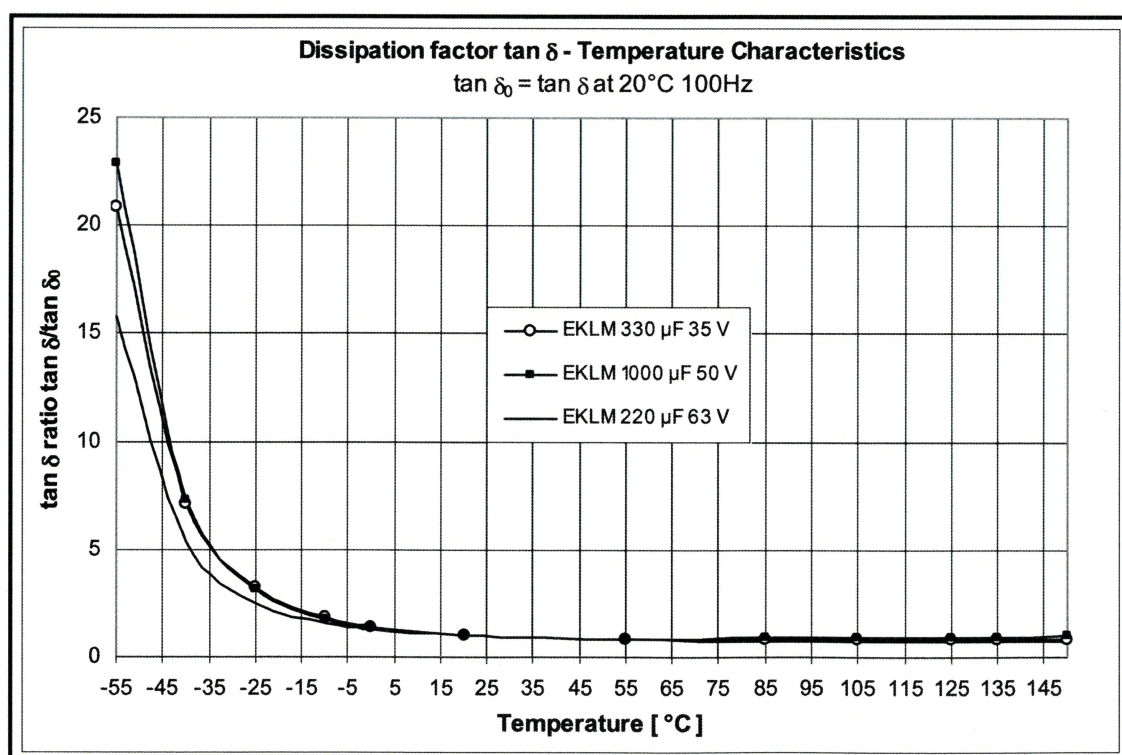
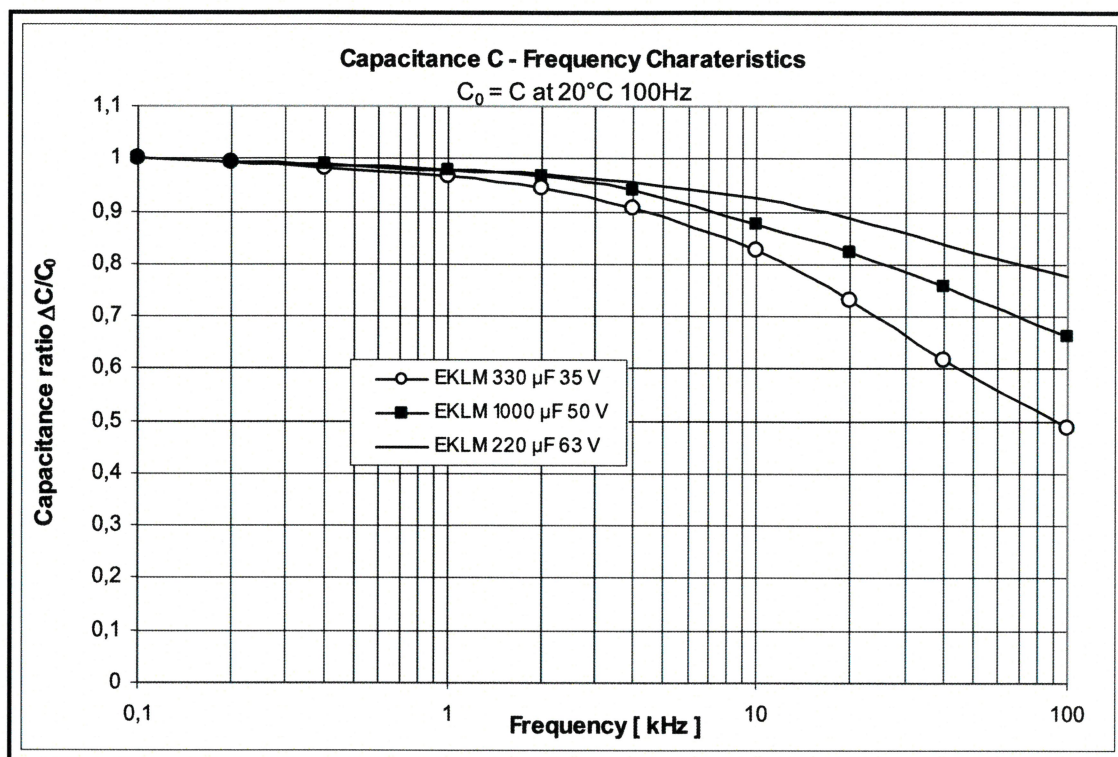
Technical specifications

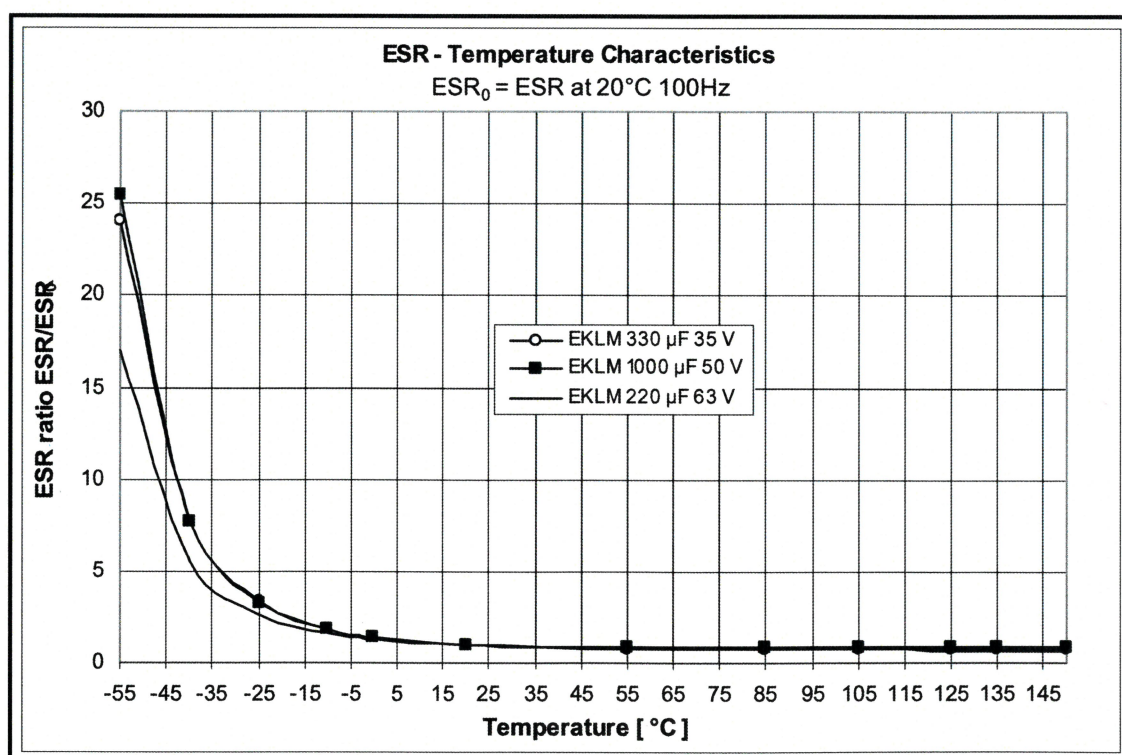
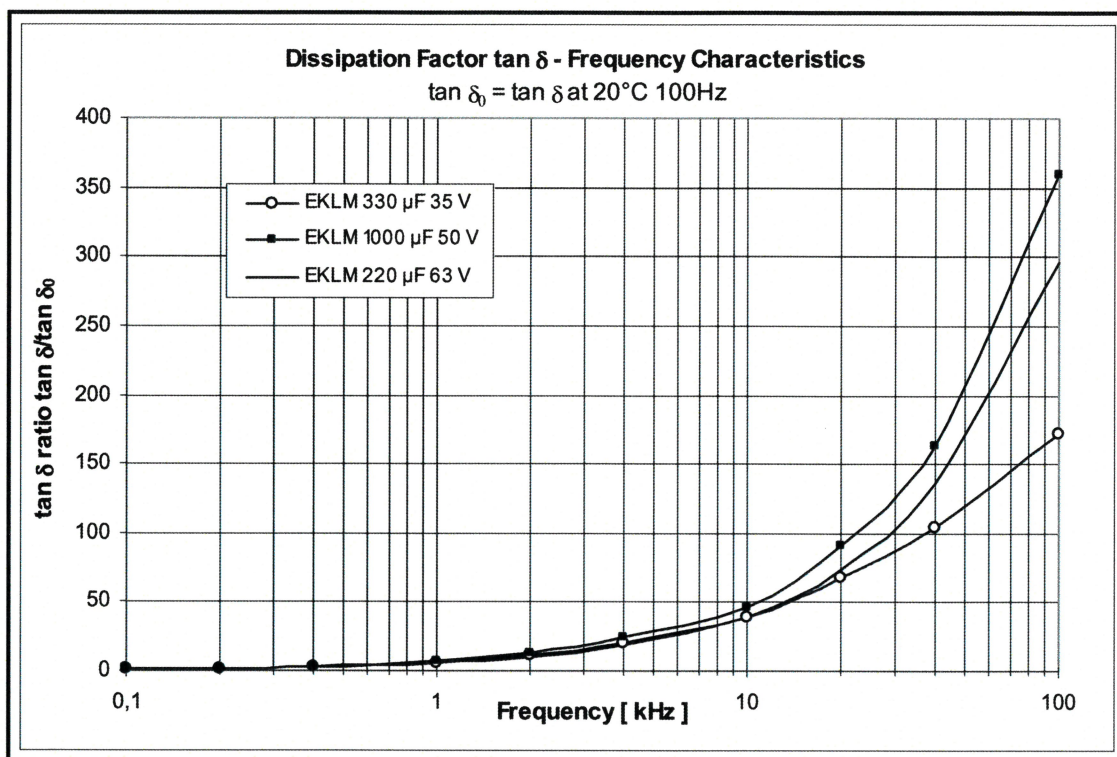
Rated capacitance C_R [μ F]	Rated voltage V_R [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [Ω] 100kHz		I~ [mA]* 100kHz +125°C	Ordering information for FROLYT electrolytic capacitors
				+20°C (max)	-40°C (max)		
10	50	6,8 x 12,5	0,07	0,840	7,56	220	- Series - Rated capacitance/ Rated voltage - Capacitance tolerance - Dimensions (Diameter x Length) - Additional requirements Ordering example: EKLM 47μF 50V $\pm$20%, 8,7 x 12,7mm, cut 4,5mm Special requirements or special types on request
15	50	6,8 x 12,5	0,07	0,680	6,12	250	
22	50	6,8 x 12,5	0,07	0,571	5,14	300	
33	50	6,8 x 12,5	0,08	0,510	4,59	330	
47	50	8,7 x 12,7	0,08	0,460	4,14	450	
68	50	8,7 x 12,7	0,08	0,400	3,60	450	
100	50	10,0 x 12,7	0,08	0,341	3,07	480	
150	50	10,0 x 16,5	0,09	0,260	2,34	670	
220	50	10,0 x 21,0	0,09	0,190	1,71	900	
330	50	12,5 x 21,0	0,09	0,140	1,26	1 000	
470	50	12,5 x 25,0	0,09	0,100	0,90	1 200	
680	50	16,5 x 22,0	0,10	0,060	0,54	1 500	
1 000	50	16,5 x 30,0	0,10	0,043	0,39	1 900	
1 500	50	18,0 x 30,0	0,10	0,040	0,36	2 300	
2 200	50	18,0 x 36,5	0,10	0,039	0,35	2 800	
6,8	63	6,8 x 12,5	0,05	0,860	7,74	250	
10	63	6,8 x 12,5	0,05	0,720	6,48	300	
15	63	8,7 x 12,7	0,05	0,600	5,40	360	
22	63	8,7 x 12,7	0,05	0,510	4,59	450	
33	63	8,7 x 12,7	0,05	0,460	3,96	560	
47	63	10,0 x 12,7	0,05	0,370	3,33	650	
68	63	10,0 x 12,7	0,05	0,310	2,79	740	
100	63	10,0 x 16,5	0,06	0,250	2,25	1 000	
150	63	10,0 x 21,0	0,06	0,190	1,71	1 050	
220	63	12,5 x 21,0	0,06	0,140	1,26	1 400	
330	63	12,5 x 25,0	0,06	0,100	0,90	1 850	
470	63	16,5 x 22,0	0,07	0,080	0,72	2 350	
680	63	16,5 x 26,0	0,07	0,060	0,54	2 800	
1 000	63	16,5 x 36,5	0,07	0,050	0,45	3 280	
1 500	63	18,0 x 36,5	0,08	0,046	0,41	3 980	

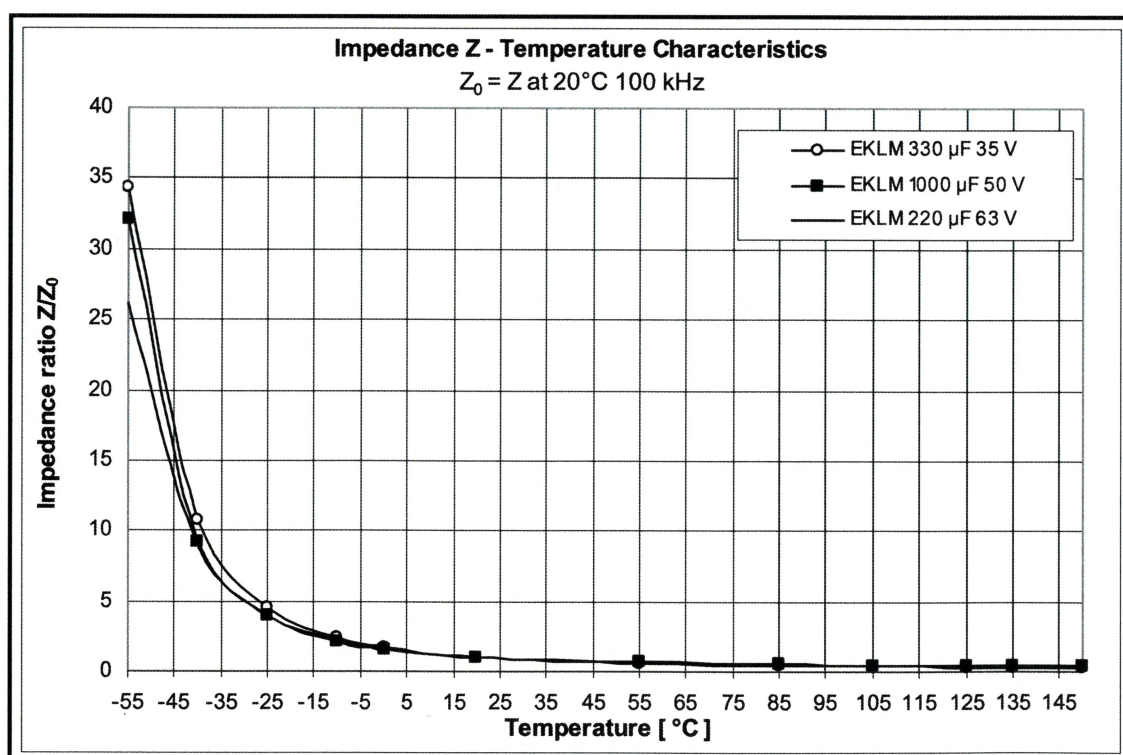
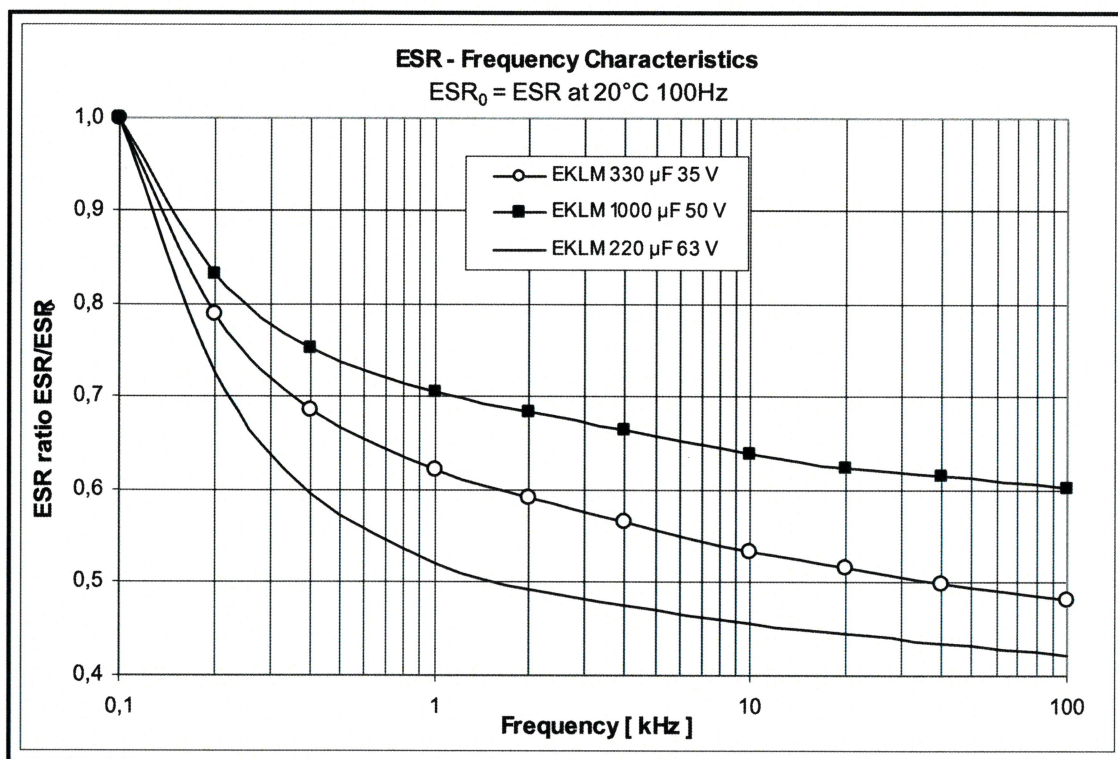
* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

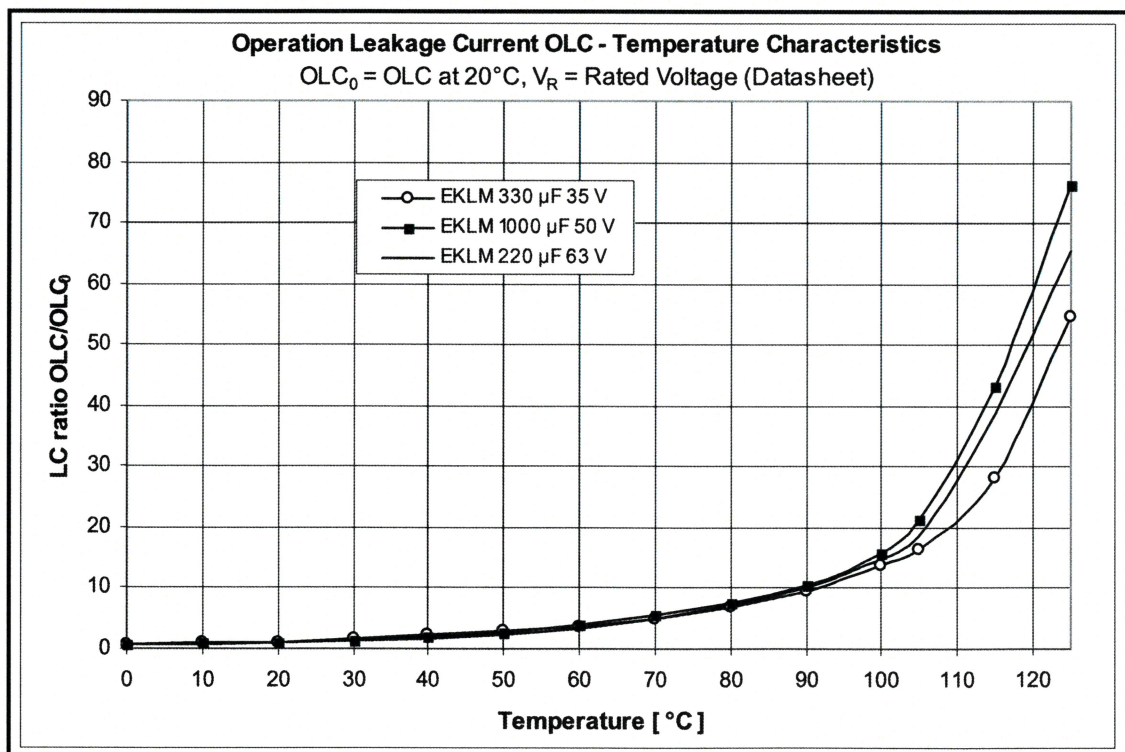
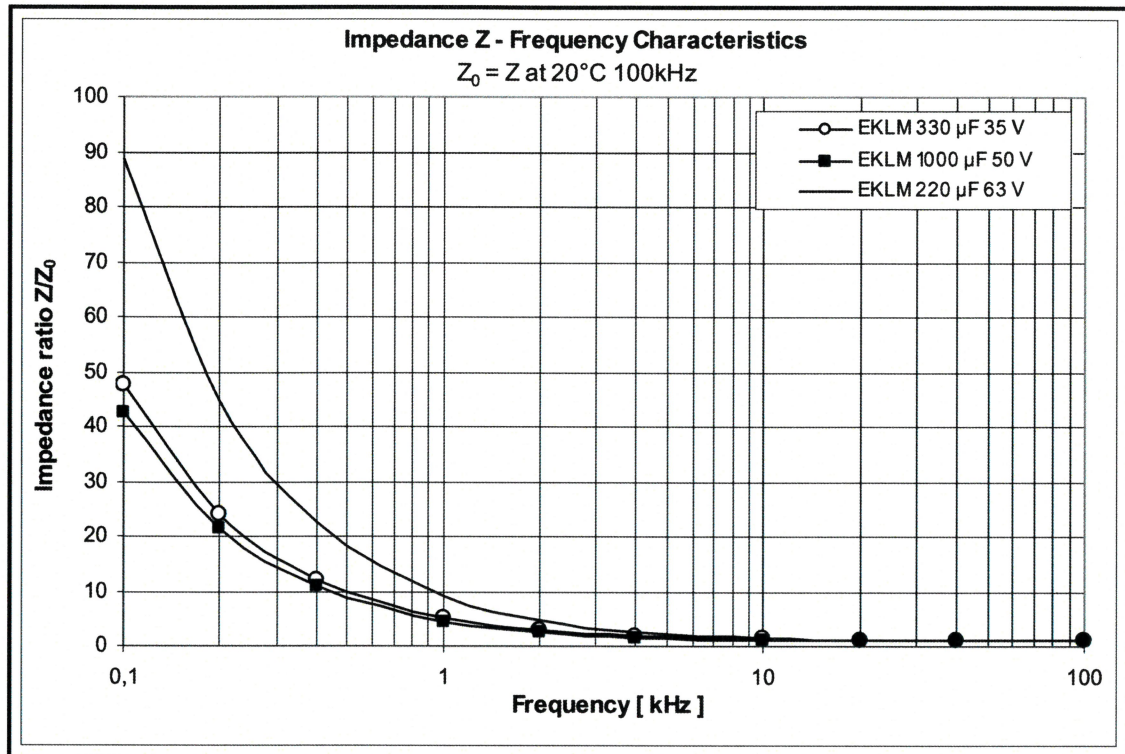
Characteristics











All information provided in printed form requires a written confirmation in order to be legally binding within the meaning of §§463 and 480 II BGB (German Civil Code). Hence, the given data imply exclusively a product description and are not to be understood as assured qualities.