Expected Lifetime Calculation of Electrolytic Capacitors

The expected lifetime of a specific capacitor can be calculated based on the given endurance, maximum temperature and temperature of the application:

L_x = Expected lifetime of component

L_{Nom} = Endurance of component (see datasheet)

T_{max} = Maximum allowed temperature of component

T_A = Component ambient temperature within application

Aluminum Polymer Capacitors Radial THT & V-Chip SMT:

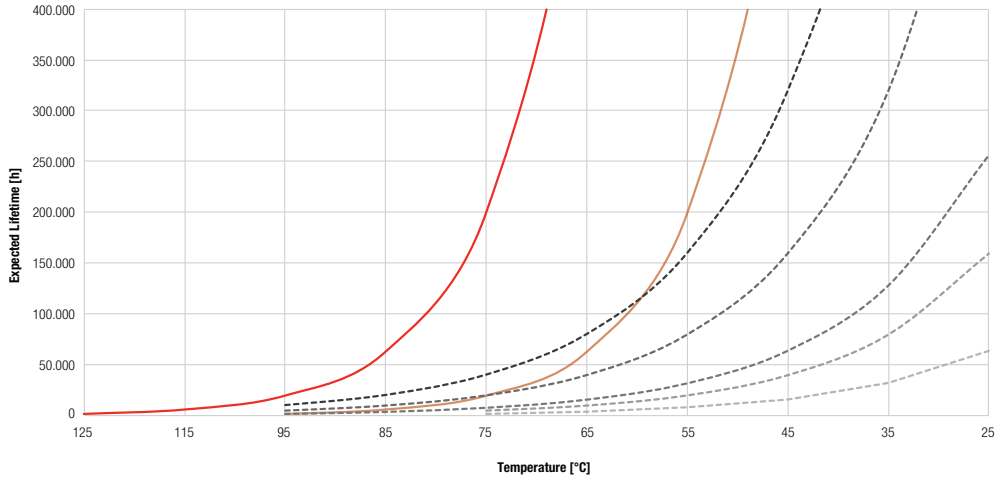
$$L_x = L_{Nom} * 10^{\frac{T_{max} - T_A}{20}}$$

Aluminum Electrolytic Capacitors & Aluminum Polymer Capacitors H-Chip SMT:

$$L_x = L_{Nom} * 2^{\frac{T_{max} - T_A}{10}}$$

	Aluminum Polymer Capacitors Radial THT & V-Chip SMT		Aluminum Electrolytic Capacitors & Aluminum Polymer Capacitors H-Chip SMT				
Temperature (°C)	Expected Lifetime (h)		Expected Lifetime (h)				
125	2,000	–	–	–	–	–	–
115	6,325	–	–	–	–	–	–
105	20,000	2,000	10,000	5,000	2,000	–	–
95	63,246	6,325	20,000	10,000	4,000	–	–
85	200,000	20,000	40,000	20,000	8,000	5,000	2,000
75	632,455	63,246	80,000	40,000	16,000	10,000	4,000
65	2,000,000	200,000	160,000	80,000	32,000	20,000	8,000
55	6,324,555	632,455	320,000	160,000	64,000	40,000	16,000
45	20,000,000	2,000,000	640,000	320,000	128,000	80,000	32,000
35	63,245,553	6,324,555	1,280,000	640,000	256,000	1600,00	64,000

Expected Lifetime vs. Temperature



Aluminum Polymer Capacitors Radial THT & V-Chip SMT

125 °C / 2000 h

105 °C / 2000 h

Aluminum Electrolytic Capacitors & Aluminum Polymer Capacitors – H-Chip SMT

105 °C / 10000 h

105 °C / 5000 h

105 °C / 2000 h

85 °C / 5000 h

85 °C / 2000 h