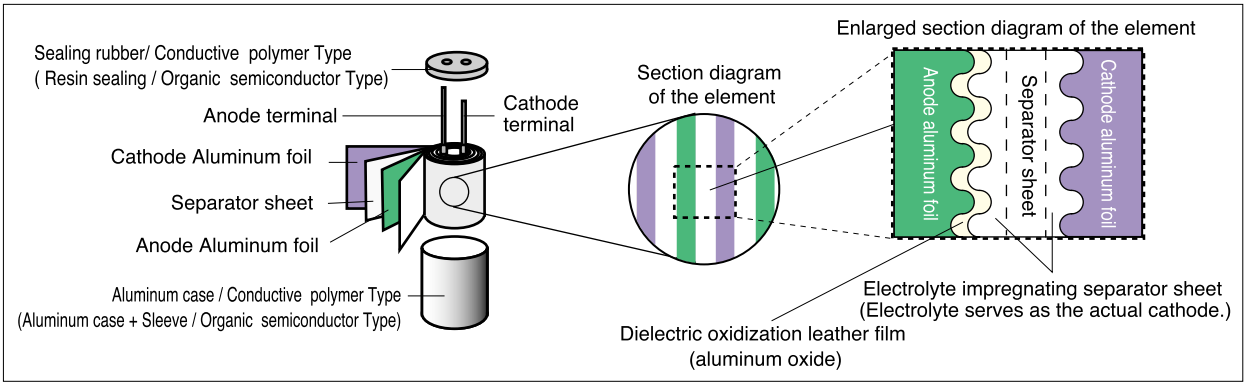
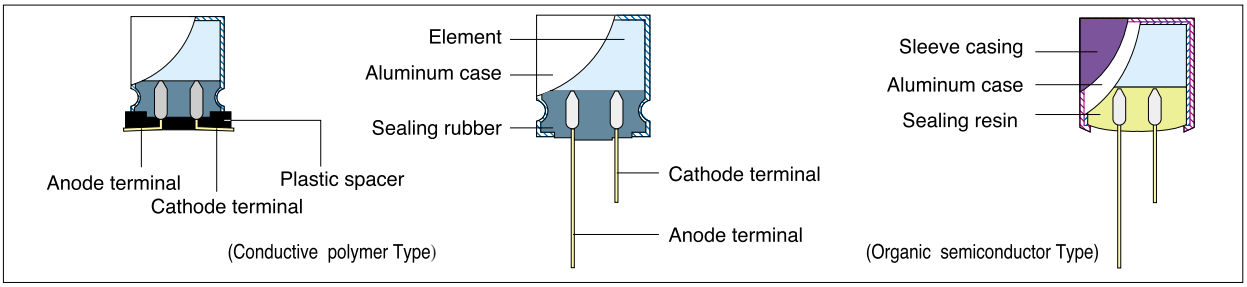
1. Basic structure of OS-CON

OS-CON has a basic construction similar to an aluminum electrolytic capacitor.
A distinctive difference lies in electrolyte.

Aluminum electrolytic capacitor	Separator sheet (electrolyte) impregnated with electrolytic solution.	Liquid electrolyte
OS-CON (Organic semiconductor Type)	Separator sheet (electrolyte) impregnated with organic semiconductor.	Solid electrolyte
OS-CON (Conductive polymer Type)	Separator sheet (electrolyte) impregnated with conductive polymer.	Solid electrolyte

1-1. Basic construction





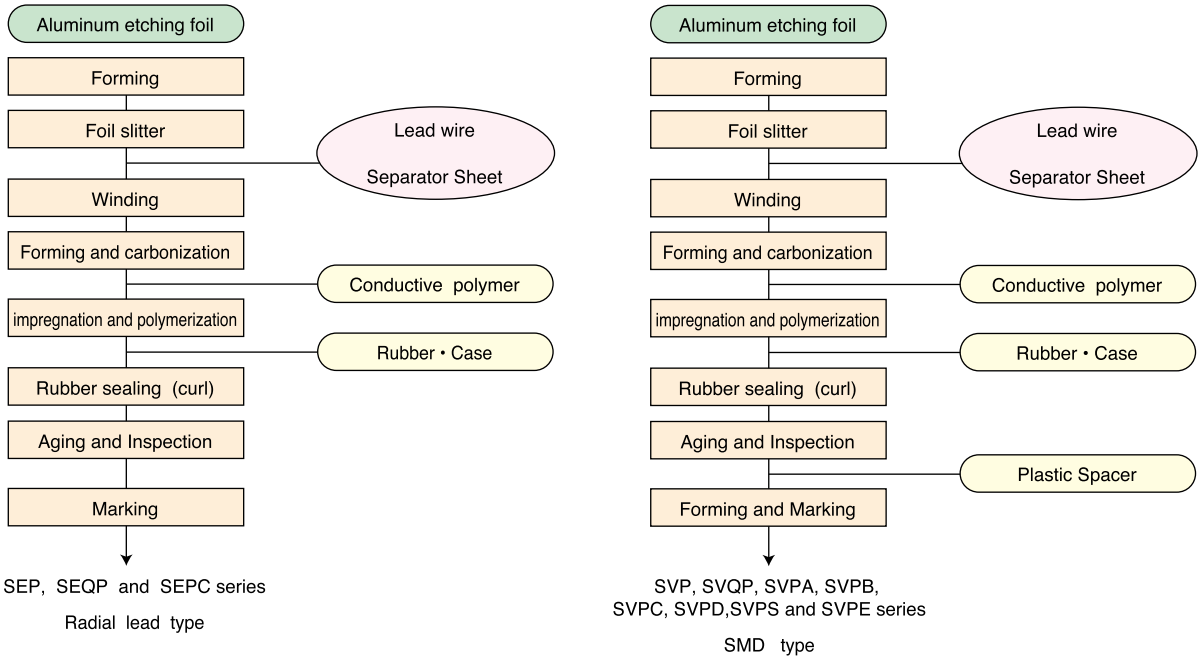
- Increased surface area of the aluminum electrode foil (high-speed processing to form rough surface) results in larger capacitance (greater charge density).
- Electrolyte is impregnated so that the rough dielectric aluminum oxide film at the anode aluminum foil sticks close to the cathode aluminum foil.
- Higher conductivity electrolyte is ideal.

2. Differences of electrolyte and in characteristics between OS-CON and an electrolytic capacitor

	Aluminum electrolytic capacitor	OS-CON	
		Organic semiconductor Type	Conductive polymer Type
Conductivity (See P60,61)	3(mS/cm)	300(mS/cm)	3,000(mS/cm)
	・Difficult to lower ESR due to ionic conduction ・ESR augments, in particular, in low temperature conditions	・High electronic conductivity facilitate to achieve low ESR ・ESR is stable in low temperature conditions	・The highest electronic conductivity, realizing super low ESR. ・ESR is stable in low temperature conditions
Reliability, lifespan (See P64,65)	・Liquid electrolyte is evaporable at high temperature ・Static capacitance is on the decline at high temperature ・Limited lifespan resulting from dry-up ・Major fluctuations in temperature characteristics	・Solid electrolyte with little evaporation ・Less decrease in static capacitance ・Long lifespan even at high temperature ・Minor fluctuations in temperature characteristics	・Solid electrolyte with little evaporation ・Little decrease in static capacitance ・Long lifespan even at high temperature ・Very minor fluctuations in temperature characteristics
Temperature coefficient (See P66)	2 times by 10°C reduction	10 times by 20°C reduction	10 times by 20°C reduction
	105°C/2,000h→85°C/8,000h	105°C/2,000h→85°C/20,000h	105°C/2,000h→85°C/20,000h

3. OS-CON Manufacturing Method

Type : Conductive polymer



Type :Organic semiconductor (TCNQ complex salt)