

1. OS-CON Electrical characteristics

1-1. Frequency characteristics

Fig.A Impedance frequency characteristics (OS-CON vs other types)

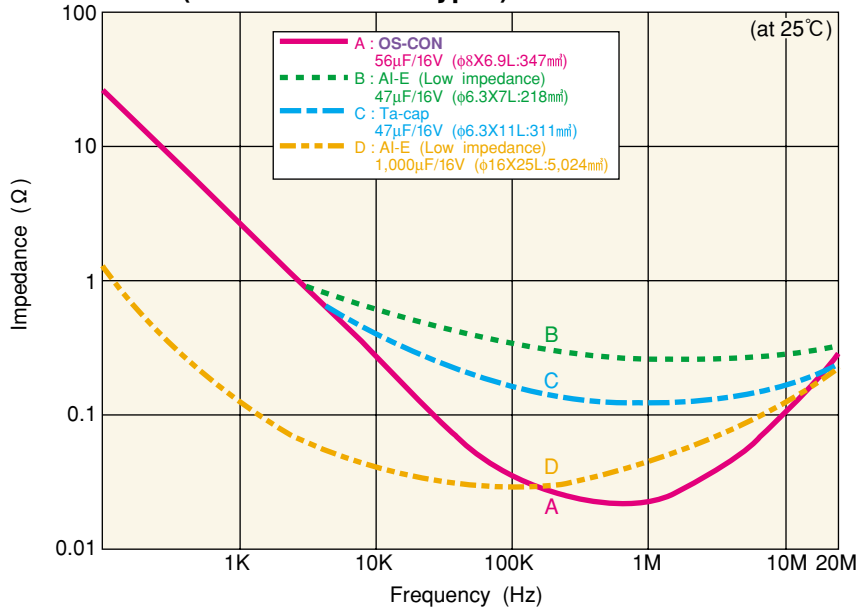
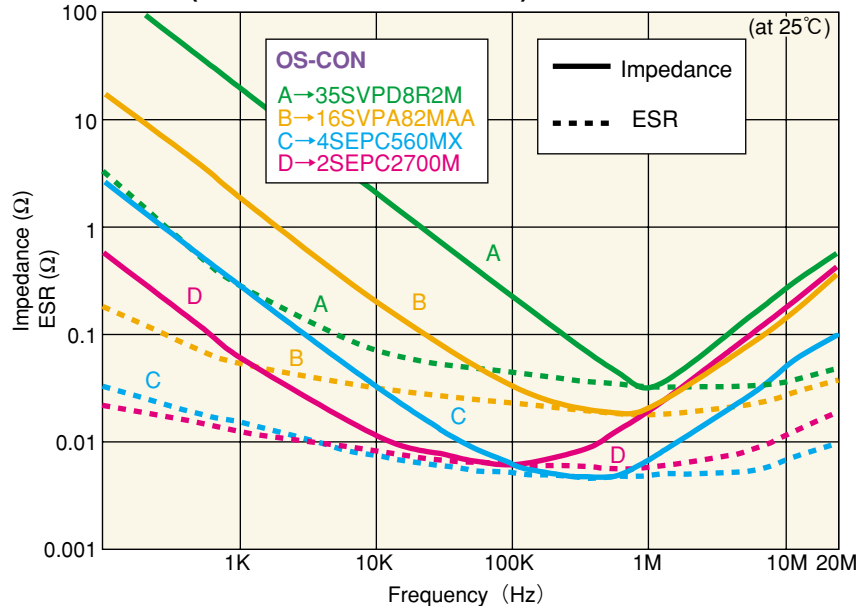


Fig.B Impedance & ESR frequency characteristics (several OS-CON models)



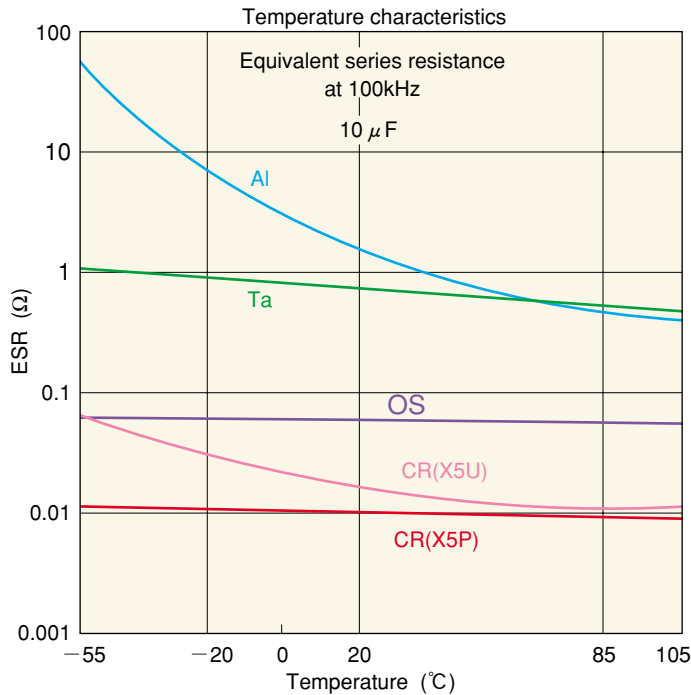
OS-CON is an electrolytic capacitor that has excellent frequency characteristics. It improves ESR greatly, and provides the excellent frequency characteristics because **OS-CON** use a high conductive polymer as electrolyte.

Fig.A: The **OS-CON**'s frequency characteristic shows a nearly ideal curve. When compared at 100kHz, **OS-CON** 56 μF, and low impedance aluminum electrolytic capacitor 1,000 μF nearly have the same feature.

Fig.B: The resonance point of the **OS-CON** is at 100kHz to 10MHz. The ESR is an extremely small value approximately 5mΩ at 100kHz of 560 μF.

1-2. Characteristics at high temperature and low temperature

Fig.A ESR temperature characteristics (OS-CON vs other types)

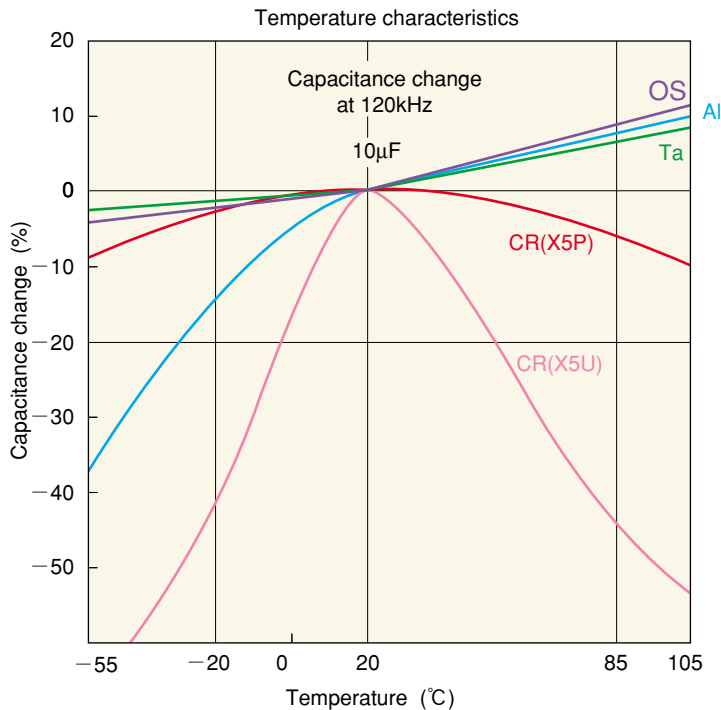


- OS = OS-CON ————— Purple
- Al = AL-E. Cap ————— Blue
- Ta = Tantalum Cap. ————— Green
- CR(X5P) = Cera Cap. (X5P Type) ————— Red
- CR(X5U) = Cera Cap. (X5U Type) ————— Pink

OS-CON's Characteristics at high temperature and low temperature is that it features little change in temperature for the ESR.

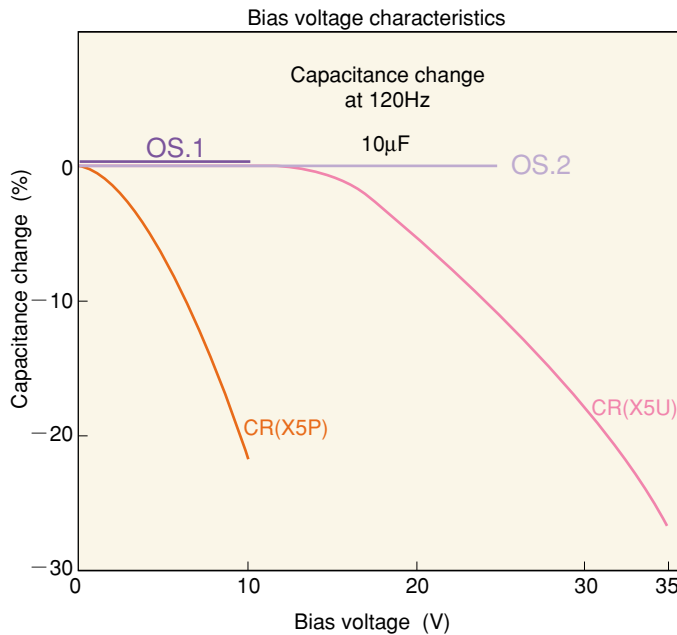
What ESR changes a little against temperature means that noise clearing ability changes a little against temperature as well. The OS-CON is suitable for outdoor apparatus.

Fig.B Capacitance temperature characteristics (OS-CON vs other types)



1-3. Bias characteristics

(a) Capacitance



- OS.1 =OS-CON(10SVP10M) — Purple
- OS.2 =OS-CON(25SVPD10M) — Light Purple
- CR(X5P) =Cera Cap. — Red
(X5P Type ; 10V-10µF)
- CR(X5U) =Cera Cap. — Pink
(X5U Type ; 50V-10µF)

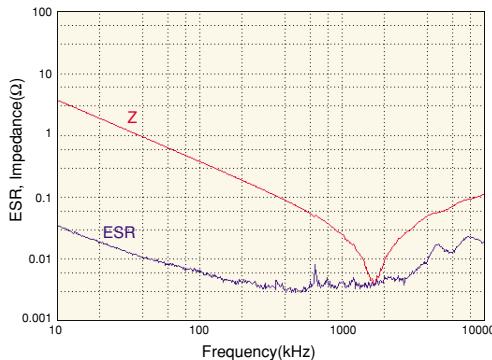
When voltage is applied to ceramic capacitors, they show a bias characteristics where static capacitance is reduced. Our OS-CON product, however, will show no reduction in capacitance for applied voltage within its rating (Note: our 25V product utilized temperature derated voltage).

(b) Impedance, ESR

Bias characteristics of OS-CON & ceramic capacitors

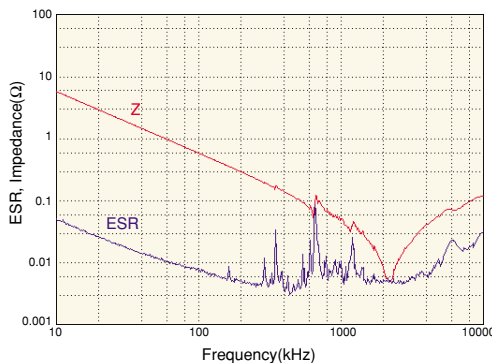
Multi-layer ceramic capacitor (25V, 4.7µF)

0V bias



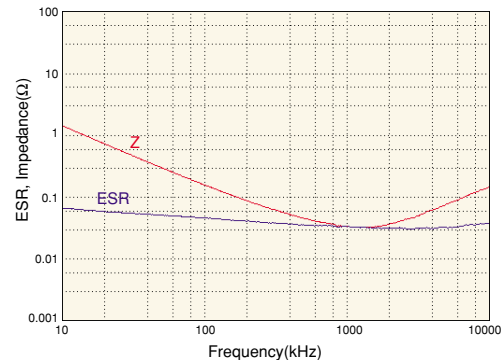
Multi-layer ceramic capacitor (25V, 4.7µF)

20V bias



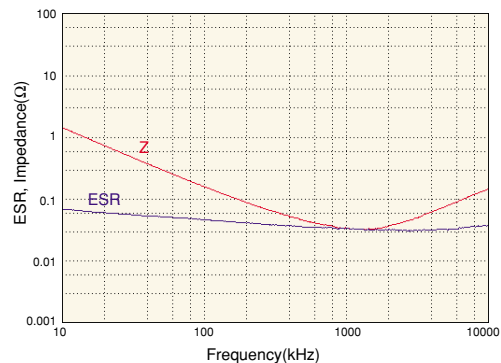
OS-CON (25SVPD10M)

0V bias



OS-CON (25SVPD10M)

20V bias



ESR & impedance of ceramic capacitors change largely between 300kHz to 1MHz. As for OS-CON, neither ESR nor impedance changes.