



# ***DID YOU KNOW?***

## **DC-LINK CAPACITORS**

### **FOR HIGH STABILITY UNDER HIGH HUMIDITY**

DC-Link capacitors play a vital role in the performance of industrial and automotive power conversion. Equivalent series resistance (ESR) and capacitance stability are key to ensuring a long lifetime and predictable behavior during the capacitor service life.

The exposure to harsh environmental conditions of heat and humidity can affect the stability of ESR and capacitance of the DC-Link capacitor, affecting its performance in power electronics devices such as renewable energy inverters, UPS systems, automotive on-board chargers, and thermal management systems. Expected environmental conditions are, therefore, a valuable design input for DC-Link capacitor selection.

Vishay's MKP1848 DC-Link film capacitor portfolio covers different levels of temperature humidity bias (THB) categories for different environments:

	<b>MKP1848</b>	<b>MKP1848H</b>	<b>MKP1848Se</b>
<b>Automotive Grade</b>	AEC-Q200	AEC-Q200	AEC-Q200
<b>THB Testing</b>	40 °C / 93 % R.H. 1000 h at U <sub>NDC</sub>  <b>Performance requirements:</b> ΔC/C ≤ 2 % at 1 kHz Increase in tgδ ≤ 0.005 at 10 kHz No visual damage IR < 50 % of initial specified value	85 °C / 85 % R.H. 1000 h at U <sub>NDC</sub>  <b>Performance requirements:</b> ΔC/C ≤ 10 % at 1 kHz Increase in tgδ ≤ 0.01 at 1 kHz No visual damage IR < 50 % of initial specified value	60 °C / 93 % R.H. 56 days at U <sub>NDC</sub>  <b>Performance requirements:</b> ΔC/C ≤ 5 % at 1 kHz Increase in tgδ ≤ 0.01 at 10 kHz No visual damage IR ≥ 100 MΩ
<b>Rated DC Voltage at 85 °C</b>	400 V <sub>DC</sub> 700 V <sub>DC</sub> 800 V <sub>DC</sub> 900 V <sub>DC</sub> 1100 V <sub>DC</sub> 1200 V <sub>DC</sub>	500 V <sub>DC</sub> 700 V <sub>DC</sub> 800 V <sub>DC</sub> 920 V <sub>DC</sub> 1200 V <sub>DC</sub> -	- 500 V <sub>DC</sub> 700 V <sub>DC</sub> 900 V <sub>DC</sub> 1200 V <sub>DC</sub> -

To evaluate the right choice of DC-Link capacitor for a given mission profile with voltage, component temperature, and relative humidity, please consult our experts at [dc-film@vishay.com](mailto:dc-film@vishay.com).

Please check our DC-Link portfolio at [DC-Link | Film | Capacitors | Vishay](#)