The Film Cap. Tech. For DC Link

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FARATRONIC

Xiamen Faratronic Co. Ltd.
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APEC Booth 1226

Empowering the Electronics Industry
A Power Technology Roadmap

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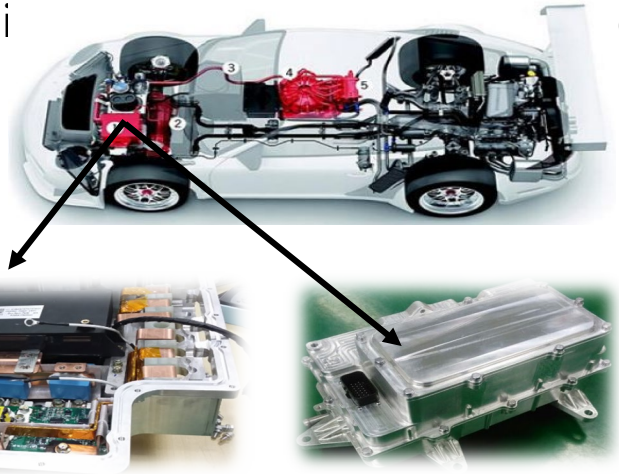
The film capacitors technology for DC link:

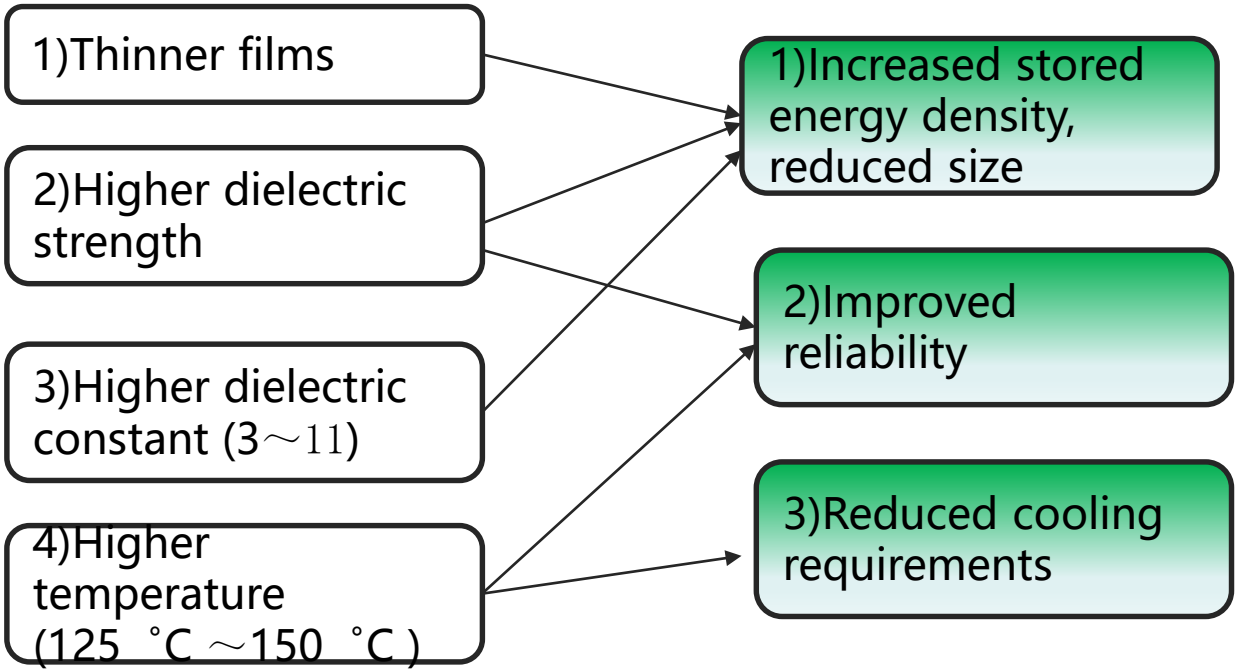
- DC link film capacitors become one of the key components in the EV/HEV except IGBT.
- PP film capacitors have the advantages :
  - low losses , high voltage, stabili ce comparing with other dielectric.



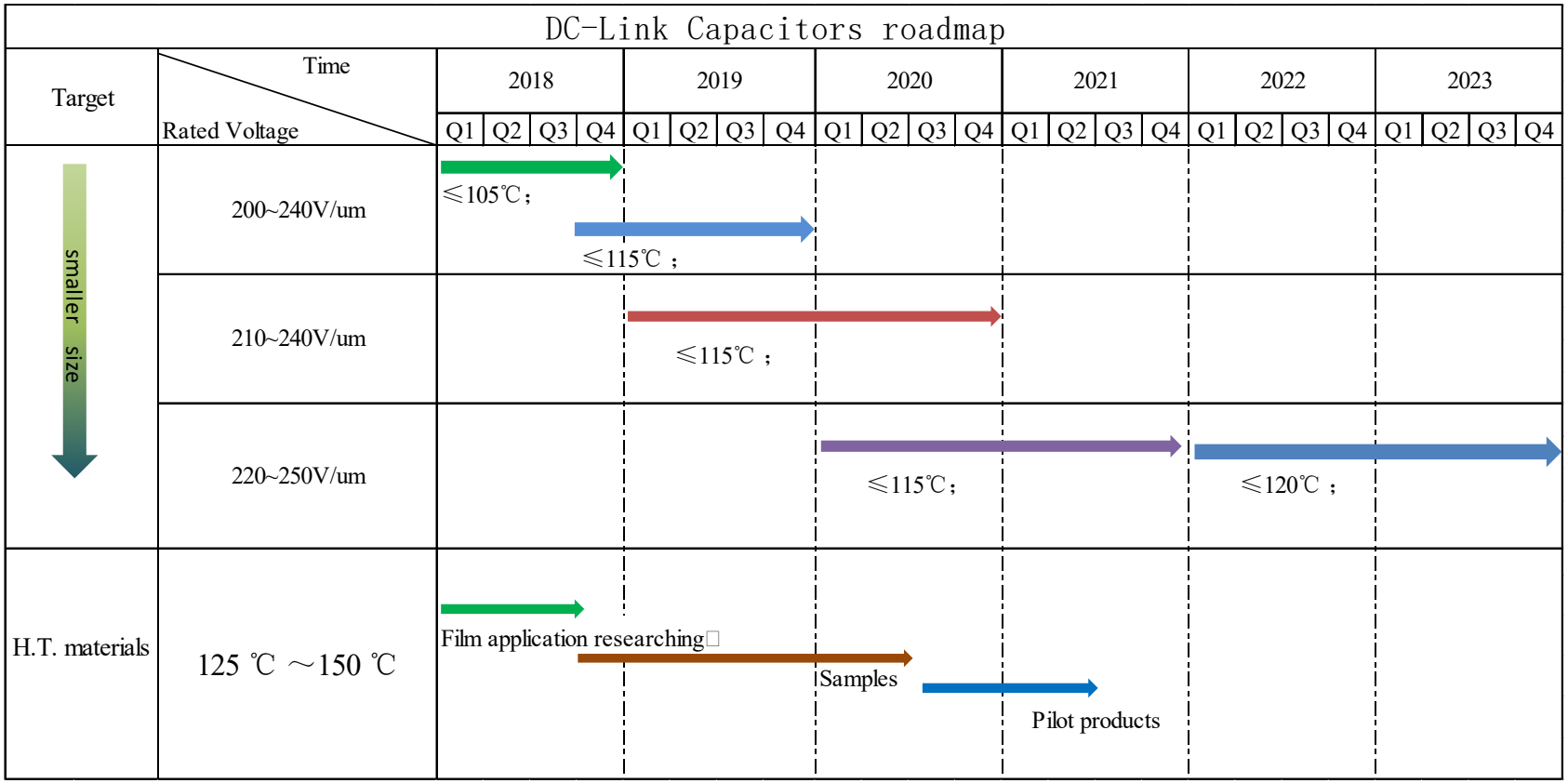
- As the EV/HEV market rapidly growing recently, it requires the DC link film capacitors:
  - **Reducing size**
  - **Higher energy density**
  - **Higher temperature**

The film capacitors technology for DC link:

- Faratronic focuses on:
  - Improving the properties of OPP film
  - Researching and finding new materials **(Higher temperature film dielectric)**



DC-Link Capacitors roadmap



125 ℃ or 150 ℃ high temperature capacitors
New H.T. Film dielectric

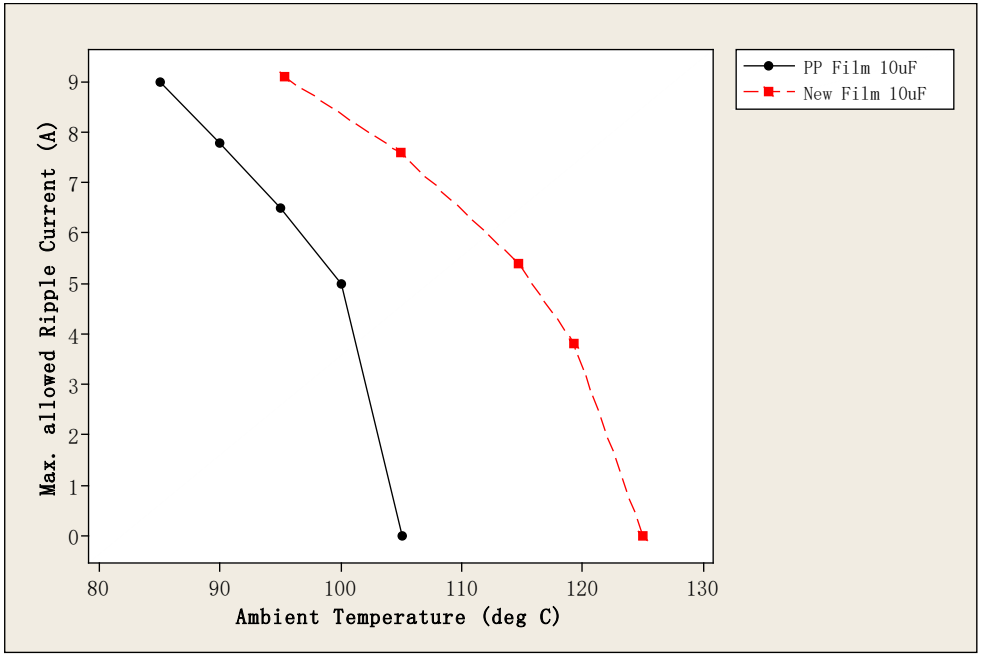
- PP film :lower 125 ℃(short time)
- New H.T. Film dielectric: 125 ℃ ～ 150 ℃

Time / type	2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Film application researching																
Samples																
Pilot products																

Note: 2018 Q4 125 ℃ Samples

Smoothing capacitor for EV/HEV power electronics **at 125 ˚C**.

- Segment metallized film design
- High heat resistance**[continuously 125 ˚C, short time 150 ˚C]**.
- Higher allowable ripple current under higher temperature environment than PP film capacitor(**105 ˚C**).
- High frequency range.



Smoothing capacitor for EV/HEV power electronics **at 125 ˚C.**

- Material characteristics:

Material	OPP	High heat resistant thermoplastic resin
Temperature range	85℃~105℃	125℃~150℃
Dielectric constant (εr)	2.1~2.2	>3.0

Smoothing capacitor for EV/HEV power electronics **at 125 ˚C.**

- Specifications:
- ◆Ratings
- Rate Voltage:450V
- Typical Rate capacitance:10,15uF

- ◆Reliability
- Endurance：**125℃/450V,2000h**；**150℃/310V,300h**
- Humidity heat test with loading: 85℃/85%RH/450Vdc , 1000 hours
- Temperature shock：-40℃←→125℃ 1000 cycles

Thank You

Faratronic, your trusty partner

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