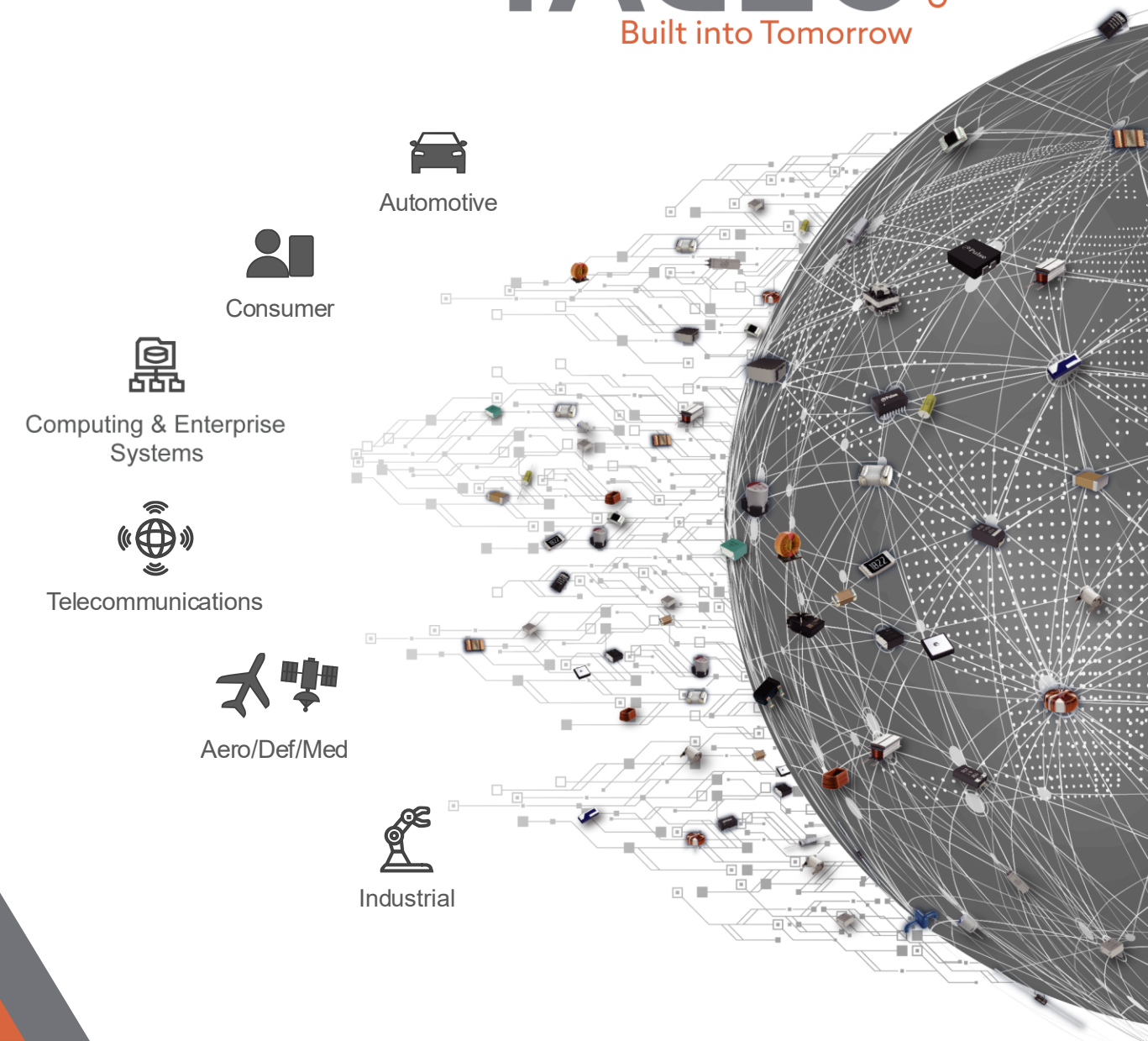
6TH SPACE PASSIVE COMPONENT DAYS - SPCD 2026
13-16 October 2026 | ESA/ESTEC
Noordwijk, The Netherlands

YAGEO GROUP
Built into Tomorrow

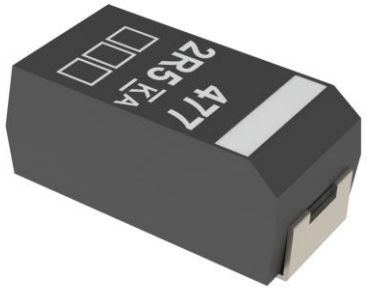
Automotive Polymer Tantalum Capacitors with capabilities beyond AEC-Q200

48V Application Voltage Adoption in LEO Satellite Industry

Cristina Mota, 15th October 2026



Outline

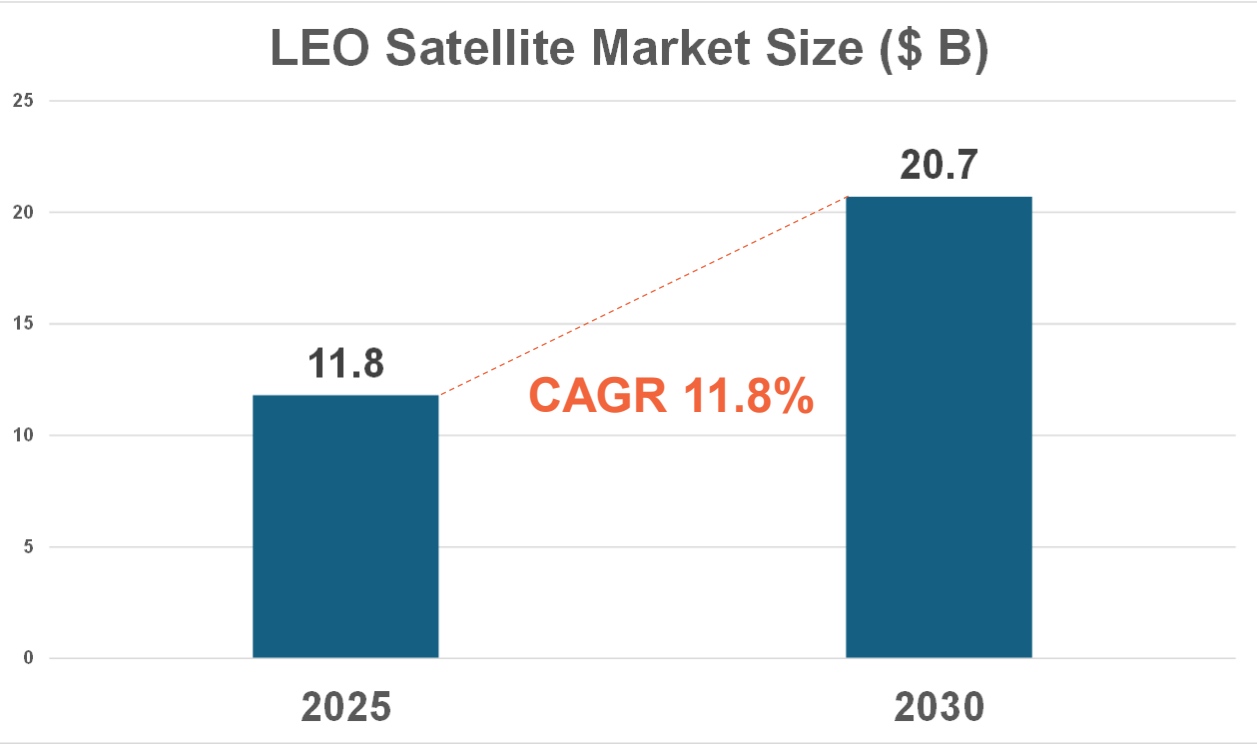


Automotive Grade Catalog

- Market and Applications Considerations
- Tantalum Polymer Advantages
- New 48V Input Solution
- Design, Mechanical & Electrical Performance
- Conclusion

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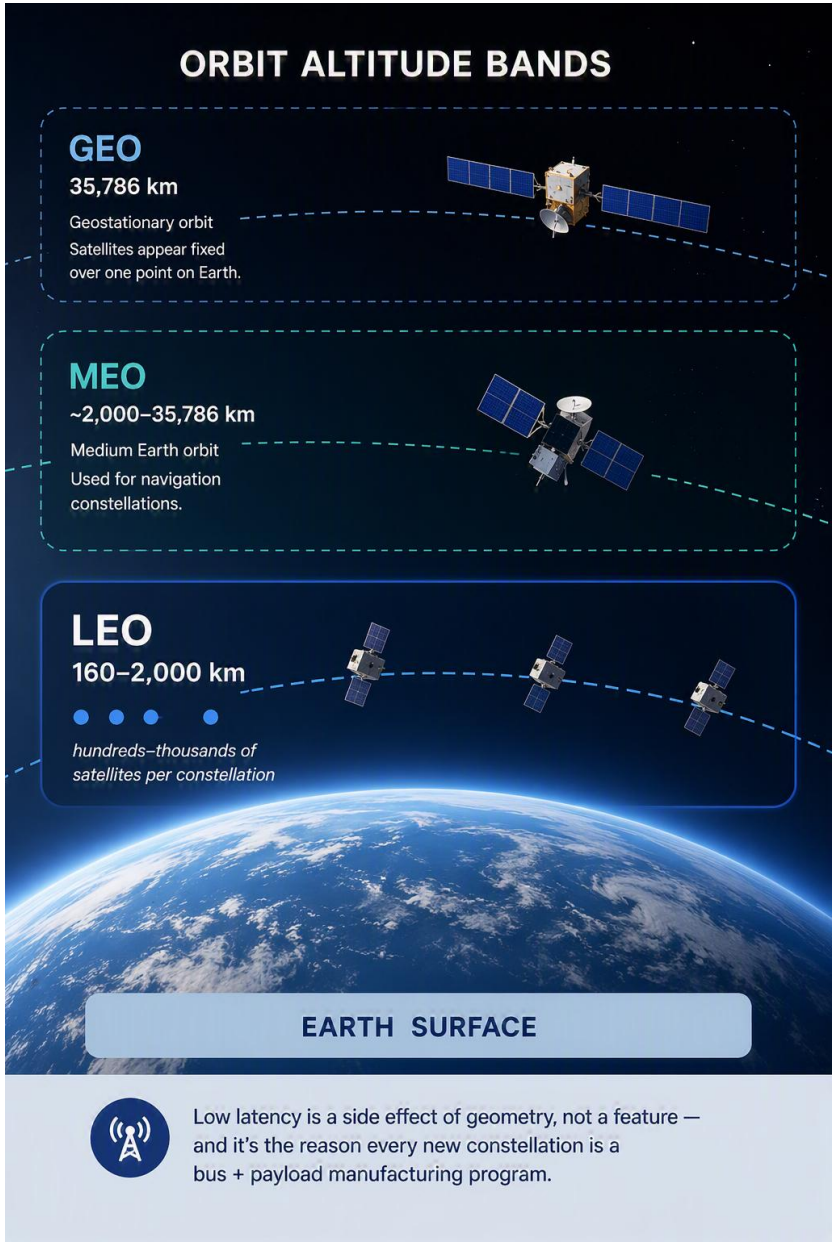
Market & Applications Considerations



Increases on Investiment satellite constellations:

Global Internet Service Satellites Challenges

- **Cost Competitiveness;**
- **High Speed broadband**
- **Improved data transmission**



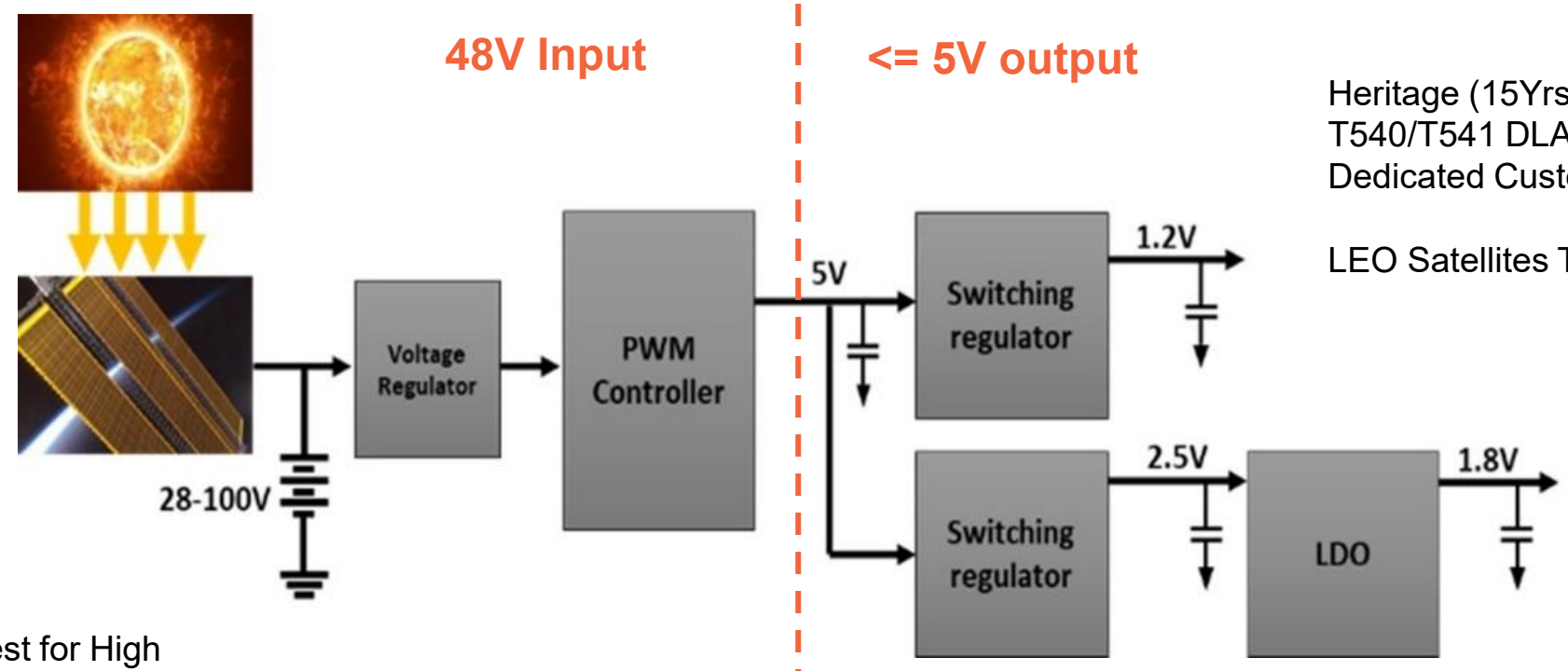
Source:

https://www.marketsandmarkets.com/Market-Reports/leo-satellite-market-252330251.html

SPCD, October 2026

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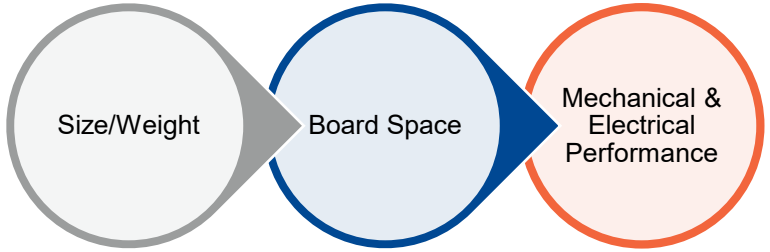
Application Challenges



Heritage (15Yrs+ Legacy Space T540/T541 DLA, T541 ESA EPPL and Dedicated Customer SCD

LEO Satellites T598 Up-screen

Recurrent Request for High Volumetric and Electrical Stable Solution in 28 and 48V



SPCD, October 2026

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Application and Capacitor Advantages

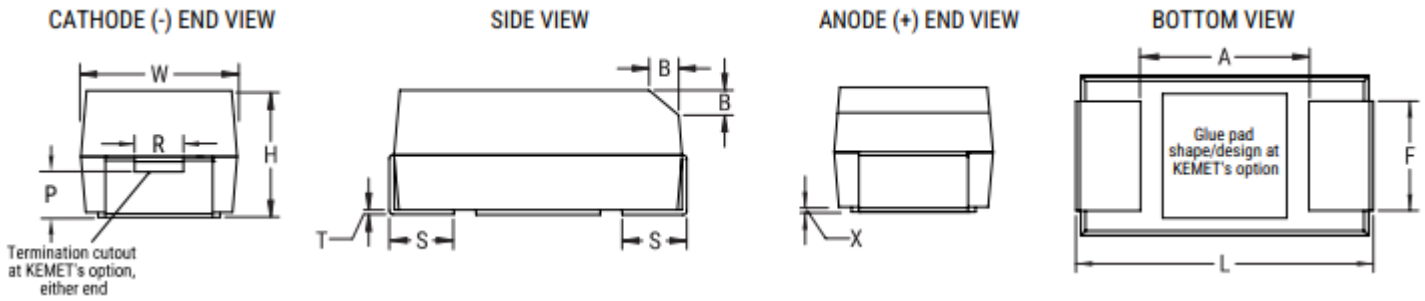
Application Requirements		Capacitor Requirements
Smaller/Lighter Components	⇨	Higher Cap Per Unit Volume
Lower Loss Components	⇨	Lower ESR, Lower Thermal Resistance
Higher Reliability	⇨	Electrical Parameters Stability, Longer Life
Mechanical Robust Construction	⇨	Board Flex, Vibration, Mechanical Shock

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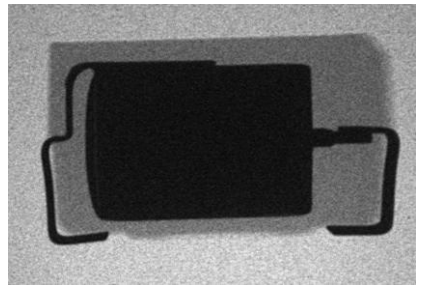
New Input 48V Line Solution

Tantalum Polymer Capacitor, case size X, 22uF 75V

Rated Voltage (V)	Capacitance µF	Case Code/ Case Size	YAGEO Part Number	DC Leakage µA at 25°C max/ 5 minutes	DF% at 25°C 120 Hz Max	ESR mOhm at 25°C 100 kHz Max	Maximum Allowable Ripple (rms) mA at 45°C 100	MSL Reflow Temp ≤ 260ºC	Max Operating Temp (°C)
75	22	X/7343-43	T598X226M075AHW100	165	10	100	2,240	3	125ºC

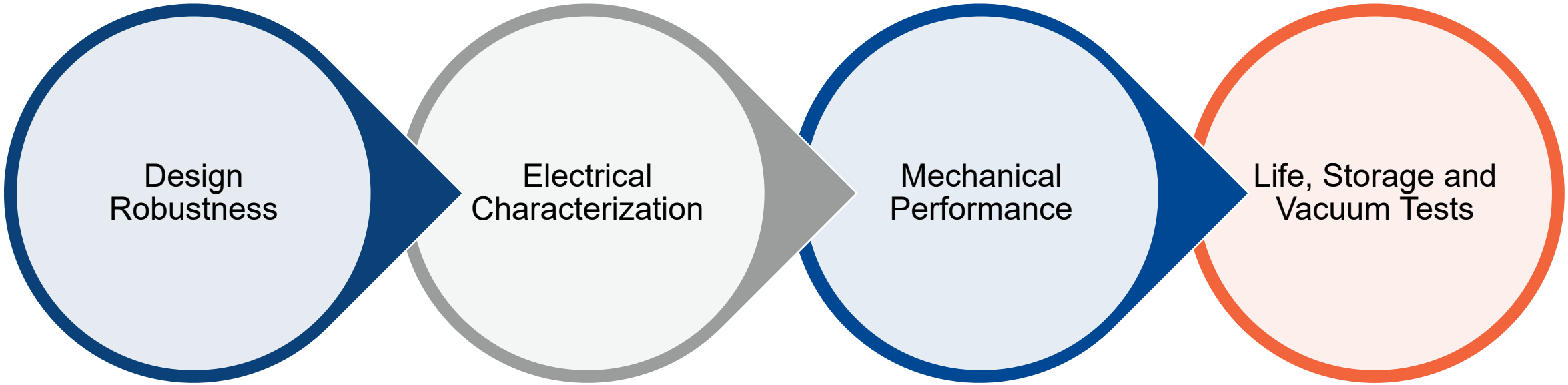






SPCD, October 2026

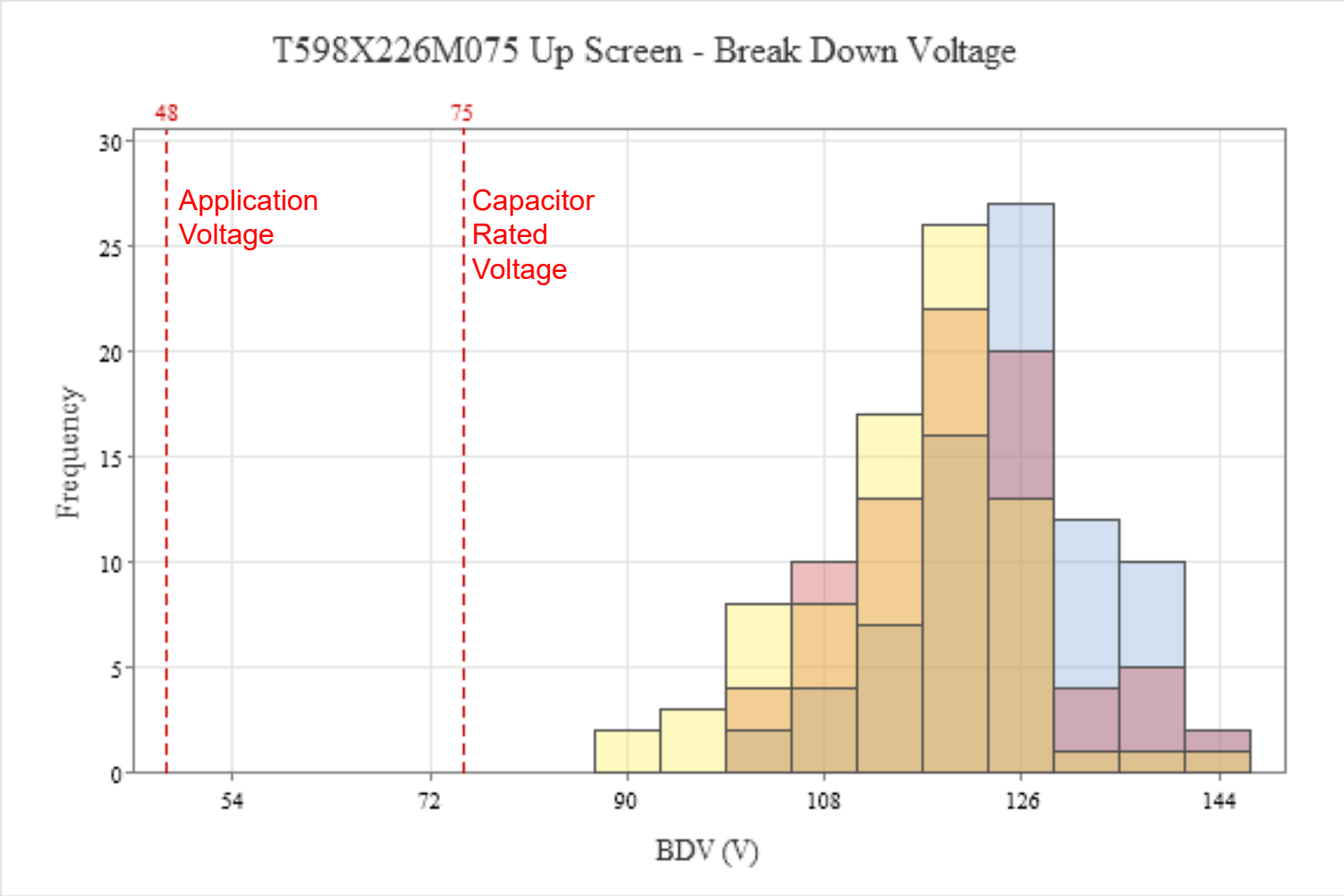
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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



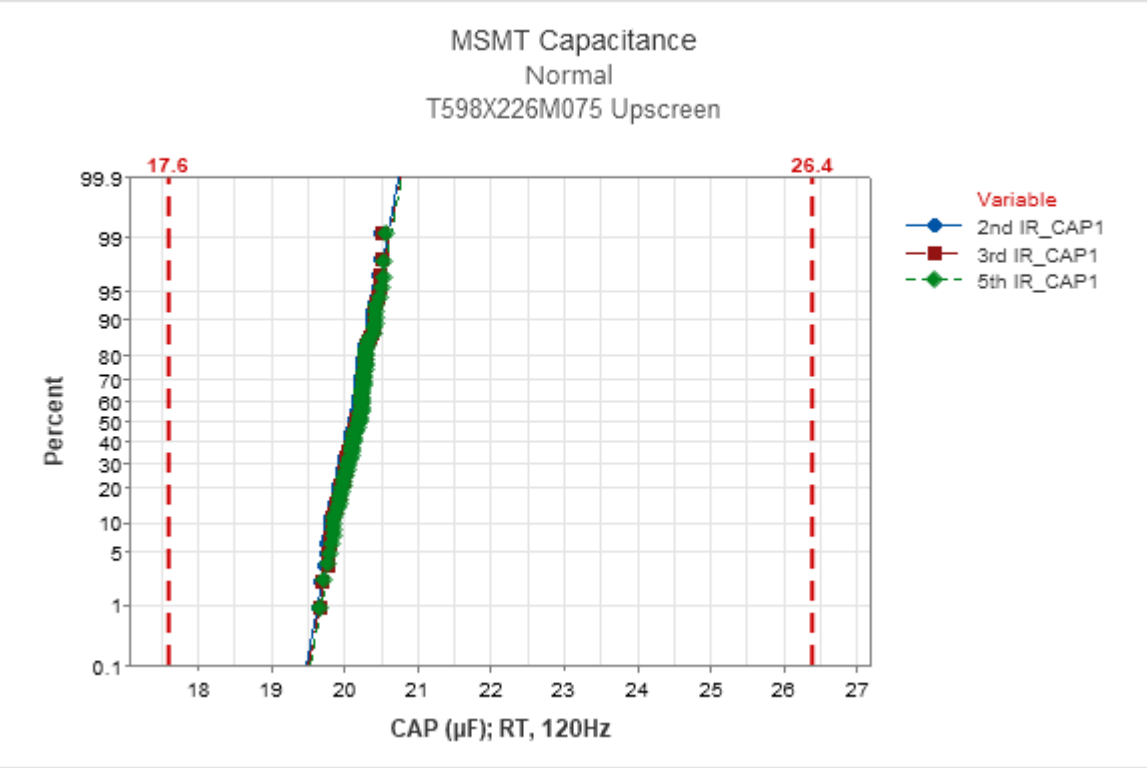
- High Volumetric Efficiency
- Conservative Design
- Robust Dielectric

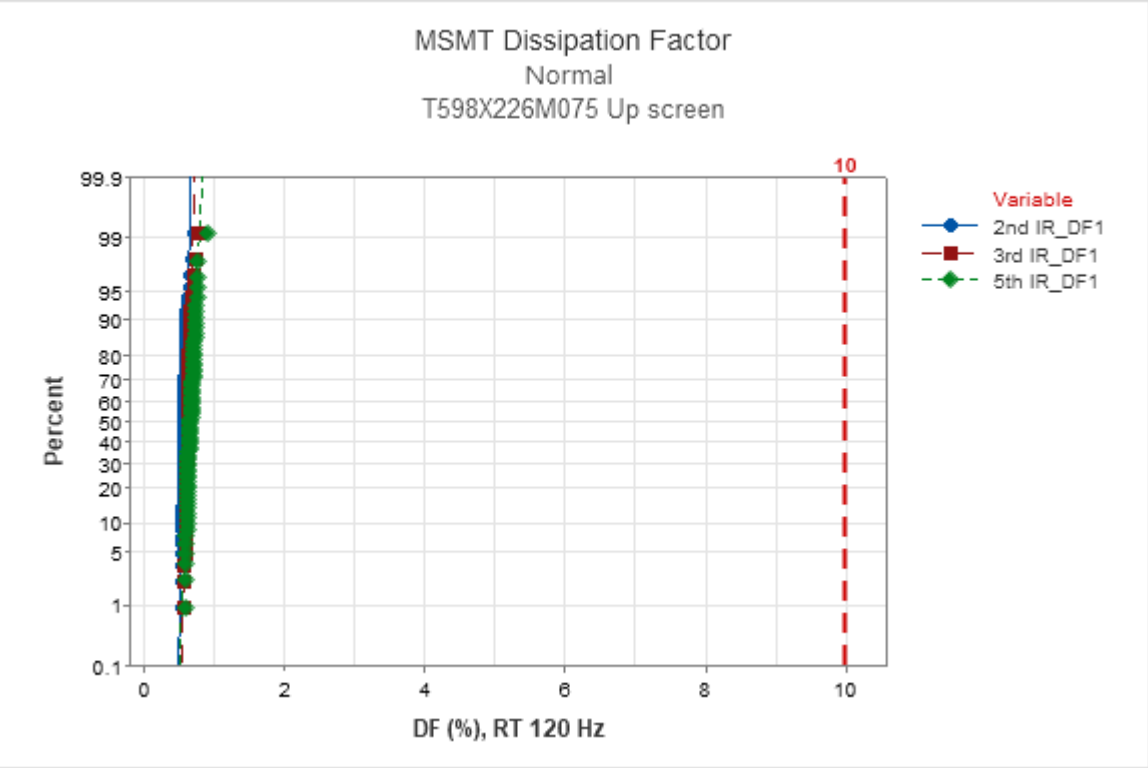
BDV at 90ºC with 3.3V/sec ramp – 3 batches - **High Safety Margin**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



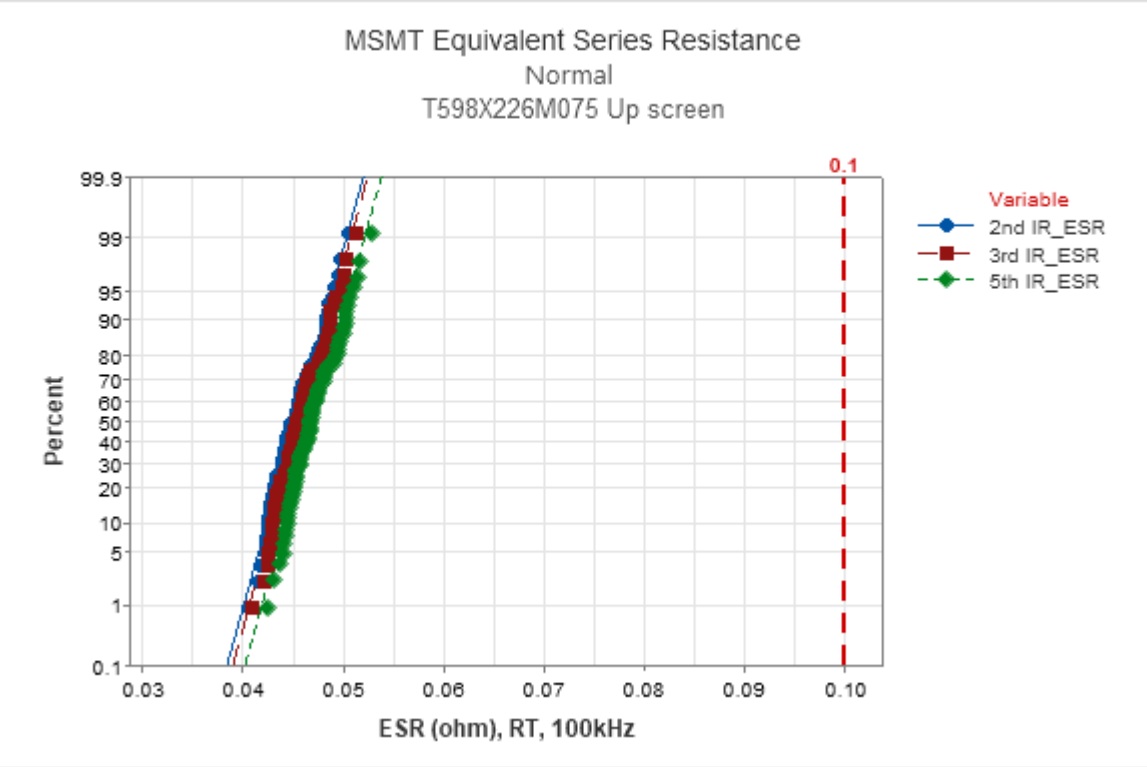


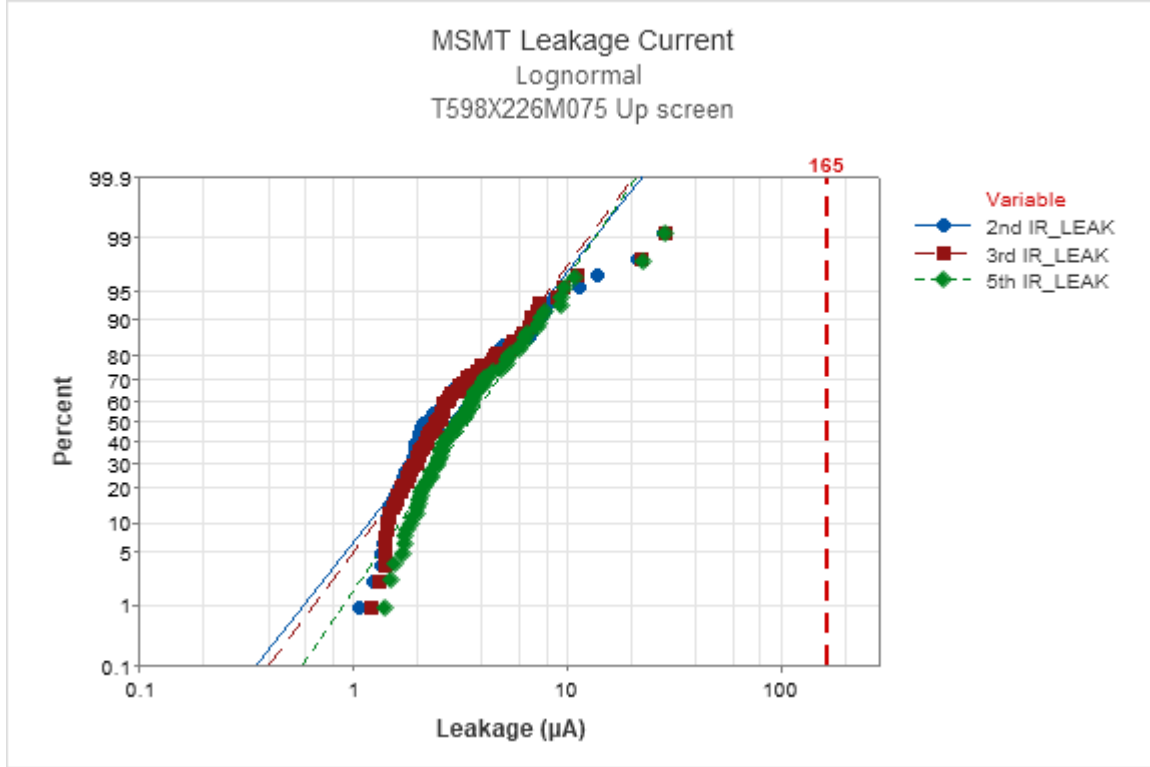
Electrical Characteristics Validation after a sequence up to 5 x 260ºC Soldering Profile - **STABLE**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ





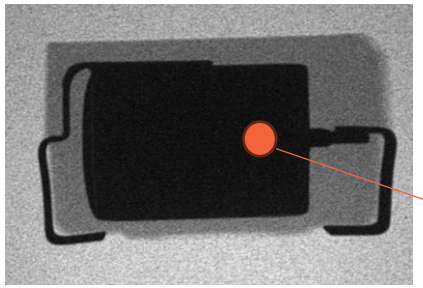
Electrical Characteristics Validation after a sequence up to 5 x 260ºC Soldering Profile - **STABLE**

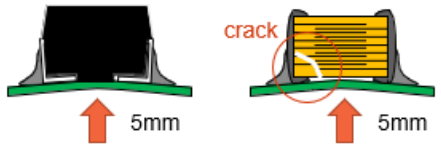
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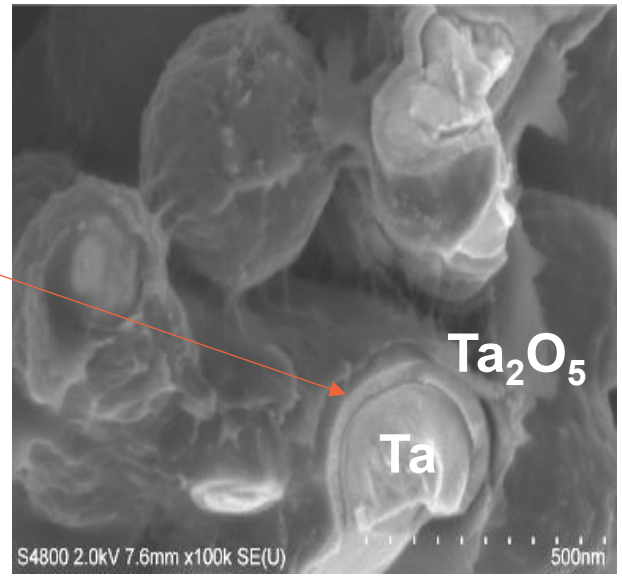
Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ









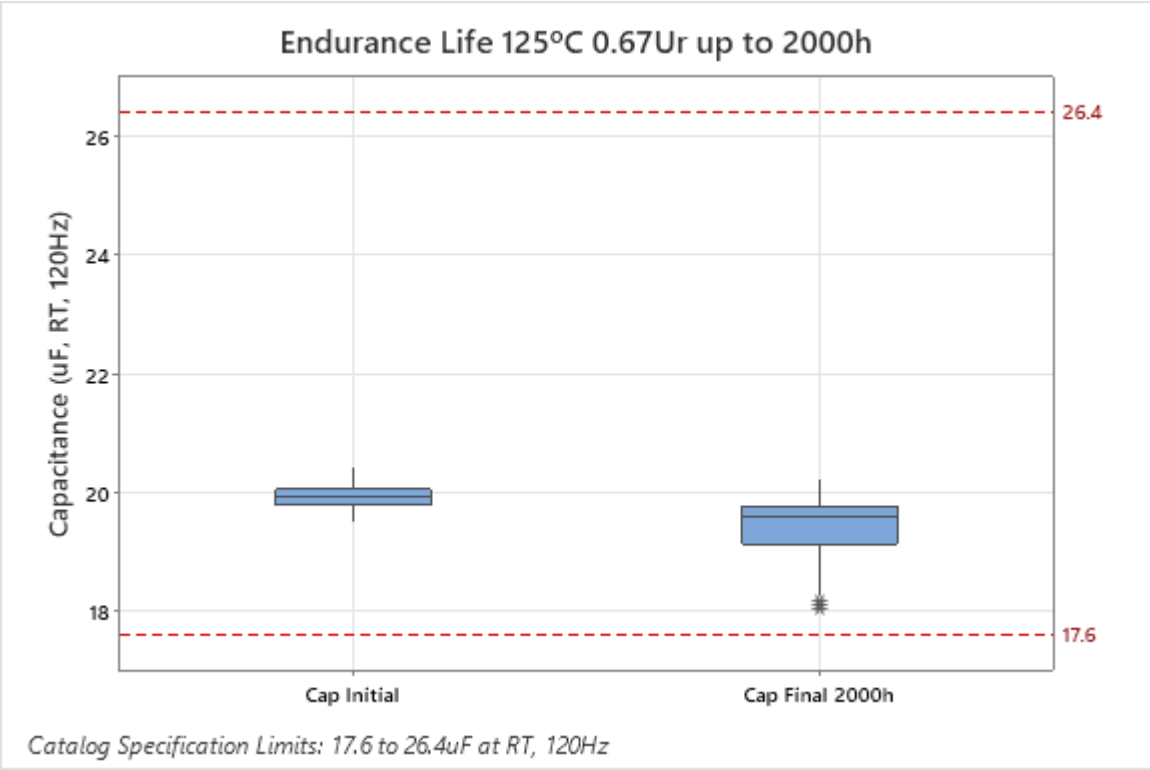
T598 EIA 7343-43 Board Flex Capacitance Stability Investigation	DELTA CAP (%)
Mean	-0.200
Std. Dev.	0.666

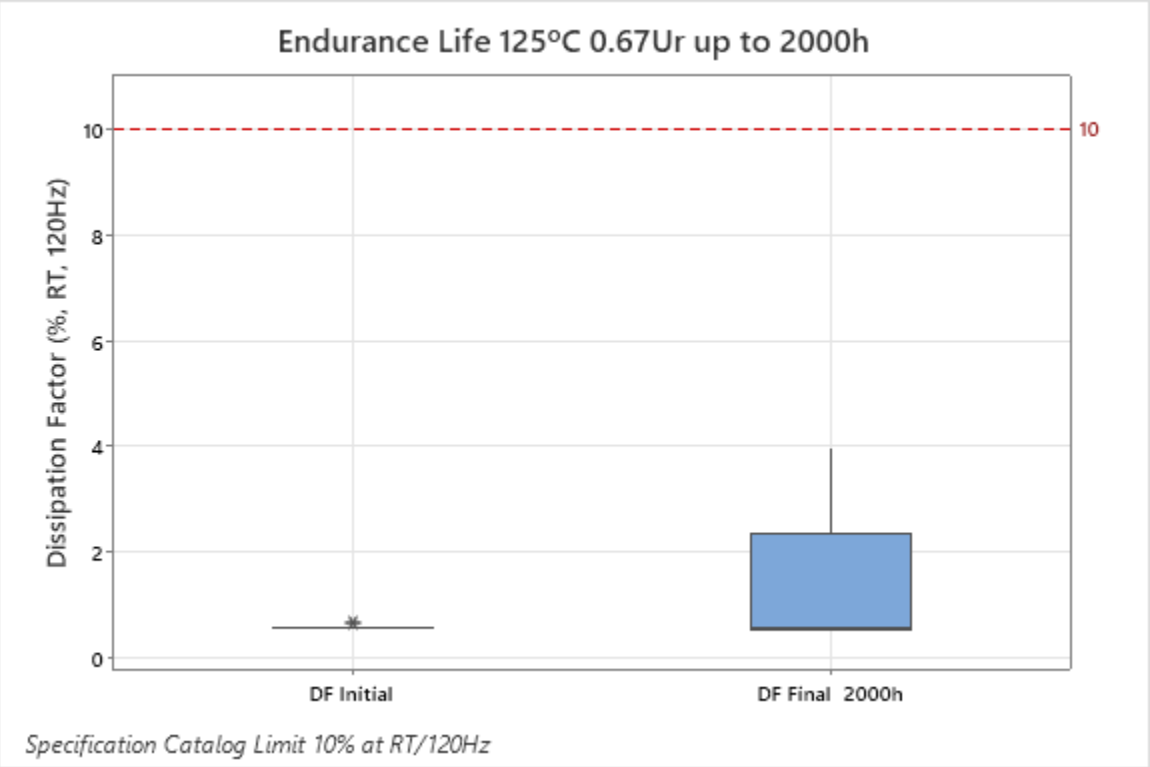
Flex Cracking - 5mm / 60sec Validation – **Robust Mechanical Structure**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



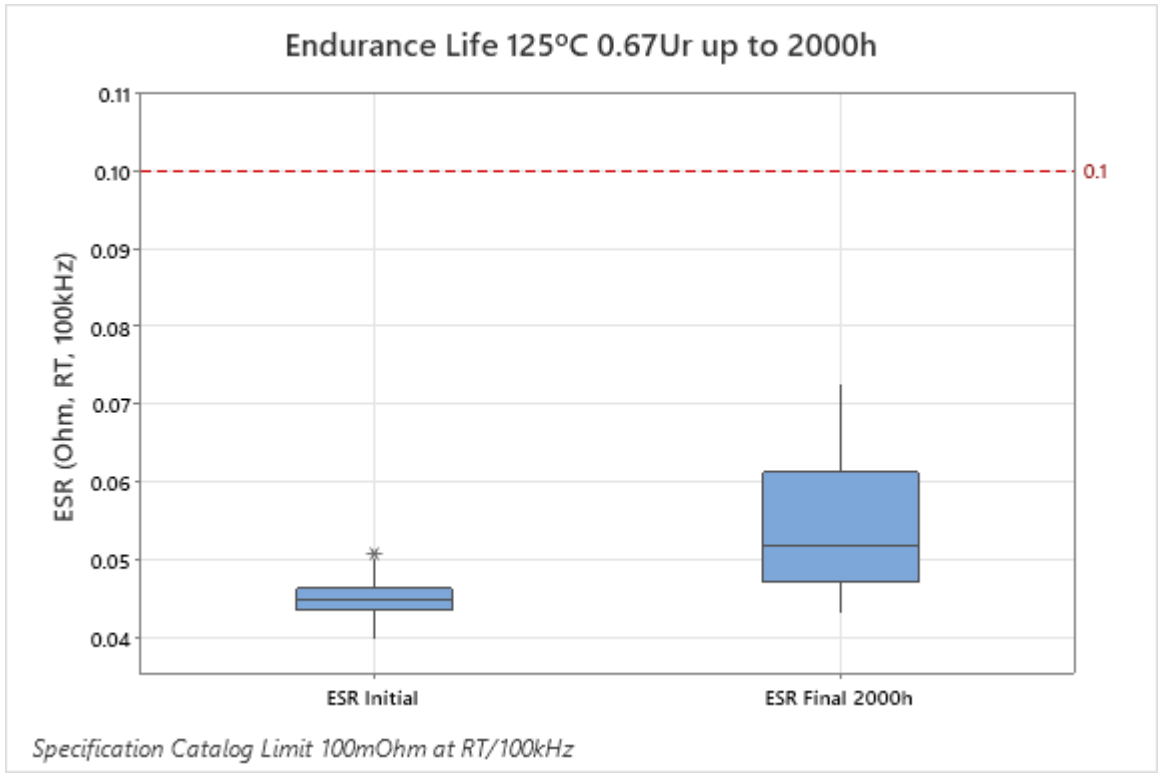


Endurance Life 125ºC – 0,67Ur – Capacitance and Dissipation Factor - **STABLE**

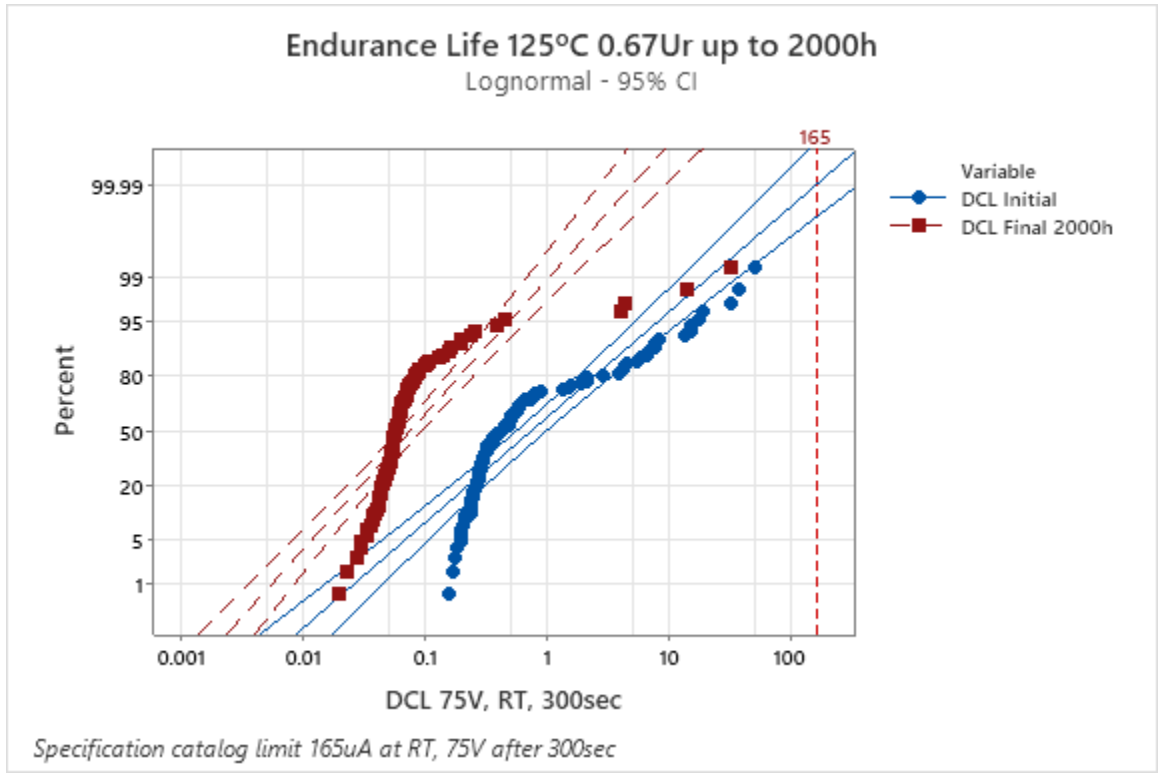
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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



Specification Catalog Limit 100mOhm at RT/100kHz



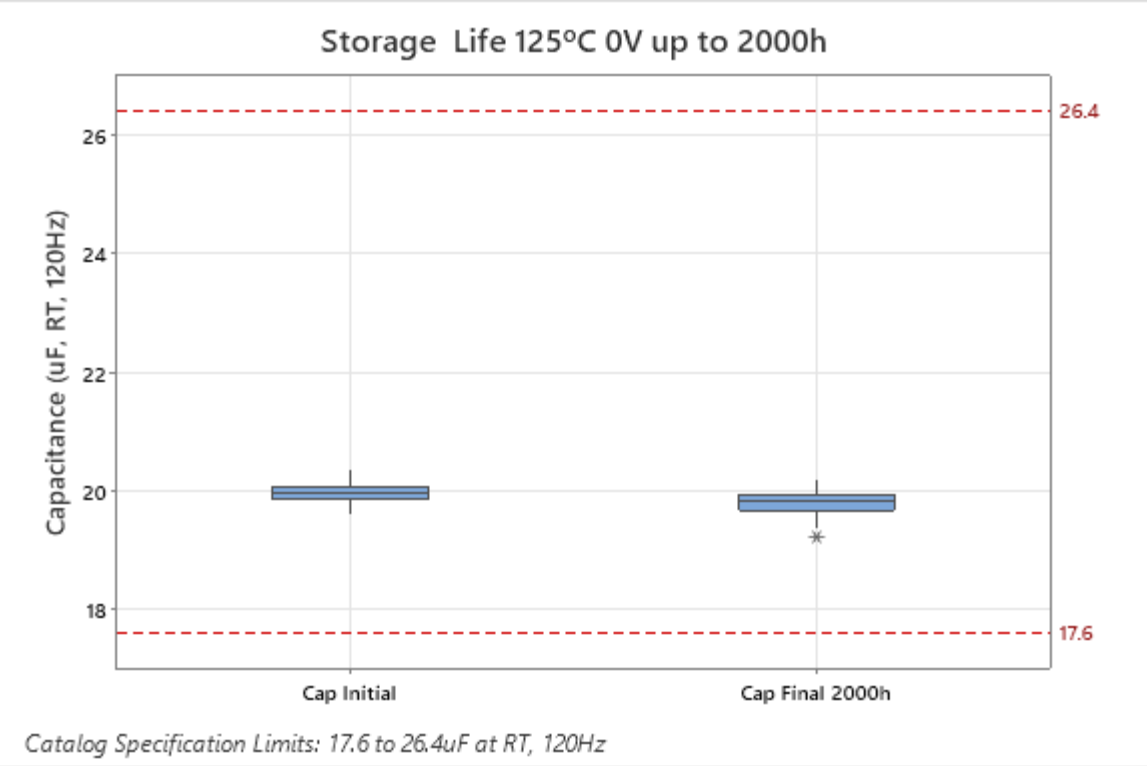
Specification catalog limit 165uA at RT, 75V after 300sec

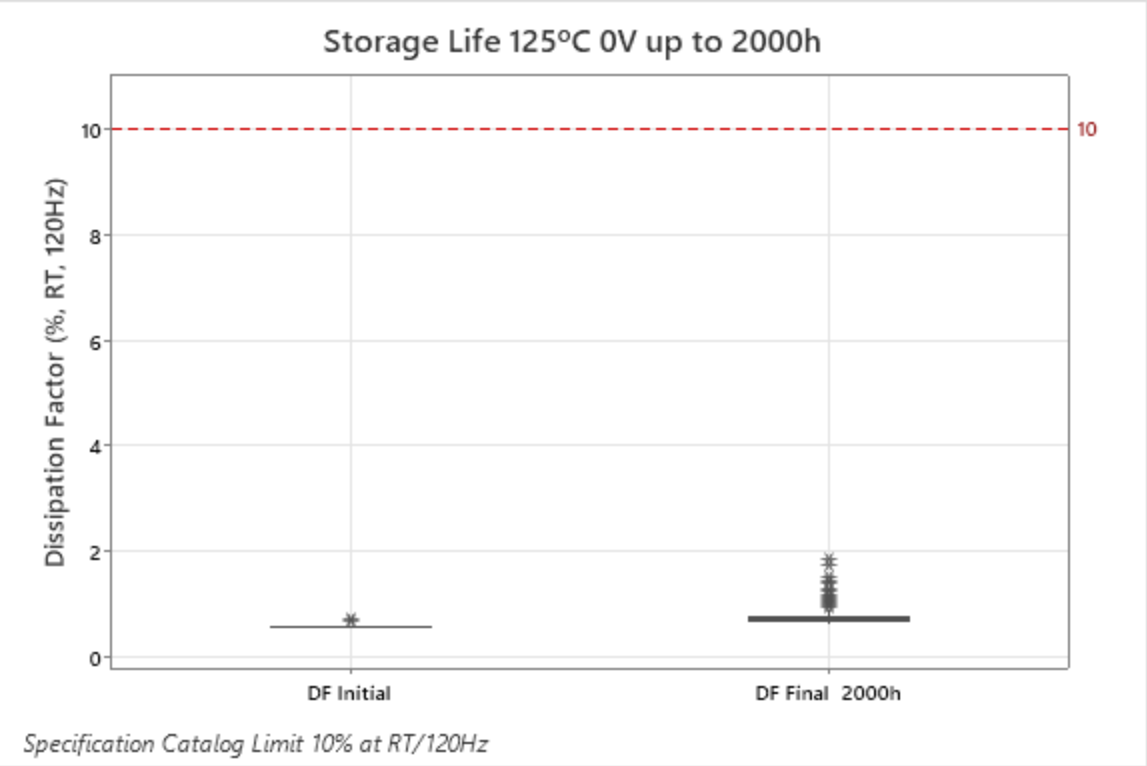
Endurance Life 125ºC – 0,67Ur – ESR and DCL - **STABLE**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



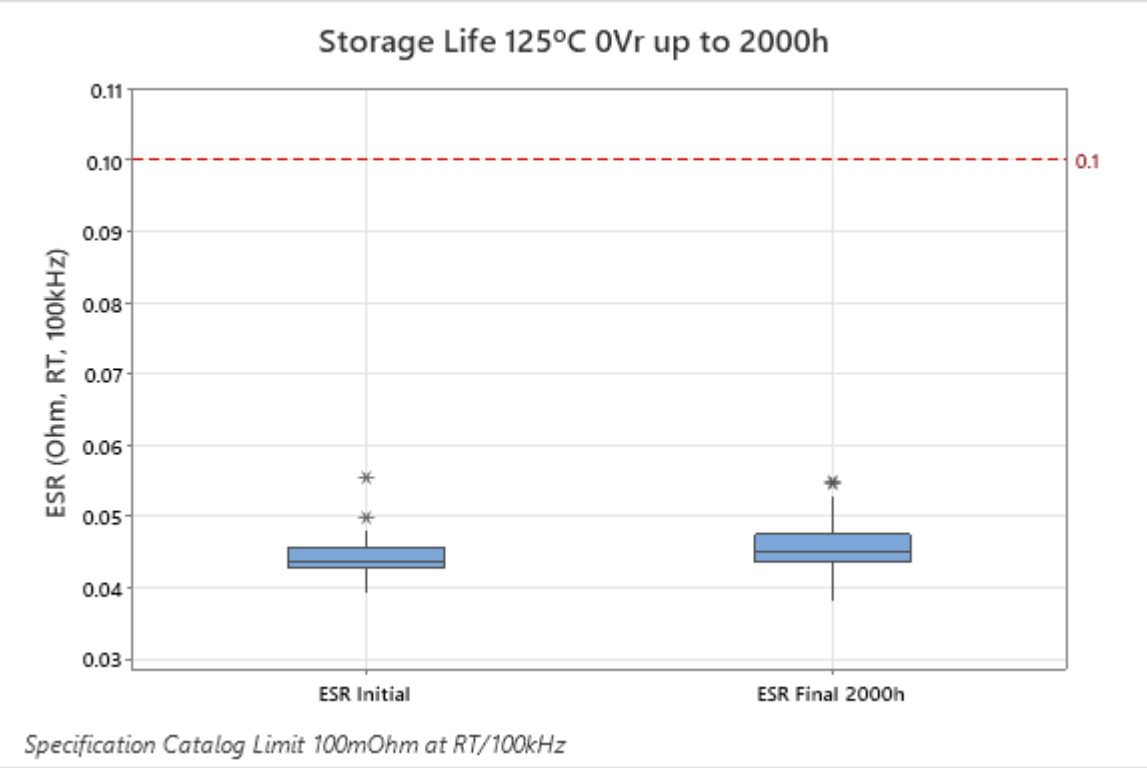


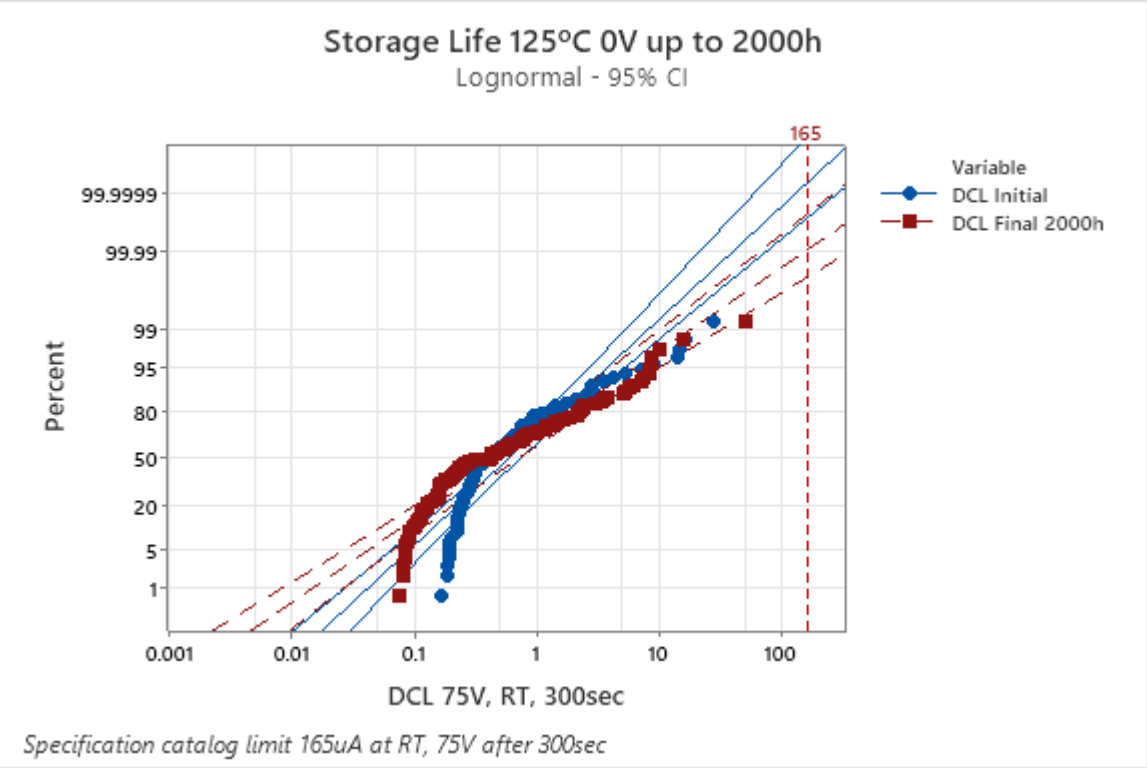
Storage Life 125ºC – Capacitance and Dissipation Factor - **STABLE**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ





Storage Life 125ºC – ESR and DCL - **STABLE**

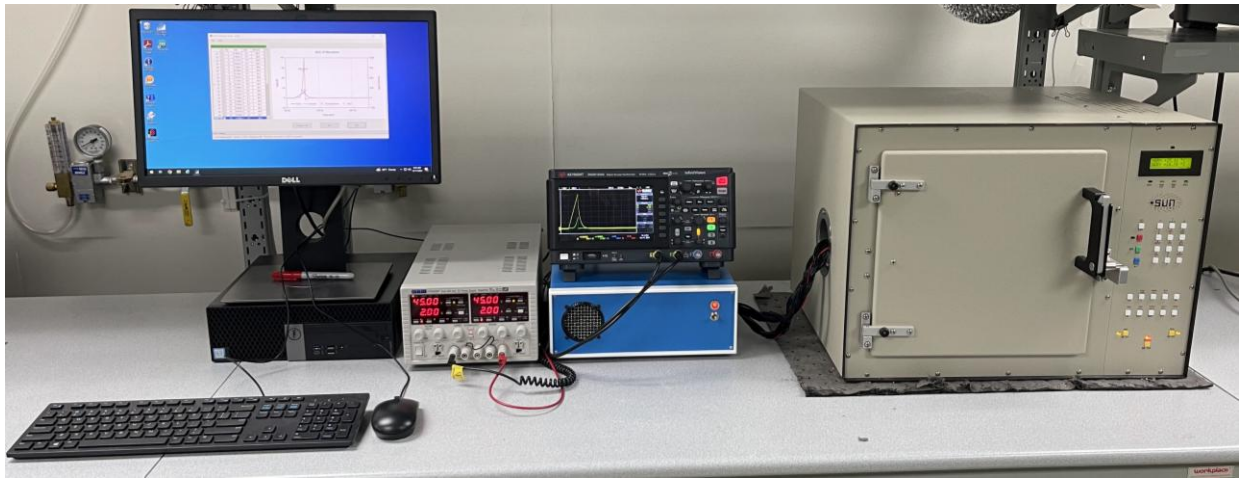
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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ

Storage Vacuum Investigation
Analysis of Capacitance, ESR and ACC

Test Condition – 0ºC / 480hours
Control Condition – Lab Ambient environmental

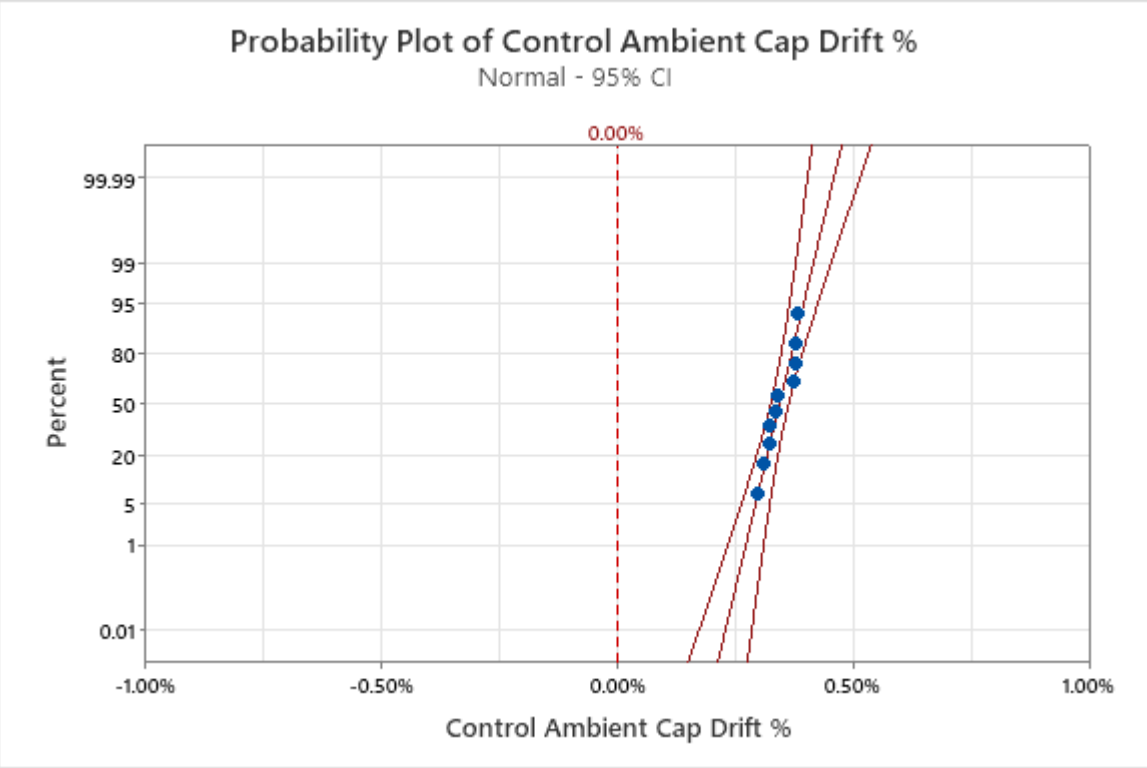


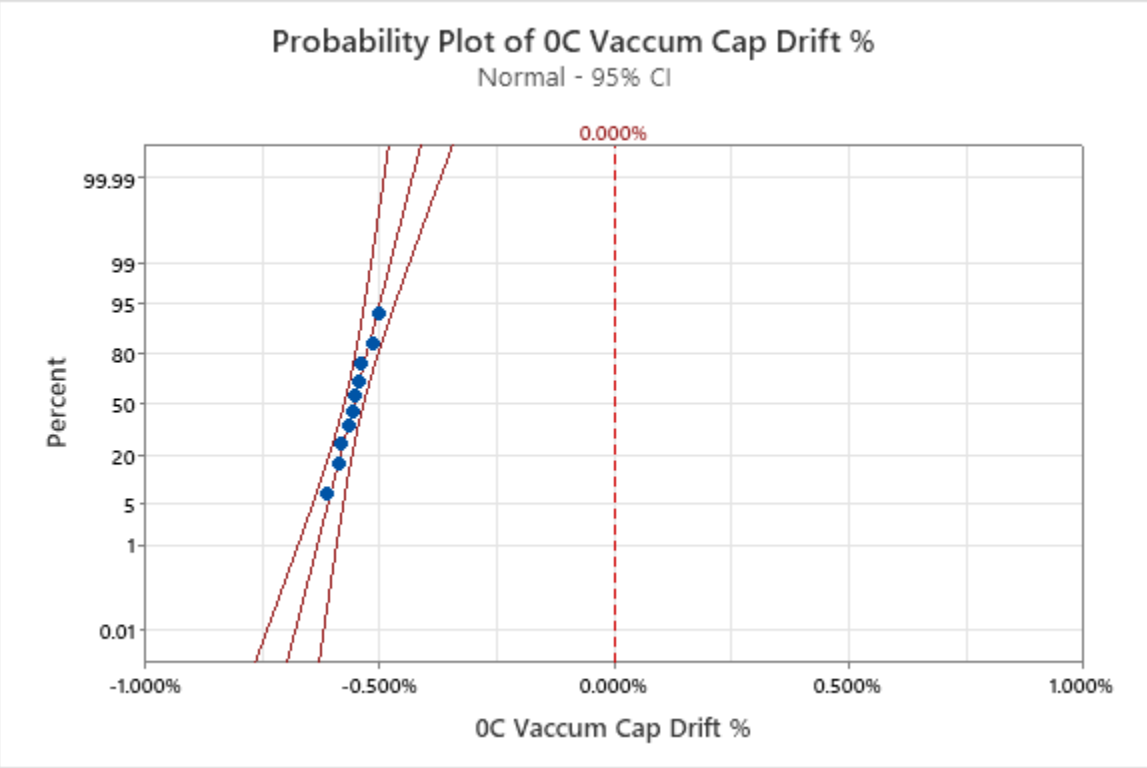


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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ



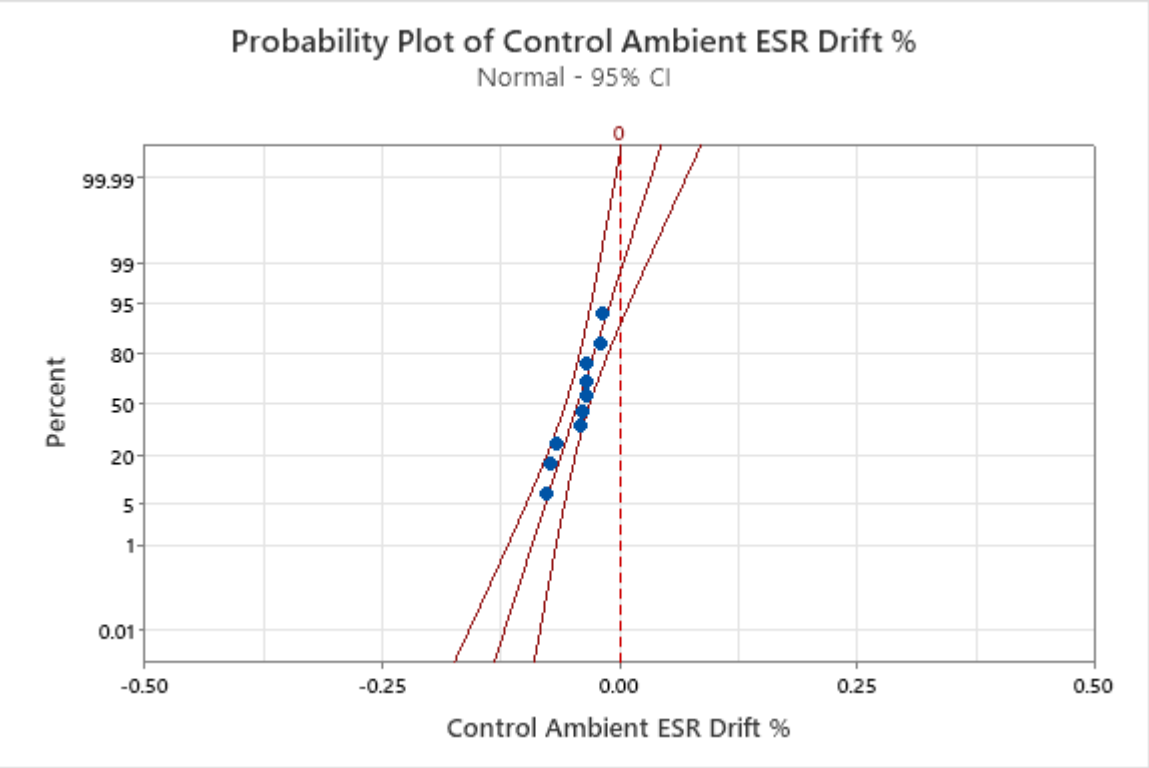


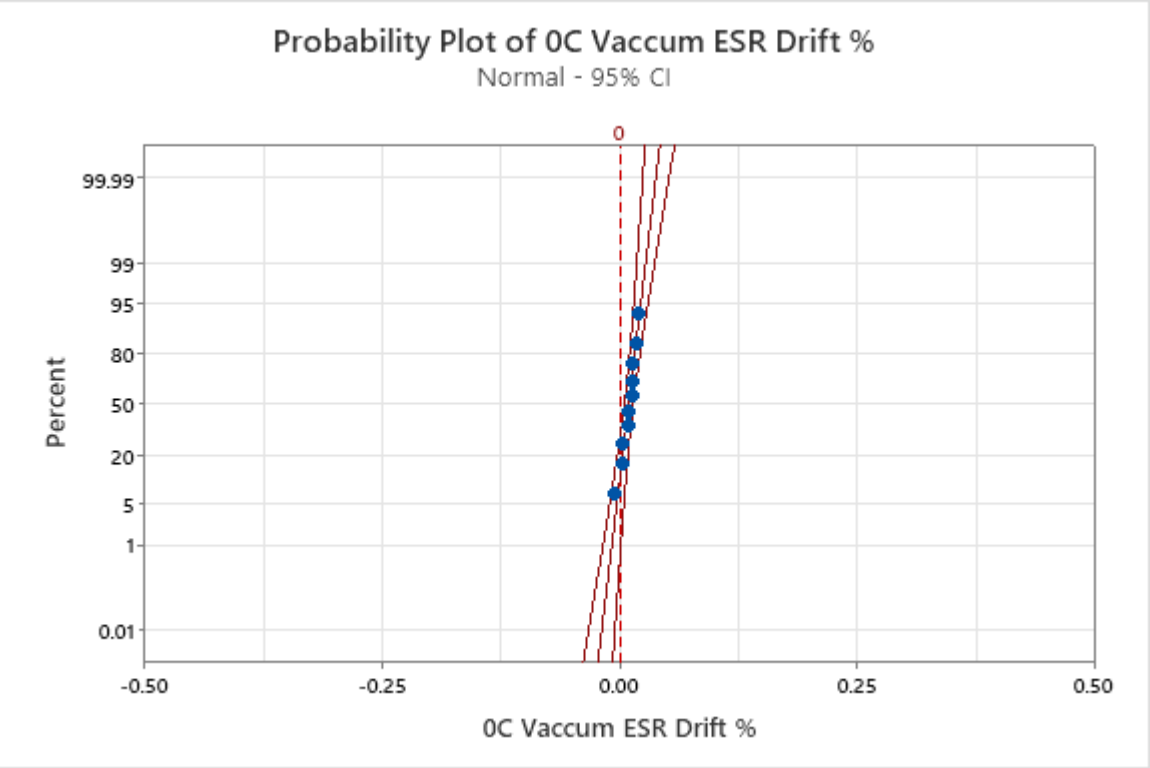
Vacuum 0ºC / 480h vs Control – Capacitance Drift (%) - **STABLE**

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Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ





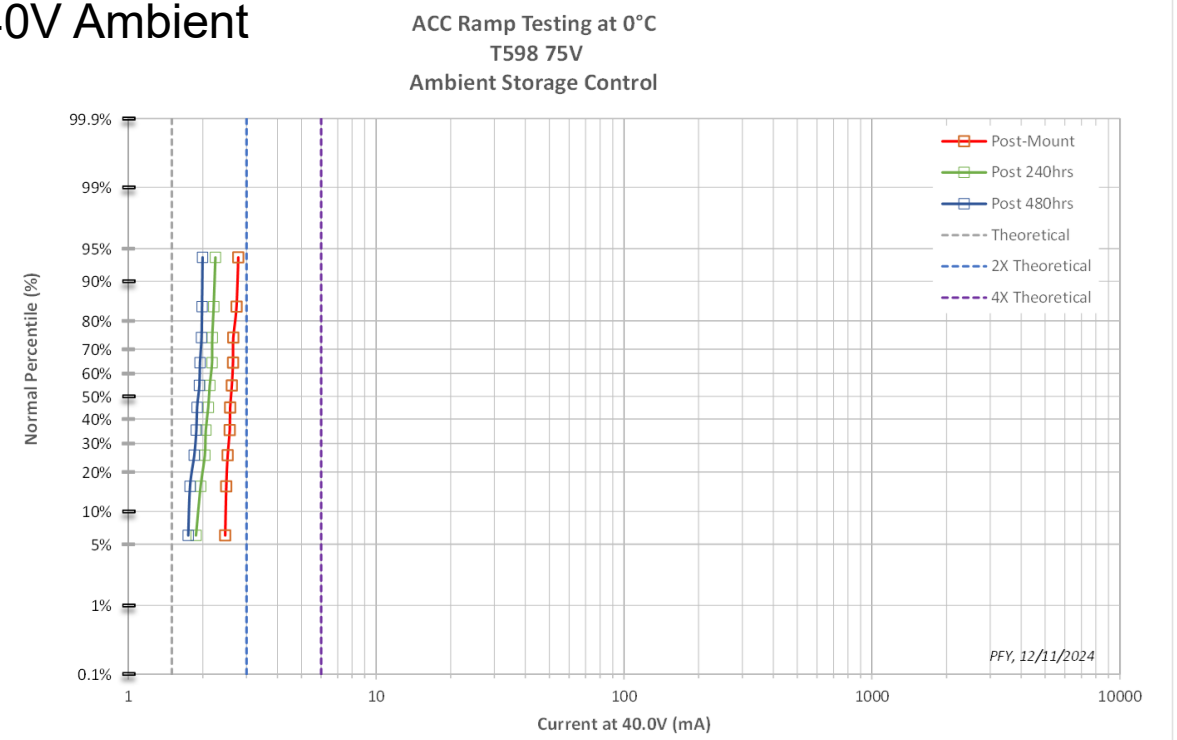
Vacuum 0ºC / 480h vs Control – ESR(%) - **STABLE**

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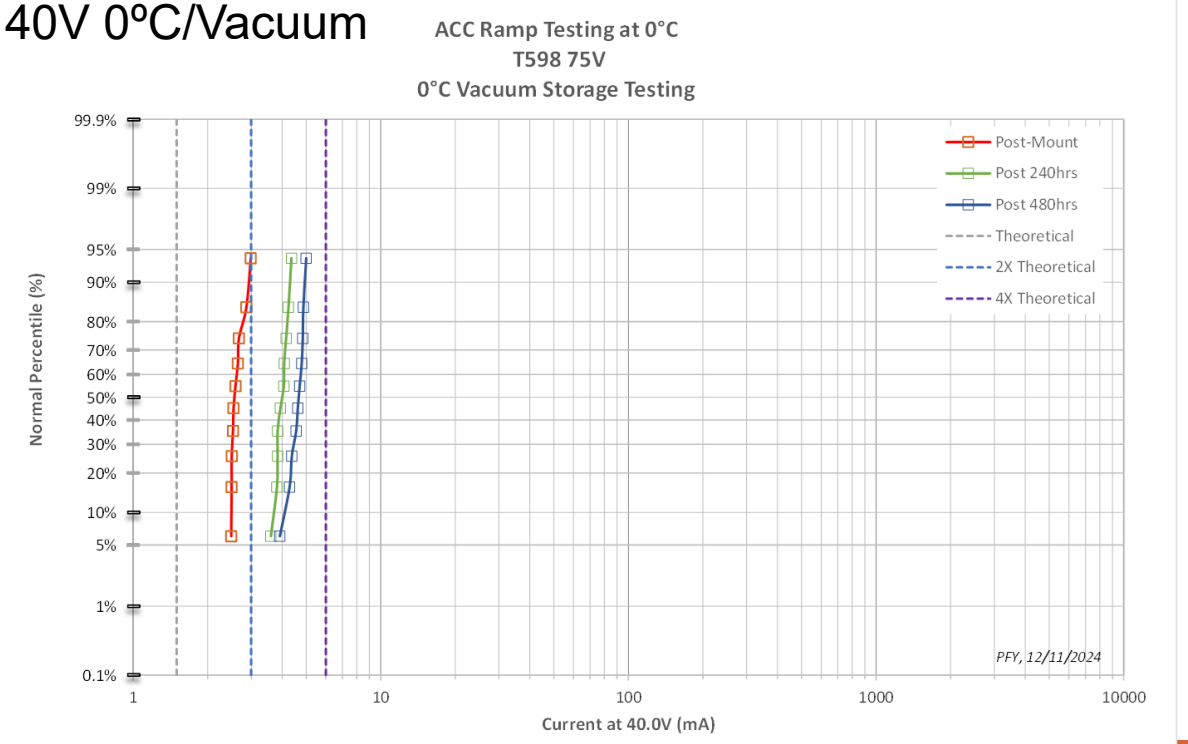
Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ

40V Ambient



40V 0ºC/Vacuum



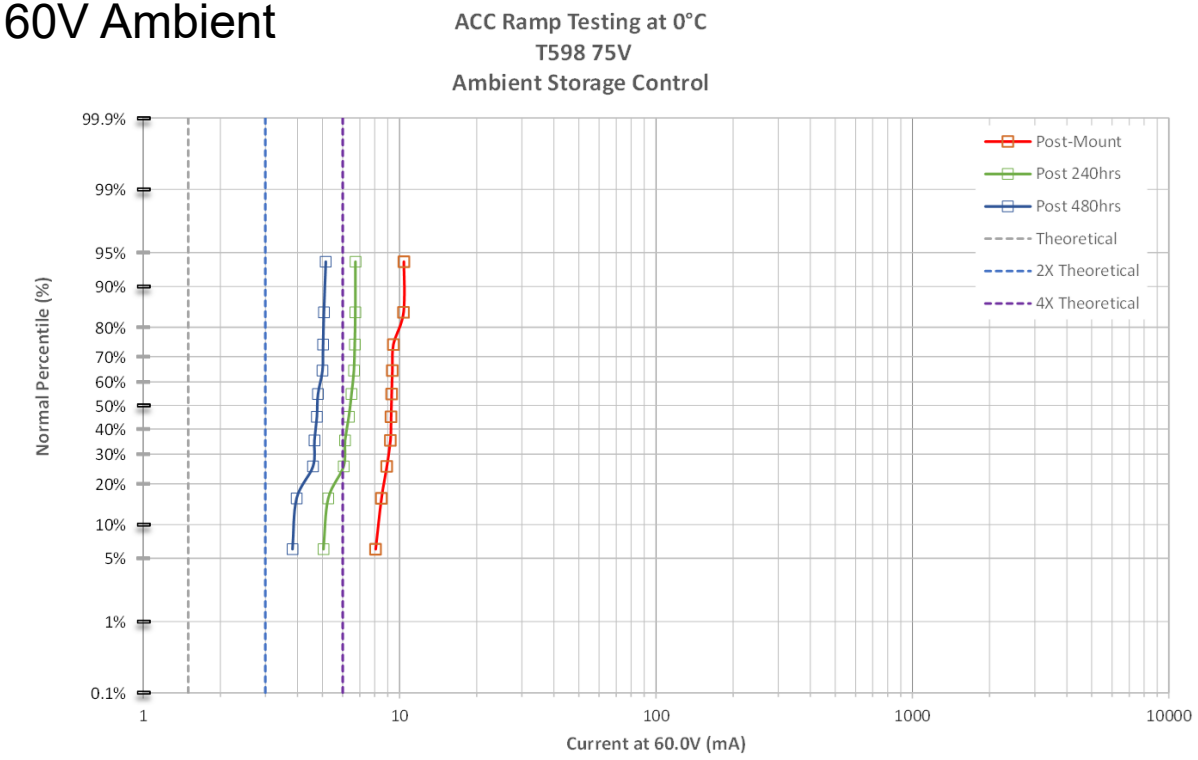
Vacuum 0ºC / 480h vs Control – **ACC 40V << 60V and Vacuum Impact**

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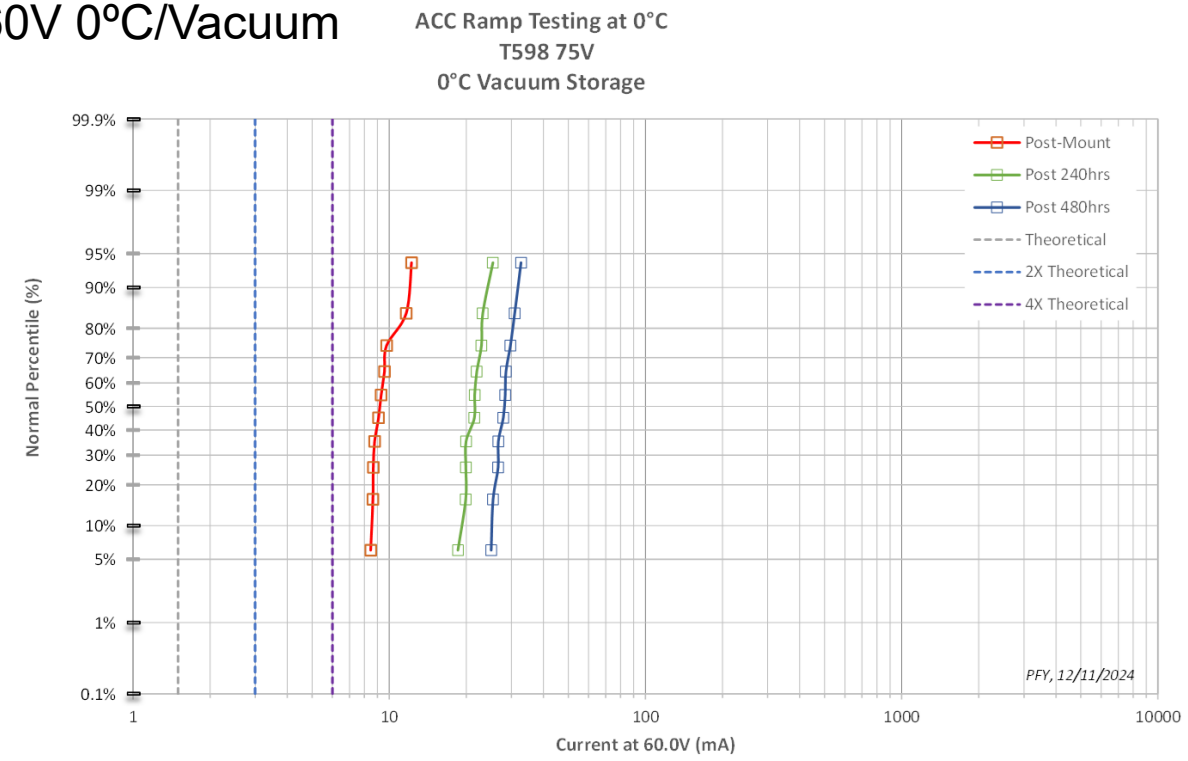
Automotive Polymer Capacitor

EIA 7343-43, 22 µF, 75V, 100 mΩ

60V Ambient



60V 0ºC/Vacuum



Vacuum 0ºC / 480h vs Control – **ACC 40V << 60V and Vacuum Impact**

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Automotive Polymer Capacitors
Conclusion: Up-screen alternative available with:

Up-Screen with H Termination and Surge Option

T	598	D	107	M	010	A	H	E	040	
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Rated Voltage (VDC)	Failure Rate/ Design	Termination Finish	Added Surge Current Options	ESR	Packaging (C-Spec)
T = Tantalum	598 = AEC-Q200 (125°C) upscreen	B D V X	First two digits represent significant figures. Third digit specifies number of zeros.	M = ±20%*1	2R5 = 2.5 004 = 4 006 = 6.3 010 = 10 016 = 16 025 = 25 035 = 35 050 = 50 075 = 75	A = N/A	H = Standard solder coated (SnPb 5% Pb minimum)	E = No surge S = 10 cycles, 25°C±5°C, W=10 cycles, -55 ±5°C and +85°C±5°C	Maximum ESR in mΩ, 040 = 40 mΩ	Blank = 7" Reel 7280 = 13" Reel

- **Sn/Pb Termination (AH)**
- **Surge Current Options as per MIL-PRF-55365 & MIL-PRF-32700**
- **Extra Technical Support (Radiation, Outgassing, ...)**
- **Adding the 75V Rated Voltage Extension – Coming Soon!**

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Automotive Polymer Capacitors
Conclusion: Last Message

HRA Guide

High Reliability Solutions





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SPCD, October 2026

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