

DLA 04051 - DLA-Approved Polymer SMD Capacitors Designed for High-Rel Aerospace, Military, and Space Applications

ADVANTAGE

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Delivers DLA-approved reliability and performance in high shock and vibration operating conditions. The DLA 04051 offers ultra low ESR, reduced voltage derating requirements, and long term stability.

KEY PRODUCT FEATURES

- $\checkmark\,$ Ultra low ESR with highly conductive polymer cathode, reduces noise and power dissipation as low as 25 m Ω
- ✓ High shock up to 500 g
- \checkmark High vibration from 10 Hz to 2000 Hz at 20 g

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RESOURCES















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MARKETS AND APPLICATIONS



AMS

- Avionics
- Space and military power supplies, radios, radar, transponders, and energy storage

ADDITIONAL BENEFITS

The introduction of the DLA 04051 from Vishay brings to market a highly robust polymer solution that offers an improvement over standard tantalum, MLCC, and aluminum electrolytic capacitors in demanding Hi-Rel applications.

SPECIFICATIONS

- Specific temperature operation: -55 °C to +125 °C
- Capacitance range: 4.7 µF to 680 µF
- Voltage ratings: 2.5 V_{DC} to 63 V_{DC}
- Case sizes: B 3528-21, D 7343-31



RATINGS AND CASE CODES (ESR m Ω)											
μF	2.5 V	3.0 V	4.0 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V	63 V
4.7											D (100, 120)
10										D (100, 125)	
15								D (75, 100)	D (75, 100)		
22					B (80)		D (75)	D (75)			
33				B (80)	B (80)		D (75)	D (75)			
47				B (80)		D (35, 65)	D (75)				
68			B (80)	B (80)		D (75)					
100		B (80)	B (80)		D (25, 55)	D (50)					
150		B (80)		D (25)	D (25, 55)						
220			D (25)	D (25)	D (25)						
330	D (25)	D (25)	D (25)	D (25, 40)							
470	D (25)	D (25)	D (25, 40)								
680	D (25)	D (25)									

Lower Voltage Derating

In addition to significantly lower ESR, the devices' conductive polymer cathode is more resilient to voltage stress and therefore requires less voltage derating than traditional tantalum capacitors.

In the illustration, we see that for a rated voltage (V_R) of 10 V or less, only 10 % derating is required, while for $V_R > 10$ V, 20 % derating is suggested (90 % and 80 % of application voltage respectively). These guidelines are consistent up to 105 °C. After 105 °C, we see a linear decline of the recommended derating to 40 % of V_R for < 10 V at 125 °C. Likewise, capacitors with a $V_R > 10$ V see a decrease to a recommended derating of 46 %

Recommended Derating Guidelines



Looking for a better alternative to MLCC, aluminum electrolytic, and traditional tantalum capacitors in AMS power supplies, bulk storage, hold-up, and other Hi-Rel related electronic systems?

Please contact us if you would like to purchase the 04051 or order samples.

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