Type 944L Low Inductance DC Link Capacitors

For Fast-switching Inverter Applications

Type 944L DC Link capacitors are specifically designed for fast switching power conversion applications. Their low inductance construction and low-loss winding technology make them ideal for the next generation of high power-dense inverter and converter designs. Their rugged plastic case with integrated mounting flanges, threaded stud or insert termination options, allow for easy, secure mounting. This series is ideal for DC Fast EV Charging and for high power solar inverters and motor drives.

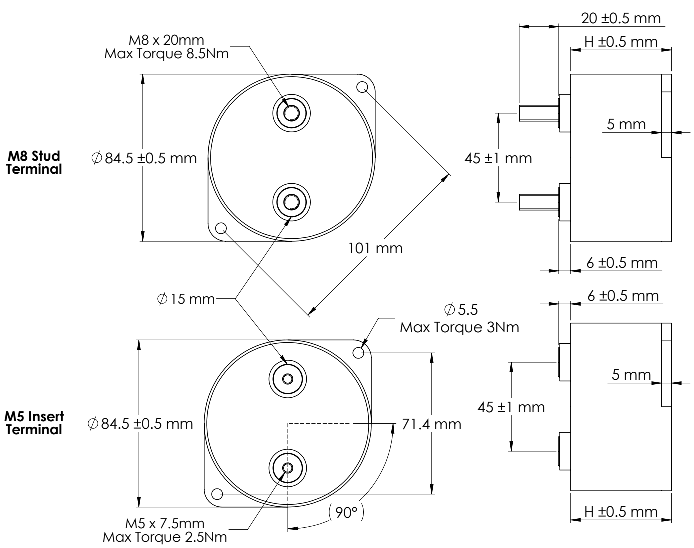
Highlights

- Designed for higher switching frequencies
- Up to 60% lower ESL (Equivalent Series Inductance)
- High ripple current
- M8 threaded stud and M5 insert termination options
- Integrated mounting flanges

Specifications

Capacitance Range	33 to 220 µF
Capacitance Tolerance	±10% standard
Rated Voltage	800 to 1400 Vdc
Operating Temperature Range	-40 ºC to 85 ºC
Maximum rms Current	90A @ 55°C
Maximum rms Voltage	230 Vac
Test Voltage between Terminal @ 25ºC	150% rated DC voltage for 10 s
Test Voltage between Terminals & Case @ 25ºC	4 kVac @ 50/60 Hz for 60 s
Life Test	5000 h @ 85 ºC, rated voltage
Regulatory Information	

Dimensions



Construction Details	
Case Material	Plastic UL94V-0
Resin Material	Dry Resin UL94V-0
Terminal Material	Tin Plated Brass

UL Recognized E128034
construction only - unprotected

Part Numbering System

944L	101	K	801	A	A	M
Type	Capacitance	Tolerance	Voltage	Diameter D (mm)	Height H (mm)	Terminal
944L	101 = 100 µF	K = ±10%	801 = 800 Vdc	A = 84.5	A = 40	M = M8 Thd Stud
	700 = 70 µF		102 = 1000 Vdc		B = 51	I = M5 Thd Insert
	470 = 47 µF		122 = 1200 Vdc		C = 64	
			142 = 1400 Vdc			

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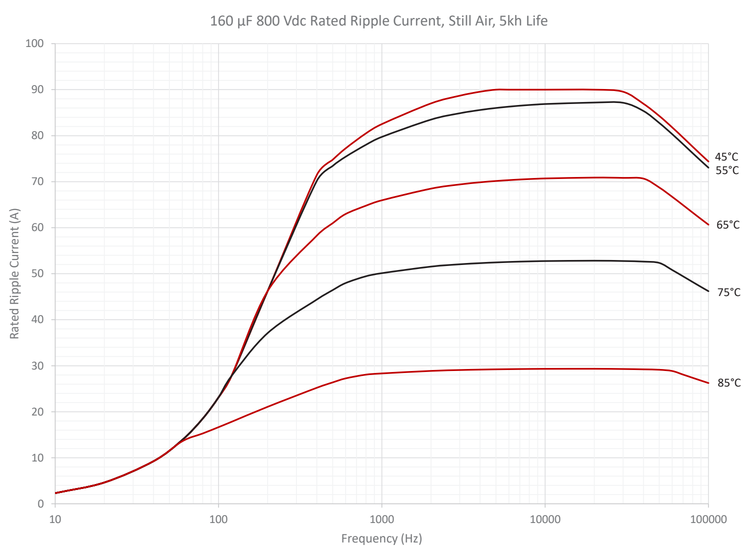
Ratings

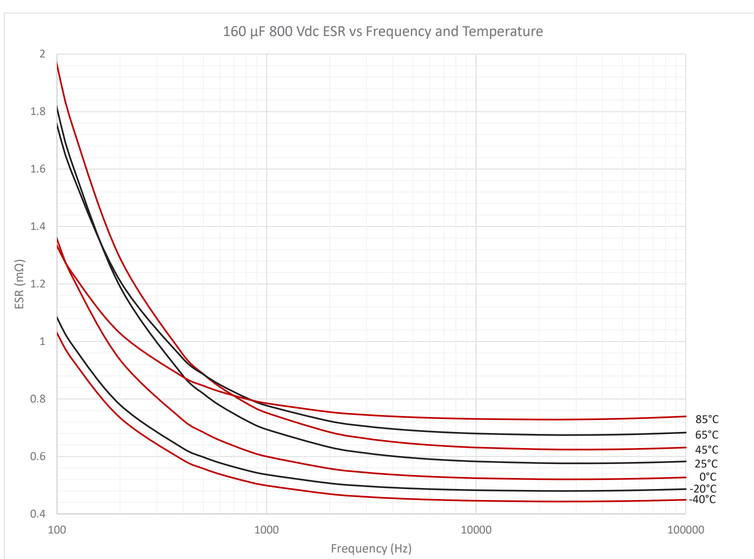
NOTE: Other ratings, sizes and performance specifications are available. Contact us.

Catalog Part Number	Cap (µF)	Voltage (Vdc)	H Height (mm)	Case Area (mm2)	Typical ESR 10kHz (mΩ)	Typical ESL (nH)	Current T_A=55 °C Irms (A)	Thermal Resistance		Resonant Frequency (kHz)
								Θcc (°C/W)	Θca (°C/W)	
944L101K801AA*	100	800	40	21835	0.5	10	90	1.9	3.8	160
944L161K801AB*	160	800	51	24755	0.6	12	84	2.1	3.4	115
944L221K801AC*	220	800	64	28206	0.7	15	78	2.4	3.0	88
944L660K102AA*	66	1000	40	21835	0.5	10	90	1.9	3.8	196
944L101K102AB*	100	1000	51	24755	0.7	12	77	2.1	3.4	146
944L141K102AC*	140	1000	64	28206	0.8	15	73	2.4	3.0	110
944L470K122AA*	47	1200	40	21835	0.6	10	82	1.9	3.8	233
944L700K122AB*	70	1200	51	24755	0.8	12	72	2.1	3.4	174
944L101K122AC*	100	1200	64	28206	0.9	15	69	2.4	3.0	130
944L330K142AA*	33	1400	40	21835	0.7	10	76	1.9	3.8	278
944L520K142AB*	52	1400	51	24755	0.9	12	68	2.1	3.4	202
944L700K142AC*	70	1400	64	28206	1.0	15	65	2.4	3.0	156

*** M = M8 Stud I = M5 Insert**

Typical Performance Curves





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Expected Lifetime Predictions

Capacitance:	C (µF)
Equivalent Series Resistance:	ESR (mΩ)
Frequency:	f (kHz)
Ripple Current:	I (A_{rms})
Ambient Temperature:	T_A (°C)
Core Temperature:	T_C (°C)
Total Thermal Resistance:	Θ (°C/W)
Thermal Resistance case-to-ambient:	Θ_{CA} (°C/W)
Thermal Resistance core-to-case:	Θ_{CC} (°C/W)
Airflow Speed:	v (m/s)
Applied Voltage:	V_A (V_{DC})
Rated Voltage:	V_R (V_{DC})

Determine ESR at Operating Frequency

Use the 10 kHz ESR from the ratings tables.
For operation below 10 kHz, the ESR will need to be adjusted using the following equation: ESR - 31.83/(10C) + 31.83/(fC).

Determine Thermal Resistance at Operating Frequency and Air Flow

Compute $\Theta = \Theta_{CC} + \Theta_{CA}$. In the ratings tables, Θ_{CA} is for still air. For v = 0 to 5 m/s, multiply Θ_{CA} by $[(5 + 17.6(0.1^{0.66})) / (5 + 17.6(v + 0.1)^{0.66})]$

Determine Expected Lifetime

Look up Expected Lifetime on the graph using V_A/V_R and $T_C = T_A + I^2$ (ESR/1000) Θ

The maximum allowed temperature rise is 40 °C and the maximum allowed core temperature is 95 °C.

Expected Lifetime vs Hot Spot Temperature and Applied DC Voltage