



DGH Series Supercapacitors

Cost-Effective, Low ESR
Supercapacitors...Now up
to 600 Farads!



DGH Series Supercapacitor line expands to 600 Farads!

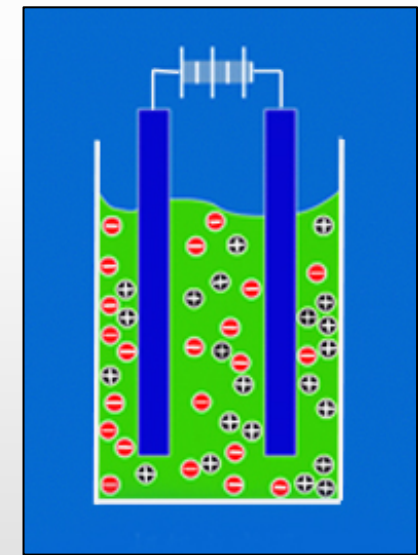


- The Illinois Capacitor brand DGH Series has become one of the best- selling supercapacitors on the market, with great performance and low ESR at a great price point.
- Building on the success of the DGH Series, CDE has now extended the line up to 600 Farads.
- The following presentation describes the DGH series and it's latest addition.

DGH Series Supercapacitors offer many times greater capacity than a conventional electrolytic.

The DGH line is a very cost-effective type of high-performance capacitor. Compared to traditional electrolytics or rechargeable batteries, the DGH is...

- An electric double-layer capacitor (EDLC), with very large storage capabilities and low ESR.
- Designed around an activated carbon anode and cathode, with an organic electrolyte.
- Especially suitable for short, high-power output applications.
- Fast charging, with long life energy storage.



DGH Series Supercapacitors now offer greater capacitance than ever, low ESR and very low cost.

- Line now includes values from 0.5 to 600 Farads!
- 2.7 or 5.5 WVDC Max
- Operating temperature ranges from -40°C to +65°C (-40°C to 85°C at 2.3v)
- Operating life is rated at 10 years with 500,000 cycles
- Performance does not degrade with each cycle
- Very compact size
- Bank in series or parallel for even higher voltage or capacitance



DGH Series Key Specifications Summary

Operating Temperature Range		-40°C to +65°C (-40 to +85°C @ 2.3V)		
Storage Temperature		-40°C to +70°C		
Capacitance Tolerance @ 20°C		+30%/-10% (Q tolerance)		
Surge Voltage	WVDC	2.7	5.5	
	SVDC	2.85	5.8	
Life Time		1500 hours with rated voltage applied at 65°C		
		Capacitance change	≤30% of initially measured values	
		ESR	≤200% of initially specified values	
		Leakage current	≤100% specified maximum value	
Shelf Life		1500 hours with no voltage applied at 60°C		
		Capacitance change	≤30% of initially measured values	
		ESR	≤200% of initially specified values	
Life Cycles (25°C) 1 cycle= Charge to WVDC for 20s, constant voltage charging for 10s, discharge to ½ WVDC for 20s, rest for 10s		500,000 cycles		
		Capacitance change	<30% of initially measured values	
		ESR change	<200% of initially specified values	



Choose from 24 different SKUs...0.5 to 600 Farads

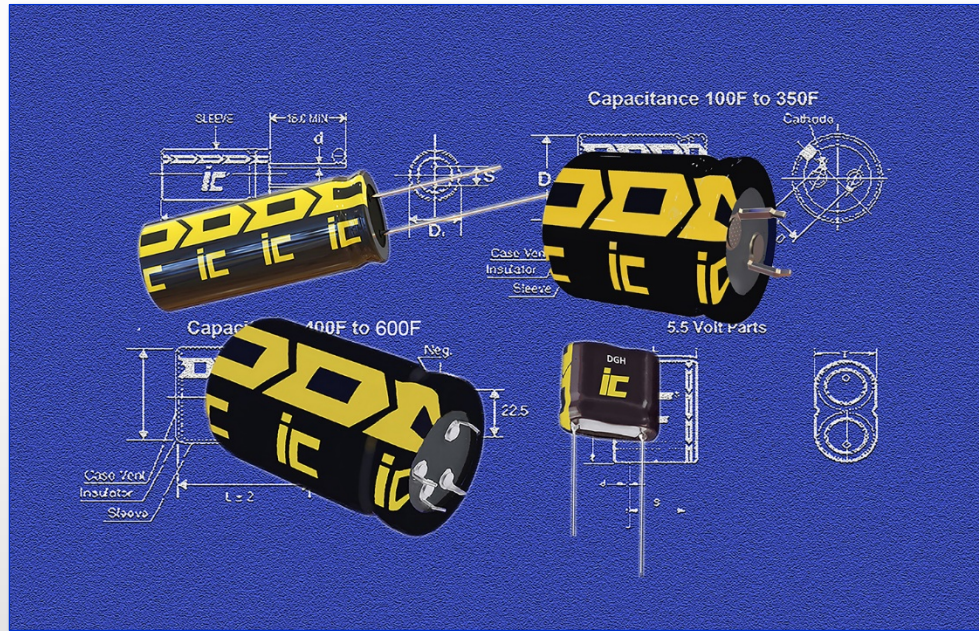


WVDC	Capacitance (F)	IC PART NUMBER	MAX Current (A) (1 Sec.)	Maximum Continuous Current (A) (ΔT=15°C)	Short Circuit Current (A)	ESR AC 1 kHz (mΩ)	DC ESR (mΩ) 20°C	Max stored energy (mWh)	LC (mA), (72 hrs)	Energy Density (Wh/kg)	Energy Volumetric Density (Wh/l)	Power Density (kW/kg)	Power Volumetric Density (kW/l)
2.7	1.0	DGH105Q2R7	0.96	0.6	6.8	200	400	1.01	0.008	0.92	1.44	1.988	3.109
2.7	2.0	DGH205Q2R7	1.8	0.7	11	130	250	2.03	0.01	1.688	2.879	2.916	4.975
2.7	3.0	DGH305Q2R7	2.8	1.2	18	80	150	3.04	0.012	2.17	3.023	4.166	5.804
2.7	3.3	DGH335Q2R7	3	1.2	18	80	150	3.34	0.014	2.228	3.325	3.888	5.804
2.7	5.0	DGH505Q2R7	4.1	1.3	21	70	130	5.06	0.016	2.531	3.225	3.365	4.286
2.7	6.0	DGH605Q2R7	4.6	2.3	21	70	130	6.08	0.016	2.89	3.86	3.2	4.3
2.7	7.0	DGH705Q2R7	6.1	1.7	34	55	80	7.09	0.02	2.835	3.611	4.374	5.572
2.7	10.0	DGH106Q2R7	8.4	3.5	45	40	60	10.13	0.03	3.894	5.159	5.608	7.429
2.7	10.0	DGH106Q2R7B	8.4	3.5	45	40	60	10.13	0.03	2.978	4.299	4.288	6.191
2.7	10.0	DGH106Q2R7C	8.4	3.5	45	40	60	10.13	0.03	3.38	5.16	4.86	7.4
2.7	15.0	DGH156Q2R7	11.6	2.4	54	30	50	15.19	0.045	3.375	4.127	3.888	4.755
2.7	20.0	DGH206Q2R7	15	2.6	68	30	40	20.25	0.06	3.11	4.02	3.36	4.3
2.7	25.0	DGH256Q2R7	18	3.1	77	25	35	25.31	0.08	2.978	5.038	2.941	4.975
2.7	30.0	DGH306Q2R7	21.3	4.0	90	22	30	30.38	0.1	3.79	5.03	3.64	4.8
2.7	50.0	DGH506Q2R7	32.1	5.2	123	15	22	50.63	0.14	3.616	4.976	2.84	3.909
2.7	70.0	DGH706Q2R7	39.4	5.8	135	14	20	70.88	0.16	3.938	5.573	2.43	3.439
2.7	100.0	DGH107Q2R7	61.4	8.3	225	8	12	101.25	0.3	4.821	5.922	3.471	4.264
2.7	200.0	DGH207Q2R7	90	10	270	6	10	202.5	0.7	5.192	5.732	2.243	2.476
2.7	350.0	DGH357Q2R7	212	18.9	771	3	3.5	354.38	1	5.452	6.134	3.845	4.329
2.7	350.0	DGH357Q2R7L	212	18.9	771	3	3.5	354.4	1	5.452	6.134	3.845	4.329
2.7	400.0	DGH407Q2R7	225	18.9	771	3	3.5	405	1	5.956	7.016	4.02	4.736
2.7	470.0	DGH477Q2R7	240	18.9	771	3	3.5	475.88	1.3	6.609	8.244	3.471	4.33
2.7	600.0	DGH607Q2R7	261	18	771	3	3.5	608	1.5	7.41	9.02	3.05	3.71
5.5	0.5	DGH504Q5R5	0.96	0.6	6.8	400	800	2.1	0.008	0.955	0.855	2.063	1.847
5.5	1.0	DGH105Q5R5	1.8	0.7	11	260	500	4.2	0.01	1.681	1.71	2.904	2.955
5.5	1.5	DGH155Q5R5	2.8	1.2	18	160	300	6.3	0.012	2.101	1.896	4.033	3.641
5.5	2.5	DGH255Q5R5	4.1	1.3	21	140	260	10.5	0.016	2.02	1.977	2.685	2.628
5.5	3.5	DGH355Q5R5	6.1	1.7	34	110	160	14.71	0.02	2.451	2.358	3.781	3.638
5.5	5.0	DGH505Q5R5	8.4	3.5	45	80	120	21	0.03	2.531	2.302	3.645	3.315

- Up to 70F in a radial-leaded package
- 100, 200, 350, 400 470, 600F types are snap-ins
- 5.5 volt rated caps are radials and internally constructed of two devices.

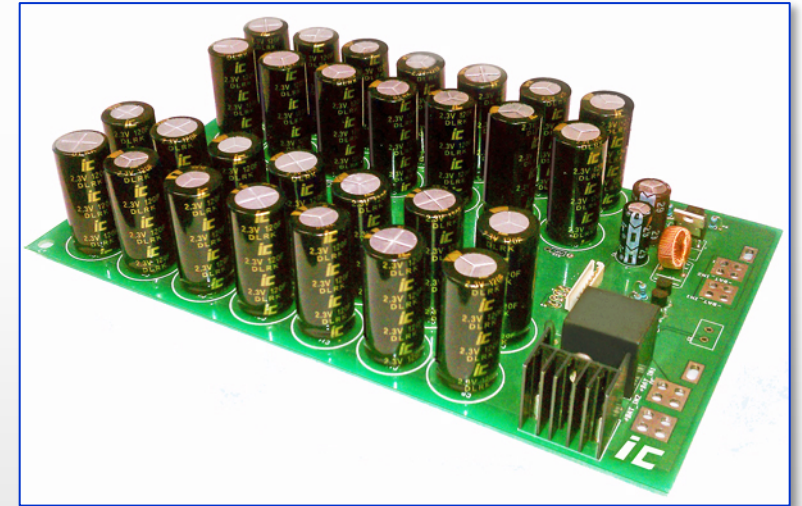
Configurations and Termination Options

DGH has four configurations, which vary by voltage and capacitance: radial, two-pin snap in, four-pin snap in and dual pack.



Standard packaging and lead configurations for the 2.7 volt and 5.5 volt types are shown here.

*High-Voltage, High-Capacity
Module Example*



Optional Custom Configuration

Applications

Potential applications for the DGH Series include:

- **Industrial**
 - Factory automation and robotics
 - Cranes, elevators
 - Actuator power
- **Transportation**
 - Forklift trucks
 - Personal electric vehicles
- **Energy/Lighting**
 - Smart utility meters
 - Wind turbine pitch controllers
 - Solar lights and energy storage
 - Power conversion
- **IoT**
 - Energy harvesting/storage
- **Memory Backup Circuits**



DGH Series Summary

With more values than ever, DGH Supercapacitors are an economical solution to satisfying the need for very high capacitance storage and low cost.

- Standard values now available from 0.5 to 600 Farads at 2.7 or 5.5 WVDC Max
- -40°C to +65°C operation (-40°C to 85°C at 2.3v) fits most applications
- Low ESR
- 10 year/500,000 cycle operating life exceeds typical end-product life
- Unlike batteries, performance does not degrade with each charge/discharge
- Very compact size aids product design flexibility
- Bank in series or parallel for higher capacitance or voltage

