DC 89 HC series

High Current, Very Low Inductance DC-link / Snubber Capacitors
Cylindrical Plastic Case, optimised for heatsink mounting

The special design of DC 89 HC provides very high RMS current capability and very low series inductance in a compact package. The exclusive metal bottom reduces thermal resistance for optimal heat-sink mounting.
The exclusive Ducati Energia metallization profiles guarantee high capacity stability and a controlled, open-circuit condition at the end of DC 89 HC operational life, while maximizing the current capability.
A special internal construction allows the minimization of field effects, thus guaranteeing real-life low ESL.

Main characteristics:

- Very High Capacity Density
- Self-Healing Metallized Polypropylene Film
- UL-Approved Construction
- V0 Plastic Case
- DRY Resin filling
- REAL Very Low ESL

Main applications:

- High Switching Frequency DC-Link

General Characteristics

DC Voltage range	500÷1450 V(*)
Maximum ripple current	100 A
Maximum working frequency	10 kHz
Capacitance range	Up to 220 µF (*)
Capacitance tolerance	standard: ±10% / on request: ±5%
Terminals	M8 screw-type bolts ur female M5
Test voltage	U_{tc}= 3.0 kVac @50 Hz 60 s U_{tt}= 1.5 x Un_{DC} 10 s
Working temperature (θ_{MIN} – θ_{MAX})	–25 / +85 °C
Storage temperature	–25 / +85 °C
Filling	Polyurethane resin
Dielectric	Self healing PPM film
Container	Self-extinguishing (UL94 V0) plastic box
Failure quota	50 /10E9
Life expectancy	100.000 h (**)
Maximum altitude	2000 m a.s.l.
Reference standard	IEC 1071-1/2 - IEC 1881 - UL 810
Driving tourque for M8 screw-type	5 Nm
Driving tourque for fixing holes (MAX)	2.5 Nm
Number pieces for box	16
M8 screw terminals	Max 5 Nm
Fixing slots	Max 2.5 Nm
UL - CSA approved (c UL us)	File n. E192559
In according to fire protection standard	EN 45545-2

(*) Other values on request
(**) For details please refer to page 75.

Capacitance Cn [µF]	Height H [mm]	Repet. Peak Voltage Up [kV]	Max. RMS Current I_{MAX} [A]	Repet. Peak Current Ip [A]	Surge Current Is [kA]	Series Resistance R_{ESR} [mΩ]	Thermal Resistance R_{THC} [°C/W]	Series Inductance L_{ESR} [nH]	Weight [kg]	Part number 416.89.
Un_{DC}= 500 V Us= 1.0 kV										
70	40	0.75	100	9000	13.0	0.55	4.8	< 25	< 0.45	051x
100	40	0.75	100	8500	12.7	0.60	4.8	< 25	< 0.45	052x
130	51	0.75	85	8000	11.5	0.70	5.7	< 30	< 0.55	053x
160	51	0.75	85	7000	10.5	0.75	5.7	< 30	< 0.55	055x
190	64	0.75	70	6500	10.0	0.78	7.8	< 40	< 0.70	057x
220	64	0.75	70	6200	9.3	0.80	7.8	< 40	< 0.65	059x
Un_{DC}= 700 V Us= 1.4 kV										
60	40	1.05	90	8000	12.0	0.70	4.8	< 25	< 0.45	071x
80	40	1.05	90	7500	11.3	0.75	4.8	< 25	< 0.45	072x
100	51	1.05	80	7400	11.0	0.80	5.7	< 30	< 0.55	072x
130	51	1.05	80	7200	10.8	0.85	5.7	< 30	< 0.55	075x
150	64	1.05	65	6400	10.5	0.87	7.8	< 40	< 0.70	075x
180	64	1.05	65	6600	9.9	0.90	7.8	< 40	< 0.65	079x
Un_{DC}= 900 V Us= 1.8 kV										
45	40	1.35	85	5300	8.0	0.80	4.8	< 25	< 0.45	091x
70	40	1.35	85	5250	7.8	0.85	4.8	< 25	< 0.45	092x
100	51	1.35	75	4700	7.5	0.95	5.7	< 30	< 0.55	095x
110	51	1.35	75	4650	7.3	0.98	5.7	< 30	< 0.55	096x
125	64	1.35	60	4600	7.0	1.00	7.8	< 40	< 0.70	097x
150	64	1.35	60	4500	6.8	1.10	7.8	< 40	< 0.65	099x
Un_{DC}= 1100 V Us= 2.2 kV										
30	40	1.65	80	4800	7.8	0.90	4.8	< 25	< 0.45	111x
45	40	1.65	80	4750	7.2	0.95	4.8	< 25	< 0.45	112x
70	51	1.65	65	4600	7.0	1.00	5.7	< 30	< 0.55	114x
75	51	1.65	65	4550	6.8	1.10	5.7	< 30	< 0.55	115x
100	64	1.65	55	4500	6.7	1.20	7.8	< 40	< 0.70	118x
110	64	1.65	55	4400	6.6	1.25	7.8	< 40	< 0.65	119x
Un_{DC}= 1250 V Us= 2.5 kV										
20	40	1.90	75	4500	6.8	1.15	4.8	< 25	< 0.45	121x
35	40	1.90	75	4200	6.6	1.20	4.8	< 25	< 0.45	122x
45	51	1.90	65	4200	6.4	1.25	5.7	< 30	< 0.55	123x
55	51	1.90	65	4200	6.2	1.30	5.7	< 30	< 0.55	125x
70	64	1.90	55	4000	6.0	1.35	7.8	< 40	< 0.70	127x
80	64	1.90	55	4000	6.0	1.40	7.8	< 40	< 0.65	129x

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Un_{DC}= 1450 V Us= 2.9 kV										
15	40	2.20	70	3500	5.2	1.25	4.8	< 25	< 0.45	141x
25	40	2.20	70	3380	5.1	1.30	4.8	< 25	< 0.45	142x
30	51	2.20	60	3200	4.8	1.45	5.7	< 30	< 0.55	143x
40	51	2.20	60	3200	4.8	1.45	5.7	< 30	< 0.55	145x
50	64	2.20	50	3100	4.6	1.50	7.8	< 40	< 0.70	147x
55	64	2.20	50	3050	4.5	1.55	7.8	< 40	< 0.65	149x

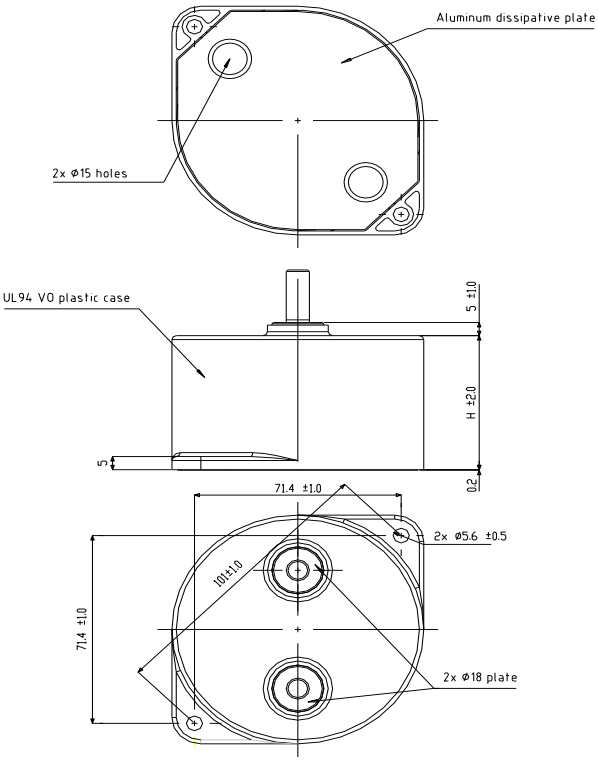
NOTES:
(**Cn**
(**Cn** **Un**
(**Rs**
(**R_{THC}**

(**I_{MAX}**
(**x code** Ø

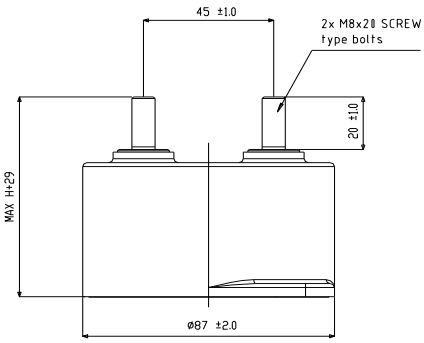
Box TYPE	
	mm 195 x 390 x 250
No. pieces per box:	16

Insulation spacing	
	Air (mm)
37	27

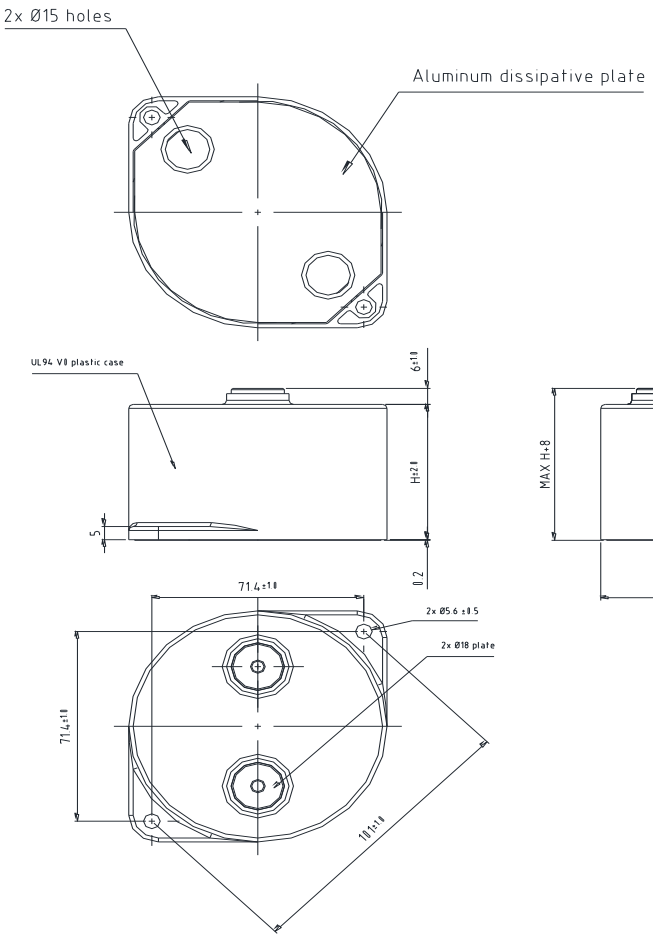
A SOLUTION



SOLUTION



B SOLUTION



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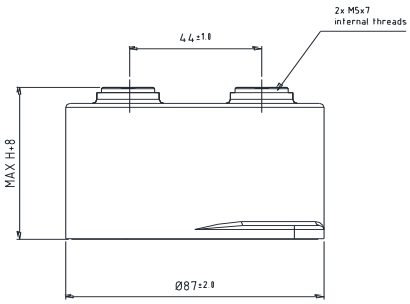
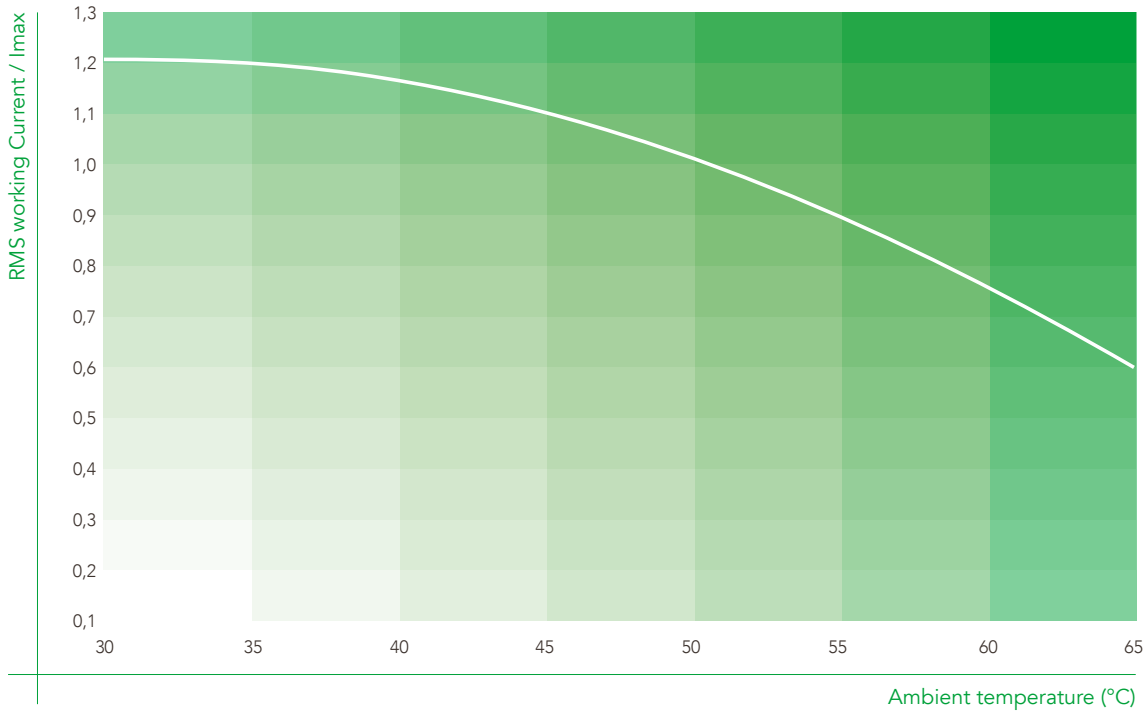
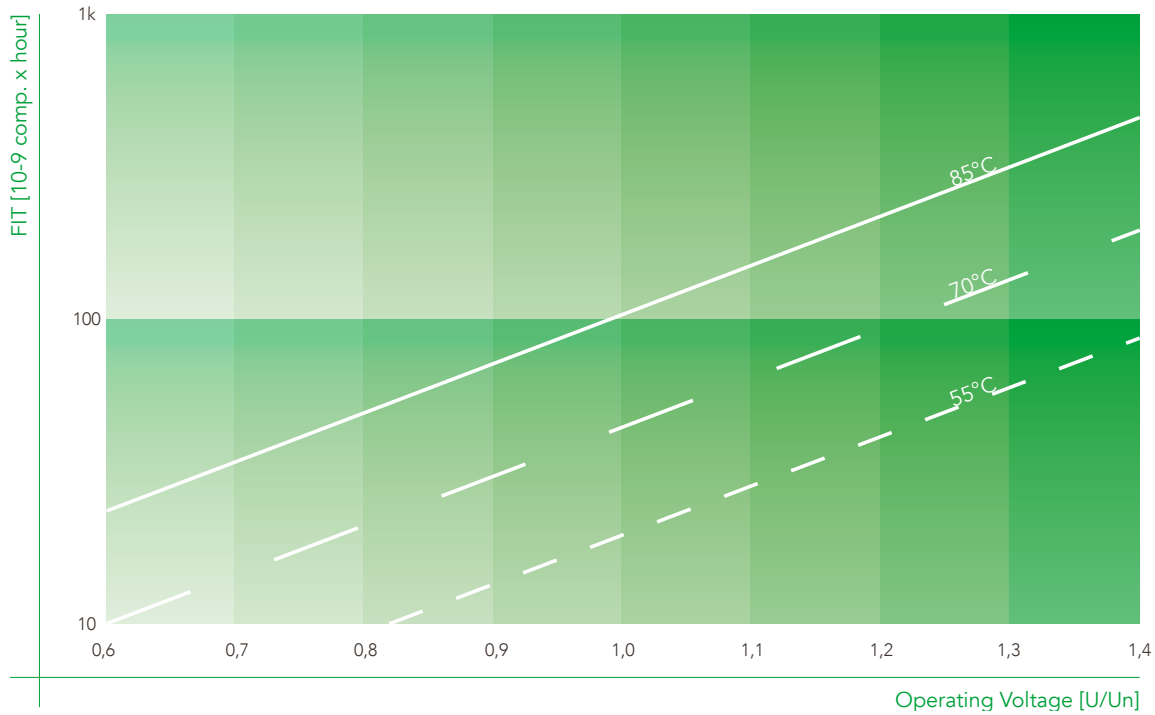


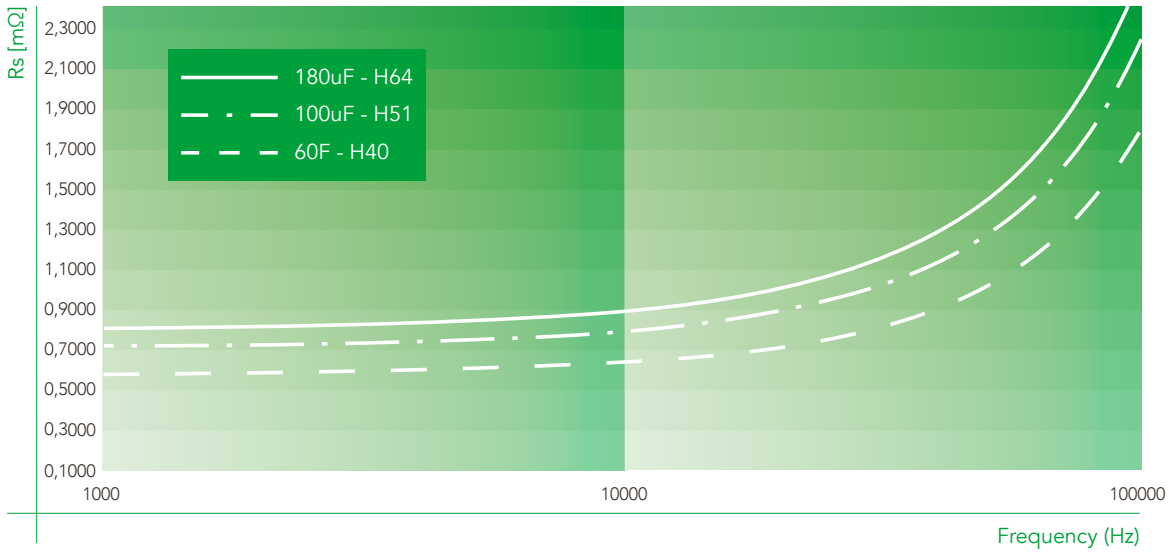
RMS working current vs Ambient temperature



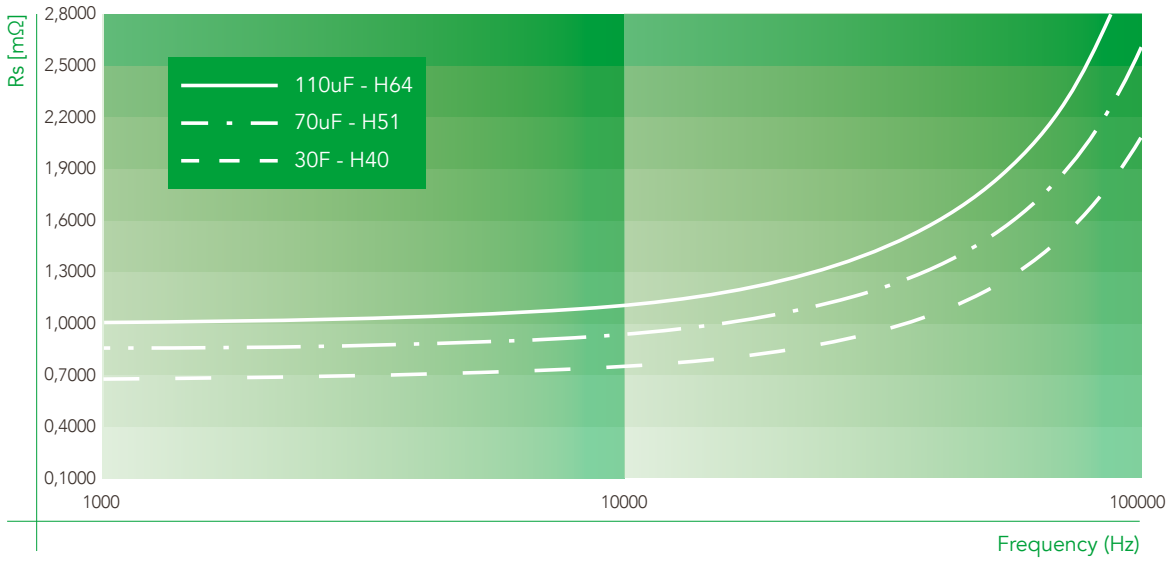
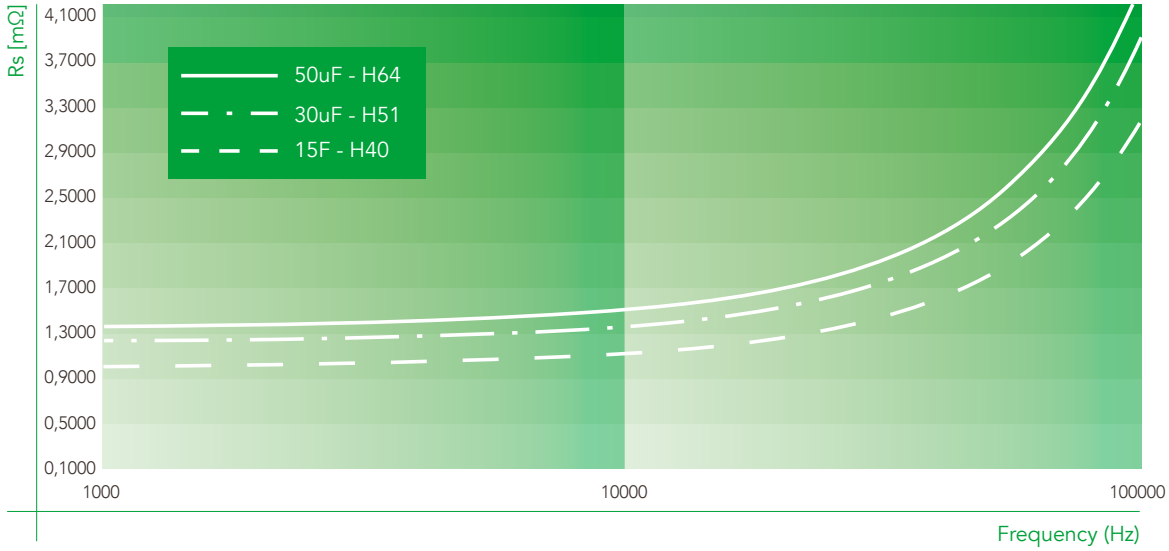
FIT vs Hot Spot Temperature



Typical Series Resistance | Un = 700V



Typical Series Resistance | Un = 1100V



Typical Series Resistance | Un = 1450V