

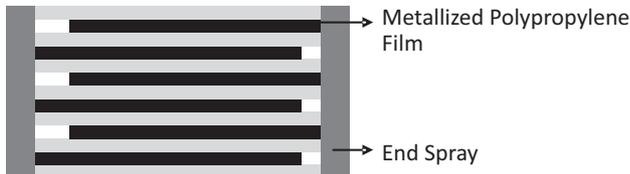
DCL-26/27



Highlights

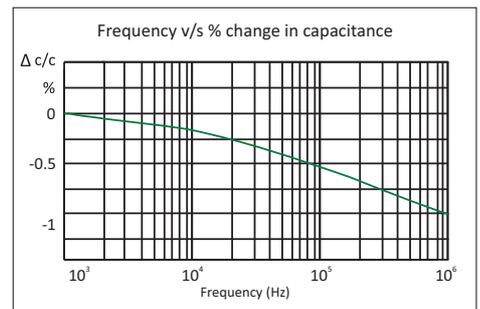
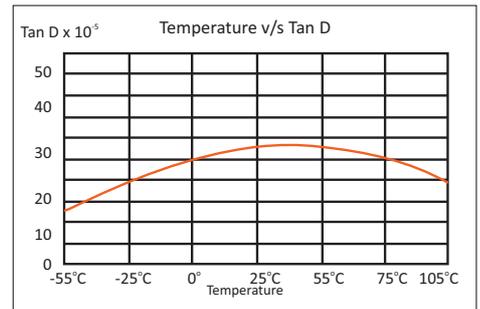
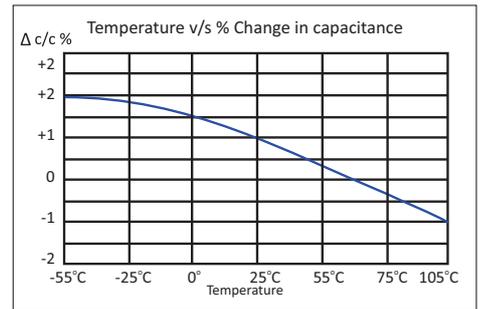
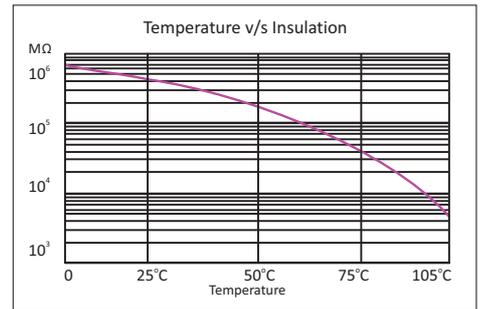
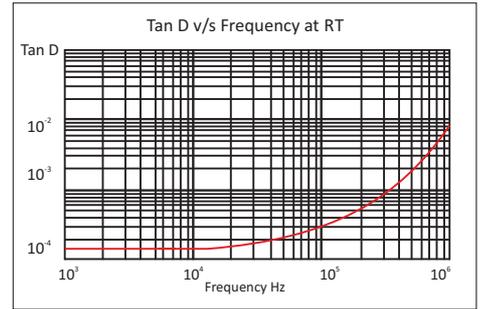
- Self-Inductance as low as 11nH
- ESR as low as 0.5 mΩ
- Low profile
- High thermal conductivity
- Life expectancy as high as 100 Khrs
- Integrated mounting flanges
- Flame retardancy - UL94-V0

Construction



Applications

- DC filtering
- Wind power inverters
- Solar power inverters
- Induction heaters
- Electric vehicle inverters
- Motor drives



DCL-26/27

Technical Specifications

Physical Characteristics

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ Electrode material ▪ Winding construction ▪ Enclosure ▪ Terminals | <p>Metallised polypropylene film
Polypropylene film, metallised polypropylene film
Preformed UL 94-V0 plastic case with thermosetting resin-fill
Tinned brass</p> |
|--|---|

Electrical Characteristics

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ Capacitance range ▪ Capacity tolerance ▪ Rated voltage VDC ▪ Test voltage between terminals ▪ Test voltage terminal to case ▪ Dissipation factor (Tan d) ▪ Temperature range ▪ Insulation resistance $M\Omega \times \mu F$ ▪ Reference Standard | <p>10 μF to 265μF
$\pm 5\%(J)$, $\pm 10\%(K)$
700, 800, 900, 1000, 1200, 1400, 1600, 1800
1.3 x rated voltage VDC for 60 seconds (not to be repeated)
3KVAC at 50Hz for 60 seconds
≤ 0.0015 at 100Hz and 25°C
-40°C to +85°C
$\geq 10,000$ s at 25°C (s = $M\Omega \times \mu F$)
IEC 61071 and IEC 60068</p> |
|---|---|

Marking on Capacitors

Each capacitor will have the following information printed on it, sequentially:

- The Company's symbol  followed by the words ALCON
- The capacitor grade viz DCL-26/27
- The capacitance value MFD
- The rated voltage VDC
- The max current Arms
- Capacity tolerance and manufacturing code
- Part number on non-standard capacitors

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Standard Capacitors Values

Rated voltage VDC	Nominal Capacitance MFD at 1 KHz	Case size $\phi \times L$ mm	Typical ESR m Ω at Fr* KHz	Fr* KHz	Rise in core temperature per watt dissipated°C	Ripple current rating Irms at 10 KHz to 100KHz				
						25° C	45° C	65° C	85° C	105° C
700	90	85 x 40	0.65	156	14.2	91	79	66	46	11
	100	85 x 51	0.75	105	12.3	96	83	69	49	12
	142	85 x 51	0.75	105	12.3	96	83	69	49	12
	205	85 x 64	0.95	71	10.8	87	75	63	44	10
	265	85 x 79	1.65	61	8.9	77	67	55	39	9
800	70	85 x 40	0.56	168	14.2	86	74	61	42	9
	88	85 x 40	0.65	156	14.2	91	79	66	46	11
	140	85 x 51	0.75	105	12.3	96	83	69	49	12
	200	85 x 64	0.95	71	10.8	87	75	63	44	10
	260	85 x 79	1.65	61	8.9	77	67	55	39	9
900	65	85 x 40	0.50	68	14.2	84	92	59	40	8
	100	85 x 51	0.78	98	12.3	93	81	71	51	12
	150	85 x 51	0.81	88	12.3	97	84	70	50	12
	180	85 x 64	0.97	73	10.8	85	76	64	45	13
	200	85 x 79	1.70	69	8.9	75	65	53	37	8
1000	47	85 x 40	0.80	176	14.2	85	73	62	38	10
	55	85 x 40	1.00	182	14.2	87	75	63	44	10
	88	85 x 51	0.80	136	12.3	89	77	64	45	11
	120	85 x 64	1.18	91	10.8	78	68	56	40	9
	170	85 x 79	2.21	75	8.9	69	60	50	35	8
1200	38	85 x 40	1.05	254	14.2	72	62	52	37	9
	63	85 x 51	1.19	179	12.3	74	64	53	38	9
	88	85 x 64	1.46	116	10.8	69	60	50	35	8
	118	85 x 79	2.80	96	8.9	57	49	41	29	7
1400	22	85 x 40	1.28	294	14.2	63	55	45	32	8
	36	85 x 51	1.47	218	12.3	64	55	46	33	8
	50	85 x 64	1.87	143	10.8	61	53	44	31	7
	66	85 x 79	3.81	124	8.9	52	45	37	27	6
1600	14	85 x 40	1.48	352	14.2	62	54	45	32	7
	24	85 x 51	1.71	260	12.3	62	54	45	32	7
	33	85 x 64	2.18	171	10.8	59	51	42	30	7
	44	85 x 79	4.56	151	8.9	48	42	35	24	6
1800	10	85 x 40	1.69	460	14.2	57	49	41	29	7
	16	85 x 51	1.86	336	12.3	58	50	42	30	7
	22	85 x 64	2.81	226	10.8	50	43	36	26	6
	30	85 x 79	5.63	185	8.9	43	37	31	22	5

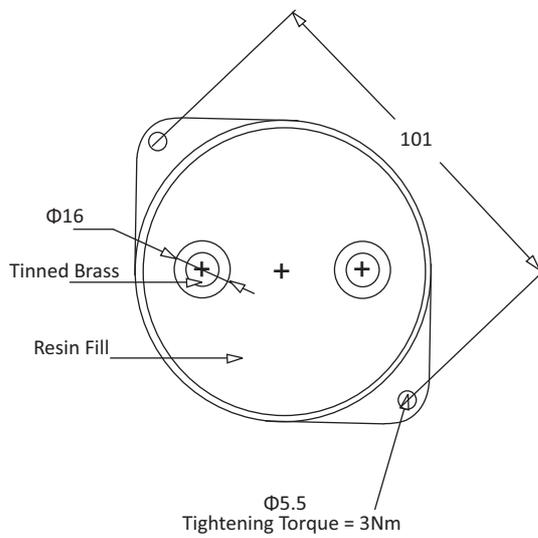
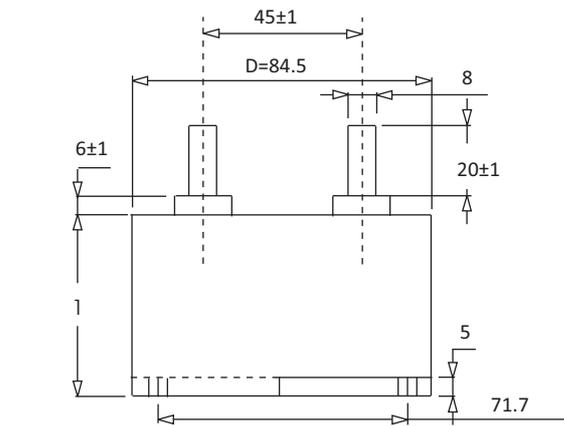
Custom designed capacitors are available on request

* Fr =Typical resonant frequency (Tol.±30%)

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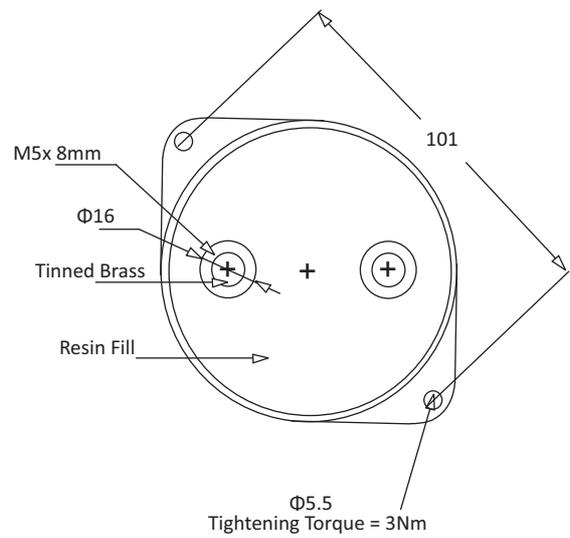
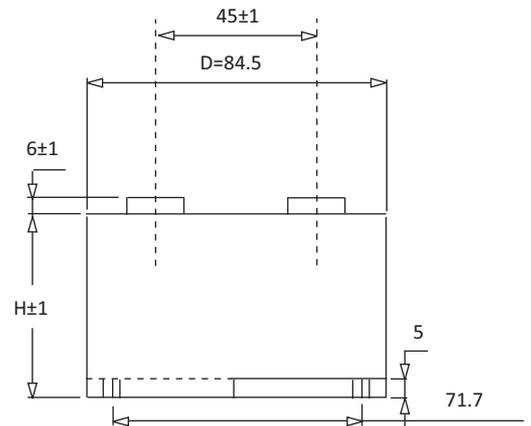
Capacitor Drawing and Terminal Styles

Terminal Style : DCL-26



Dimensions in mm

Terminal Style : DCL-27



Dimensions in mm

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Life Expectancy

Steps to calculate Hotspot Temperature

- Locate the capacitor and the ESR from the electrical specifications
- Dissipated heat = ($I_{rms}^2 \times ESR$)
- Get the value from table 1 for Rth (°C/watt)
- Calculate internal temperature rise = ($I_{rms}^2 \times ESR$) x Rth (°C/watt)
- Hotspot temperature of capacitor = T Ambient + ($I_{rms}^2 \times ESR$) x Rth (°C/watt)
- From the graph given below expected life can be obtained
- Ensure that the voltage and current specification are not exceeded

Can size D x H	Rth °C/Watt
85 x 40	14.2°C
85 x 51	12.3°C
85 x 64	10.8°C
85 x 79	8.9°C

Example: If 88 MFD/800 VDC is being used at 40 Arms in a 40°C Ambient; then ESR from the table (on page 3) = 0.00065Ω and the case size is 85φ x 40mm

The dissipated wattage = 40 x 40 x 0.00065Ω = 1.04 watts

Temperature rise = 1.04 x 14.2°C/Watt = 14.76°C

The hotspot core temperature inside the capacitor = 40°C (Ambient) + 14.76 (Rise) = **54.76 say 55°C**

From the graph below: If the capacitor is being used at 75% of Vrdc then the expected life will be approx 480,000 hours

