DC Link Film Capacitors - Screw/Stud Terminals

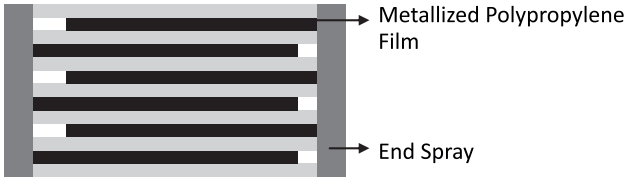
multicomp PRO

RoHS Compliant

Features

- 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 retardant UL94- V0

Construction



Applications

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

multicomp PRO

כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il

DC Link Film Capacitors - Screw/Stud Terminals

multicomp PRO

Technical Specifications

Physical Characteristics

Electrode material	: Metallised polypropylene film
Winding construction	: Polypropylene film,metallised polypropylene film
Enclosure	: Preformed UL 94-VO plastic case with thermosetting resin-fill
Terminals	: Nickel plated brass

Electrical Characteristics

Capacitance range	: 30µF to 265µF
Capacity tolerance	: ±10%
Rated voltage V DC	: 700, 800, 900, 1000, 1200, 1400, 1600, 1800
Test voltage between terminals	: 1.3 x rated voltage V DC for 60 seconds (not to be repeated)
Test voltage terminal to case	: 3KV AC at 50Hz for 60 seconds
Dissipation factor (Tan d)	: 0.0015 at 100Hz and 25°C
Temperature range	: -40°C to +105°C
Insulation resistance MΩ × µF	: 5,000 S at 25°C (S = MΩ × µF)
Reference Standard	: IEC 61071and IEC 60068

Marking on Capacitors

- Each capacitor will have the following information printed on it.
- The capacitor grade viz DCL-23
- The capacitance value µF
- The rated voltage V DC
- The max current Arms
- Capacity tolerance and manufacturing code
- Part number on non-standard capacitors

multicomp PRO

כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il

DC Link Film Capacitors - Screw/Stud Terminals

multicomp PRO

Standard Capacitor Values

Rated voltage VDC	Nominal Capacitance µF at 1 kHz	Case size ϕ × L mm	Typical ESR at 100kHz mΩ	Terminal Style	Fr** kHz	Rise in core temperature per watt dissipated°C	Ripple current rating Irms at 10 kHz to 100kHz					Part Number
							25°C	45°C	65°C	85°C	105°C	
700	100	85 × 51	0.75	FS	105	12.3	96	83	69	49	12	MP003970
	100	85 × 51	0.75	MS	105	12.3	96	83	69	49	12	MP003973
800	200	85 × 64	0.95	MS	71	10.8	87	75	63	44	10	MP003971
	140	85 × 51	0.75	FS	105	12.3	96	83	69	49	12	MP003976
				MS								MP003977
	200	85 × 64	0.95	FS	71	10.8	87	75	63	44	10	MP003980
	265	85 × 79	1.65	FS	61	8.9	77	67	55	39	9	MP003981
				MS								MP003982
	70	85 × 40	0.56	FS	168	14.2	86	74	61	42	9	MP003994
	70	85 × 40	0.56	MS	168	14.2	86	74	61	42	9	MP004009
900	100	85 × 51	0.78	FS	98	12.3	93	81	71	51	12	MP003972
	65	85 × 40	0.50	FS	68	14.2	84	92	59	40	8	MP003992
				MS								MP003993
	150	85 × 64	0.97	MS	73	10.8	85	76	64	45	13	MP003978
				FS								MP003979
	100	85 × 51	0.78	MS	98	12.3	93	81	71	51	12	MP003999
1000	120	85 × 64	1.18	FS	91	10.8	78	68	56	40	9	MP003974
				MS								MP003975
	47	85 × 40	0.8	FS	176	14.2	85	73	62	38	10	MP003988
				MS								MP003989
	88	85 × 51	0.80	FS	136	12.3	89	77	64	45	11	MP003995
				MS								MP003996
1200	38	85 × 40	1.05	FS	254	14.2	72	62	52	37	9	MP003985
				MS								MP003986
	88	85x 64	1.46	FS	116	10.8	69	60	50	35	8	MP003997
				MS								MP003998
1400	34	85 × 51	1.47	FS	218	12.3	64	55	46	33	8	MP003983
				MS								MP003984
	48	85 × 64	1.87	FS	143	10.8	61	53	44	31	7	MP004005
				MS								MP004006
	64	85 × 79	3.81	FS	124	8.9	52	45	37	27	6	MP004007
				MS								MP004008
1600	30	85 × 51	1.71	FS	260	12.3	62	54	45	32	7	MP004000
				MS								MP004001
	42	85 × 64	2.18	FS	171	10.8	59	51	42	30	7	MP004003
				MS								MP004004

multicomp PRO

כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il

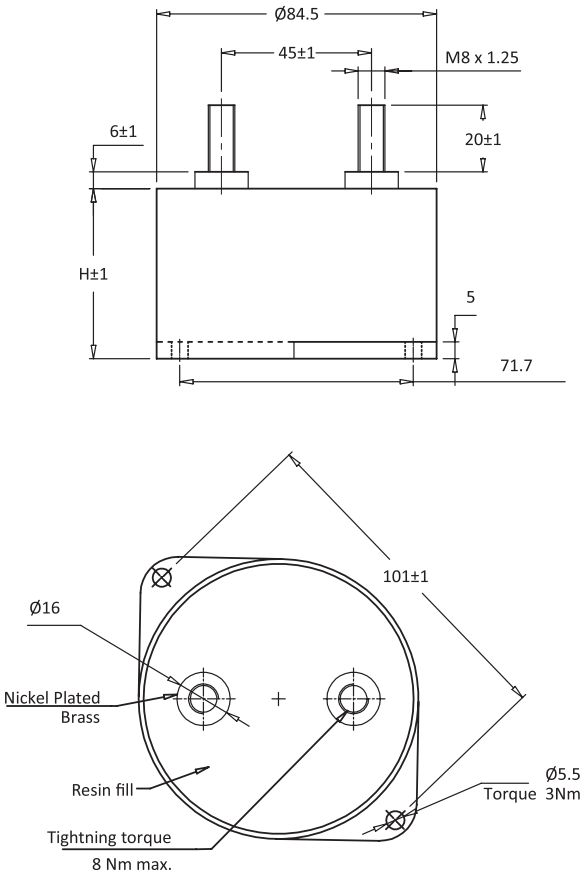
DC Link Film Capacitors - Screw/Stud Terminals

multicomp PRO

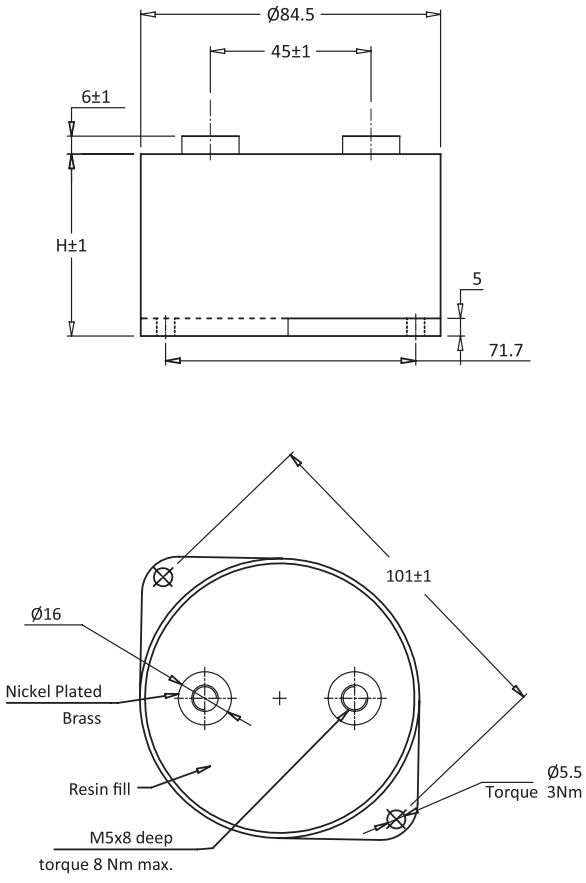
Rated voltage VDC	Nominal Capacitance µF at 1 kHz	Case size ϕ × L mm	Typical ESR at 100kHz mΩ	Terminal Style	Fr** kHz	Rise in core temperature per watt dissipated°C	Ripple current rating Irms at 10 kHz to 100kHz					Part Number
							25°C	45°C	65°C	85°C	105°C	
1800	40	85 × 79	5.63	FS	185	8.9	43	37	31	22	5	MP003987
	40	85 × 79	5.63	MS	185	8.9	43	37	31	22	5	MP004002
	30	85 × 64	2.81	FS	226	10.8	50	43	36	26	6	MP003967
				MS								MP003968

Custom designed capacitors are available on request
**Fr =Typical resonant frequency (Tol.±30%)

Terminal Style : MS



Terminal Style : FS



Dimensions : Millimetres

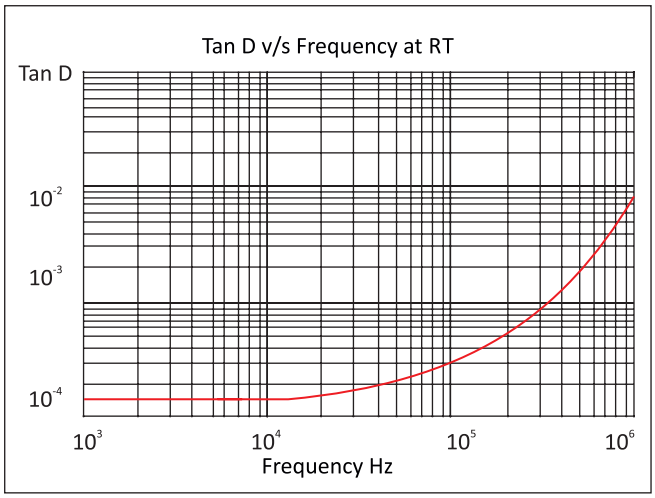
multicomp PRO

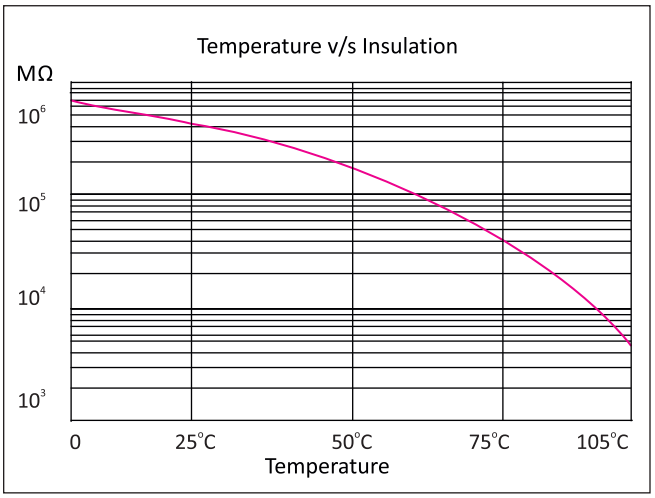
כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il

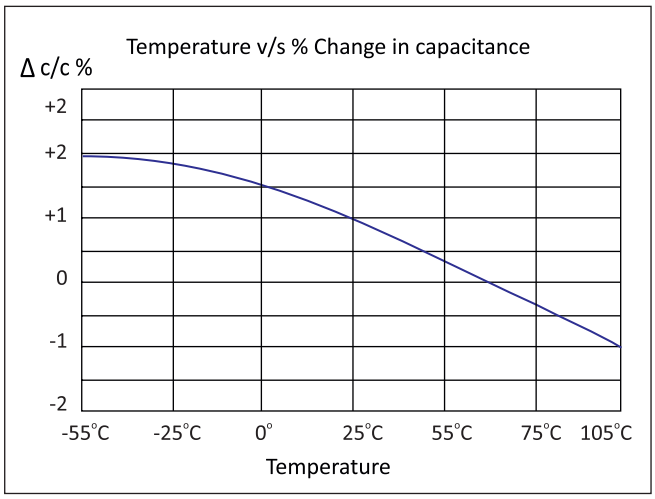
DC Link Film Capacitors - Screw/Stud Terminals

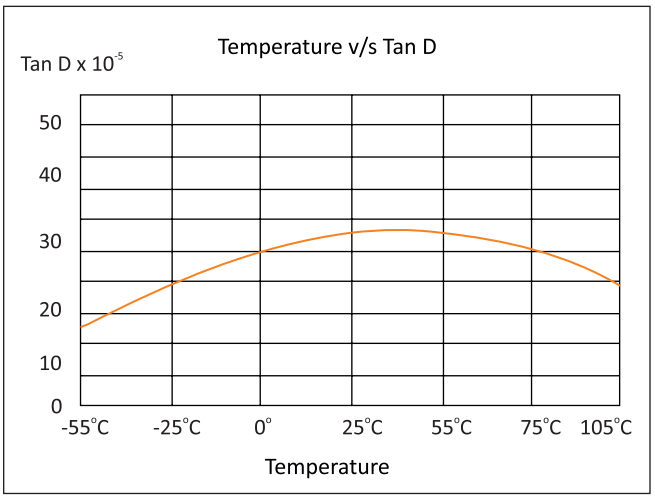
multicomp PRO

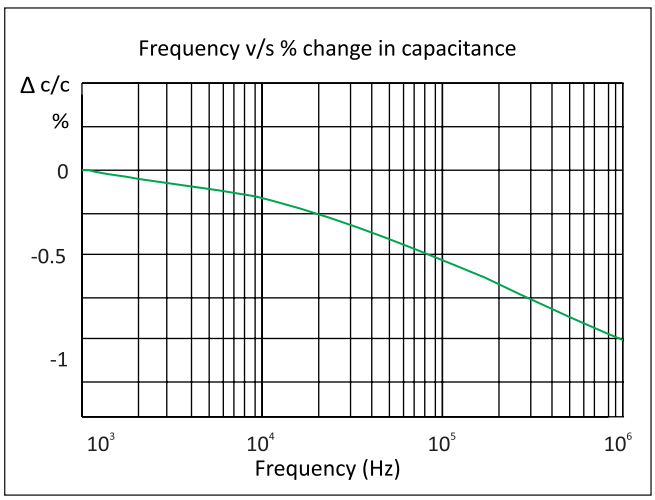
Typical Performance Graphs











כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il

DC Link Film Capacitors - Screw/Stud Terminals

multicomp PRO

Life Expectancy

Steps to calculate Hotspot Temperature

- Locate the capacitor and the ESR from the electrical specifications
- Dissipated heat= ($Irms^2$ × ESR)
- Get the value from table 1 for Rth (°C/watt)
- Calculate internaltemperature rise = ($Irms^2$ × ESR) × Rth (“C/watt)
- Hotspot temperature of capacitor= T Ambient+ ($Irms^2$ × ESR) × 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

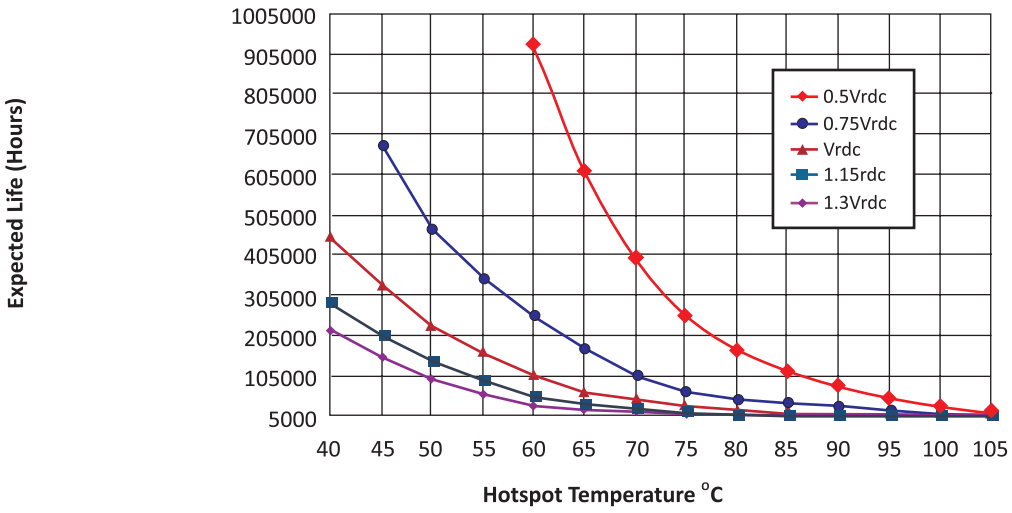
Example:If 88 µF/800 V DC is being used at 40 Arms in a 40°C Ambient; then ESR from the table = 0.00065Ω and the case size is Ø85 × 40mm

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

Temperature rise = 1.04 × 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

Hotspot temperature Vs expected life with respect to % Vrdc



multicomp PRO

כתובת: דרך העצמאות 63, חיפה | טלפון: 04-8520233 | פקס: 04-8515958 | דוא"ל: sales@talmir.co.il