Capacitors for Power Electronic (PEC) - Cylindrical

FEATURES

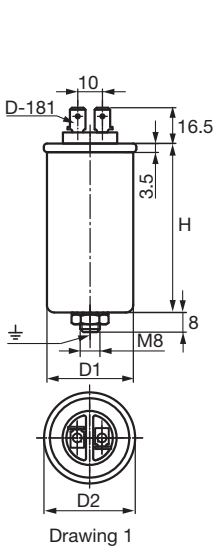
- Extremely low losses at high frequencies
- Low ESR 0.7 mΩ up to 10 mΩ
- Highest RMS current rating up to 80 A
- High impulse discharge current capability
- High reliability and life expectancy > 100 000 h/100 FIT
- Internal tear-off fuse

APPLICATIONS

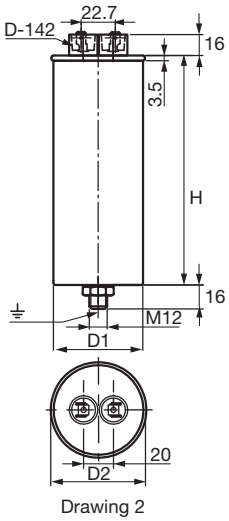
- AC input and AC output filters
- Damping and snubber
- Surge suppression
- Commutation
- DC linking and DC filtering

QUICK REFERENCE DATA	
DESCRIPTION	**VALUE**
Rated DC voltage min.	400 V
Rated DC voltage max.	2400 V
Capacitance min.	0.1 µF
Capacitance max.	470 µF
Technology	Metallized polypropylene film
Dissipation factor (tan δ_0)	< 1.5 x 10^{-4}
Capacitance tolerance	± 10 %
Operating temperature (hot spot)	$\theta_{min.}$ - 25 °C $\theta_{max.}$ + 80 °C
Inductance	< 100 nH
Lifetime expectancy	100 000 h at U_{NDC} and < 70 °C hotspot
Reliability	100 FIT
Test voltage	Terminal/terminal = 1.5 x U_{NDC}, 10 s Terminal/case = 2 x U_{NDC} + 1000 V_{AC}, 60 s
Casing material	Aluminum
Filling	Resin polyurethane, R25 or vegetable oil
Standards	IEC 61071-1, IEC 61881 and EN 61071-1

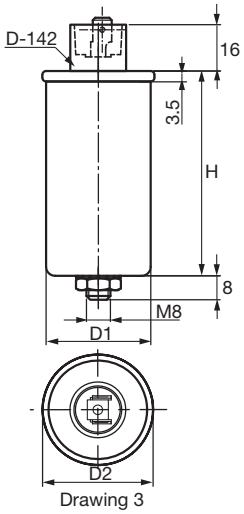
DIMENSIONS in millimeters



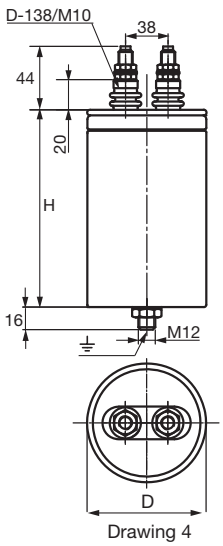
Drawing 1



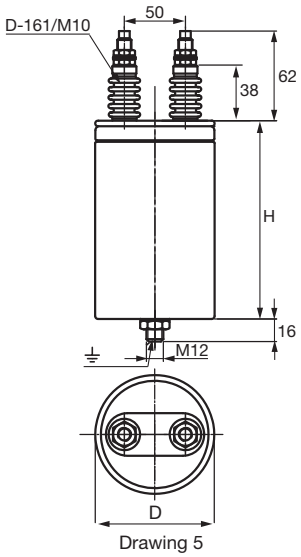
Drawing 2



Drawing 3



Drawing 4



Drawing 5

For technical questions, contact: esta@vishay.com
Document Number: 13149
Revision: 15-Feb-11

TYPE DESCRIPTION												
TYPE EMKP ...-...	C_N [µF]	VOLTAGE V_{AC}	R_S [mΩ]	R_{th} [K/W]	$I_{MAX.}$ [A]	I_P [kA]	Î [kA]	HEIGHT [mm]	D [mm]	WEIGHT [kg]	PACKAGING UNIT	DRAWING NO.
EMKP 400; U_N = 400 V; U_{RMS} = 280 V; U_{NDC} = 750 V; U_S = 1125 V												
400-15	15	400	2.6	24.9	15	0.20	0.6	52	40	0.1	50	1
400-22	22	400	3.0	19.4	16	0.22	0.7	72	40	0.1	50	1
400-33	33	400	2.3	18.5	19	0.33	1.0	72	50	0.2	25	1
400-47	47	400	1.6	12.8	27	0.47	1.4	72	64	0.3	9	4
400-68	68	400	1.9	11.5	26	0.49	1.5	72	64	0.3	9	4
400-100	100	400	2.8	9.5	24	0.46	1.4	109	64	0.4	9	4
400-150	150	400	1.2	6.4	44	1.09	3.3	72	84	0.5	4	4
400-220	220	400	1.7	5.8	39	1.02	3.1	109	84	0.8	4	4
400-330	330	400	0.7	3.1	82	2.33	7.0	140	84	1.0	4	4
400-470	470	400	0.9	2.9	74	2.17	6.5	190	84	1.3	4	4
EMKP 650; U_N = 650 V; U_{RMS} = 460 V; U_{NDC} = 1200 V; U_S = 1800 V												
650-4.7	4.7	650	4.1	27.9	11	0.10	0.3	52	35	0.1	50	1
650-6.8	6.8	650	3.1	24.4	14	0.15	0.5	52	40	0.1	50	1
650-10	10	650	2.4	23.1	16	0.22	0.7	52	50	0.1	25	1
650-15	15	650	4.4	18.4	14	0.17	0.5	72	50	0.2	9	4
650-22	22	650	1.9	12.6	25	0.35	1.1	72	64	0.3	9	4
650-33	33	650	2.2	10.9	25	0.38	1.1	72	64	0.3	9	4
650-47	47	650	3.4	9.2	22	0.35	1.1	109	64	0.4	4	4
650-68	68	650	1.2	5.6	48	0.79	2.4	140	64	0.6	4	4
650-100	100	650	0.9	4.7	58	1.16	3.5	140	84	1.0	4	4
650-150	150	650	1.3	4.0	53	1.11	3.3	190	84	1.3	4	4
EMKP 950; U_N = 950 V; U_{RMS} = 670 V; U_{NDC} = 1800 V; U_S = 2700 V												
950-0.10	0.10	950	7.8	37.0	7	0.04	0.1	52	30	0.05	100	1
950-0.22	0.22	950	5.5	34.2	9	0.06	0.2	52	30	0.05	100	1
950-0.33	0.33	950	8.0	39.2	7	0.04	0.1	52	30	0.05	100	1
950-0.47	0.47	950	10.3	45.8	6	0.04	0.1	52	30	0.05	100	1
950-0.68	0.68	950	7.5	39.6	7	0.06	0.2	52	30	0.05	100	1
950-1.0	1.0	950	5.5	32.8	9	0.08	0.2	52	30	0.05	100	1
950-1.5	1.5	950	4.0	31.3	11	0.13	0.4	52	40	0.08	50	1
950-2.2	2.2	950	3.1	24.9	14	0.19	0.6	52	40	0.1	50	1
950-3.3	3.3	950	2.4	23.2	17	0.28	0.8	52	50	0.1	25	2
950-4.7	4.7	950	3.1	19.5	16	0.27	0.8	72	50	0.2	25	2
950-6.8	6.8	950	3.0	16.2	18	0.27	0.8	72	50	0.2	25	2
950-10	10	950	2.0	11.9	25	0.40	1.2	72	64	0.3	9	4
950-15	15	950	3.1	10.2	22	0.36	1.1	109	64	0.4	9	4
950-22	22	950	2.4	7.5	29	0.53	1.6	109	64	0.4	9	4
950-33	33	950	1.9	6.4	36	0.80	2.4	109	84	0.8	4	4
950-47	47	950	0.7	3.3	80	1.88	5.6	140	84	1.0	4	4
950-68	68	950	1.0	3.3	67	1.64	4.9	190	84	1.3	4	4
EMKP 1200; U_N = 1200 V; U_{RMS} = 850 V; U_{NDC} = 2250 V; U_S = 3375 V												
1200-0.68	0.68	1200	3.1	30.1	13	0.14	0.4	52	40	0.08	50	3
1200-1.0	1.0	1200	2.4	24.0	16	0.21	0.6	52	40	0.08	50	3
1200-1.5	1.5	1200	3.4	21.0	14	0.20	0.6	72	40	0.1	50	3
1200-2.2	2.2	1200	2.7	20.1	17	0.29	0.9	72	50	0.2	25	2
1200-3.3	3.3	1200	3.7	17.9	15	0.28	0.8	72	50	0.2	25	2
1200-4.7	4.7	1200	1.2	11.3	34	0.62	1.9	120	50	0.3	25	4
1200-6.8	6.8	1200	1.0	7.3	46	0.90	2.7	120	64	0.5	9	4
1200-10	10	1200	0.8	5.1	62	1.32	4.0	120	64	0.5	9	4
1200-15	15	1200	1.0	5.2	53	1.28	3.8	140	64	0.6	9	4
1200-22	22	1200	0.8	4.3	65	1.87	5.6	140	84	1.0	4	4
1200-33	33	1200	1.3	4.6	50	1.61	4.8	140	84	1.0	4	4
1200-47	47	1200	1.1	3.1	67	2.29	6.9	190	84	1.3	4	4

TYPE DESCRIPTION

TYPE EMKP ...-...	C_N [µF]	VOLTAGE V_{AC}	R_S [mΩ]	R_{th} [K/W]	$I_{MAX.}$ [A]	I_P [kA]	Î [kA]	HEIGHT [mm]	D [mm]	WEIGHT [kg]	PACKAGING UNIT	DRAWING NO.
EMKP 1450; U_N = 1450 V; U_{RMS} = 1030 V; U_{NDC} = 2700 V; U_S = 4050 V												
1450-0.68	0.68	1450	2.7	25.0	15	0.17	0.5	52	40	0.08	50	3
1450-1.0	1.0	1450	2.2	23.7	17	0.25	0.8	52	50	0.1	25	2
1450-1.5	1.5	1450	3.0	20.8	15	0.24	0.7	72	50	0.2	25	2
1450-2.2	2.2	1450	3.0	15.0	18	0.24	0.7	72	64	0.3	9	2
1450-3.3	3.3	1450	1.6	10.5	30	0.52	1.6	72	64	0.3	9	4
1450-4.7	4.7	1450	2.3	11.4	24	0.48	1.4	72	64	0.3	9	4
1450-6.8	6.8	1450	0.9	5.9	55	1.08	3.2	109	64	0.4	4	4
1450-10	10	1450	0.7	4.6	68	1.59	4.8	120	84	0.9	4	4
1450-15	15	1450	0.9	4.6	59	1.53	4.6	140	84	1.0	4	4
1450-22	22	1450	1.5	4.6	47	1.29	3.9	190	84	1.3	4	4
1450-33	33	1450	1.2	3.2	63	1.93	5.8	190	84	1.3	4	4
EMKP 1650; U_N = 1650 V; U_{RMS} = 1170 V; U_{NDC} = 3150 V; U_S = 4725 V												
1650-0.22	0.22	1650	5.5	34.2	9	0.06	0.2	52	30	0.05	100	3
1650-0.33	0.33	1650	4.0	30.0	11	0.10	0.3	52	35	0.1	100	3
1650-0.47	0.47	1650	3.1	26.6	13	0.14	0.4	52	40	0.1	50	3
1650-0.68	0.68	1650	2.5	25.3	15	0.20	0.6	52	50	0.1	50	2
1650-1.0	1.0	1650	3.6	22.3	14	0.19	0.6	72	50	0.2	50	2
1650-1.5	1.5	1650	2.7	17.7	18	0.28	0.8	72	50	0.2	25	2
1650-2.2	2.2	1650	0.9	8.4	45	0.65	2.0	109	64	0.4	9	4
1650-3.3	3.3	1650	1.2	8.3	38	0.61	1.8	120	64	0.5	9	4
1650-4.7	4.7	1650	1.0	6.2	50	0.87	2.6	120	64	0.5	9	4
1650-6.8	6.8	1650	0.8	5.3	60	1.26	3.8	120	84	0.9	4	4
1650-10	10	1650	1.1	5.4	51	1.19	3.6	140	84	1.0	4	4
1650-15	15	1650	1.7	5.0	41	1.02	3.1	190	84	1.3	4	4
1650-22	22	1650	1.4	3.7	55	1.50	4.5	190	84	1.3	4	4
EMKP 2250; U_N = 2250 V; U_{RMS} = 1590 V; U_{NDC} = 4050 V; U_S = 6075 V												
2250-0.22	0.22	2250	4.5	29.4	11	0.08	0.2	52	35	0.06	100	3
2250-0.33	0.33	2250	3.3	25.2	13	0.13	0.4	52	40	0.1	50	3
2250-0.47	0.47	2250	2.6	24.2	15	0.18	0.5	52	50	0.1	25	2
2250-0.68	0.68	2250	3.9	21.4	13	0.16	0.5	72	50	0.2	25	2
2250-1.0	1.0	2250	1.2	13.0	31	0.38	1.1	109	50	0.3	25	2
2250-1.5	1.5	2250	1.7	11.6	28	0.36	1.1	120	50	0.3	25	2
2250-2.2	2.2	2250	1.4	8.3	36	0.52	1.6	120	64	0.5	9	5
2250-3.3	3.3	2250	1.9	7.8	32	0.51	1.5	140	64	0.6	9	5
2250-4.7	4.7	2250	1.4	6.0	42	0.72	2.2	140	64	0.6	9	5
2250-6.8	6.8	2250	1.1	5.2	50	1.04	3.1	140	84	1.0	4	5
2250-10	10	2250	0.9	3.5	68	1.53	4.6	140	84	1.0	4	5
2250-15	15	2250	1.5	3.6	53	1.28	3.8	190	84	1.3	4	5
EMKP 2400; U_N = 2400 V; U_{RMS} = 1700 V; U_{NDC} = 4500 V; U_S = 6750 V												
2400-0.22	0.22	2400	4.1	28.8	11	0.09	0.3	52	40	0.08	100	3
2400-0.33	0.33	2400	3.1	26.7	13	0.14	0.4	52	50	0.1	25	2
2400-0.47	0.47	2400	4.7	23.7	12	0.12	0.4	72	50	0.2	25	2
2400-0.68	0.68	2400	3.6	19.1	15	0.18	0.5	72	50	0.2	25	2
2400-1.0	1.0	2400	5.3	17.2	13	0.17	0.5	72	50	0.2	25	2
2400-1.5	1.5	2400	0.9	7.0	50	0.63	1.9	109	64	0.4	9	2
2400-2.2	2.2	2400	1.2	7.3	41	0.58	1.7	120	64	0.5	9	2
2400-3.3	3.3	2400	0.9	6.1	51	0.87	2.6	120	84	0.9	9	5
2400-4.7	4.7	2400	1.3	6.2	42	0.80	2.4	140	84	1.0	9	5
2400-6.8	6.8	2400	1.1	4.4	57	1.16	3.5	140	84	1.0	4	5
2400-10	10	2400	1.8	4.3	44	0.97	2.9	190	84	1.3	4	5

Note

- Other voltage, current, and capacitance values are available on request

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