

ML series

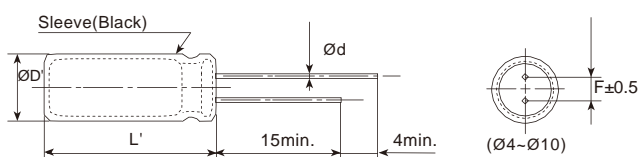
- Long life with 5mm to 9mm height.
- Endurance +105°C 3,000~5,000 hours
- RoHS Compliant



SPECIFICATIONS

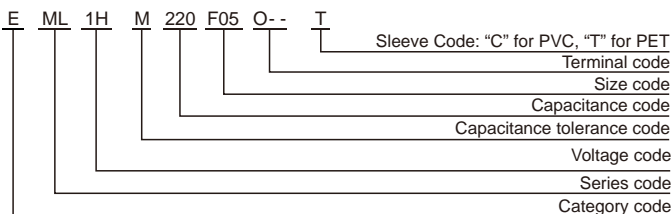
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	6.3~50 V _{dc}
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V _{dc}) 6.3 10 16 25 35 50
	tan (max.) 0.40 0.35 0.30 0.25 0.20 0.20
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V _{dc}) 6.3 10 16 25 35 50
	Z(-25°C)/Z(+20°C) 6 4 4 3 2 2
	Z(-40°C)/Z(+20°C) 12 10 8 6 4 4 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.
	Capacitance Change ±30% of the initial value
	D.F. (tan δ) 300% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.
	Capacitance Change ±30% of the initial value
	D.F. (tan δ) 300% of the initial specified value
	Leakage Current 200% of the initial specified value

DIMENSIONS[mm]



ØD	4		5		6.3		8			10×9
	6.3×5	6.3×7	8×5	8×7	8×9					
Ød	0.45	0.45	0.45	0.5	0.45	0.5	0.5	0.5	0.6	
F	1.5	2.0	2.5	2.5	3.5	3.5	3.5	5.0		
ØD'	ØD+0.5max.									
L'	L+2max.									

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz)	60(50)	120	500	1k	10k
Cap.<2.2	0.50	1.00	1.20	1.30	1.50
2.2 Cap.<10	0.65	1.00	1.20	1.30	1.50
10 Cap.<100	0.80	1.00	1.20	1.30	1.50
Cap. 100	0.80	1.00	1.10	1.15	1.20

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Radial Type

ML series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number
6.3(0J)	27	4x5	0.40	25	EML0JM270C05OT
	47	4x7	0.40	47	EML0JM470C07OT
	56	5x5	0.40	50	EML0JM560D05OT
	82	5x7	0.40	75	EML0JM820D07OT
	120	6.3x5	0.40	80	EML0JM121E05OT
	180	6.3x7	0.40	110	EML0JM181E07OT
	220	8x5	0.40	125	EML0JM221F05OT
	270	8x7	0.40	165	EML0JM271F07OT
	470	8x7	0.40	190	EML0JM471F07OT
	560	8x9	0.40	230	EML0JM561F09OT
1000	10x9	0.40	480	EML0JM102G09OT	
10(1A)	22	4x5	0.35	22	EML1AM220C05OT
	33	4x7	0.35	43	EML1AM330C07OT
	47	5x5	0.35	48	EML1AM470D05OT
	56	5x7	0.35	68	EML1AM560D07OT
	100	6.3x5	0.35	75	EML1AM101E05OT
	120	6.3x7	0.35	100	EML1AM121E07OT
	180	8x5	0.35	120	EML1AM181F05OT
	220	8x7	0.35	160	EML1AM221F07OT
	330	8x7	0.35	180	EML1AM331F07OT
	470	8x9	0.35	210	EML1AM471F09OT
680	10x9	0.35	470	EML1AM681G09OT	
16(1C)	18	4x5	0.30	20	EML1CM180C05OT
	22	4x7	0.30	40	EML1CM220C07OT
	33	5x5	0.30	45	EML1CM330D05OT
	39	5x7	0.30	65	EML1CM390D07OT
	68	6.3x5	0.30	70	EML1CM680E05OT
	100	6.3x7	0.30	95	EML1CM101E07OT
	120	8x5	0.30	110	EML1CM121F05OT
	150	8x7	0.30	125	EML1CM151F07OT
	220	8x7	0.30	170	EML1CM221F07OT
	330	8x9	0.30	195	EML1CM331F09OT
470	10x9	0.30	460	EML1CM471G09OT	
25(1E)	10	4x5	0.25	18	EML1EM100C05OT
	15	4x7	0.25	35	EML1EM150C07OT
	22	5x5	0.25	42	EML1EM220D05OT
	27	5x7	0.25	57	EML1EM270D07OT
	47	6.3x5	0.25	65	EML1EM470E05OT
	56	6.3x7	0.25	85	EML1EM560E07OT
	82	8x5	0.25	100	EML1EM820F05OT
	100	8x7	0.25	112	EML1EM101F07OT
	150	8x7	0.25	140	EML1EM151F07OT
	220	8x9	0.25	190	EML1EM221F09OT
330	10x9	0.25	450	EML1EM331G09OT	

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number
35(1V)	6.8	4x5	0.20	17	EML1VM6R8C05OT
	10	4x7	0.20	28	EML1VM100C07OT
	12	5x5	0.20	34	EML1VM120D05OT
	18	5x7	0.20	48	EML1VM180D07OT
	27	6.3x5	0.20	58	EML1VM270E05OT
	39	6.3x7	0.20	76	EML1VM390E07OT
	47	8x5	0.20	80	EML1VM470F05OT
	56	8x7	0.20	105	EML1VM560F07OT
	100	8x7	0.20	125	EML1VM101F07OT
	150	8x9	0.20	180	EML1VM151F09OT
	220	10x9	0.20	360	EML1VM221G09OT
	50(1H)	1	4x5	0.20	8
2.2		4x5	0.20	11	EML1HM2R2C05OT
3.3		4x5	0.20	14	EML1HM3R3C05OT
4.7		4x7	0.20	23	EML1HM4R7C07OT
6.8		5x5	0.20	25	EML1HM6R8D05OT
10		5x7	0.20	30	EML1HM100D07OT
12		6.3x5	0.20	37	EML1HM120E05OT
18		6.3x7	0.20	50	EML1HM180E07OT
22		8x5	0.20	62	EML1HM220F05OT
33		8x7	0.20	75	EML1HM330F07OT
56		8x7	0.20	115	EML1HM560F07OT
82		8x9	0.20	160	EML1HM820F09OT
120		10x9	0.20	315	EML1HM121G09OT