

LL series

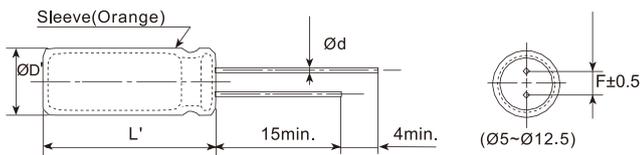
- Stable and extremely low leakage current characteristics
- Endurance: +105°C 2,000 hours
- Wide temperature range of -40°C~+105°C
- **RoHS Compliant**



SPECIFICATIONS

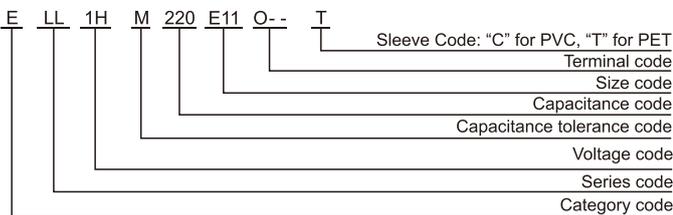
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	6.3~100 V _{dc}
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	1 0.002CV or 0.4μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})
	tanδ (max.)
	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})
	Z(-25°C)/Z(+20°C)
	Z(-40°C)/Z(+20°C) (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 2,000 hours at 105 °C.
	Capacitance Change
	D.F. (tanδ)
	Leakage Current
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied.
	Capacitance Change
	D.F. (tanδ)
	Leakage Current

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5
Ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	3.5	5.0	5.0
ØD'	ØD+0.5max.				
L'	L+2max.				

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz) Cap.(μF)	50(60)	120	1k	10k	100k
Cap.<100	0.80	1.00	1.45	1.65	1.70
100 Cap.<1000	0.80	1.00	1.36	1.48	1.53
Cap. 1000	0.85	1.00	1.25	1.35	1.38

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.

LL series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μ F)	Size DxL(mm)	tan δ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number
6.3(0J)	22	5×11	0.22	36	ELL0JM220D11OT
	33	5×11	0.22	44	ELL0JM330D11OT
	47	5×11	0.22	53	ELL0JM470D11OT
	100	5×11	0.22	74	ELL0JM101D11OT
	220	6.3×11	0.22	131	ELL0JM221E11OT
	330	6.3×11	0.22	161	ELL0JM331E11OT
	470	8×11	0.22	242	ELL0JM471F11OT
	1000	10×12	0.22	390	ELL0JM102G12OT
	2200	12.5×20	0.24	665	ELL0JM222W20OT
10(1A)	22	5×11	0.19	50	ELL1AM220D11OT
	33	5×11	0.19	66	ELL1AM330D11OT
	47	5×11	0.19	75	ELL1AM470D11OT
	100	5×11	0.19	104	ELL1AM101D11OT
	220	8×11	0.19	193	ELL1AM221F11OT
	330	8×11	0.19	256	ELL1AM331F11OT
	470	8×11	0.19	319	ELL1AM471F11OT
	1000	10×16	0.19	605	ELL1AM102G16OT
	2200	12.5×20	0.21	860	ELL1AM222W20OT
16(1C)	10	5×11	0.16	39	ELL1CM100D11OT
	22	5×11	0.16	62	ELL1CM220D11OT
	33	5×11	0.16	68	ELL1CM330D11OT
	47	5×11	0.16	105	ELL1CM470D11OT
	100	6.3×11	0.16	138	ELL1CM101E11OT
	220	8×11	0.16	220	ELL1CM221F11OT
	330	8×11	0.16	268	ELL1CM331F11OT
	470	10×12	0.16	407	ELL1CM471G12OT
	1000	10×20	0.16	704	ELL1CM102G20OT
	2200	12.5×25	0.18	890	ELL1CM222W25OT
25(1E)	4.7	5×11	0.14	32	ELL1EM4R7D11OT
	10	5×11	0.14	43	ELL1EM100D11OT
	22	5×11	0.14	65	ELL1EM220D11OT
	33	5×11	0.14	76	ELL1EM330D11OT
	47	6.3×11	0.14	116	ELL1EM470E11OT
	100	8×11	0.14	149	ELL1EM101F11OT
	220	10×12	0.14	246	ELL1EM221G12OT
	330	10×12	0.14	352	ELL1EM331G12OT
	470	10×16	0.14	484	ELL1EM471G16OT
	1000	12.5×20	0.14	847	ELL1EM102W20OT
35(1V)	4.7	5×11	0.12	33	ELL1VM4R7D11OT
	10	5×11	0.12	48	ELL1VM100D11OT
	22	6.3×11	0.12	71	ELL1VM220E11OT
	33	6.3×11	0.12	83	ELL1VM330E11OT
	47	6.3×11	0.12	125	ELL1VM470E11OT
	100	8×11	0.12	187	ELL1VM101F11OT
	220	10×12	0.12	330	ELL1VM221G12OT
	330	10×16	0.12	440	ELL1VM331G16OT
	470	12.5×20	0.12	590	ELL1VM471W20OT
	1000	12.5×25	0.12	1012	ELL1VM102W25OT

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WV (V _{dc})	Cap (μF)	Size DxL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number
50(1H)	0.47	5×11	0.10	12	ELL1HMR47D11OT
	1	5×11	0.10	17	ELL1HM010D11OT
	2.2	5×11	0.10	24	ELL1HM2R2D11OT
	3.3	5×11	0.10	29	ELL1HM3R3D11OT
	4.7	5×11	0.10	36	ELL1HM4R7D11OT
	10	5×11	0.10	52	ELL1HM100D11OT
	22	6.3×11	0.10	77	ELL1HM220E11OT
	33	6.3×11	0.10	99	ELL1HM330E11OT
	47	8×11	0.10	138	ELL1HM470F11OT
	100	10×12	0.10	217	ELL1HM101G12OT
	220	10×20	0.10	380	ELL1HM221G20OT
	330	12.5×20	0.10	506	ELL1HM331W20OT
	470	12.5×25	0.10	705	ELL1HM471W25OT
63(1J)	0.47	5×11	0.10	12	ELL1JMR47D11OT
	1	5×11	0.10	17	ELL1JM010D11OT
	2.2	5×11	0.10	24	ELL1JM2R2D11OT
	3.3	5×11	0.10	32	ELL1JM3R3D11OT
	4.7	5×11	0.10	39	ELL1JM4R7D11OT
	10	6.3×11	0.10	58	ELL1JM100E11OT
	22	6.3×11	0.10	94	ELL1JM220E11OT
	33	8×11	0.10	110	ELL1JM330F11OT
	47	8×11	0.10	152	ELL1JM470F11OT
	100	10×16	0.10	260	ELL1JM101G16OT
	220	10×20	0.10	440	ELL1JM221G20OT
	330	12.5×20	0.10	594	ELL1JM331W20OT
	100(1K)	0.47	5×11	0.10	12
1		5×11	0.10	17	ELL1KM010D11OT
2.2		5×11	0.10	24	ELL1KM2R2D11OT
3.3		5×11	0.10	32	ELL1KM3R3D11OT
4.7		6.3×11	0.10	39	ELL1KM4R7E11OT
10		8×11	0.10	61	ELL1KM100F11OT
22		8×11	0.10	106	ELL1KM220F11OT
33		10×12	0.10	142	ELL1KM330G12OT
47		10×16	0.10	184	ELL1KM470G16OT
100		12.5×20	0.10	300	ELL1KM101W20OT
220		12.5×30	0.10	533	ELL1KM221W30OT