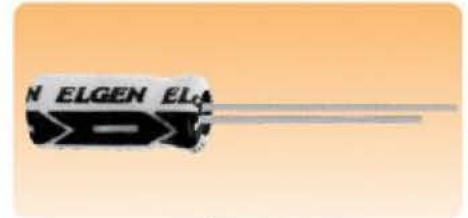


### LL Series

Low leakage current.  
Excellent shelf life.  
Excellent frequency and low-temperature characteristics.

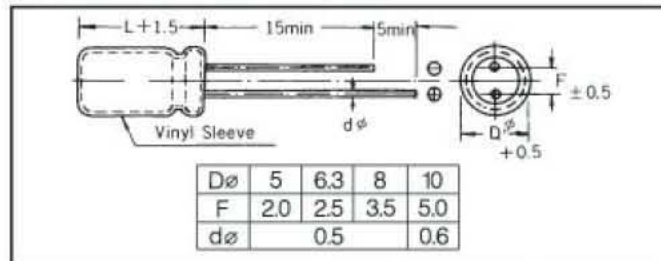


Orange

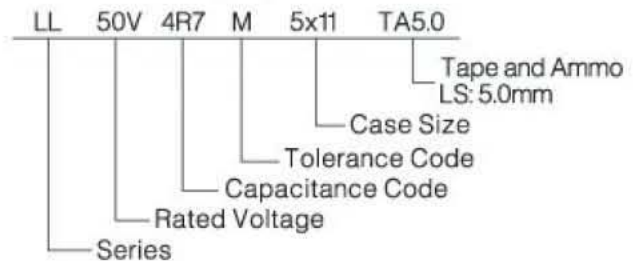
#### Characteristics

Voltage Range	10-63V						
Capacitance Range	0.1-1000uF						
Temperature Range	-40 ~ + 105°C						
Capacitance Tolerance	-20 ~ +20% (at 20°C, 120Hz)						
Leakage Current	I=0.002CV or 0.4uA Whichever is greater (After 2 minutes)						
Dissipation Factor (tan δ)	Rated voltage	10V	16V	25V	35V	50V	63V
	tan δ (max.)	0.20	0.16	0.14	0.12	0.10	0.10
Low Temperature Stability	Impedance ratio at 120Hz						
	Rated voltage	10V	16V	25V	35V	50V	63V
	Z-25°C/Z 20°C	3	2	2	2	2	2
	Z-40°C/Z 20°C	6	6	4	4	3	3
Load Life	After 1000 hours application of rated voltage at 105°C the capacitor shall meet the following characteristics						
	Capacitance Range	Within ±20% of initial value					
	D.F. (tan δ)	150% or less of initial specified value					
	Leakage Current	Initial specified value or less					

#### Diagram of Dimensions (mm)



#### Part Numbering System



#### Case Size of Standard Products

WV uF	10	16	25	35	50	63
0.1					5x11	5x11
0.22					5x11	5x11
0.33					5x11	5x11
0.47					5x11	5x11
1					5x11	5x11
2.2					5x11	5x11
3.3					5x11	5x11
4.7					5x11	5x11
10				5x11	5x11	6.3x11
22			5x11	5x11	6.3x11	8x11.5
33		5x11	5x11	6.3x11	6.3x11	10x12.5
47	5x11	5x11	6.3x11	6.3x11	8x11.5	10x16
100	5x11	6.3x11	8x11.5	8x11.5	10x16	10x20
220	6.3x11	8x11.5	8x11.5	10x16	10x20	
330	8x11.5	8x11.5	10x16	10x20		
470	8x11.5	10x16				
1000	10x16					

#### Maximum E.S.R. (Ω20°C 120Hz)

#### Maximum Ripple Current (mA rms 105°C 120Hz)

WV uF	10		16		25		35		50		63	
	ESR	IR	ESR	IR	ESR	IR	ESR	IR	ESR	IR	ESR	IR
0.1									1348	4	1348	4
0.22									660	6	660	6
0.33									438	7	438	7
0.47									326	9	326	9
1									162	15	162	15
2.2									82.3	20	82.3	20
3.3									48.6	28	48.6	28
4.7									33.3	35	33.0	35
10							18.90	58	16.2	60	15.8	65
22					10.01	70	8.52	77	7.37	95	7.12	110
33			8.02	81	7.10	88	5.63	98	4.88	120	4.76	139
47	6.59	90	5.64	95	5.03	110	3.96	130	3.42	170	3.22	192
100	3.06	150	2.66	170	2.11	195	1.88	220	1.62	265	1.58	310
220	1.42	260	1.20	280	0.98	330	0.86	400	0.73	460		
330	0.95	310	0.81	360	0.69	430	0.56	540				
470	0.70	430	0.54	470	0.48	590						
1000	0.31	730										