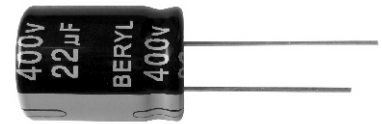


ES Series

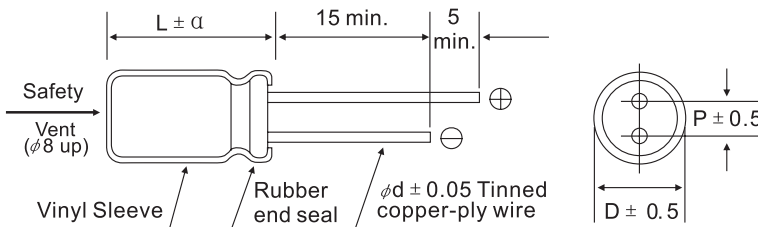


- Load Life: 105°C 2,000 hours.
- With high ripple current capability.
- This series has specification of vent operation in overvoltage situation.
- RoHS compliance.

■ 規格表 SPECIFICATIONS

項目 Items	特性參數 Characteristics			
使用溫度範圍 Category Temperature Range	-25 ~ +105°C			
額定工作電壓範圍 Rated Voltage Range	200V~450V			
靜電容量允許偏差 Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)			
漏電流 Leakage Current	$I \leq 3\sqrt{CV}$ after application of rated Voltage for 5 minutes. 施加額定工作電壓5分鐘後讀數。 I: 漏電流 (µA)、C: 靜電容量 (µF)、額定電壓 (V)			
損耗角正切值 tan δ Dissipation Factor	Rated voltage(V)	200~400	450	(at 20°C, 120Hz)
	tan δ (Max.)	0.15	0.2	
低溫特性 Low temperature Characteristics (Max. Impedance Ratio)	電容器低溫的阻抗比值，不應超過下表所列出的值			
	Rated voltage(V)	200	400	450
	Z(-25°C)/Z(+20°C)	3	8	8
耐久性 Endurance	施加額定工作電壓和額定紋波電流，恢復到20°C後，產品性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored to 20°C after application of rated voltage with rated ripple current.			
	Capacitance change	≅ ±20% of the initial value		
	D.F. (Tan δ)	≅ 200% of the specified value		
	Leakage current	≅ The specified value		
高溫儲存特性 Shelf Life	105°C存放1000小時，恢復到20°C後，產品性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 105°C without voltage applied.			
	Capacitance change	≅ ±20% of the initial value		
	D.F.(tan δ)	≅ 200% of the specified value		
	Leakage current	≅ The specified value		
浪涌衝擊抗擾度試驗 Surge immunity test	經44次，1000V，浪涌衝擊抗擾度試驗，恢復20°C後測試產品性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored at 20°C after exposing them for Electromagnetic compatibility - Testing and measurement techniques - Surge immunity test			
	Capacitance change	≅ ±20% of the initial value		
	D.F.(tan δ)	≅ The specified value		
	Leakage current	≅ The specified value		

■ 外形圖 DIMENSIONS (mm)



ΦD	10	13	16	18
P	5.0	5.0	7.5	7.5
Φd	0.6	0.6	0.8	0.8

α	(L < 20) 1.5
	(L ≥ 20) 2.0

■ 紋波電流補正係數 RATED RIPPLE CURRENT COEFFICIENT

- 頻率係數 Frequency Coefficient  
200~450V.DC

Frequency(Hz)	120	1K	10K	100K
Capacitance(UF)				
4.7uF	1.00	1.10	1.14	1.50
10~100uF	1.00	1.10	1.14	1.50

**ES Series**

■ 尺寸與最大紋波電流一覽表 STANDARD RATINGS

WV(V) Cap(μF)	200(2D)								400(2G)								450(2D)	
4.7									10×13	0.06							10×16	0.043
10									10×17	0.08	13×20	0.10					10×20	0.072
15																	13×20	0.125
22									16×21	0.17	16×26	0.18					13×20	0.147
27									16×26	0.21								
33									16×26	0.22	16×30	0.23	18×21	0.23	18×26	0.24		
36									18×21	0.24								
39									16×30	0.26	18×26	0.26						
47									16×30	0.31	16×35	0.33	16×21	0.28	16×26	0.31		
56									16×35	0.33	16×40	0.35	18×30	0.35	18×35	0.36		
68	16×21	0.31							16×40	0.38	18×35	0.41	18×40	0.42				
82	16×21	0.35	16×26	0.39	18×21	0.36			18×40	0.46	18×45	0.49						
100	16×26	0.42	16×30	0.46	18×21	0.42			18×45	0.53								
120	16×26	0.47	16×30	0.51	18×21	0.45	18×26	0.47	↑ ↑ Rated ripple current: (Arms) at 105°C, 120Hz Case size: Φ DxL (mm)									
130	18×21	0.45																
150	16×30	0.58	16×35	0.58	18×21	0.51	18×26	0.54										
180	16×40	0.65	18×26	0.61	18×30	0.61												
220	18×30	0.72	18×35	0.73														
270	18×35	0.76	18×45	0.88														
330	18×40	0.92																