

NON-POLARIZED, LONG LIFE

无极性长寿命品

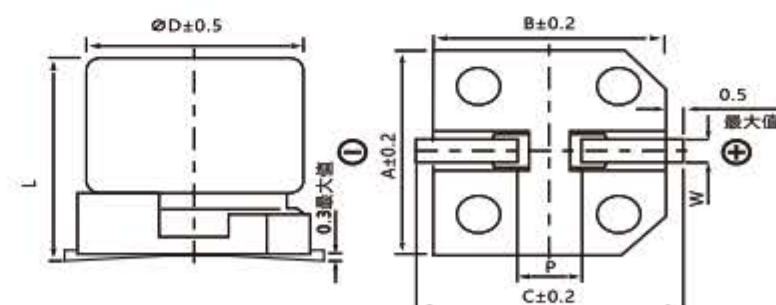
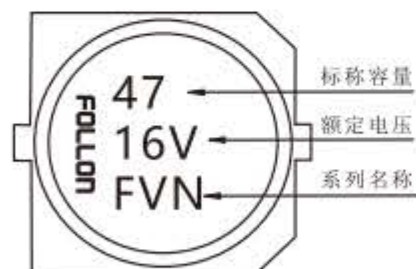
- Non-polarized with wide temperature range $-55^{\circ}\text{C}\sim+105^{\circ}\text{C}$
无极性和适用于 $-55^{\circ}\text{C}\sim+105^{\circ}\text{C}$ 的宽温范围
- Load life of 2000 hours
负荷寿命2000小时
- Comply with the RoHS directive
符合 RoHS 指令



SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性					
Operation Temperature Range 使用温度范围	-55 ~ +105℃					
Voltage Range 额定工作电压范围	6.3 ~ 50V					
Capacitance Range 静电容量范围	0.1 ~ 100 μF					
Capacitance Tolerance 静电容量允许偏差	± 20% at 120Hz, 20℃					
Leakage Current 漏电流	Leakage current≤0.05CV or 10μA, whichever is greater (after 2 minutes application of rated voltage) 漏电流≤0.05CV 或 10 μ A, 取较大值（施加额定工作电压2 分钟后）					
Dissipation Factor (tanδ) 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20℃					
	Rated Voltage (V) 额定工作电压	6.3	10	16, 25	35, 50	
	tan δ (max.) 最大损耗角正切	0.24	0.20	0.18	0.16	
Stability at Low Temperature 低温特性	Measurement frequency 测试频率: 120Hz					
	Rated Voltage (V) 额定工作电压	6.3	10	16, 25	35, 50	
	Impedance Ratio 阻抗比 ZT/Z20 (max.)	Z(-25℃) / Z(20℃)	4	3	2	2
		Z(-55℃) / Z(20℃)	8	6	4	3
Load Life 高温负荷特性	After 2000 hours application of the rated voltage at 105℃ (the polarity needs to exchange every 250 hours), they meet the characteristics listed below. 在 105℃ 环境中施加额定工作电压2000 小时（每250 小时必须转换一次极性）后，电容器的特性符合下表的要求。					
	Capacitance Change 静电容量变化率	Within ± 30% of initial value 初始值的 ±30%内				
	Dissipation Factor 损耗角正切	200% or less of initial specified value 不大于规范值的200%				
	Leakage Current 漏电流	initial specified value or less 不大于规范值				
Shelf Life 高温贮存特性	After leaving capacitors under no load at 105℃ for 1000 hours, they meet the specified value for load life characteristics listed above. 在105℃ 环境中无负荷放置1000 小时后，电容器的特性符合高温负荷特性中所列的规定值。					
Resistance to Soldering Heat 耐焊接热特性	After reflow soldering and restored at room temperature, they meet the characteristics listed below. 经过回流焊并冷却至室温后，电容器的特性符合下表的要求。					
	Capacitance Change 静电容量变化率	Within ±10% of initial value 初始值的 ±10%以内				
	Dissipation Factor 损耗角正切	initial specified value or less 不大于规范值				
	Leakage Current 漏电流	initial specified value or less 不大于规范值				
Marking 标识	Black print on the case top. 铝壳顶部黑字印刷。					

DRAWING (Unit: mm) 外形图



DIMENSIONS (Unit: mm) 尺寸表

$\varnothing D \times L$	4x5.4	5x5.4	6.3x5.4	6.3x7.7
A	4.3	5.3	6.6	6.6
B	4.3	5.3	6.6	6.6
C	5.1	5.9	7.2	7.2
$P \pm 0.2$	1.0	1.3	2.2	2.2
L	5.4 ± 0.3	5.4 ± 0.3	5.4 ± 0.3	7.7 ± 0.3

□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT 规格尺寸及最大允许纹波电流

WV Code 代码	μF	6.3		10		16		25		35		50	
		0J		1A		1C		1E		1V		1H	
0.1	0R1											4 × 5.4	1.0
0.22	R22											4 × 5.4	2.0
0.33	R33											4 × 5.4	2.8
0.47	R47											4 × 5.4	4.0
1	010											4 × 5.4	8.4
2.2	2R2									4 × 5.4	8.4	5 × 5.4	13
3.3	3R3							5 × 5.4	12	5 × 5.4	16	5 × 5.4	17
4.7	4R7					4 × 5.4	12	5 × 5.4	16	5 × 5.4	18	6.3 × 5.4	20
10	100			4 × 5.4	17	5 × 5.4	23	6.3 × 5.4	27	6.3 × 5.4	29	6.3 × 7.7	36
22	220	5 × 5.4	28	6.3 × 5.4	33	6.3 × 5.4	37	6.3 × 7.7	50	6.3 × 7.7	54		
33	330	6.3 × 5.4	37	6.3 × 5.4	41	6.3 × 5.4	49	6.3 × 7.7	61			Case size 尺寸	Ripple current 纹波电流
47	470	6.3 × 5.4	45	6.3 × 5.4	61	6.3 × 7.7	75						
100	101	6.3 × 7.7	82	6.3 × 7.7	85								

• Case size $\varnothing D \times L$ (mm), ripple current (mA rms) at 105°C, 120Hz • 尺寸 $\varnothing D \times L$ (mm), 纹波电流(mA rms)于105°C, 120Hz

□ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 纹波电流频率补偿系数

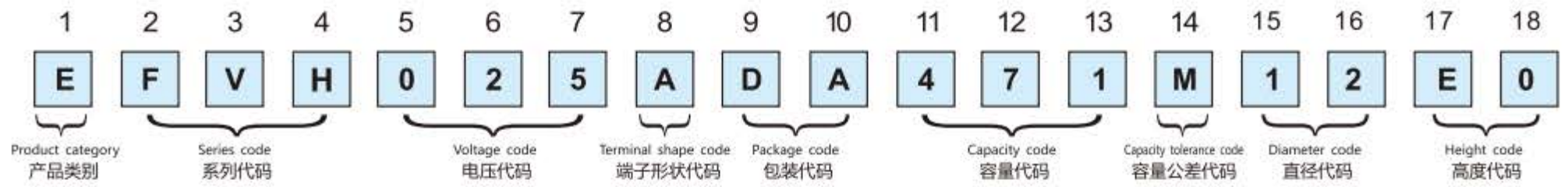
Frequency 频率	50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系数	0.70	1.00	1.17	1.36	1.50

- The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.
- 铝电解电容器由于在纹波电流叠加时自我发热，温度上升而老化，每升温10°C寿命减少一半；要想保持长寿命请在使用过程中降低纹波电流。

- Taping specifications are given in page 17 "Taping Specifications". 编带标准请参阅第 17 页“编带标准”。
- Please refer to page 18 "Package Quantity" for the minimum package quantity. 最小包装数量请参阅第 18 页“包装数量”。

SMD EXPLANATION OF PART NUMBERS

贴片产品编码规则



(2, 3, 4) (5, 6, 7)

Series 系列	Voltage (w.v) 电压	Code 代码
FVE	4	4R0
FVH	6.3	6R3
FVA	10	010
FVZ	16	016
FVR	25	025
FVL	35	035
FVM	50	050
FVU	63	063
FVG	100	100
FVB	160	160
FVN	250	250
FVD	350	350
FVC	400	400

(11, 12, 13)

Capacitance (uF) 静电容量	Code 代码
0.1	0R1
0.22	R22
1	010
4.7	4R7
10	100
47	470
100	101
470	471
1000	102
4700	472
10000	103

(14)

Cap.Tolerance (%) 容量允许	Code 代码
± 10	K
± 20	M

(8)

Tape 端子类型	Code 代码
No dummy terminal 无辅助端子	A
With dummy terminal 有辅助端子	G

(15, 16)

Diameter (mm) 直径	Code 代码
4	04
5	05
6.3	06
8	08
10	10
12.5	12
16	16
18	18

(17, 18)

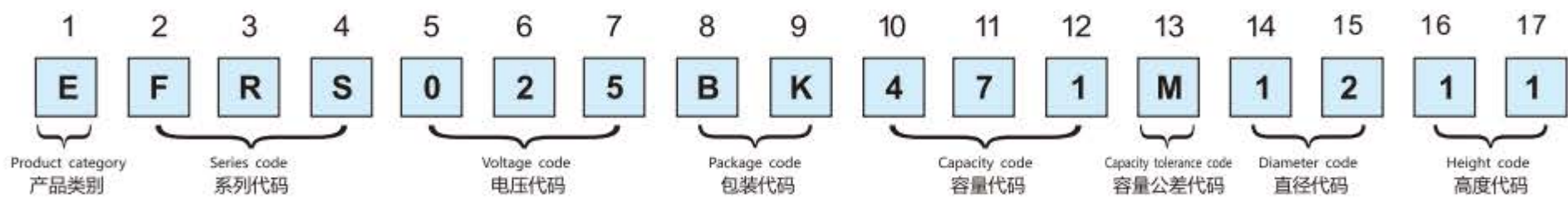
Length (mm) 高度	Code 代码
4.5	45
5.4	54
5.8	58
6.5	65
7.7	77
10.2	A0
10.5	B0
13.5	E0
16	G5
16.5	H0
21.5	N0

(9, 10)

Packaging 包装要求		External diameter 纸盘外径	Fit size 适合尺寸	Code 代码
		□(mm)	□D(mm)	
Braiding 编带	Paper tray 纸盘	380	ØD4~18	DA
		330	ØD4~18	DB
	Glue tray 胶盘	380	ØD4~10	RA
	Blister box 吸塑盒	-	ØD12.5~18	TR

Radial EXPLANATION OF PART NUMBERS

插件产品编码规则



(2, 3, 4) (5, 6, 7)

Series 系列	Voltage (w.v) 电压	Code 代码
FRA	4	4R0
FRS	6.3	6R3
FRU	10	010
FRK	16	016
FBR	25	025
FBU	35	035
	50	050
	63	063
	100	100
	160	160
	250	250
	350	350
	400	400

(10, 11, 12)

Capacitance (uF) 静电容量	Code 代码
0.1	0R1
0.22	R22
1	010
4.7	4R7
10	100
47	470
100	101
470	471
1000	102
4700	472
10000	103

(13)

Cap.Tolerance (%) 容量允许	Code 代码
± 10	K
± 20	M

(8, 9)

Packaging 包装形式	Code 代码
Long-legged bulk 长脚散装	BK
Long-legged taping 长脚编带	BA

(14, 15)

Diameter (mm) 直径	Code 代码
4	04
5	05
6.3	06
8	08
10	10
12.5	12
16	16
18	18

(16, 17)

Length (mm) 高度	Code 代码
4.5	04
5.5	05
6.0	06
6.5	06
7.0	07
8.0	08
10	10
11	11
11.5	11
12	12
16	16