

Hybrid Aluminum Electrolytic Capacitors

NSPE Series

FEATURES

- CYLINDRICAL LEADLESS TYPE FOR SURFACE MOUNTING
- SUPER LOW ESR & HIGH RIPPLE CURRENT
- CAPACITANCE VALUES UP TO 820 μ F
- 6.3x6.3mm ~ 10x10.8mm CASE SIZES
- COMPATIBLE WITH REFLOW SOLDERING

**RoHS
Compliant**

*See Part Number System for Details



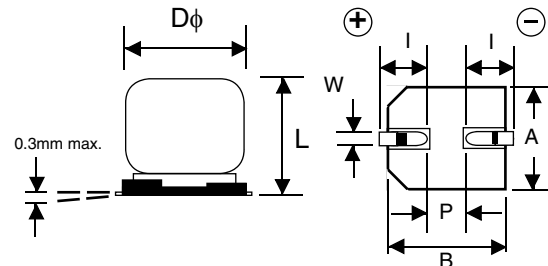
**LOW ESR COMPONENT
HYBRID ELECTROLYTE**
For Performance Data
see www.LowESR.com

CHARACTERISTICS

Rated Voltage Range	4 ~ 16 Vdc				
Rated Capacitance Range	22 ~ 820 μ F				
Operating Temp. Range	-55 ~ +105°C				
Capacitance Tolerance	\pm 20%(M)				
Max. Leakage Current After 2 Minutes @ 20°C	Less than 0.1CV or 50 μ A whichever is greater				
Working and Surge Voltage Ratings	W.V. (Vdc)	4	6.3	10	16
	S.V. (Vdc)	4.6	7.2	11.5	18.4
Tan δ @ 120Hz/20°C	All Case Sizes	0.24	0.22	0.20	0.18
Impedance Ratio	Z -55°C / Z + 20°C	2.5			
	Z +105°C / Z + 20°C	1.0			
Load Life Test @ 105°C 6.3mm Dia. and all 4Vdc parts 1,000 Hours 8mm ~ 10mm Dia. parts 2,000 Hours	Capacitance Change	Within \pm 20% of initial measured value			
	Tan δ	Less than 200% of specified max. value			
	Leakage Current	Less than specified max. value			

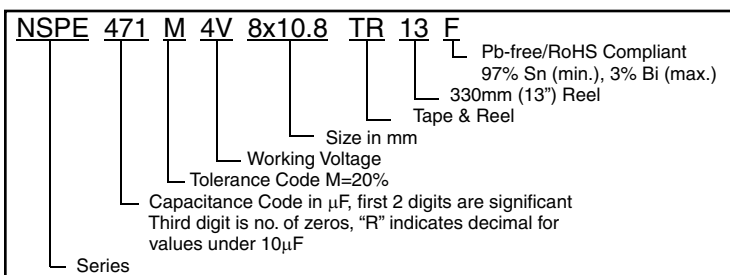
STANDARD PRODUCTS AND CASE SIZES (mm)

Cap (μ F)	Code	Working Voltage (Vdc)			
		4.0	6.3	10	16
22	220	-	-	6.3x6.3	6.3x6.3
33	330	-	-	6.3x6.3	-
47	470	-	-	6.3x6.3	8x10.8
100	101	-	6.3x6.3	8x10.8	8x10.8
150	151	-	-	8x10.8	10x10.8
220	221	-	8x10.8	8x10.8	-
330	331	-	8x10.8	8x10.8	-
390	391	-	8x10.8	10x10.8	-
470	471	8x10.8	10x10.8	10x10.8	-
560	561	-	10x10.8	-	-
680	681	10x10.8	-	-	-
820	821	10x10.8	-	-	-



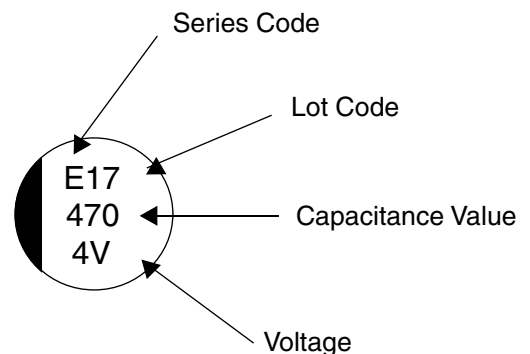
**SEE PAGE 38
For Case Size Data
SEE PAGE 39
For Taping/Packaging Data**

PART NUMBER SYSTEM



**"F" suffix denotes RoHS compliant parts

Part Marking



CASE DIMENSIONS (mm)

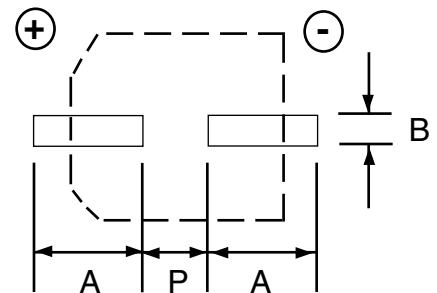
D ϕ \pm 0.5	L max.	A \pm 0.2	W	l \pm 0.2	P \pm 0.2
6.3	6.3	6.6	0.5~0.8	2.55	2.2
8.0	10.8	8.3	0.7~1.0	2.9	3.2
10	10.8	10.3	1.1~1.4	3.2	4.6

STANDARD VALUES AND SPECIFICATIONS

Voltage (Vdc)	Cap. (μ F)	Max. ESR (m Ω) 20°C/100KHz	Ripple Current (mA) 105°C/100KHz
4	470	30	1,550
	680	25	2,090
	820	23	2,180
6.3	100	50	1,120
	220	30	1,550
	330	30	1,550
	390	30	1,550
	470	25	2,090
	560	25	2,090
10	22	60	1,020
	33	60	1,020
	47	60	1,020
	100	30	1,550
	150	30	1,550
	220	30	1,550
	330	30	1,550
	390	25	2,090
	470	25	2,090
16	22	70	900
	47	45	1,200
	100	45	1,200
	150	40	1,810

LAND PATTERN (mm)

Case Dia.	A	B	P
6.3	3.5	1.6	1.9
8	4.2	2.2	3.1
10	4.4	2.2	4.5



RECOMMENDED REFLOW SOLDERING PROFILE

