

FEATURES

- CYLINDRICAL LEADLESS TYPE FOR SURFACE MOUNTING
- CAPACITANCE VALUES UP TO 1500 μ F
- LOW ESR & HIGH RIPPLE CURRENT AT 100K Hz
- 6.3x5.5mm ~ 10x12.7mm CASE SIZES
- COMPATIBLE WITH REFLOW SOLDERING

**RoHS
Compliant**

*See Part Number System for Details

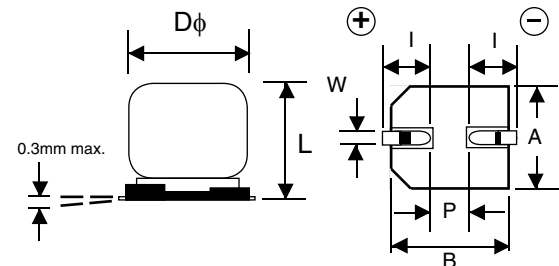


CHARACTERISTICS

Rated Voltage Range	2.5 ~ 25 Vdc	LOW ESR COMPONENT SOLID POLYMER ELECTROLYTE For Performance Data see www.LowESR.com						
Rated Capacitance Range	10 ~ 1500 μ F							
Operating Temp. Range	-55 ~ +105°C							
Capacitance Tolerance	$\pm 20\%$ (M)							
Max. Leakage Current After 2 Minutes @ 20°C	Less than 0.2CV							
Working and Surge Voltage Ratings	W.V. (Vdc)	2.5	4.0	6.3	10	16	20	25
	S.V. (Vdc)	2.8	4.6	7.2	11.5	18.4	23	28.7
Tan δ @ 120Hz/20°C	All Case Sizes	0.12						
Load LifeTest @ 105°C 2,000 Hours	Capacitance Change	Within $\pm 20\%$ of initial measured value						
	Tan δ	Less than specified max. value						
	Leakage Current	Less than specified max. value						

STANDARD CASE SIZES AND VALUES (mm)

Cap. (μ F)	Code	Working Voltage (Vdc)						
		2.5	4	6.3	10	16	20	25
10	100	-	-	-	-	-	-	6.3x6
22	220	-	-	-	-	-	6.3X5.5 6.3X6	8x7
33	330	-	-	-	-	6.3x6.3	-	-
39	390	-	-	-	-	6.3x5.5 6.3x6	8X7	10x8
47	470	-	-	-	6.3x6.3	-	8X7	-
56	560	-	-	-	6.3x5.5 6.3x6	-	-	-
68	680	-	-	6.3x6	-	-	-	-
82	820	-	-	6.3x5.5 6.3x6	-	8x7	10x8	-
100	101	-	6.3x5.5 6.3x6	6.3x6.3 6.3x6	-	-	-	-
120	121	-	-	6.3x6	8x7	-	-	-
150	151	-	6.3x5.5 6.3x6	8x7	8x7	10x8	-	-
180	181	-	-	-	-	8X12.5 10X8	-	-
220	221	6.3x5.5 6.3x6	8x7	8x7	-	10x12.7	-	-
270	271	-	-	-	8X12.5 10X8	-	-	-
330	331	-	8x7	10x8	8x12.5 10x8	10x12.7	-	-
390	391	-	-	8X12.5	-	-	-	-
470	471	-	10X8	8x12.5 10X8	10x12.7	-	-	-
560	561	8X7	8X12.5	-	10x12.7	-	-	-
680	681	8X12.5	10X8	10x12.7	-	-	-	-
820	821	-	10X12.7	10X12.7	-	-	-	-
1000	102	10X8	-	-	-	-	-	-
1200	122	-	10x12.7	-	-	-	-	-
1500	152	10X12.7	-	-	-	-	-	-

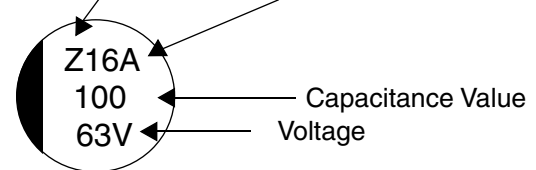


**SEE PAGE 38
For Case Size Data
SEE PAGE 39
For Taping/Packaging Data**

Part Marking

Series Code

Lot Code



PART NUMBER SYSTEM

NSPZ	101	M	6.3V	6.3x6	TR	15	F
Series	Capacitance Code in μ F, first 2 digits are significant Third digit is no. of zeros, "R" indicates decimal for values under 10 μ F	Working Voltage	Tolerance Code M=20%	Size in mm	Tape & Reel	380mm (15") Reel	Pb-free/RoHS Compliant 97% Sn (min.) 3% Bi (max.)

*"F" suffix denotes RoHS compliant parts

STANDARD VALUES AND SPECIFICATIONS

Voltage (Vdc)	Cap. (μF)	Max. ESR (mΩ) 20°C/100KHz	Ripple Current (mA) 105°C/100KHz
2.5	220	28	2,200
	560	25	2,700
	680	12	4,770
	1000	20	3,800
	1500	10	5,500
4	100	32	2,200
	150	32	2,200
	220	29	2,700
	330	29	2,700
	470	22	3,800
	560	12	4,770
	680	22	3,800
6.3	820	10	5,500
	1200	10	5,500
	68	32	2,200
	82	32	2,200
	100	32	2,200
	120	32	2,200
	150	29	2,600
	220	29	2,600
	330	22	3,500
	390	12	4,770
	470*	12	4,770
10	470	22	3,500
	680	10	5,500
	820	10	5,500
	47	40	2,100
	56	40	2,100
	120	32	2,200
	150	32	2,200
	270*	14	4,420
	270	25	3,200
	330*	14	4,420
16	330	25	3,200
	470	12	5,300
	560	12	5,300
	33	45	2,000
	39	45	2,000
	82	43	2,100
	150	33	3,000
	180*	16	4,360
20	180	33	3,000
	220	14	5,300
	330	14	5,050
	22	65	1,350
	39	50	1,400
25	47	45	2,000
	82	40	1,600
	10	65	1,500
25	22	50	1,800
	39	45	2,100

*8x12.5mm case size

RIPPLE CURRENT FREQUENCY
CORRECTION FACTOR

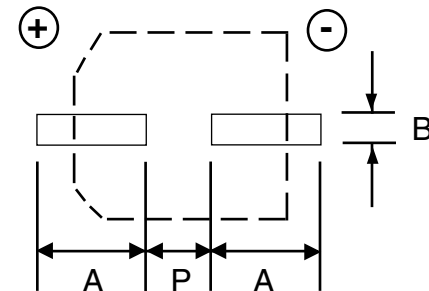
Frequency	1KHz	10KHz	100KHz ~ 500KHz
Multiplier	0.35	0.60	1.0

CASE DIMENSIONS (mm)

Dφ ± 0.5	L max.	A ± 0.2	W ± 0.2	I ± 0.2	P ± 0.2
6.3	5.5	6.6	0.65	2.65	1.9
6.3	6	6.6	0.65	2.65	1.9
8.0	7.0	8.3	0.9	2.95	3.1
8.0	12.5	8.3	0.9	2.95	3.1
10	8	10.3	0.9	3.3	4.5
10	12.7	10.3	0.9	3.3	4.5

LAND PATTERN DIM. (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



Maximum Time Above +200°C	Peak Soldering Temperature
30 Seconds	240°C
40 Seconds	230°C
50 Seconds	220°C

RECOMMENDED REFLOW SOLDERING PROFILE

