

FEATURES

- CYLINDRICAL LEADLESS TYPE FOR SURFACE MOUNTING
- VERY LOW IMPEDANCE (**Up to 60% lower than NACZ**)
- WIDE TEMPERATURE RANGE (-55 +105°C)
- **REDUCED SIZE (Up to 50% smaller than NACZ)**
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

RoHS Compliant

*See Part Number System for Details



CHARACTERISTICS

Rated Voltage Range	6.3 ~ 100Vdc
Rated Capacitance Range	3.3 ~ 6,800µF
Operating Temperature Range	-55°C ~ +105°C
Capacitance Tolerance	±20%(M)
Maximum Leakage Current after 2 minutes @ 20°C	0.01CV or 3µA, whichever is greater

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

Maximum Tanδ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50	63	80	100	
	S.V. (Vdc)	8.0	13	20	32	44	63	79	100	125	
	All Case Sizes	C ≤ 1,000µF	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07
		C = 2,200µF	-	0.21	-	0.16	-	-	-	-	-
		C = 3,300µF	0.30	-	0.20	0.18	-	-	-	-	-
C = 4,700µF		-	0.25	0.22	-	-	-	-	-	-	
Low Temperature Stability Impedance Ratio @ 120Hz	Z -25°C/Z +20°C	2	2	2	2	2	2	2	2	2	
	Z -40°C/Z +20°C	3	3	3	3	3	3	3	3	3	
	Z -55°C/Z +20°C	4	4	4	3	3	3	3	3	3	
Load Life Test @ 105°C 4 ~ 10mm Dia. 2,000 Hours 12.5 ~ 18mm Dia. 5,000 Hours	Capacitance Change	Within ±30% of initial measured value									
	Tanδ	Less than 200% of specified maximum value									
	Leakage Current	Less than specified maximum value									

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 100KHz AND 105°C)

Cap (µF)	Working Voltage (Vdc)									
	6.3	10	16	25	35	50	63	80	100	
3.3	-	-	-	-	-	-	-	25	-	
4.7	-	-	-	-	90	60	50	40	-	
10	-	-	90	90	90	85	80	60	-	
					160	165		60		
22	90	90	90	160	160	165	120	130	130	
			160				120			
33	-	90	-	160	240	195	250	130	200	
		160		240						
47	90	-	160	240	240	195	250	200	500	
	160		240							
68	-	-	240	240	280	-	250	500	500	
100	160	-	240	280	300	600	350	400	500	793
	240									
150	-	240	280	600	600	670	800	500	793	
220	240	160	280	600	600	670	800	-	917	
		300	300							
330	280	600	600	600	850	900	-	793	917	
	300									
470	600	600	600	850	1100	1610	1410	917	-	
680	-	600	850	-	1100	1610	1690	-	-	
1000	600	850	-	1100	1800	1610	-	-	-	
1500	850	-	1100	-	1800	-	-	-	-	
2200	-	1100	-	1800	-	-	-	-	-	
3300	1100	-	1800	2060	-	-	-	-	-	
4700	-	1800	2060	-	-	-	-	-	-	
6800	1800	2060	-	-	-	-	-	-	-	

RIPPLE CURRENT TEMPERATURE CORRECTION FACTOR

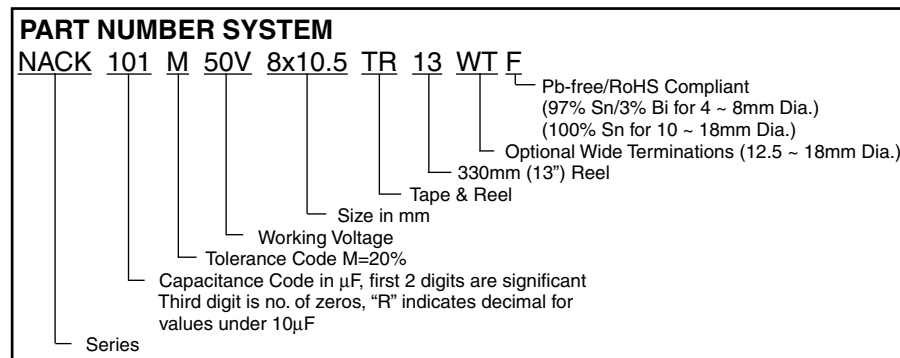
Temperature	-55°C ~ +85°C	> 85°C
Correction Factor	1.4	1.0

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency	60Hz	120Hz	1KHz	10KHz	100KHz
Correction Factor	0.7	0.75	0.9	0.95	1.0

MAXIMUM IMPEDANCE (Ω AT 20°C AND 100KHz)

Cap (μF)	Working Voltage (Vdc)								
	6.3	10	16	25	35	50	63	80	100
3.3	-	-	-	-	-	-	-	5.0	-
4.7	-	-	-	-	1.35	2.9	3.0	3.0	-
10	-	-	1.35	1.35	1.35	1.52	1.5	2.4	-
					0.70	0.88		2.4	
22	1.35	1.35	1.35	0.70	0.70	0.88	1.2	1.3	1.3
			0.70				1.2		
33	-	1.35	-	0.70	0.36	0.68	0.65	1.3	0.7
		0.70		0.36		0.68			
47	1.35	-	0.70	0.36	0.36	0.68	0.65	0.7	0.32
	0.70		0.36			0.68			
68	-	-	0.36	0.36	0.34	-	0.65	0.32	0.32
100	0.70	-	0.36	0.34	0.34	0.34	0.35	0.32	0.17
	0.36			0.26	0.16				
150	-	0.36	0.34	0.16	0.16	0.18	0.16	0.32	0.17
220	0.36	0.34	0.34	0.16	0.16	0.18	0.16	-	0.153
		0.26	0.26						
330	0.34	0.16	0.16	0.16	0.08	0.12	-	0.17	0.153
	0.26								
470	0.16	0.16	0.16	0.08	0.06	0.073	0.082	0.153	-
680	-	0.16	0.08	-	0.06	0.073	0.08	-	-
1000	0.16	0.08	-	0.06	0.035	0.073	-	-	-
1500	0.08	-	0.06	-	0.035	-	-	-	-
2200	-	0.06	-	0.035	-	-	-	-	-
3300	0.06	-	0.035	0.033	-	-	-	-	-
4700	-	0.035	0.033	-	-	-	-	-	-
6800	0.035	0.033	-	-	-	-	-	-	-



*Add "F" suffix for optional RoHS compliant parts

STANDARD PRODUCTION SIZE D ϕ xL (mm)

Cap (μ F)	Code	Working Voltage (Vdc)								
		6.3	10	16	25	35	50	63	80	100
3.3	3R3	-	-	-	-	-	-	-	5x6.1	-
4.7	4R7	-	-	-	-	4x6.1	4x6.1	5x6.1	6.3x6.1	-
10	100	-	-	4x6.1	4x6.1	4x6.1	5x6.1	6.3x6.1	6.3x8 8x6.5	-
22	220	4x6.1	4x6.1	4x6.1 5x6.1	5x6.1	5x6.1	6.3x6.1	6.3x8 8x6.5	8x10.5	8x10.5
33	330	-	4x6.1 5x6.1	-	5x6.1 6.3x6.1	6.3x1	6.3x8 8x6.5	8x10.5	8x10.5	10x10.5
47	470	4x6.1 5x6.1	-	5x6.1 6.3x6.1	6.3x6.1	6.3x6.1	6.3x8 8x6.5	8x10.5	10x10.5	12.5x14
68	680	-	-	6.3x6.1	6.3x6.1	6.3x8	-	8x10.5	12.5x14	12.5x14
100	101	5x6.1 6.3x6.1	-	6.3x6.1	6.3x8 8x6.5	6.3x8 8x10.5	8x10.5	10x10.5	12.5x14	16x17
150	151	-	6.3x6.1	6.3x8	8x10.5	8x10.5	10x10.5	12.5x14	12.5x14	16x17
220	221	6.3x6.1	6.3x8 8x6.5	6.3x8 8x6.5	8x10.5	8x10.5	10x10.5	12.5x14	-	18x17
330	331	6.3x8 8x6.5	8x10.5	8x10.5	8x10.5	10x10.5	12.5x14	-	16x17	18x17
470	471	8x10.5	8x10.5	8x10.5	10x10.5	12.5x14	16x17	16x17	18x17	-
680	681	-	8x10.5	10x10.5	-	12.5x14	16x17	18x17	-	-
1000	102	8x10.5	10x10.5	-	12.5x14	16x17	16x17	-	-	-
1500	152	10x10.5	-	12.5x14	-	16x17	-	-	-	-
2200	222	-	12.5x14	-	16x17	-	-	-	-	-
3300	332	12.5x14	-	16x17	18x17	-	-	-	-	-
4700	472	-	16x17	18x17	-	-	-	-	-	-
6800	682	16x17	18x17	-	-	-	-	-	-	-

DENOTES NEW VALUE

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

Anti-Vibration Skirt
on WT Style
12.5, 16 & 18mm Dia.

