

FEATURES

- CYLINDRICAL V-CHIP CONTRUCTION
- LOW PROFILE, 4.6mm MAXIMUM HEIGHT
- DESIGNED FOR REFLOW SOLDERING

RoHS

Compliant

includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

Rated Voltage Rating	4 ~ 50Vdc							
Rated Capacitance Range	0.1 ~ 220 μ F							
Operating Temperature Range	-40° ~ +85°C							
Capacitance Tolerance	$\pm 20\%$ (M)							
Max. Leakage Current After 2 Minutes at 20°C	0.01CV or 3 μ A, whichever is greater							
Surge Voltage & Max. Tan δ	W.V. (Vdc)	4	6.3	10	16	25	35	50
	S.V. (Vdc)	5	8.0	13	20	32	44	63
	Tan δ @ 120Hz/20°C	0.40	0.30	0.24	0.20	0.16	0.14	0.12
Low Temperature Stability (Impedance Ratio @ 120Hz)	W.V. (Vdc)	4	6.3	10	16	25	35	50
	Z-25°C/Z +20°C	7	4	3	2	2	2	2
	Z-40°C/Z +20°C	15	10	8	6	4	4	4
Load Life Test at Rated W.V. 85°C 1,000 Hours	Capacitance Change	Within $\pm 25\%$ of initial measured value						
	Tan δ	Less than 200% of specified value						
	Leakage Current	Less than specified value						

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 85°C)

Cap. (μ F)	Working Voltage (Vdc)						
	4	6.3	10	16	25	35	50
0.1	-	-	-	-	-	-	1.0
0.22	-	-	-	-	-	-	2.0
0.33	-	-	-	-	-	-	2.8
0.47	-	-	-	-	-	-	4.0
1.0	-	-	-	-	-	-	8.4
2.2	-	-	-	-	-	-	14
3.3	-	-	-	-	-	-	17
4.7	-	-	-	-	17	18	21
10	-	-	-	23	27	29	33
22	-	28	33	37	47	49	-
33	28	37	41	51	57	-	-
47	33	45	53	61	-	-	-
100	56	70	74	-	-	-	-
220	98	-	-	-	-	-	-

MAXIMUM ESR (Ω AT 120Hz AND 20°C)

Cap. (μ F)	Working Voltage (Vdc)						
	4	6.3	10	16	25	35	50
0.1	-	-	-	-	-	-	1990
0.22	-	-	-	-	-	-	905
0.33	-	-	-	-	-	-	603
0.47	-	-	-	-	-	-	423
1.0	-	-	-	-	-	-	199
2.2	-	-	-	-	-	-	90.5
3.3	-	-	-	-	-	-	60.3
4.7	-	-	-	-	56.5	49.4	42.3
10	-	-	-	33.2	26.5	23.2	19.0
22	-	22.6	18.1	15.1	12.1	10.8	-
33	20.1	15.1	12.6	10.1	8.1	-	-
47	14.1	10.6	8.5	7.1	-	-	-
100	6.6	5.0	3.98	-	-	-	-
220	3.0	-	-	-	-	-	-

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Cap. (μ F)	Frequency			
	10< f $\leq$ 1KHz	1K< f $\leq$ 10KHz	10K< f $\leq$ 100KHz	$\geq$ 100KHz
0.47 ~ 4.7	1.0	1.3	1.5	2.0
10 ~ 33	1.0	1.2	1.3	1.45
47 ~ 220	1.0	1.1	1.2	1.3

PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com

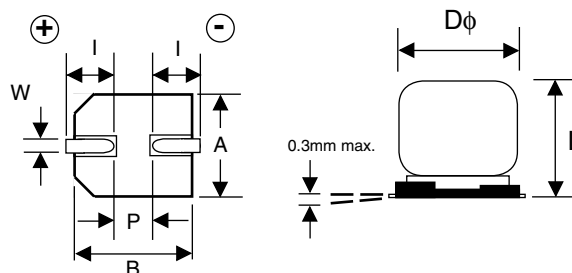


STANDARD PRODUCT AND CASE SIZE D ϕ x L (mm)

Cap. (μ F)	Working Voltage (Vdc)						
	4	6.3	10	16	25	35	50
0.1	-	-	-	-	-	-	4x4.5
0.22	-	-	-	-	-	-	4x4.5
0.33	-	-	-	-	-	-	4x4.5
0.47	-	-	-	-	-	-	4x4.5
1.0	-	-	-	-	-	-	4x4.5
2.2	-	-	-	-	-	-	4x4.5
3.3	-	-	-	-	-	-	4x4.5
4.7	-	-	-	-	4x4.5	4x4.5	5x4.5
10	-	-	-	4x4.5	5x4.5	5x4.5	6.3x4.5
22	-	4x4.5	5x4.5	5x4.5	6.3x4.5	6.3x4.5	-
33	4x4.5	5x4.5	5x4.5	6.3x4.5	6.3x4.5	-	-
47	4x4.5	5x4.5	6.3x4.5	6.3x4.5	-	-	-
100	5x4.5	6.3x4.5	6.3x4.5	-	-	-	-
220	6.3x4.5	-	-	-	-	-	-

DIMENSIONS (mm)

Case Size	D ϕ ±0.5	L max.	A/B±0.2	I ± 0.2	W	P±0.2
4x5.5	4.0	5.5	4.3	1.8	0.5 ~ 0.8	1.0
5x5.5	5.0	5.5	5.3	2.1	0.5 ~ 0.8	1.4
6.3x5.5	6.3	5.5	6.6	2.5	0.5 ~ 0.8	2.2



PART NUMBER SYSTEM

NACP 470 M 16V 6.3x5.5 TR 13 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
- Tolerance Code M=20%, K=10%
- Working Voltage
- Size in mm
- Tape & Reel
- 330mm (13") Reel
- 97% Sn (min.), 3% Bi (max.)
- RoHS Compliant