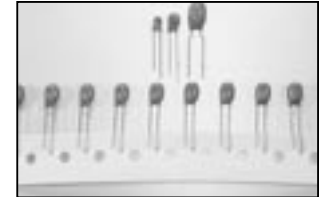


FEATURES

- FLUIDIZED BED PROCESS
- NEW REDUCED SIZES
- FLAME RETARDANT COATING
- LOW LEAKAGE CURRENT AND IMPEDANCE
- EXCEPTIONAL TEMPERATURE STABILITY

**RoHS
Compliant**
includes all homogeneous materials
*See Part Number System for Details



SPECIFICATIONS

Capacitance Range:	0.1μF ~ 330μF						
Capacitance Tolerance:	± 20% (M), ± 10% (K)						
Rated Voltage (VDC):	6.3	10	16	20	25	35	50
Surge Voltage (VDC):	8	13	20	26	36	46	65
Temperature Range:	-55°C ~ +85°C (+125°C with Derating)						
Dissipation Factor: (120hz, +25°C) Tan δ	Capacitance Range			Tan δ			
	0.1 ~ 1.5μF			Less than 4%			
	2.2 ~ 6.8μF			Less than 6%			
	10 ~ 68μF			Less than 8%			
	100 ~ 330μF			Less than 10%			
Reliability:	1% per 1000 hrs. at 85°C with 0.1Ω/V series impedance, 60% confidence leve						

DERATED VOLTAGE AND SURGE VOLTAGE

Rated Voltage (VDC)	+85°C:	6.3	10	16	20	25	35	50
Derated Voltage (VDC)	+125°C:	4	6.3	10	13	16	23	33
Surge Voltage (VDC)	+85°C:	8	13	20	26	33	46	65
Derated Surge Voltage (VDC)	+125°C:	5	9	12	16	21	28	40

Maximum Leakage Current (μ A) @ 25°C After 3 minutes							
Cap (μ F)	Rated Voltage (VDC)						
	6.3V	10V	16V	20V	25V	35V	50V
0.1	-	-	-	-	-	0.5	0.5
0.15	-	-	-	-	-	0.5	0.5
0.22	-	-	-	-	-	0.5	0.5
0.33	-	-	-	-	-	0.5	0.5
0.47	-	-	-	-	-	0.5	0.5
0.68	-	-	-	-	-	0.5	0.5
1.0	-	-	-	0.5	0.5	0.5	0.5
1.5	-	-	0.5	0.5	0.5	0.5	0.6
2.2	-	0.5	0.5	0.5	0.5	0.6	0.8
3.3	0.5	0.5	0.5	0.5	0.6	0.9	1.3
4.7	0.5	0.5	0.6	0.7	0.9	1.3	1.8
6.8	0.5	0.5	0.8	1.0	1.3	1.9	2.7
10	0.5	0.8	1.2	1.6	2.0	2.8	4.0
15	0.8	1.2	1.9	2.4	3.0	4.2	6.0
22	1.1	1.7	2.8	3.5	4.4	6.1	8.8
33	1.7	2.6	4.2	5.2	6.6	9.2	-
47	2.4	3.7	6.0	7.5	9.4	10.0	-
68	3.4	5.4	8.7	10.8	13.6	-	-
100	5.0	8.0	12.8	16.0	-	-	-
150	7.6	12.0	19.2	-	-	-	-
220	11.0	17.6	20.0	-	-	-	-
330	16.6	20.0	-	-	-	-	-

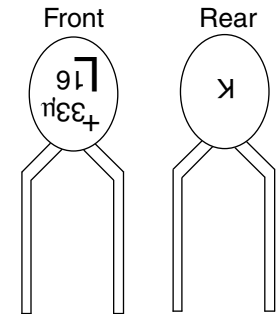
Max. ESR (ohm) @ 100Khz and 25°C							
Cap (μ F)	Rated Voltage (VDC)						
	6.3V	10V	16V	20V	25V	35V	50V
0.1	-	-	-	-	-	26.0	26.0
0.15	-	-	-	-	-	21.0	21.0
0.22	-	-	-	-	-	17.0	17.0
0.33	-	-	-	-	-	15.0	15.0
0.47	-	-	-	-	-	13.0	13.0
0.68	-	-	-	-	-	10.0	10.0
1.0	-	-	-	10.0	10.0	8.0	8.0
1.5	-	-	10.0	9.0	8.0	6.0	6.0
2.2	-	13.0	8.0	7.0	6.0	5.0	3.5
3.3	13.0	10.0	6.0	5.5	5.0	4.0	3.0
4.7	10.0	8.0	5.0	4.5	4.0	3.0	2.5
6.8	8.0	6.0	4.0	3.6	3.1	2.5	2.0
10	6.0	5.0	3.2	2.9	2.5	2.0	1.6
15	5.0	3.7	2.5	2.3	2.0	1.6	1.2
22	3.7	2.7	2.0	1.8	1.5	1.3	1.0
33	3.0	2.1	1.6	1.4	1.2	1.0	-
47	2.0	1.7	1.3	1.2	1.0	0.8	-
68	1.8	1.3	1.0	0.9	0.8	-	-
100	1.6	1.0	0.8	0.6	-	-	-
150	0.9	0.8	0.6	-	-	-	-
220	0.9	0.6	0.5	-	-	-	-
330	0.7	0.5	-	-	-	-	-

DIMENSIONS (mm)

Diameter	Figure And Part No.	Lead Spacings	Lead Length	Lead Diameter (d)
4.5 ~ 8.0	1 Standard	2.5±0.5	16±4	0.5±0.05
4.5 ~ 8.0	2 Optional (F2) Style	5.0±1.0	16±4	0.5±0.05
8.5 ~ 10.0	2 Standard	5.0±1.0	16±4	0.5±0.05

OUTLINE DRAWINGS AND DIMENSIONS

MARKING: (Note: μ represents decimal point for values below 1 μ F)



STANDARD PRODUCTS AND CASE SIZE TABLE D ϕ X H (mm)

Cap (μ F)	Code	Rated Voltage (Vdc)						
		6.3	10	16	20	25	35	50
0.1	104	-	-	-	-	-	4.5x7.0	4.5x7.0
0.15	154	-	-	-	-	-	4.5x7.0	4.5x7.0
0.22	224	-	-	-	-	-	4.5x7.0	4.5x7.0
0.33	334	-	-	-	-	-	4.5x7.0	4.5x7.0
0.47	474	-	-	-	-	-	4.5x7.0	4.5x7.0
0.68	684	-	-	-	-	-	4.5x7.0	4.5x7.5
1.0	105	-	-	-	4.5x7.0	4.7x7.0	4.5x7.0	5.0x8.5
1.5	155	-	-	4.5x7.0	4.5x7.0	4.5x7.0	4.5x7.0	5.0x9.0
2.2	225	-	4.5x7.0	4.5x7.0	4.5x7.0	4.5x7.0	4.5x7.5	5.5x9.0
3.3	335	4.5x7.0	4.5x7.0	4.5x7.0	4.5x7.5	4.5x7.5	5.0x8.5	6.0x10.0
4.7	475	4.5x7.0	4.5x7.0	4.5x7.5	5.0x8.5	5.0x8.5	5.5x9.0	6.5x10.0
6.8	685	4.5x7.0	4.5x7.5	5.0x8.5	5.0x9.0	5.0x9.0	6.0x10.0	7.0x10.5
10	106	4.5x7.5	5.0x8.5	5.0x9.0	5.5x9.0	5.5x9.0	6.0x10.0	8.0x13.0
15	156	5.0x8.5	5.0x9.0	5.5x9.0	6.0x10.0	6.0x10.0	7.0x10.5	8.5x14.0
22	226	5.0x9.0	5.5x9.0	6.0x10.0	7.0x10.5	7.0x10.5	8.5x14.0	9.0x14.0
33	336	5.5x9.0	6.0x10.0	6.0x10.0	8.0x13.0	8.0x13.0	9.0x14.5	-
47	476	6.0x10.0	6.5x10.0	8.0x13.0	8.5x14.0	9.0x14.5	9.0x16.0	-
68	686	6.5x10.0	7.0x10.5	9.0x14.0	9.0x16.0	9.0x16.0	-	-
100	107	7.0x10.5	8.5x14.0	9.0x16.0	9.0x16.0	-	-	-
150	157	8.5x14.0	9.0x16.0	9.0x16.0	-	-	-	-
220	227	9.0x14.5	10.0x17.0	10.0x18.5	-	-	-	-
330	337	10.0x17.0	10.0x18.5	-	-	-	-	-

FIG. 1

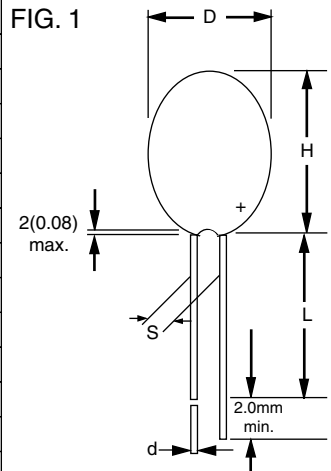
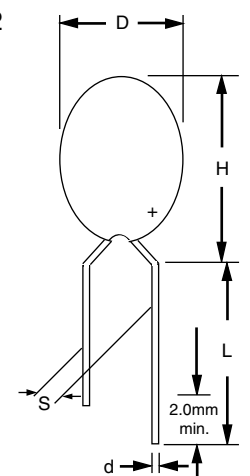


FIG. 2



PART NUMBER SYSTEM

NDTM 106 K 16 F1 TR F

- NDTM: Series
- 106: Capacitance Code in pF, first 2 digits are significant, third digit is no. of zeros
- K: Tolerance Code M=20%, K=10%
- 16: Working Voltage
- F1: Special Lead Forming
- TR: Tape and Reel (optional)
- F: RoHS compliant

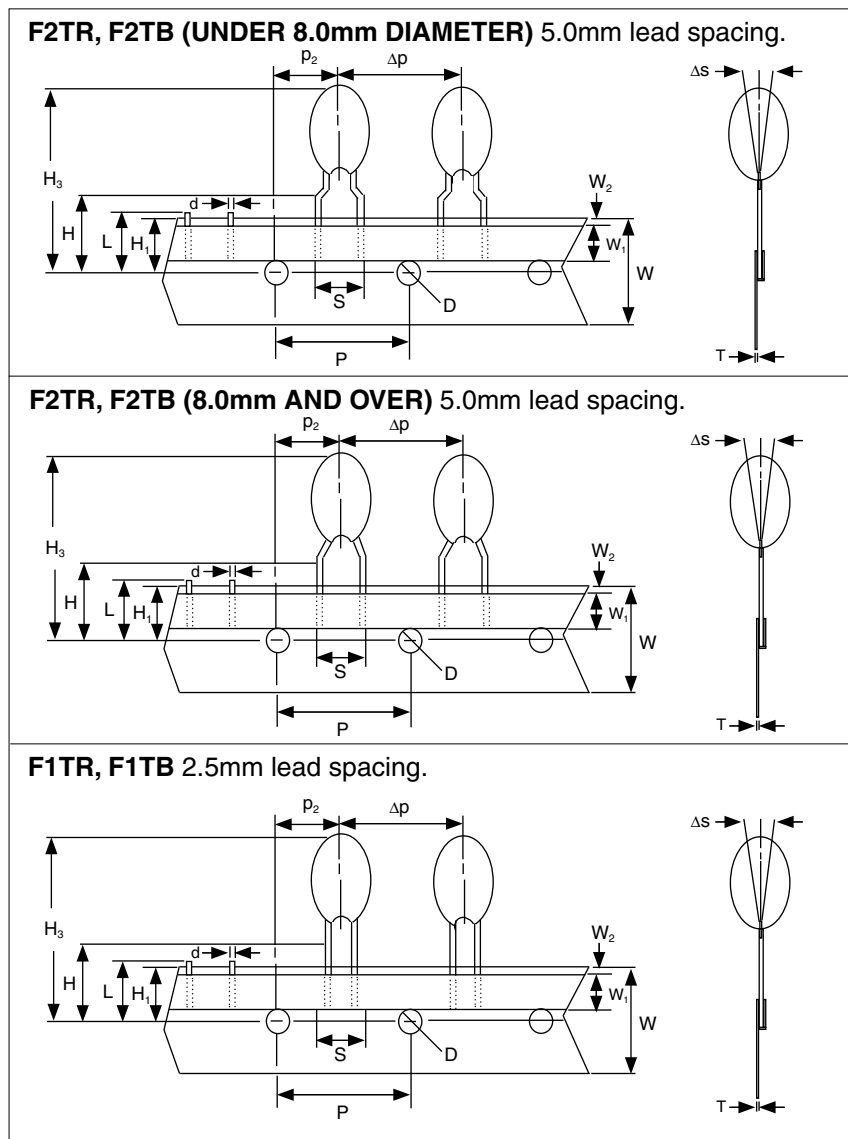
TAPING DIMENSIONS (mm)

Code	Dimensions
P	12.7±0.3
P1	5.50±1.0
P2	6.35±0.4
°P	±1.0
d	0.5±0.05
S	F2TR,F2TB=5.0 F1TR,F1TB=2.5
Δh	±2.0
D	4.0±0.2
W	± 1.0 18 - 0.5
W1	6.0 min.
W2	1.0 max.
H	16±0.5 19±1.0
H1	9.0±0.5
H2	18.0
H3	32.25
L	11.0 max.
T	0.7±0.2

Parts with diameters up to 9.0mm are available packaged on tape. Larger diameter parts are bulk only.

PACKAGING QUANTITIES

Case Size	Reel	Ammo
4.5x7.0	1000-1500	3000
4.5x7.5	1000-1250	3000
5.0x8.5	1000-1250	3000
5.0x9.0	1000-1250	3000
5.5x9.0	1000	2500
6.0x10.0	1000	2500
6.5x10.0	750	2500
7.0x10.5	750	2000
8.0x13.0	750	-----
8.5x14.0	500	-----
9.0x14.0	500	-----
9.0x14.5	500	-----



REEL DIMENSIONS (mm)

