

# Disc Ceramic Capacitors



## Safety Ceramic Capacitors

### DEFINITIONS (IEC 384-14 1993)

**X FUNCTION:** applications where the capacitor failure does not lead to danger of electrical shock. There are three subclasses related to the peak voltage of the impulses superimposed to the mains voltage:

Subclass X1: impulses up to 4000V

Subclass X2: impulses up to 2500V

Subclass X3: impulses up to 1200V

**Y FUNCTION:** applications where the capacitor failure may lead to danger of electrical shock. There are four subclasses related to the peak voltage of the impulses applied before the life test:

Subclass Y1: impulses up to 8000V

Subclass Y2: impulses up to 5000V

Subclass Y3: rated 250Vac without impulses

Subclass Y4: impulses up to 2500V

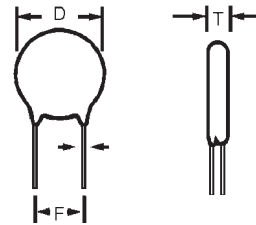
**ANTENNA:** the capacitors are used to decouple the antenna leads of video and audio equipment, whose failure may lead to danger of electrical shock.

### TPC Safety Capacitors:

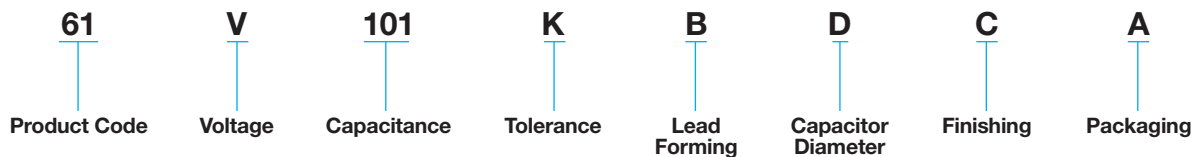
61V (GZO): meets subclasses X1, Y1 Test voltage 4000 VAC

62O (GKO): meets subclasses X1, Y2 Test voltage 2500 VAC

65N (GAY): meets subclasses X2, Y3 Test voltage 1800 VAC



### HOW TO ORDER



### PERFORMANCE CHARACTERISTICS

	61V	62O	65N
Measured at	1.0 kHz / 0.3 Vrms / 25°C	1.0 kHz / 0.3 Vrms / 25°C	1.0 kHz / 0.3 Vrms / 25°C
Capacitance Tolerance	±20% / -20 +50%	±20% / -20 +50%	±20% / -20 +50%
D.F max. @ 25°C	1.5%	1.5%	1.5%
Insulation Resistance (IR)	≥ 10 GΩ	≥ 10 GΩ	≥ 10 GΩ
Test Voltage Between Leads*	4.000 VAC	2.500 VAC	1.800 VAC
Test Voltage Leads to Body	4.000 VAC	2.500 VAC	1.800 VAC
Operating Temperature Range (°C)	-40 +125	-40 +125	-40 +125

\* Main reference voltage

### CERTIFICATION BODY APPROVALS

	Standard	61V			62O			65N		
		Certificate Number	Rated Voltage	Climatic Category	Certificate Number	Rated Voltage	Climatic Category	Certificate Number	Rated Voltage	Climatic Category
UL	UL 1414	E 147842 (N)	250 VAC		E 147842 (N)	250 VAC		E 147842 (N)	250 VAC	-
CAS	CAN/CSA - C22.2 No. 1-94	LR 100430-2	250 VAC		LR 100430-1	250 VAC		-	-	-
VDE	DIN BDE 0560 Part 2	-	-		76830 76804	400 VAC	25/85/21	-	-	-
	DIN EN 132400: 1995 IEC 384-14: 1993	94612 94610 94634	X1: 400 VAC Y1: 250 VAC	40/85/21/C	101384	X1: 400 VAC Y1: 250 VAC	40/85/21/C	-	-	-
IMQ	EN 132400: 1994 IEC 384-14: 1993	V4551	X1: 400 VAC Y1: 250 VAC	40/125/21/C	V4635	X1: 400 VAC Y2: 250 VAC	40/125/21/C	-	-	-

# Disc Ceramic Capacitors

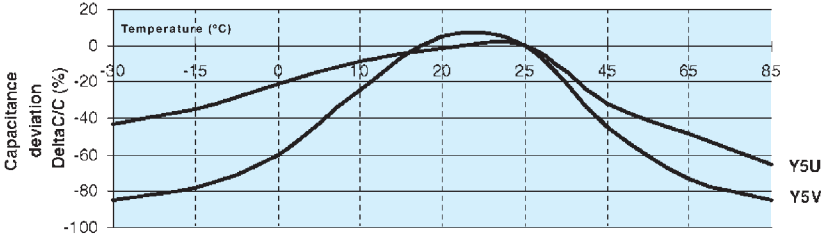
## Safety Ceramic Capacitors Epoxy Coated



### CAPACITANCE VS. DISC DIAMETER

Digits 1, 2, 3 of P.N. $C_R$ (pF)	61V	620	65N
33	6.0 (0.236)	6.0 (0.236)	
39			
47			
56			
68			
82	7.0 (0.276)	8.0 (0.315)	6.0 (0.236)
100			
120			
150			
180			
220	8.0 (0.315)	7.0 (0.276)	8.0 (0.315)
270			
330			
390			
470			
560	10.0 (0.394)	10.0 (0.394)	9.0 (0.354)
680			
820			
1000			
1200			
1500	11.0 (0.433)	12.0 (0.472)	10.0 (0.394)
1800			
2200			
2700			
3300			
3900	14.0 (0.551)	14.0 (0.551)	12.0 (0.472)
4700			
8200			
10000			
20000			
	19.0 (0.748)	16.0 (0.630)	16.0 (0.630)

### TEMPERATURE COEFFICIENT – TYPICAL CURVES



# Disc Ceramic Capacitors



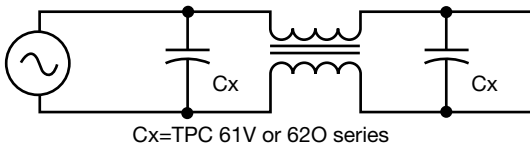
## Safety Ceramic Capacitors Epoxy Coated

### APPROVED LOGOS

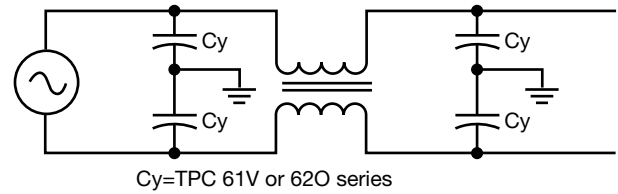


### TYPICAL APPLICATION FOR SAFETY CERAMIC DISCS AND SWITCH MODE

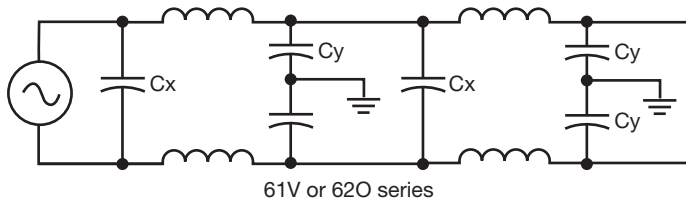
#### Across the line capacitors for noise suppression



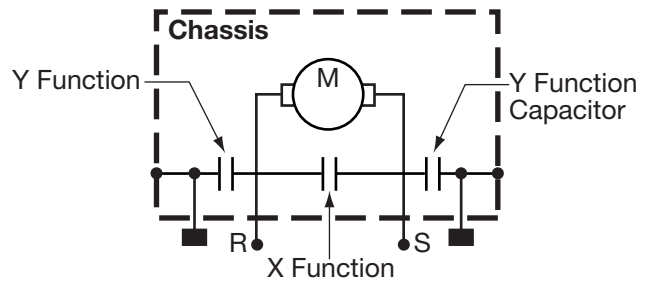
#### Line by-pass for noise suppression



#### Typical X and Y function application



#### Protection and suppression of a motor (X and Y function)

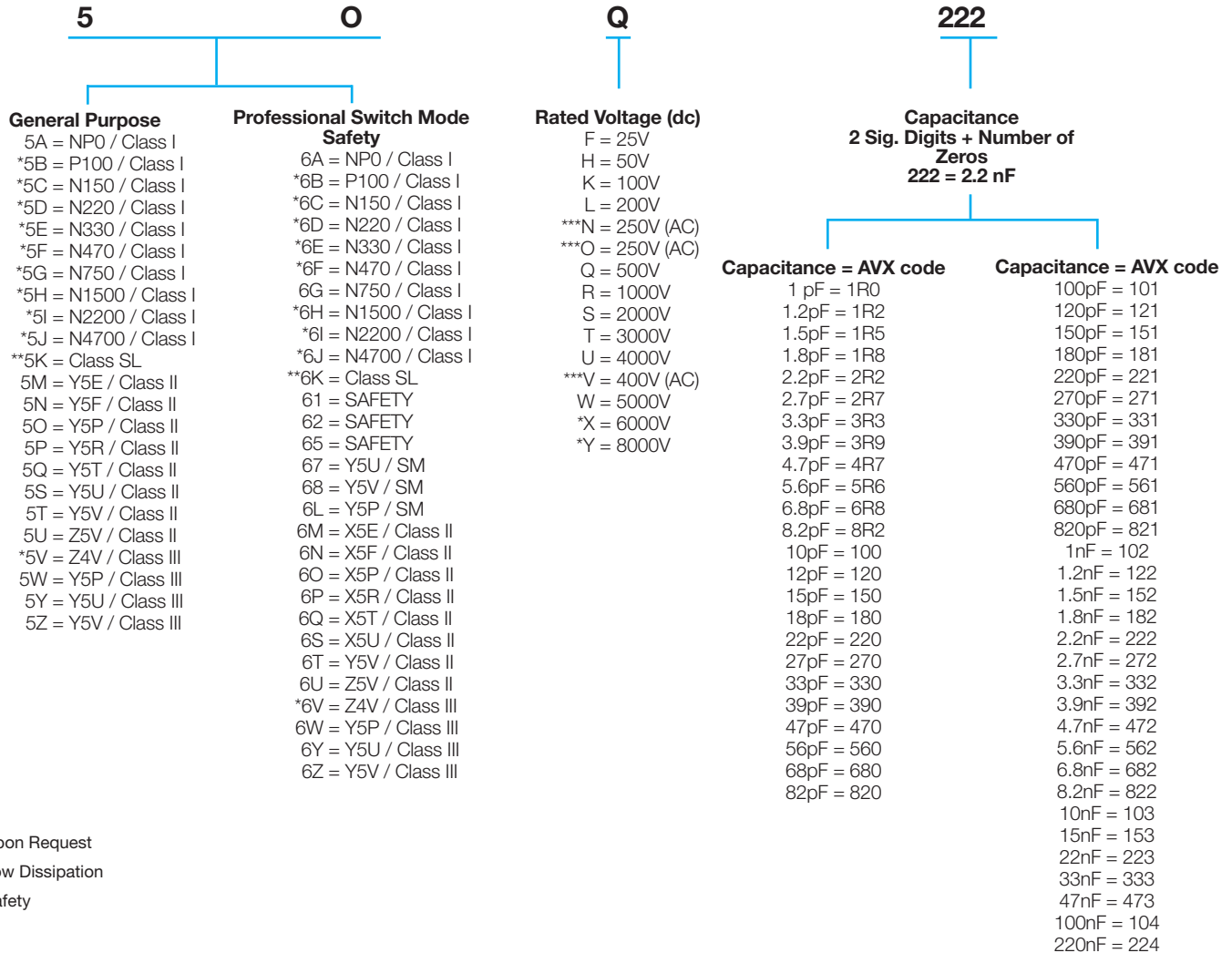


# Disc Ceramic Capacitors



## Ordering Code

### HOW TO ORDER



### DIMENSIONS

millimeters (inches)

Digit 9 (ø)	D ± 1 (0.039)	T max. Low Voltage	T max. High Voltage	Available Lead Spacing				
				Vn = 100V/500V	Vn = 1000V	Vn = 2000V	Vn = 3000V	Vn = 4000/5000V
A/B	5.0 (0.197)	3.0 (0.118)	5.0 (0.197)	A,B,E,O,R,X	A,B,E,N,R,X	A,B,E,N,R	B,E	
C	6.0 (0.236)	3.0 (0.118)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,R,X	A,B,C,E,N,R	B,C,E	C
D	7.0 (0.276)	4.0 (0.157)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,Q,R,X	A,B,C,E,N,Q,R	B,C,E	C
E	8.0 (0.315)	4.0 (0.157)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,Q,R,X	A,B,C,E,N,Q,R	B,C,E	C
F	9.0 (0.354)	5.0 (0.197)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,R,X	A,B,C,E,N,R	B,C,E	C
G	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,R,X	A,B,C,E,N,R	B,C,E	C
H	11.0 (0.433)	5.0 (0.197)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,R,W	A,B,C,E,N,R,W	B,C,E,W	C
J	12.0 (0.472)	5.0 (0.197)	5.0 (0.197)	B,C,R,W	B,C,N,R,W	B,C,W	B,C,W	C
K	14.0 (0.551)	6.0 (0.236)	6.0 (0.236)	B,C,R,W	B,C,N,R,W	B,C,W	B,C,W	C
L	16.0 (0.630)	6.0 (0.236)	6.0 (0.236)	B,C,R,W	B,C,N,R,W	B,C,W	B,C,W	C
M	19.0 (0.748)	7.0 (0.276)	7.0 (0.276)	B,C	B,C	B,C	B,C	C
S	23.0 (0.906)	7.0 (0.276)	7.0 (0.276)	C	C	C	-	-

(E), (X), (W): upon request



# Disc Ceramic Capacitors



## Ordering Code

**M**

**Tolerance**  
 C = ±0.25 pF  
 D = ±0.50 pF  
 J = ±5%  
 K = ±10%  
 M = ±20%  
 S = -20+50%  
 Z = -20+80%  
 P = 0+100%

**A**

### Lead Forming

Lead Spacing		Digit 8 - Standard Lead Form		
F				
mm	inches			
5.00 +0.60 -0.20	0.197 +0.024 -0.008	A	O	N
6.00 +0.60 -0.20	0.236 +0.024 -0.008	E	X	-
7.50 +1.00 -0.50	0.295 +0.039 -0.020	B	R	Q
10.0 +0.50 -1.00	0.394 +0.020 -0.039	C	W	-

For special Lead Form and Space please contact factory.

**E**

**Capacitor Diameter  
± 2 (0.079)**  
 A/B = 5 (0.197)  
 C = 6 (0.236)  
 D = 7 (0.276)  
 E = 8 (0.315)  
 F = 9 (0.354)  
 G = 10 (0.394)  
 H = 11 (0.433)  
 J = 12 (0.472)  
 K = 14 (0.551)  
 L = 16 (0.630)  
 M = 19 (0.748)  
 S = 23 (0.905)

**A**

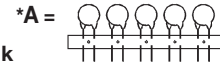
### Finishing

Digit 10	Coating	Description	Wire
A/J	Phenolic	25V – 500V General Purpose	0.55 ± 0.1 (0.022 ± 0.004)
S	Epoxy	25V – 500V Professional	0.55 ± 0.1 (0.022 ± 0.004)
C	Epoxy	1000V – 8000V	0.55 ± 0.1 (0.022 ± 0.004)
I	Epoxy	1000V – 8000V	0.80 ± 0.1 (0.032 ± 0.004)
L	Phenolic	1000V	0.55 ± 0.1 (0.022 ± 0.004)

**A**

### Packaging

#### Cardboard Strips



#### Bulk

**\*A =**  
**C** = 10 (0.394)  
**\*D** = 25 (0.984)  
**E** = 5.0 (0.197)  
**F** = 4.0 (0.157)  
**T** = 4.5 (0.177)  
**W** = 3.5 (0.138)  
**N** = 3.0 (0.118)

#### Taping

##### Reel



Avisert				Panaset			
H	L	L	L	J	L	L	L

##### Ammo Pack



Avisert				Panaset			
I	M	M	M	K	M	M	M

\*Only available above 500V (High Voltage Discs)



mm (inches)

Please note that not all code combinations are either possible or available.