

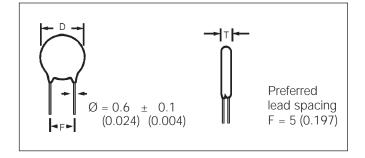
General Specifications - Class II General Purpose

DIELECTRIC - CLASS II

These ceramic capacitors have a high dielectric constant, what makes possible a high capacitance values in reduced dimensions, however temperature coefficient and loss factor are greater than Class I.

Typical applications are decoupling and by pass.

Meets IEC 384-9 (1988).



DIMENSIONS millimeters (inches)

Digit 9	D ± 2	T max.	Available Lead Spacing				
(ø)	(0.079)		Vn = 100V/500V	Vn = 1000V	Vn = 2000V	Vn = 3000V	Vn = 4000/5000V
А	4.0 (0.157)	3.0 (0.118)	A,B,D,E,O,R	A,B,E,N,R	A,B,E,N,R	B,E	
В	5.0 (0.197)	4.0 (0.157)	A,B,D,E,O,R,X	A,B,E,N,R,X	A,B,E,N,R	B,E	
С	6.0 (0.236)	4.0 (0.157)	A,B,C,D,E,O,R,X	A,B,C,E,N,R,X	A,B,C,E,N,R,	B,C,E	С
D	7.0 (0.276)	4.0 (0.157)	A,B,C,D,E,O,R,X	A,B,C,E,N,Q,R,X	A,B,C,E,N,Q,R	B,C,E	С
E	8.0 (0.315)	4.0 (0.157)	A,B,C,D,E,O,R,X	A,B,C,E,N,Q,R,X	A,B,C,E,N,Q,R	B,C,E	С
F	9.0 (0.354)	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	С
G	10.0 (0.394)	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	С
Н	11.0 (0.433)	5.0 (0.197)	A,B,C,E,O,R,X	A,B,C,E,N,P,R,W	A,B,C,E,N,P,R,W	B,C,E,P,W	C,P
J	13.0 (0.512)	6.0 (0.236)	B,C,R,W	B,C,N,P,R,W	B,C,P,W	B,C,P,W	C,P
K	15.0 (0.591)	6.0 (0.236)	B,C,R,W	B,C,N,P,R,W	B,C,P,W	B,C,P,W	C,P
М	19.0 (0.748)	7.0 (0.276)	B,C	B,C,P	B,C,P	B,C,P	C,P

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

LEAD SPACING - DIGIT 8 OF P.N. millimeters (inches)

	100V/	500V	1kV5kV/100Vac150Vac			
F						
2.5 (0.100)	D			_	_	
5 (0.200)	А	0	А	_	N	
6 (0.250)	Е	Χ	Е	Χ	_	
7.5 (0.300)	В	R	В	R	Q	
10 (0.400)	С	W	С	W	_	
12.5 (0.500)	Р	_	Р	_	_	





General Specifications - Class II General Purpose

100V / 500V PERFORMANCE CHARACTERISTICS CLASS II

Voltage Rating	100V and 500V
Measured at	1.0 kHz / 0.3 Vrms / 25°C
Dissipation Factor	Y5E / Y5F / Y5P ≤ 2.5% Y5U / Y5V / Z5V ≤ 3.0%
Capacitance Tolerance	Y5E / Y5F / Y5P → ±10% Y5E / Y5E / Y5P / Y5U → ±20% Y5U / Y5V / Z5V → -20% +50%
Insulation Resistance	$@V_R \rightarrow \ge 10 \text{ G}\Omega$
Dielectric Strength NOTE: Charging current limited to 50 mA	$V_R = 100V \rightarrow Vt = 250V (DC)$ $V_R = 500V \rightarrow Vt = 1250V (DC)$
Operating Temperature Range (°C)	-30 +85
Climatic Category 30 / 085 / 21 Phenolic Coated	

Note: Damp Heat Steady State: 90... 95% R.H. 40°C / 21 days. No voltage to be applied.

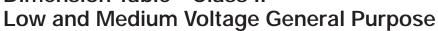
1kV ... 5kV PERFORMANCE CHARACTERISTICS CLASS II

Voltage Rating	1kV 5kV	
Measured at	1.0 kHz / 0.3 Vrms / 25°C	
Dissipation Factor	Y5F → ≤ 2.5% Y5U / Y5V ≤ 3.0%	
Capacitance Tolerance	Y5F $\rightarrow \pm 10\% / \pm 20\%$ Y5U $\rightarrow \pm 20\% / -20 +50\%$ Y5V $\rightarrow -20 +50\%$	
Insulation Resistance	@ 500V →≥ 10 GΩ	
Dielectric Strength NOTE: Charging current limited to 50 mA	1.5 x V _R + 500 (DC)	
Operating Temperature Range (°C)	-30 +85 Phenolic Coated -30 +125 Epoxy Coated	
Climatic Category	30 / 085 / 21 Phenolic Coated 30 / 085 / 56 Epoxy Coated	

Note: Damp Heat Steady State: 90... 95% R.H. 40°C / 21 days. No voltage to be applied.



Disc Ceramic Capacitors Dimension Table - Class II





100V / 500V CLASS II - CAPACITANCE VS. DISC DIAMETER

millimeters (inches)

Temp. Coefficient	Y5	iΕ	Y	5F	Y5	5P	Y5	U	Y	5V	Z5V
Digits 1,2,3 of P.N.	5MK	5MQ	5NK	5NQ	5OK	50Q	5SK	5SQ	5TK	5TQ	5UK
Rated Voltage (V_R)	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC
C _R (pF)											
56											
68											
82											
100 120	4.0 (0.157)	4.0 (0.157)	Use Y5E	. I Ise V5E	Use Y5E	Use V5F	Use Y5E	Use Y5E	Use Y5E	Use Y5E	. Use Y5F
150	4.0 (0.157)	4.0 (0.137)									
180											
220											
270											
330											
390 470		5.0 (0.197)	4.0 (0.157)	4.0 (0.157)	Úse Ý5F		///////////////////////////////////////		<i>X////////////////////////////////////</i>	///////////////////////////////////////	Use Y5F
560	5.0 (0.197)			5.0 (0.197)	4.0 (0.157)	4.0 (0.157)	Use Y5P	Use Y5P	Use Y5P	Use Y5P	Use Y5P
680		6.0 (0.236)	5.0 (0.197)	(0 (0 00 ()		F 0 (0 107)	<i>/////////////////////////////////////</i>	///////////////////////////////////////			
820	6.0 (0.236)	7.0 (0.276)	, ,	6.0 (0.236)	5.0 (0.197)	5.0 (0.197)	4.0 (0.157)	4.0 (0.157)	Use Y5U	Uşe Y5U	Use Y5U
1,000	7.0 (0.276)	` ′		7.0 (0.276)	3.0 (0.197)	6.0 (0.236)					
1,200	8.0 (0.315)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	(0 (0 00 ()	0.0 (0.230)		5.0 (0.197)			
1,500 1,800	. ,	9.0 (0.354)	7.0 (0.276)	9.0 (0.354)	6.0 (0.236) 7.0 (0.276)	7.0 (0.276)	5.0 (0.197)	6.0 (0.236)	4.0 (0.157)	4.0 (0.157)	
2,200	9.0 (0.354)	11.0 (0.433)	8.0 (0.315)	, ,	, ,	8.0 (0.315)		, ,	-		
2,700	44.0 (0.400)	,	, ,	11.0 (0.433)	8.0 (0.315)	` ′		7.0 (0.276)		/	Use Y5V
3,300	11.0 (0.433)	15.0 (0.591)	9.0 (0.354)	13.0 (0.512)	9.0 (0.354)	9.0 (0.354)	6.0 (0.236)	8.0 (0.315)	5.0 (0.197)	5.0 (0.197)	
3,900			11.0 (0.433)	15.0 (0.591)		11.0 (0.433)		0.0 (0.313)		6.0 (0.236)	
4,700			11.0 (0.100)	10.0 (0.071)	11.0 (0.433)	, ,	7.0 (0.276)	9.0 (0.354)	6.0 (0.236)	7.0 (0.276)	4.0 (0.157)
5,600 6,800					13.0 (0.512)	13.0 (0.512) 15.0 (0.591)			7.0 (0.276)	8.0 (0.315)	
8,200					13.0 (0.012)	13.0 (0.391)	9.0 (0.354)	11.0 (0.433)		` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	
10,000							, ,	. 1.0 (0.100)	8.0 (0.315)	9.0 (0.354)	5.0 (0.197)
12,000							11.0 (0.433)	13.0 (0.512)	9.0 (0.354)	11.0 (0.433)	7
15,000									11.0 (0.433)	13.0 (0.512)	
22,000									13.0 (0.512)	15.0 (0.591)	8.0 (0.315)

Diameter (φ) = 9th Part Number Digit



Dimension Table





1kV / 5kV CLASS II - CAPACITANCE VS. DISC DIAMETER

millimeters (inches)

Temp. Coefficient		Y5F			Y5	U				Y5V	
Digits 1,2,3 of P.N.	5NR	5NS	5NT	5SR	5SS	5ST	5SU	5SW	5TR	5TS	5TT
Rated Voltage (V _R)	1000 VDC 100 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC	1000 VDC 100 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC	4000 VDC 150 VAC	5000 VDC 150 VAC	1000 VDC 150 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC
C _R (pF)											
100 120 150	4.0 (0.157)	4.0 (0.157)		Use Y5F	Use Y5F	Uşe Y5F			lleo VEE	Use Y5F	Use Y5F
180 220 270	4.0 (0.157)	5.0 (0.197)	6.0 (0.236) 7.0 (0.276)				8.0 (0.315)	11.0 (0.433)			
330 390 470	5.0 (0.197)	6.0 (0.236) 7.0 (0.276)	8.0 (0.315)	4.0 (0.157)	5.0 (0.197)				Use Y5U	Use Y5U	
560 680 820	7.0 (0.276)	8.0 (0.315)	9.0 (0.354)		6.0 (0.236)	7.0 (0.276)					Use Y5U
1,000 1,200	` '	9.0 (0.354)	11.0 (0.433)	5.0 (0.197)	7.0 (0.276)	8.0 (0.315)	10.0 (0.394)		4.0 (0.157)	6.0 (0.236)	7.0 (0.276)
1,500 1,800	8.0 (0.315) 9.0 (0.354)	10.0 (0.394) 11.0 (0.433)	13.0 (0.512)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	11.0 (0.433)	13.0 (0.512)	5.0 (0.197) 6.0 (0.236)	7.0 (0.276)	8.0 (0.315)
2,200 2,700	11.0 (0.433)	13.0 (0.512)	15.0 (0.591)	7.0 (0.276)	9.0 (0.354)	10.0 (0.394)	13.0 (0.512)	15.0 (0.591)	7.0 (0.276)	8.0 (0.315)	9.0 (0.354)
3,300 3,900	13.0 (0.512) 15.0 (0.591)	15.0 (0.591)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	11.0 (0.433)	15.0 (0.512)	, ,	7.0 (0.270)	9.0 (0.354)	11.0 (0.433)
4,700 5,600				9.0 (0.354) 10.0 (0.394)	11.0 (0.433)	13.0 (0.512)	` ′	19.0 (0.748)	9.0 (0.354)	11.0 (0.433)	13.0 (0.512)
6,800 8,200				11.0 (0.433)	13.0 (0.512)	15.0 (0.591)	19.0 (0.748)		10.0 (0.394)	13.0 (0.512)	15.0 (0.591)
10,000 12,000 15,000				13.0 (0.512) 15.0 (0.591)	15.0 (0.591)	19.0 (0.748)			13.0 (0.512)	15.0 (0.591)	19.0 (0.748)
22,000				(0.071)					15.0 (0.591)		

Diameter (φ) = 9th Part Number Digit





Ordering Code

HOW TO ORDER 5 0 Q 222 **General Purpose Professional Switch Mode** Rated Voltage (dc) Capacitance 222 = 2.2 nF Safety D = 16V 5A = NP0/I6A = NPO / IF = 25V*5B = P100 / I *6B = P100 / I H = 50V*5C = N150 / I *6C = N150 / IK = 100V*5D = N220 / I *5E = N330 / I *6D = N220 / IN = SAFETY Capacitance = TPC code Capacitance = TPC code *6E = N330 / I O = SAFETY *5F = N470 / I100pF = 101 1 pF = 1R0*6F = N470 / I 5G = N750 / IQ = 500V1.2pF = 1R2120pF = 1216G = N750 / IR = 1000V1.5pF = 1R5 1.8pF = 1R8 150pF = 151 180pF = 181 5H = N1500 / I*6H = N1500 / I S = 2000V*5I = N2200 / I *6I = N2200 / IT = 3000V*5J = N4700 / I2.2pF = 2R2220pF = 2216J = N4700 / IU = 4000V5K = SL2.7pF = 2R7270pF = 27161 = SAFETY 5M = Y5E / II V = SAFETY3.9pF = 3R9330pF = 33162 = SAFETY W = 5000V4.7pF = 4R7390pF = 391 5N = Y5F / II65 = SAFETY 50 = Y5P / II *X = 6000V5.6pF = 5R6470pF = 471*5P = Y5R / II 67 = Y5U / SM*Y = 7500V6.8pF = 6R8560pF = 56168 = Y5V / SM8.2pF = 8R2*5Q = Y5T / II 680pF = 681 6L = Y5P / SM5S = Y5U / II 10pF = 100820pF = 8216M = X5E / II5T = Y5V / II12pF = 120 15pF = 150 1nF = 102 1.2nF = 122 6N = X5F / II5U = Z5V / II60 = X5P / II*5V = Z4V / III18pF = 180 1.8nF = 182*6P = X5R / II 5W = Y5P / III22pF = 2202.2nF = 2225Y = Y5U / III *6Q = X5T / II27pF = 2702.7nF = 2726S = X5U / II5Z = Y5V / III33pF = 3303.3nF = 3326T = X5V / II3.9nF = 39239pF = 3906U = Z5V / II47pF = 4704.7nF = 472*6V = Z4V / III 6W = Y5P / III 56pF = 5605.6nF = 56268pF = 6806.8nF = 6826Y = Y5U / III 82pF = 8208.2nF = 8226Z = Y5V / III10nF = 10315nF = 15322nF = 22333nF = 333*Upon Request 47nF = 473100nF = 104200nF = 204







M

 $K = \pm 10\%$ $M=\pm20\%$ S = -20 + 50%Z = -20 + 80%P = 0+100%

Capacitor Diameter

E

± 2 (0.079) A = 4 (0.157)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 = 13 (0.512)K = 15 (0.591) $M^* = 19 (0.748)$

*Wire 0.8 (0.031) recommended

Lead F	orming	\bigcap	\bigcap		
mm	inches				
2.5 ±0.5	.1 ± .025	D	-	-	
5 +0.6 -0.2	.2 ± .025	А	0	N	
6 +0.6 -0.2	.25 ± .025	E	Х	-	
7.5 +1 -0.5	.3 ± .05	В	R	Q	
10 ^{+0.5} -1.0	.4 ± .05	С	W	_	
12.5 _{-0.5}	.5 ± .05	Р	-	_	





Cardboard Strips

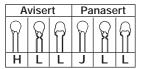


Bulk

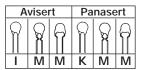
 $E = 5 (0.197) \pm 1 (0.039)$ free wire length $C = 10 (0.394) \pm 1 (0.039)$ free wire length $D = 25 (0.984) \pm 1 (0.039)$ free wire length

Taping









Finishing

Diam ≤9 (0.354) and F = 5.00 (0.197)



Coating does not surpass the bend



Low Voltage

General Q = Waxed phenolic Purpose A = Phenolic

S = Epoxy (Professional) cap. diameter ≤ 8 (0.315)

D = Epoxy (Professional) cap. diameter > 8 (0.315)

High Voltage



= Measured from the center of leads

C = Epoxy wire diameter

0.6 $(0.024)^{\pm} (0.004)$

I = Epoxy wire diameter

8.0 0.1 $(0.031)^{\pm} (0.004)$

L = Phenolic wire diameter

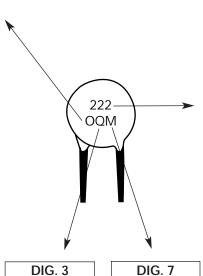
0.6 $(0.024)^{\pm} (0.004)$

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

Marking

DIG. 2					
C)				
TC / (Class				
General Purpose	Professional				
A = NP0 / I	A = NP0 / I				
*B = P100 / I	B = P100 / I				
*C = N150 / I	C = N150 / I				
*D = N220 / I	D = N220 / I				
*E = N330 / I	E = N330 / I				
*F = N470 / I	F = N470 / I				
G = N750 / I	G = N750 / I				
H = N1500 / I	H = N1500 / I				
*I = N2200 / I	I = N2200 / I				
*J = N4700 / I	J = N4700 / I				
K = SL	7 = Y5U / SM				
M = Y5E / II	8 = Y5V / SM				
N = Y5F / II	L = Y5P / SM				
O = Y5P / II	M = X5E / II				
P = Y5R / II	N = X5F / II				
Q = Y5T / II	O = X5P / II				
S = Y5U / II	P = X5R / II				
T = Y5V / II	Q = X5T / II				
U = Z5V / II	S = X5U / II				
V = Z4V / III	T = X5V / II				
*W = Y5P / II	U = Z5V / II				
*X = Y5R / II	V = Z4V / III				
Y = Y5U / II	W = Y5P / III				
Z = Y5V / II	X = Y5R / III				
	Y = Y5U / III				
	Z = Y5V / III				

Logo: Only in diam. ≥ 6mm



DIG. 3		DIG. 7		
Q		M		
Rated Voltage		Tolera	ince	
D = 16V		$C = \pm 0.2$	25pF	

F = 25V

H = 50VK = 100V

Q = 500V

R = 1000V

S = 2000V

T = 3000V

U = 4000VW = 5000V

X = 6000V

Y = 7500V

 $D = \pm 0.5 pF$ $J = \pm 5\%$ $K = \pm 10\%$

 $M = \pm 20\%$ S = -20 + 50%

Z = -20 +80%

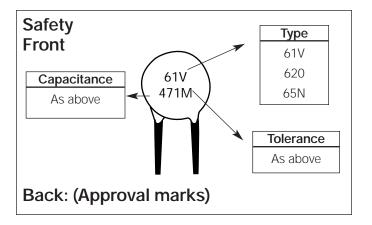
P = 0 + 100%

1pF = 109 1.2pF = 129 1.5pF = 159 1.8pF = 189 2.2pF = 229 2.7pF = 279 3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 120 12pF = 120 13pF = 150 13pF = 180 22pF = 220 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104 200nF = 204	Capacitance	EIA
1.5pF = 159 1.8pF = 189 2.2pF = 229 2.7pF = 279 3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 100 12pF = 100 12pF = 100 12pF = 150 18pF = 180 2.2nF = 222 22pF = 220 27pF = 270 3.9pF = 391 4.7pF = 479 5.6pF = 569 6.8pF = 681 8.2pF = 829 10pF = 100 12pF = 120 13pF = 180 2.2nF = 122 22pF = 220 27pF = 270 3.9nF = 392 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	1pF = 109	100pF = 101
1.8pF = 189 2.2pF = 229 2.7pF = 279 3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 120 12pF = 120 12pF = 120 12pF = 120 12pF = 120 22pF = 222 22pF = 220 27pF = 270 3.9pF = 390 4.7nF = 472 47pF = 470 5.6pF = 560 6.8pF = 680 8.2pF = 829 10pF = 100 1nF = 102 12pF = 120 1.2nF = 122 15pF = 150 1.8nF = 182 2.2nF = 222 2.7nF = 272 3.9nF = 392 4.7nF = 472 47pF = 470 5.6nF = 562 6.8nF = 682 8.2pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	1.2pF = 129	120pF = 121
2.2pF = 229 2.7pF = 279 3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 100 12pF = 120 12pF = 120 15pF = 150 18pF = 180 22pF = 220 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6pF = 560 6.8pF = 680 8.pF = 820 10pF = 100 1	1.5pF = 159	150pF = 151
2.7pF = 279 3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 100 12pF = 120 12pF = 120 15pF = 150 18pF = 180 2.2nF = 222 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 56pF = 560 68pF = 680 82pF = 820 10pF = 100 12pF = 220 12pF = 220 12pF = 220 12pF = 270 12pF = 222 12pF = 223 12pF = 103 15pF = 153 12pF = 103 15pF = 153 12pF = 223 13pF = 333 14pF = 473 100pF = 104	1.8pF = 189	180pF = 181
3.9pF = 399 4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 100 12pF = 120 12pF = 120 15pF = 150 18pF = 180 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 56pF = 560 68pF = 680 82pF = 820 10nF = 100 15pF = 150 1.8nF = 182 2.2nF = 222 2.7nF = 272 2.7nF = 272 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	2.2pF = 229	220pF = 221
4.7pF = 479 5.6pF = 569 6.8pF = 689 8.2pF = 829 10pF = 100 12pF = 120 15pF = 150 18pF = 180 22pF = 220 27pF = 270 37pF = 370 47pF = 470 5.6pF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	2.7pF = 279	270pF = 271
5.6pF = 569 6.8pF = 689 8.2pF = 829 820pF = 821 10pF = 100 12pF = 120 15pF = 150 18pF = 180 22pF = 220 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	3.9pF = 399	390pF = 391
6.8pF = 689 8.2pF = 829 820pF = 821 10pF = 100 12pF = 120 12pF = 150 18pF = 180 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	4.7pF = 479	470pF = 471
8.2pF = 829 10pF = 100 12pF = 120 15pF = 150 18pF = 180 2.2pF = 220 27pF = 270 39pF = 390 4.7pF = 470 5.6pF = 560 68pF = 680 82pF = 820 820pF = 821 1.2nF = 122 1.8nF = 182 2.2nF = 222 2.7nF = 272 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	5.6pF = 569	560pF = 561
10pF = 100 12pF = 120 12pF = 120 15pF = 150 18pF = 180 22pF = 220 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	6.8pF = 689	680pF = 681
12pF = 120 15pF = 150 18pF = 180 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 1.2nF = 122 2.7nF = 272 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	8.2pF = 829	820pF = 821
15pF = 150 18pF = 180 22pF = 220 27pF = 270 39pF = 390 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	10pF = 100	1nF = 102
18pF = 180 2.2nF = 222 22pF = 220 27pF = 270 3.9nF = 392 3.9nF = 392 4.7nF = 472 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	12pF = 120	1.2nF = 122
22pF = 220 27pF = 270 39pF = 390 47pF = 470 5.6nF = 562 68pF = 680 82pF = 820 2.7nF = 272 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	15pF = 150	1.8nF = 182
27pF = 270 39pF = 390 47pF = 470 56pF = 560 68pF = 680 82pF = 820 3.9nF = 392 4.7nF = 472 5.6nF = 562 6.8nF = 682 8.2nF = 822 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	18pF = 180	2.2nF = 222
39pF = 390 47pF = 470 5.6nF = 562 68pF = 560 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	22pF = 220	2.7nF = 272
47pF = 470 56pF = 560 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	27pF = 270	3.9nF = 392
56pF = 560 68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	39pF = 390	4.7nF = 472
68pF = 680 82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	47pF = 470	5.6nF = 562
82pF = 820 10nF = 103 15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	56pF = 560	6.8nF = 682
15nF = 153 22nF = 223 33nF = 333 47nF = 473 100nF = 104	68pF = 680	8.2nF = 822
22nF = 223 33nF = 333 47nF = 473 100nF = 104	82pF = 820	10nF = 103
33nF = 333 47nF = 473 100nF = 104		15nF = 153
47nF = 473 100nF = 104		22nF = 223
100nF = 104		33nF = 333
		47nF = 473
200nF = 204		100nF = 104
200111 201		200nF = 204

*Upon Request

TC – Temperature coefficient.

DIG – for better understanding, check pages 3 and 4.



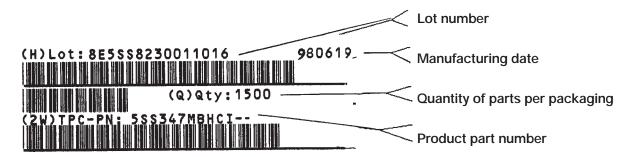






IDENTIFICATION AND TRACEABILITY

On all TPC ceramic capacitors packages, you will find a bar code label with the following information:



TAPED PARTS QUANTITY TABLE

millimeters (inches)

Rated Voltage	Diameter	Quan	tities	
(Vr)	D	Ammopack	Reel	
Vr <= 500V	D ≦ 7 (0.276)	2000	2500	
	7 < D ≤ 11 (0.433)	2000	2000	
500V <vr<=2kv< th=""><th>D ≤ 11 (0.433)</th><th>1500</th><th>2000</th></vr<=2kv<>	D ≤ 11 (0.433)	1500	2000	
2KV <vr=5kv< th=""><th>D ≦ 11 (0.433)</th><th>1000</th><th>1500</th></vr=5kv<>	D ≦ 11 (0.433)	1000	1500	

CARDBOARD STRIPS QUANTITY TABLE

millimeters (inches)

Rated Voltage	Diameter	Lead S	Space
(Vr)	D	< = 5 (0.197)	> 5 (0.197)
Vr <= 500V	D ≤ 8 (0.315)	2500	1500
	8 (0.315) ≤ D≤ 11 (0.433)	1500	-
	8 (0.315) ≤ D≤ 13 (0.512)	-	1000
	11 (0.433) ≦ D≦ 15 (0.591)	1000	-
	13 (0.512) ≦ D≦ 19 (0.748)	-	500
	D ≤ 19 (0.748)	500	-
500V <vr<=2kv< td=""><td>D ≤ 9 (0.354)</td><td>1500</td><td>1000</td></vr<=2kv<>	D ≤ 9 (0.354)	1500	1000
	9 (0.354) ≤ D ≤ 11 (0.433)	-	1000
	9 (0.354) ≤ D ≤ 13 (0.512)	1000	-
	11 (0.433) ≦ D ≦ 19 (0.748)	-	500
	13 (0.512) ≤ D ≤ 19 (0.748)	500	-
2KV <vr<=5kv< td=""><td>D ≤ 9 (0.354)</td><td>1500</td><td>-</td></vr<=5kv<>	D ≤ 9 (0.354)	1500	-
Safety 65N 62O	D ≤ 11 (0.433)	-	1000
	D ≤ 13 (0.512)	500	500
Safety	D ≤ 6 (0.236)	1500	1500
61V	$7 (0.275) \le D \le 9 (0.354)$	1000	1000
	9 (0.354) ≦ D	500	500

Quantities for other package alternative, upon request.





Tape and Reel Specifications

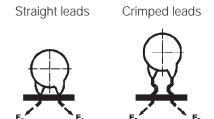
There are two types of taped disc ceramic capacitors: Straight or crimped leads.

Both types can be shipped on reels or ammopack.

The standard packaging quantities are shown bellow:

Fig. 1 Fig. 2 Fig. 3 Fig. 3 Carimbo Marking 1,5 max.

millimeters (inches)



Maximum pull force during insertion and lead cut

	F_1	F_2
4 (0.157) ≤ D < 6 (0.236)	12N	20N
D ≥ 6 (0.236)	20N	25N

Digit 11	Available Tapings	Digit 9
L M	Sizes $4 (0.157) \le D \le 11 (0.433)$	А Н
J H K I	Sizes $6 (0.236) \le D \le 11 (0.433)$	C H

TPC Code Digit 11

Packaging	Avisert	Panasert	
Reel	H L L L FIGURE 1 FIGURE 2 FIGURE 3	FIGURE 1 FIGURE 2 FIGURE 3	
Ammopack	FIGURE 1 FIGURE 2 FIGURE 3	K M M FIGURE 1 FIGURE 2 FIGURE 3	

Figure 2: Inside Crimp 100V... 1000V Figure 3: Outside Crimp 1000V

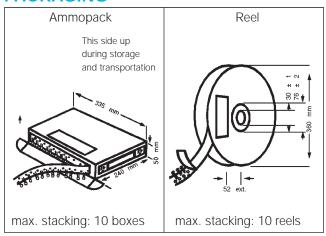


Tape and Reel Specifications

millimeters (inches)

		Straight Leads		Crimped
		Figure 1		Figure 2 & 3
Description of Symbols		A (Avisert)	P (Panasert)	Avisert & Panasert
Crimp angle	∝	_	_	20°45°
Crimp length	С	_	_	1.7 min.
Lead diameter	d	0.60 ± 0.1		
Disc diameter	D	11 max.		
Lead hole diameter	Do	4.0 ± 0.2		
Disc thickness	Т	See Catalog		
Lead spacing	F	5.0 ^{+0.6} _{-0.2}		
Component alignment, front-rear	Δh	0 ± 1		
Height of component from tape center	Н	19.5 ± 0.5	16.5 ± 0.5 - 0	_
Height from tape center to crimp	Но	_	_	16 + 0.5 - 0
Component height	H1	32.25 max.	>23.5 <32.25	32.25 max.
Distance from component leads to tape bottom	ℓ_1	12 max.		
Tape width	W	18 +1 -0.5		
Bonding tape width	W_3	5.5 min.		
Feed hole position	W ₁	9.0 ± 0.5		
Pitch between discs	Р	12.7 ± 1		
Feed hole pitch	Ро	12.7 ± 0.3		
Hole center to lead	P1	3.85 ± 0.7		
Feed hole center to component center	P2	6.35 ± 1		
Tape + bonding tape thickness	t	0.7 ± 0.2		
Total tape thickness. including lead	t ₂	1.5 max.		
		·		

PACKAGING



SHIPPING CONTAINER

