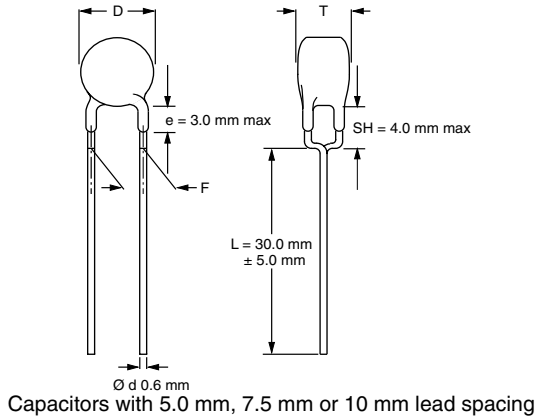


## Ceramic Disc Capacitors

### Safety Standard Approved Disc Capacitor


**DISSIPATION FACTOR:**

2.5 % maximum

**CATEGORY TEMPERATURE RANGE:**

- 40 °C to + 125 °C

**TEMPERATURE CHARACTERISTICS:**

See Ordering Information Tables

**CLIMATIC CATEGORY:**

40/125/21 according to EN60068-1

**COATING:**

 according to UL 94V-0  
 epoxy resin, isolating, flame retardant

**WEEE/RoHS:**

 Components in accordance with EU Directive 2002/95/EC  
 Lead (Pb)-free terminals and internal solder joints

**APPROVALS:**

 ENEC - VDE DE 1-30691  
 UL 1414 file E183844  
 CSA 22.2

**PACKAGING:**

Bulk; tape and reel; taped ammpack

**FEATURES**

- Complying with “EN 132 400” and “IEC 60384-14, 2nd edition, including amendment 1.1995”
- High reliability
- Vertical (inline) kinked or straight leads

**APPLICATIONS**

- Across-the-line
- Line by-pass
- Antenna coupling

**DESIGN**

The capacitors consist of a ceramic disc both sides of which are silver-plated. Connection leads are made of tinned copper having a diameter of 0.6 mm.

The capacitors may be supplied with vertical (inline) kinked leads having a lead spacing of 5.0 mm, 7.5 mm or 10.0 mm. Encapsulation is made of flammable resistant epoxy resin in accordance with “UL94V-0”.

**CAPACITANCE RANGE:**

10 pF to 0.01 µF

**RATED VOLTAGE  $U_R$ :**

IEC 60384-14.2:

(X1): 440 V (AC), 50 Hz

(Y2): 300 V (AC), 50 Hz

**TEST VOLTAGE:**

Component Test (100 %):

2600 V (AC), 50 Hz, 2 seconds

(2600 V (AC) for LS 7.5 mm and 10 mm)

(2200 V (AC) for LS 5.0 mm)

Random sampling test (destructive test):

2600 V (AC), 50 Hz, 60 seconds

Voltage proof of coating (destructive test):

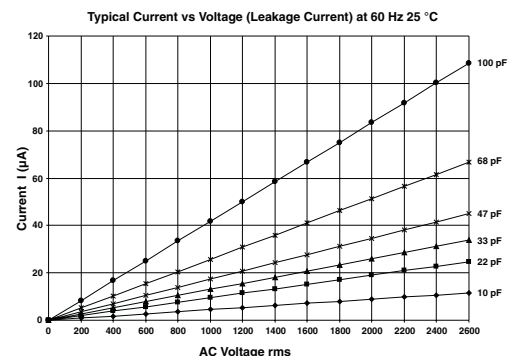
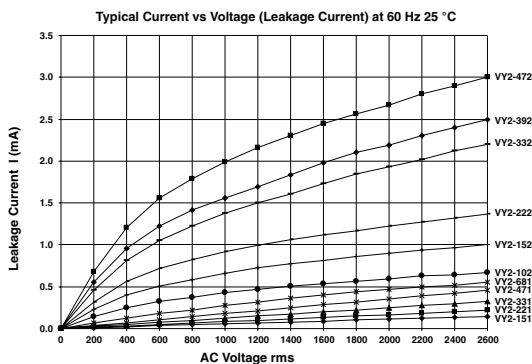
2600 V (AC), 50 Hz, 60 seconds

**INSULATION RESISTANCE:**

10 000 MΩ minimum

**TOLERANCE OF CAPACITANCE:**

± 20 % (Code M); ± 10 % (Code K)


**RoHS**  
 COMPLIANT


The capacitors meet the essential requirements of “EIA 198”. Unless stated otherwise all electrical values apply at an ambient temperature of 25 ± 3 °C, at normal atmospheric conditions

ORDERING INFORMATION													
C (pF)	TOL. (%)	TEMP. COEFFICIENT	BODY DIAMETER D <sub>max</sub> (mm)	BODY THICK T <sub>max</sub> (mm)	LEAD SPACING F (mm)	COATING EXTENSION e <sub>max</sub> <sup>(4)</sup> (mm)	CLEAR TEXT CODE						
							15 <sup>th</sup> DIGIT*: T = REEL; U = AMMO; 3 = BULK <sup>(2)</sup>						
VY2 FOR LEADSPACING 5.0 mm						2200 VAC, 50 Hz, 2 SECONDS							
10	± 10	U2J (N750)	7.5	5.0	5.0	3.0	VY2100K29U2JS6*V5						
15							VY2150K29U2JS6*V5						
22							VY2220K29U2JS6*V5						
33							VY2330K29U2JS6*V5						
47							VY2470K29U2JS6*V5						
68							VY2680K29Y5SS6*V5						
100							VY2101K29Y5SS6*V5						
150							VY2151K29Y5SS6*V5						
220							VY2221K29Y5SS6*V5						
330							VY2331K29Y5SS6*V5						
470	± 20	Y5S (2C3)	7.5	5.0	5.0	3.0	VY2471K29Y5SS6*V5						
680							VY2681M29Y5US6*V5						
1000							VY2102M29Y5US6*V5						
1500							VY2152M31Y5US6*V5						
2200							VY2222M35Y5US6*V5						
3300							VY2332M41Y5US6*V5						
3900							VY2392M43Y5US6*V5						
10							± 10	Y5U (2E3)	8.0	5.0	5.0	3.0	VY2100K29U2JS6*V5
15													VY2150K29U2JS6*V5
22													VY2220K29U2JS6*V5
33	VY2330K29U2JS6*V5												
47	VY2470K29U2JS6*V5												
68	VY2680K29Y5SS6*V5												
100	VY2101K29Y5SS6*V5												
150	VY2151K29Y5SS6*V5												
220	VY2221K29Y5SS6*V5												
330	VY2331K29Y5SS6*V5												
470	± 20	Y5U (2E3)	9.0	5.0	5.0	3.0	VY2471K29Y5SS6*V5						
680							VY2681M29Y5US6*V5						
1000							VY2102M29Y5US6*V5						
1500							VY2152M31Y5US6*V5						
2200							VY2222M35Y5US6*V5						
3300							VY2332M41Y5US6*V5						
3900							VY2392M43Y5US6*V5						
10							± 10	Y5U (2E3)	10.5	5.0	5.0	3.0	VY2100K29U2JS6*V5
15													VY2150K29U2JS6*V5
22													VY2220K29U2JS6*V5
33	VY2330K29U2JS6*V5												
47	VY2470K29U2JS6*V5												
68	VY2680K29Y5SS6*V5												
100	VY2101K29Y5SS6*V5												
150	VY2151K29Y5SS6*V5												
220	VY2221K29Y5SS6*V5												
330	VY2331K29Y5SS6*V5												
470	± 20	Y5U (2E3)	11.0	5.0	5.0	3.0	VY2471K29Y5SS6*V5						
680							VY2681M29Y5US6*V5						
1000							VY2102M29Y5US6*V5						
1500							VY2152M31Y5US6*V5						
2200							VY2222M35Y5US6*V5						
3300							VY2332M41Y5US6*V5						
3900							VY2392M43Y5US6*V5						

ORDERING INFORMATION													
C (pF)	TOL. (%)	TEMP. COEFFICIENT	BODY DIAMETER D <sub>max</sub> (mm)	BODY THICK T <sub>max</sub> (mm)	LEAD SPACING F (mm)	COATING EXTENSION e <sub>max</sub> <sup>(4)</sup> (mm)	CLEAR TEXT CODE						
							15 <sup>th</sup> DIGIT*: T = REEL; U = AMMO; 3 = BULK <sup>(2)</sup>						
VY2 FOR LEADSPACING 7.5 mm						2600 VAC, 50 Hz, 2 SECONDS							
10	± 10	U2J (N750)	7.5	5.0	7.5	3.0	VY2100K29U2JS6*V7						
15							VY2150K29U2JS6*V7						
22							VY2220K29U2JS6*V7						
33							VY2330K29U2JS6*V7						
47							VY2470K29U2JS6*V7						
68							VY2680K29Y5SS6*V7						
100							VY2101K29Y5SS6*V7						
150							VY2151K29Y5SS6*V7						
220							VY2221K29Y5SS6*V7						
330							VY2331K29Y5SS6*V7						
470	± 20	Y5S (2C3)	7.5	5.0	7.5	3.0	VY2471K29Y5SS6*V7						
680							VY2681M29Y5US6*V7						
1000							VY2102M29Y5US6*V7						
1500							VY2152M31Y5US6*V7						
2200							VY2222M35Y5US6*V7						
3300							VY2332M41Y5US6*V7						
3900							VY2392M43Y5US6*V7						
10							± 10	Y5U (2E3)	8.0	5.0	7.5	3.0	VY2100K29U2JS6*V7
15													VY2150K29U2JS6*V7
22													VY2220K29U2JS6*V7
33	VY2330K29U2JS6*V7												
47	VY2470K29U2JS6*V7												
68	VY2680K29Y5SS6*V7												
100	VY2101K29Y5SS6*V7												
150	VY2151K29Y5SS6*V7												
220	VY2221K29Y5SS6*V7												
330	VY2331K29Y5SS6*V7												
470	± 20	Y5U (2E3)	9.0	5.0	7.5	3.0	VY2471K29Y5SS6*V7						
680							VY2681M29Y5US6*V7						
1000							VY2102M29Y5US6*V7						
1500							VY2152M31Y5US6*V7						
2200							VY2222M35Y5US6*V7						
3300							VY2332M41Y5US6*V7						
3900							VY2392M43Y5US6*V7						
10							± 10	Y5U (2E3)	10.5	5.0	7.5	3.0	VY2100K29U2JS6*V7
15													VY2150K29U2JS6*V7
22													VY2220K29U2JS6*V7
33	VY2330K29U2JS6*V7												
47	VY2470K29U2JS6*V7												
68	VY2680K29Y5SS6*V7												
100	VY2101K29Y5SS6*V7												
150	VY2151K29Y5SS6*V7												
220	VY2221K29Y5SS6*V7												
330	VY2331K29Y5SS6*V7												
470	± 20	Y5U (2E3)	11.0	5.0	7.5	3.0	VY2471K29Y5SS6*V7						
680							VY2681M29Y5US6*V7						
1000							VY2102M29Y5US6*V7						
1500							VY2152M31Y5US6*V7						
2200							VY2222M35Y5US6*V7						
3300							VY2332M41Y5US6*V7						
3900							VY2392M43Y5US6*V7						
10							± 10	Y5U (2E3)	12.5	5.0	7.5	3.0	VY2100K29U2JS6*V7
15													VY2150K29U2JS6*V7
22													VY2220K29U2JS6*V7
33	VY2330K29U2JS6*V7												
47	VY2470K29U2JS6*V7												
68	VY2680K29Y5SS6*V7												
100	VY2101K29Y5SS6*V7												
150	VY2151K29Y5SS6*V7												
220	VY2221K29Y5SS6*V7												
330	VY2331K29Y5SS6*V7												
470	± 20	Y5U (2E3)	14.5	5.0	7.5	3.0	VY2471K29Y5SS6*V7						
680							VY2681M29Y5US6*V7						
1000							VY2102M29Y5US6*V7						
1500							VY2152M31Y5US6*V7						
2200							VY2222M35Y5US6*V7						
3300							VY2332M41Y5US6*V7						
3900							VY2392M43Y5US6*V7						
10							± 10	Y5U (2E3)	16.0	5.0	7.5	3.0	VY2100K29U2JS6*V7
15													VY2150K29U2JS6*V7
22													VY2220K29U2JS6*V7
33	VY2330K29U2JS6*V7												
47	VY2470K29U2JS6*V7												
68	VY2680K29Y5SS6*V7												
100	VY2101K29Y5SS6*V7												
150	VY2151K29Y5SS6*V7												
220	VY2221K29Y5SS6*V7												
330	VY2331K29Y5SS6*V7												
470	± 20	Y5U (2E3)	16.0	5.0	7.5	3.0	VY2471K29Y5SS6*V7						
680							VY2681M29Y5US6*V7						
1000							VY2102M29Y5US6*V7						
1500							VY2152M31Y5US6*V7						
2200							VY2222M35Y5US6*V7						
3300							VY2332M41Y5US6*V7						
3900							VY2392M43Y5US6*V7						
0.01 μF													VY2103M63Y5US63V7



ORDERING INFORMATION							
C (pF)	TOL. (%)	TEMP. COEFFICIENT	BODY DIAMETER D <sub>max</sub> (mm)	BODY THICK T <sub>max</sub> (mm)	LEAD SPACING F (mm)	COATING EXTENSION e <sub>max</sub> <sup>(3)</sup> (mm)	CLEAR TEXT CODE
							15 <sup>th</sup> DIGIT*: T = REEL; U = AMMO; 3 = BULK <sup>(2)</sup>
VY2 FOR LEADSPACING 10.0 mm				2600 VAC, 50 Hz, 2 SECONDS			
10	± 10	U2J (N750)	7.5	5.0	10.0	3.0	VY2100K29U2JS6*V0
15							VY2150K29U2JS6*V0
22							VY2220K29U2JS6*V0
33							VY2330K29U2JS6*V0
47							VY2470K29U2JS6*V0
68							VY2680K29Y5SS6*V0
100							VY2101K29Y5SS6*V0
150							VY2151K29Y5SS6*V0
220							VY2221K29Y5SS6*V0
330							VY2331K29Y5SS6*V0
470	± 20	Y5U (2E3)	8.0	5.0	10.0	3.0	VY2471K29Y5SS6*V0
680							VY2681M29Y5US6*V0
1000							VY2102M29Y5US6*V0
1500							VY2152M31Y5US6*V0
2200							VY2222M35Y5US6*V0
3300							VY2332M41Y5US6*V0
3900							VY2392M43Y5US6*V0
4700							VY2472M49Y5US6*V0
6800							VY2682M59Y5US6*V0
0.01 µF							VY2103M63Y5US6*V0

**Notes:**

1. Straight leads are available on request.
2. 15th digit of the clear text code number to be completed with the packaging code.
3. Coating extension e valid for straight leads only.
4. On request available: ± 10 % tolerance for capacitance value 680 pF.

**LEADSPACING 5.0 AND 7.5 mm**

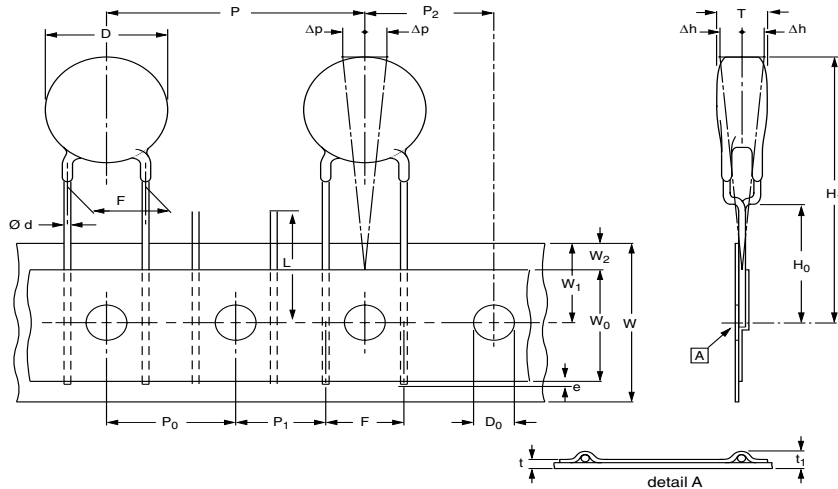
PACKAGING					
CAPACITANCE VALUE	SIZE CODE	BODY DIAMETER D <sub>max</sub> (mm)	PACKAGING QUANTITIES		
			BULK	REEL	AMMO
10 pF to 4700 pF	29 ~ 49	12.5	1000	1000	1000
6800 pF to 0.01 µF	59 ~ 63	16.0	500	-	-

**LEADSPACING 10.0 mm**

PACKAGING					
CAPACITANCE VALUE	SIZE CODE	BODY DIAMETER D <sub>max</sub> (mm)	PACKAGING QUANTITIES		
			BULK	REEL	AMMO
10 pF to 4700 pF	29 ~ 49	12.5	1000	500	750
6800 pF to 0.01 µF	59 ~ 63	16.0	500	500	750

**Note:**

1. The capacitors are supplied in bulk packaging (cardboard boxes), in tape on reel or in ammpack.



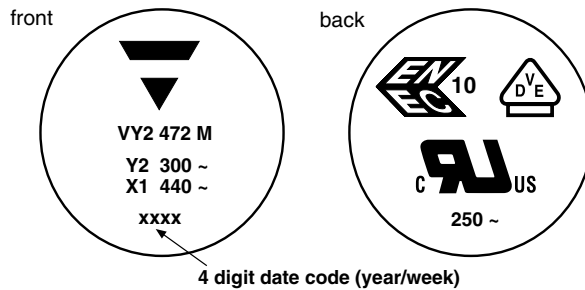
Inline kink (V) leaded capacitors on tape, lead spacing 5.0 mm (0.200"), 7.5 mm (0.300") and 10 mm (0.400")

**STANDARD RECOGNITION**

IEC 60384 - 14/2nd Issue (1993) incl. Am.1 (1995) - Safety Tests  
EN 132 400 (1994) - Safety Tests

UL 1414 - Across-the-line, antenna-coupling and line-by-pass component  
CCC - Chinese Safety Standard is available on request

**MARKING: 2 SIDES  
(EXAMPLE)**



**LABEL  
(EXAMPLE)**

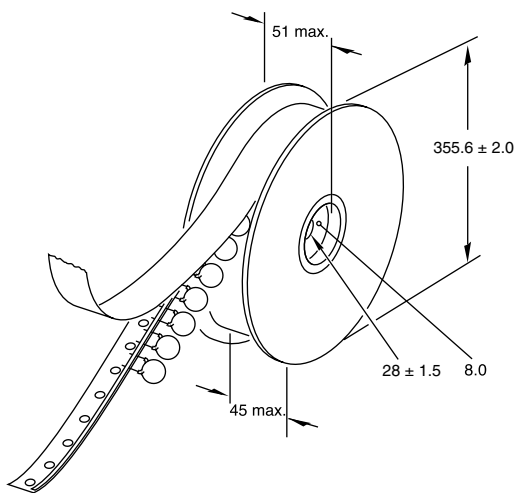
PN: VY2331K29Y5SS6UV7    Lot1: 14Z549306    DC1: 0601  
 QTY: 1000    Lot2:    DC2:  
 PO:    Batch: 200601CN  
 SO:    Region: 9520    SL: 0010  
 Ser.No: 0601H72383

   2/5

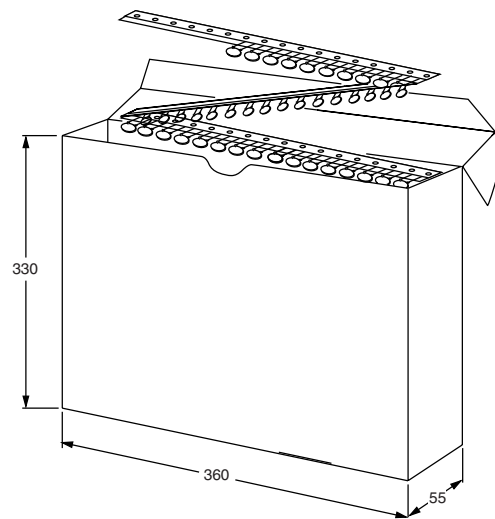
<b>DIMENSIONS OF TAPE</b>				
SYMBOL	PARAMETER	DIMENSIONS (mm)		
		Fig.1 5 mm	Fig.1 7.5 mm	Fig.2 10 mm
D <sup>1)</sup>	body diameter	11.0 max.	14.0 max.	16.0 max.
d	lead diameter	0.6 ± 0.05	0.6 ± 0.05	0.6 ± 0.05
P	pitch of component	12.7 ± 1	15.0 ± 1	25.4 ± 1
P <sub>0</sub> <sup>2)</sup>	pitch of sprocket hole	12.7 ± 0.3	15.0 ± 0.3	12.7 ± 0.3
P <sub>1</sub> <sup>3)</sup>	distance, hole centre to lead	3.85 ± 0.7	3.75 ± 0.7	7.7 ± 1.0
P <sub>2</sub> <sup>3)</sup>	distance, hole to centre of component	6.35 ± 1.3	7.5 ± 1.5	12.7 ± 1.5
F	lead spacing	5.0 (+ 0.6/- 0.4)	7.5 (+ 0.6/- 0.4)	10.0 (+ 0.6/- 0.4)
Δh	average deviation across tape	± 1.0 max.	± 1.0 max.	± 1.0 max.
ΔP	average deviation in direction of reeling	± 1.0 max.	± 1.0 max.	± 1.0 max.
W	carrier tape width	18.0 + 1/- 0.5	18.0 + 1/- 0.5	18.0 + 1/- 0.5
W <sub>0</sub>	hold-down tape width	5.0 min.	5.0 min.	5.0 min.
W <sub>1</sub>	position of sprocket hole	9.0 + 0.75 - 0.5	9.0 + 0.75 - 0.5	9.0 + 0.75 - 0.5
W <sub>2</sub>	distance of hold-down tape	3.0 max.	3.0 max.	3.0 max.
H <sub>1</sub>	maximum component height	32.0	40.0	40.0
H <sub>0</sub>	Height to seating plane (for kinked leads)	16.0 ± 0.5	16.0 ± 0.5	16.0 ± 0.5
H <sub>0</sub>	Height to seating plane (for straight leads)	20.0 ± 0.5	20.0 ± 0.5	20.0 ± 0.5
L	length of cut leads	11.0 max.	11.0 max.	11.0 max.
l	length of lead protrusion	1.0 max.	1.0 max.	1.0 max.
D <sub>0</sub>	diameter of sprocket hole	4.0 ± 0.2	4.0 ± 0.2	4.0 ± 0.2
t	total tape thickness	0.9 max.	0.9 max.	0.9 max.

**Notes**

1. See ordering information table.
2. Cumulative pitch error:  $\pm \leq 1 \text{ mm}/20 \text{ pitches}$ .
3. Obliquity maximum 3°.

**REEL AND TAPE DATA in millimeters**


Reel with capacitors on tape



Ammpack with capacitors on tape



## Disclaimer

All product specifications and data are subject to change without notice.

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