

## AC Line Rated Disc Capacitors Class X2, 400 V<sub>AC</sub>


**RoHS  
COMPLIANT**
**FEATURES**

- Worldwide safety agency recognition  
Underwriters Laboratories UL 1283  
Canadian Standards Association - CSA 22.2  
European EN132400 to IEC 60384-14 second edition
- Complete range of capacitance values
- Radial leads
- Compliant to RoHS Directive 2002/95/EC

**APPLICATIONS**

- Required in AC power supply and filter applications
- Specific industry requirements

**DESIGN**

The capacitors consist of a ceramic disc of which both sides are silver-plated. Connection leads are made of tinned copper having a diameter of 0.025" (0.64 mm). The capacitors may be supplied with radial kinked or straight leads having a lead spacing of 0.375" (9.5 mm) or 0.250" (6.4 mm). The standard tolerance is  $\pm 20\%$ . Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0."

QUICK REFERENCE DATA		
DESCRIPTION	VALUE	
Ceramic Class	2	
Ceramic Dielectric	Y5V	Z5U
Voltage (V <sub>AC</sub> )	250, 400	250, 400
Min. Capacitance (pF)	9000	10 000
Max. Capacitance (pF)	100 000	10 000
Mounting	Through hole	

**INSULATION RESISTANCE**

 Min. 1000  $\Omega$ F

**TOLERANCE ON CAPACITANCE**
 $\pm 20\%$ 
**DISSIPATION FACTOR**

2.0 % max. at 1 kHz; 1 V

**CERAMIC DIELECTRIC**

Y5V, Z5U (class 2)

**CATEGORY TEMPERATURE RANGE**

- 25 °C to + 125 °C

**CLIMATIC CATEGORY ACC. TO EN60068-1**

25/125/21

**OPERATING TEMPERATURE RANGE**

- 30 °C to + 125 °C

**CAPACITANCE RANGE**

 9 nF to 0.1  $\mu$ F

**RATED VOLTAGE**

 IEC 60384-14.12: (X2): 400 V<sub>AC</sub>, 50 Hz

 UL 1238: 250 V<sub>AC</sub>, 60 Hz

 CSA 22.2 No.8: 250 V<sub>AC</sub>, 60 Hz

**DIELECTRIC STRENGTH BETWEEN LEADS**

Component test:

 1250 V<sub>AC</sub>, 50 Hz, 2 s

As repeated test admissible only once with:

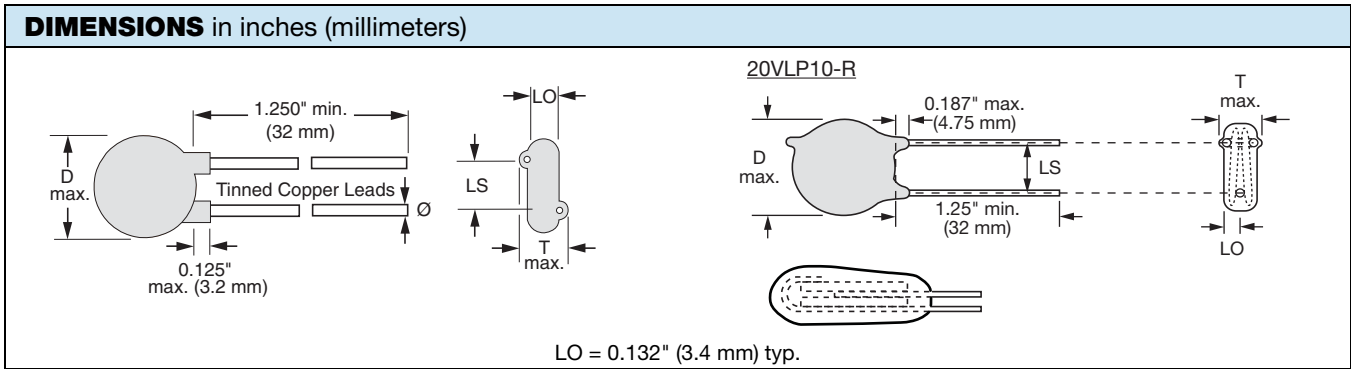
 1080 V<sub>AC</sub>, 50 Hz, 2 s

Random sampling test (destructive test):

 1250 V<sub>AC</sub>, 50 Hz, 60 s

**DIELECTRIC STRENGTH OF BODY INSULATION**

 2300 V<sub>AC</sub>, 50 Hz, 60 s (destructive test)



ORDERING INFORMATION, CERAMIC X2 CAPACITORS 20VL							
C ( $\mu$ F)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm)	ORDERING CODE
				AWG	INCH (mm)		
<b>Y5V</b>							
0.009	$\pm 20$	0.530 (13.5)	0.150 (3.8)	22	0.025 (0.64)	0.375 (9.5)	20VLD90-R
0.010	$\pm 20$	0.620 (15.7)	0.150 (3.8)				20VLS10-R
0.020	$\pm 20$	0.720 (18.3)	0.150 (3.8)				20VLS20-R
0.100	$\pm 20$	0.940 (23.9)	0.240 (6.1)				20VLP10-R <sup>(1)</sup>
<b>Z5U</b>							
0.010	$\pm 20$	0.530 (13.5)	0.160 (4.1)	22	0.025 (0.64)	0.250 (6.4)	20VLS10-R

**Notes**

- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- European required minimum lead clearance (prevents use of inside crimp) 0.118" (3 mm)
- <sup>(1)</sup> 20VLP10-R not available with CSA 22.2 no. 8 recognition

**TAPE AND REEL OPTIONS**

- To specify tape and reel, add two letter suffix to the ordering code (details of the packaging code see general section of the catalog).

APPROVALS						
IEC 60384 - 14/2nd Issue (1993) incl. Am.1 (1995) - Safety Tests						
EN132400 (1994) - Safety Tests						
That approval together with CB Test Certificate substitutes the national approval of the following nations:						
Belgium	France	Italy	Austria	China	Japan	Spain
Denmark	Greece	Luxembourg	Portugal	Singapore	Poland	United Kingdom
Germany	Ireland	Netherlands	Sweden	Slovenia	Hungaria	Czech Republic
Finland	Iceland	Norway	Switzerland	Korea	Israel	
X2 Capacitor: CB-Test Certificate:		DE 1-19450	9000 pF to 0.1 $\mu$ F	400 V <sub>AC</sub>		
<b>UNDERWRITERS LABORATORIES INC.</b>						
<b>UL 1238</b>	EMI filters Agency File/ License	E128046 V1S1	9000 pF to 0.1 $\mu$ F	250 V <sub>AC</sub>		
<b>CANADIAN STANDARDS ASSOCIATION</b>						
<b>CSA C22.8</b>	EMI filters Agency File/ License	LR 62016-3	9000 pF to 0.020 $\mu$ F	250 V <sub>AC</sub>		

**Note**

IEC 60384-14 subclass X capacitors:

- A capacitor of a type suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.
- Class X capacitors are divided into sub-classes according to the peak impulse test voltage superimposed on the main voltage.



**MARKING**

Sample



Type: 055C140A251BY103ZLA203-R

CM PN: 20VLSS10-R E3	LOT1: 11642525	DC1: 0622	SN: 29081A69D001
Qty.: 250	LOT2:	DC2:	
IEC60384-14/2:	R.C.: 7032 S.L.: 0010	Op.No.: 771	
X2 (400~)	BATCH NO.: 200622CZ	<b>Pb</b> <b>e3</b>	
<b>UL</b> <b>SF</b> LR62016	PN: 20VLSS10-R	PO: 0011642525/0001	

RoHS



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А