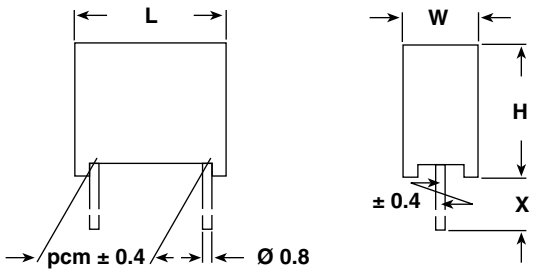
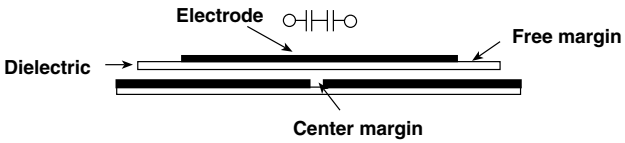
AC-Capacitors, Suppression Capacitors
Class X2 AC 440 V (MKT)

Dimensions in mm



LEAD LENGTH X (mm)	ORDERING CODE***
4^{-1}	F1772-. . .-4004
6^{-1}	F1772-. . .-4000
15^{-1}	F1772-. . .-4015
30^{+5}	F1772-. . .-4030



MAXIMUM PULSE RISE TIME (dU/dt) in V/µs

RATED VOLTAGE	PITCH (mm)			
	15.0	22.5	27.5	37.5
AC 440 V	200	150	100	100

RATED VOLTAGE
AC 440 V, 50 Hz/60 Hz

PERMISSIBLE DC VOLTAGE
DC 1000 V

TERMINALS
Radial tinned wire

COATING
Plastic case, epoxy resin sealed, flame retardant UL 94 V-0

CLIMATIC TESTING CLASS ACC.TO EN 60068-1
40/100/56

CAPACITANCE RANGE
E12 series 0.01 µF X2 - 1.0 µF X2
preferred values acc. to E6

FURTHER TECHNICAL DATA
See page 21 (Document No. 26504)

FEATURES
• Compliant to RoHS directive 2002/95/EC

Pb-free

e3

RoHS COMPLIANT

CAPACITANCE TOLERANCE
Standard: ± 10 %

DISSIPATION FACTOR TAN δ
< 1 % measured at 1 kHz

INSULATION RESISTANCE
FOR C ≤ 0.33 µF:
30 GΩ average value
15 GΩ minimum value

TIME CONSTANT
FOR C > 0.33 µF:
10 000 s average value
5000 s minimum value

TEST VOLTAGE
(Electrode/electrode): DC 2150 V/2 s

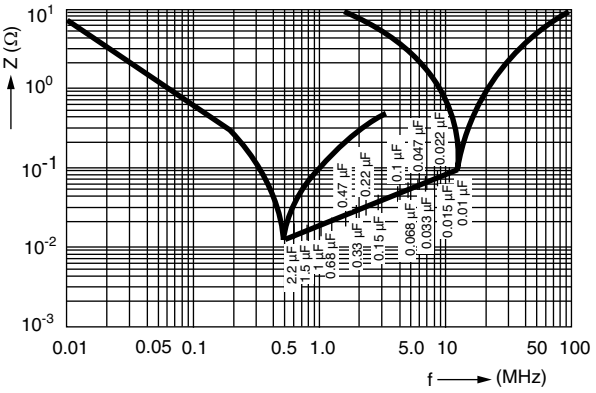
REFERENCE STANDARDS
EN 132 400, 1994
EN 60068-1
IEC 60384-14/2, 1993
UL 1283
UL 1414
CSA 22.2 No. 8-M 86
CSA 22.2 No. 1-M 90

DIELECTRIC
Polyester film

ELECTRODES
Metal evaporated

CONSTRUCTION
Metallized film capacitor
Internal series connection

Between interconnected terminations and case (foil method):
AC 2500 V for 2 s at 25 °C.



Impedance (Z) as a function of frequency (f) at T_a = 20 °C (average). Measurement with lead length 6 mm.

APPROVALS

COUNTRY	SPECIFICATION	ELECTRICAL VALUES	APPROVAL REFERENCE	APPROVAL MARK
U.S.A. (for AC 250 V)	UL 1283 UL 1414	0.01 µF X - 1.0 µF X 0.01 µF X - 1.0 µF X	E 76297 E 100682	
Canada (for AC 250 V)	C 22.2 No. 8-M 1986 C 22.2 No. 1-M 1994	0.01 µF X - 1.0 µF X 0.01 µF X - 0.82 µF X	LR 64546 LR 64546-8	
CB TEST-CERTIFICATE (for AC 440 V)		0.01 µF X2 - 1.0 µF X2	DE 1-8221	
Germany	EN 132 400; 1999 IEC 60384-14, 2nd edition, 1995	0.01 µF X2 - 1.0 µF X2	40005095	
This approval mark together with the CB-Certificate replace all national approval marks of the following countries (they have already signed the CB-Agreement):				
Austria	Belgium	Denmark	Finland	Sweden
France	Germany	Ireland	Italy	Switzerland
Netherlands	Israel	Portugal	Spain	Great Britain
Japan	Norway	China	Poland	Czech. Republic
Singapore	Rep. of Korea	Hungary	Iceland	Slovenia

CAPACITANCE	TOL. (%)	PITCH (mm)	BOX NO.	DIMENSIONS W x H x L (+ 0.2/- 0.4 mm)	WEIGHT LEAD LENGTH 6^{-1} mm (g)	QUANTITY PACKAGE LEAD LENGTH 6^{-1} mm (pcs) (2)	ORDERING CODE (3)
0.01 µF X2	**± 10**	**15.0**	**06**	**6.3 x 12.3 x 17.8**	**2.0**	**500**	**F1772-310-4 . . .**
0.012 µF X2	± 10	15.0	06	6.3 x 12.3 x 17.8	2.0	500	F1772-312-4 . . .
0.015 µF X2	**± 10**	**15.0**	**07**	**7.3 x 13.3 x 17.8**	**2.4**	**450**	**F1772-315-4 . . .**
0.018 µF X2	± 10	15.0	07	7.3 x 13.3 x 17.8	2.4	450	F1772-318-4 . . .
0.022 µF X2	**± 10**	**15.0**	**08**	**8.3 x 14.3 x 17.8**	**2.7**	**325**	**F1772-322-4 . . .**
0.027 µF X2	± 10	15.0	08	8.3 x 14.3 x 17.8	2.7	325	F1772-327-4 . . .
0.033 µF X2	**± 10**	**15.0**	**28**	**8.3 x 17.3 x 17.8**	**2.7**	**300**	**F1772-333-4 . . .**
0.039 µF X2	± 10	22.5 (1)	09	6.3 x 14.3 x 26.3	3.3	260	F1772-339-4 . . .
0.047 µF X2	**± 10**	**22.5 (1)**	**11**	**7.3 x 15.3 x 26.3**	**4.1**	**235**	**F1772-347-4 . . .**
0.056 µF X2	± 10	22.5 (1)	12	8.3 x 16.3 x 26.3	4.6	200	F1772-356-4 . . .
0.068 µF X2	**± 10**	**22.5 (1)**	**12**	**8.3 x 16.3 x 26.3**	**4.6**	**200**	**F1772-368-4 . . .**
0.082 µF X2	± 10	22.5 (1)	12	8.3 x 16.3 x 26.3	4.6	200	F1772-382-4 . . .
0.1 µF X2	**± 10**	**22.5 (1)**	**13**	**10.3 x 18.3 x 26.3**	**6.7**	**170**	**F1772-410-4 . . .**
0.12 µF X2	± 10	22.5 (1)	13	10.3 x 18.3 x 26.3	6.7	170	F1772-412-4 . . .
0.15 µF X2	**± 10**	**27.5 (1)**	**14**	**11.0 x 21.0 x 31.0**	**9.1**	**125**	**F1772-415-4 . . .**
0.18 µF X2	± 10	27.5 (1)	14	11.0 x 21.0 x 31.0	9.1	125	F1772-418-4 . . .
0.22 µF X2	**± 10**	**27.5 (1)**	**15**	**13.0 x 23.3 x 31.3**	**12.9**	**110**	**F1772-422-4 . . .**
0.27 µF X2	± 10	27.5 (1)	15	13.0 x 23.3 x 31.3	12.9	110	F1772-427-4 . . .
0.33 µF X2	**± 10**	**27.5 (1)**	**18**	**14.5 x 24.3 x 31.3**	**15.0**	**100**	**F1772-433-4 . . .**
0.39 µF X2	± 10	37.5 (1)	14	12.0 x 22.3 x 41.3	15.2	90	F1772-439-4 . . .
0.47 µF X2	**± 10**	**37.5 (1)**	**16**	**14.0 x 24.3 x 41.3**	**18.9**	**80**	**F1772-447-4 . . .**
0.56 µF X2	± 10	37.5 (1)	19	15.5 x 28.3 x 41.3	24.0	70	F1772-456-4 . . .
0.68 µF X2	**± 10**	**37.5 (1)**	**19**	**15.5 x 28.3 x 41.3**	**24.0**	**70**	**F1772-468-4 . . .**
0.82 µF X2	± 10	37.5 (1)	20	17.9 x 32.4 x 41.3	31.6	60	F1772-482-4 . . .
1.0 µF X2	**± 10**	**37.5 (1)**	**42**	**19.8 x 39.9 x 42.3**	**44.2**	**55**	**F1772-510-4 . . .**

Preferred values in bold print.

Notes

- Inbuilt discharging resistor on request (with larger case dimensions).

(1) Different pitch on request.

(2) Further information about packaging quantities with different lead length and/or taped versions. See page 16 (Document No. 27608 Packaging Quantities). Use Box No. as reference

(3) These capacitors can be delivered on continuous tape and reel - see page 14/15 (Document Number 27622). The ordering code is F1772-. . .-4900 at H = 16.5 mm, F1772-. . .-4901 at H = 18.5 mm.

APPLICATION NOTES

- For X2 electromagnetic interference suppression in **across the line applications** (50 Hz/60 Hz) with a maximum mains voltage of 440 V_{AC}.
- These capacitors are not intended for continuous pulse applications. For these situations, capacitors of the AC and pulse programs must be used.
- These capacitors can be used for series impedance application in case safety approvals are requested.
- The maximum ambient temperature must not exceed 100 °C.
- Rated voltage pulse slope:
  If the pulse voltage is lower than the rated voltage, the values of the specific reference data can be multiplied by 620 V_{DC} and divided by the applied voltage.

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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.