Ref. Certif. No.

US-43081-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	DC-DC Converter
Name and address of the applicant	COSEL CO LTD 1-6-43 KAMIAKAE-MACHI TOYAMA-SHI, Toyama, 930-0816 Japan
Name and address of the manufacturer	COSEL CO LTD 1-6-43 KAMIAKAE-MACHI TOYAMA-SHI, Toyama, 930-0816 Japan
Name and address of the factory Note: *When more than one factory, please report on page 2*	COSEL CO LTD 1-6-43 KAMIAKAE-MACHI TOYAMA-SHI, Toyama, 930-0816 Japan ☒ Additional Information on page 2
Ratings and principal characteristics	<Input rating> Model MHFS3123R3: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.79 A (0.30 A at 12 Vdc input) ☒ Additional Information on page 2
Trademark / Brand (if any)	COSEL
Customer's Testing Facility (CTF) Stage used	CTF Stage 2
Model / Type Ref.	MHFx3yz ☒ Additional Information on page 2
Additional information (if necessary may also be reported on page 2)	**Additionally evaluated to:** EN 60601-1:2006, EN 60601-1:2006/A1:2013, EN 60601-1:2006/A12:2014, EN 60601-1:2006/A2:2021 The risk management requirements of the standard were not addressed National Differences: EU Group Differences, CA, US ☐ Additional Information on page 2
A sample of the product was tested and found to be in conformity with	IEC 60601-1:2005, IEC 60601-1:2005/AMD1:2012, IEC 60601-1:2005/AMD2:2020
As shown in the Test Report Ref. No. which forms part of this Certificate	E161890-D1067-1/A0/C0-CB issued on 2023-11-28

This CB Test Certificate is issued by the National Certification Body

UL Solutions

☒ UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
☐ UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
☐ UL Solutions (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
☐ UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2023-12-04

Signature: Jolanta M. Wroblewska

Ref. Certif. No.

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Factory(ies):
COSEL CO LTD
TATEYAMA FACTORY, 78 DOGENJI TATEYAMAMACHI NAKANIIKAWA-GUN, Toyama, 930-0241
Japan

Additional Model Detail(s):
MHFx3yz, (x = S, W or B, y = 12, 24 or 48 (for “S” or “W” in suffix x), y = 12 or 24 (for “B” in suffix x), z = 3R3, 05, 09, 12 or 15 (for “S” in suffix x), z = 12 or 15 (for “W” in suffix x), z = 1509 or 2005 (for “B” in suffix x)), may be followed by suffix "-#" which can be any number 0 to 9 or any letter A to Z or blank, single number, letter or in the combination of two or more.

Additional Ratings:
<Input rating>
Model MHFS3123R3: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.79 A (0.30 A at 12 Vdc input)
Model MHFS31205: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.87 A (0.33 A at 12 Vdc input)
Model MHFS31209: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.86 A (0.33 A at 12 Vdc input)
Model MHFS31212: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.83 A (0.31 A at 12 Vdc input)
Model MHFS31215: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.83 A (0.31 A at 12 Vdc input)

Model MHFS3243R3: 9 – 36 Vdc (24 Vdc typical), maximum 0.40 A (0.15 A at 24 Vdc input)
Model MHFS32405: 9 – 36 Vdc (24 Vdc typical), maximum 0.44 A (0.17 A at 24 Vdc input)
Model MHFS32409: 9 – 36 Vdc (24 Vdc typical), maximum 0.43 A (0.17 A at 24 Vdc input)
Model MHFS32412: 9 – 36 Vdc (24 Vdc typical), maximum 0.42 A (0.16 A at 24 Vdc input)
Model MHFS32415: 9 – 36 Vdc (24 Vdc typical), maximum 0.42 A (0.16 A at 24 Vdc input)

Model MHFS3483R3: 18 – 76 Vdc (48 Vdc typical), maximum 0.20 A (0.08 A at 48 Vdc input)
Model MHFS34805: 18 – 76 Vdc (48 Vdc typical), maximum 0.22 A (0.09 A at 48 Vdc input)
Model MHFS34809: 18 – 76 Vdc (48 Vdc typical), maximum 0.22 A (0.09 A at 48 Vdc input) Model MHFS34812: 18 – 76 Vdc (48 Vdc typical), maximum 0.21 A (0.08 A at 48 Vdc input)
Model MHFS34815: 18 – 76 Vdc (48 Vdc typical), maximum 0.21 A (0.08 A at 48 Vdc input)

Model MHFW31212: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.86 A (0.33 A at 12 Vdc input)
Model MHFW31215: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.83 A (0.31 A at 12 Vdc input)

Model MHFW32412: 9 – 36 Vdc (24 Vdc typical), maximum 0.43 A (0.17 A at 24 Vdc input)
Model MHFW32415: 9 – 36 Vdc (24 Vdc typical), maximum 0.42 A (0.16 A at 24 Vdc input)

Model MHFW34812: 18 – 76 Vdc (48 Vdc typical), maximum 0.22 A (0.09 A at 48 Vdc input)
Model MHFW34815: 18 – 76 Vdc (48 Vdc typical), maximum 0.21 A (0.08 A at 48 Vdc input)

Model MHFB3121509: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.70 A (0.26 A at 12 Vdc input)
Model MHFB3122005: 4.5 – 18 Vdc (12 Vdc typical), maximum 0.73 A (0.28 A at 12 Vdc input)

Model MHFB3241509: 9 – 36 Vdc (24 Vdc typical), maximum 0.35 A (0.13 A at 24 Vdc input)
Model MHFB3242005: 9 – 36 Vdc (24 Vdc typical), maximum 0.37 A (0.14 A at 24 Vdc input)

<Output rating>
See CB Test Report for details.

Additional information (if necessary)

☒ UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
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☐ UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

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Date: 2023-12-04

Signature:

Jolanta M. Wroblewska