



Ref. Certif. No.

US-43081-M1-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

COSEL CO LTD
1-6-43 KAMIAKAE-MACHI TOYAMA-SHI, TOYAMA, 930-0816
JAPAN

Note: When more than one factory, please report on page 2

☒ [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)



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

National Differences: EU Group Differences, CA, US

The report was revised to include technical modifications.

The risk management requirements of the standard were not addressed

☒ [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/A1/C0-CB issued on 2024-05-15

This CB Test Certificate is issued by the National Certification Body



☒ UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
☐ UL Solutions (Denko), 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: 2024-05-16

Original Issue Date: 2023-12-04

Signature:

Mauricio Avila



Ref. Certif. No.

US-43081-M1-UL

Factory(ies):

COSEL CO LTD
TATEYAMA FACTORY, 78 DOGENJI TATEYAMAMACHI NAKANIKAWA-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)
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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.

Summary of Modifications:

- Corrected Manufacturer and Mark(s) of Conformity of Alternate Potting Compound, Type TIA208R in Table 8.10.
- Changed of altitude from "4000m" to "3000m".
- See Test Report for details.

Additional information (if necessary)



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Signature:

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Model / Type Ref.

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National Differences: EU Group Differences, CA, US☐ [Additional Information on page 2](#)

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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

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Date: 2023-12-04

Signature:

Jolanta M. Wroblewska



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TATEYAMA FACTORY, 78 DOGENJI TATEYAMAMACHI NAKANIIKAWA-GUN, Toyama, 930-0241
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<Output rating>

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Additional information (if necessary)



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Date: 2023-12-04

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