

# PRODUCT SPECIFICATION-DRAFT

Description

Transformer HF/DAB/30kW/1000V/50-200kHz/Leads/Lk=33.6uH

Customer

PRAX

Cust P/N

Prax P/N

PI-103735-00

Edition

EDA

Date

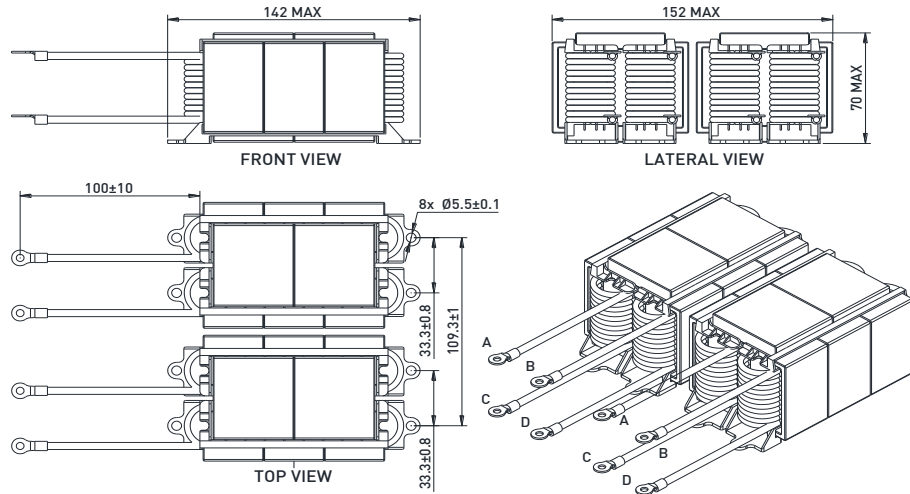
29-Jan-2025

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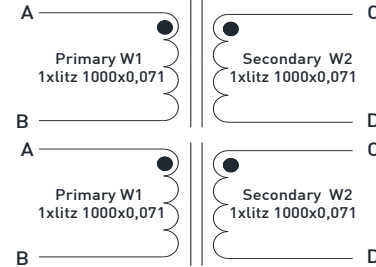
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## DIMENSIONS



## ELECTRICAL DIAGRAM



## APPLIED STANDARDS & NOTES

Product designed according to

- 1 RoHS and REACH directive
- 2 All materials UL approved
- 3 W1 windings connected in parallel
- 4 W2 windings connected in parallel
- 5 Creepage and clearance: 4 mm minimum

## WORKING CONDITIONS

|                            |                          |
|----------------------------|--------------------------|
| Rated power                | 30 kW                    |
| Application                | Dual Active Bridge (DAB) |
| Working Voltage            | 1000 Vdc                 |
| Operating frequency        | 50-200 kHz               |
| Turns ratio (W1:W2)        | 12 : 12                  |
| Primary Inductance (W1)    | 250 uH ± 10%             |
| Leakage inductance (W1)    | 33,6 uH ± 10%            |
| DCR Primary (W1)           | 17,2 mOhms at 23±3°C     |
| DCR Secondary (W2)         | 17,2 mOhms at 23±3°C     |
| Copper losses (100°C)      | See table                |
| Core losses (100°C)        | See table                |
| Estimated temperature rise | See table                |
| Operating temperature      | -40°C to 125°C           |

Operating temperature includes component self heating

## Operating points (typical values at 100°C, per transformer)

| Op. Point | Prim Voltage | Current | Freq    | Core losses | Copper losses | Total losses | AT    |
|-----------|--------------|---------|---------|-------------|---------------|--------------|-------|
| 1         | 600 V        | 26,25 A | 50 kHz  | 29,08 W     | 27,24 W       | 56,32 W      | 45 °C |
| 2         | 800 V        | 10,25 A | 100 kHz | 24,71 W     | 5,90 W        | 30,61 W      | 45 °C |
| 3         | 1000 V       | 8,9 A   | 150 kHz | 27,14 W     | 6,65 W        | 33,79 W      | 45 °C |
| 4         | 1000 V       | 8,9 A   | 200 kHz | 21,56 W     | 9,72 W        | 31,28 W      | 35 °C |

Temperature rise considering air cooling (air speed=2 m/s)

Losses per transformer. Total losses must be x2 (112,64 W, 61,22 W, 67,58 W and 62,56 W)

| Edition | Change Description                 | Changed by | Date    |
|---------|------------------------------------|------------|---------|
| A       | First edition - Preliminary design | AH         | 29-1-25 |
|         |                                    |            |         |
|         |                                    |            |         |
|         |                                    |            |         |

## MARKING

Marked on lateral side of box as follows:

PI-103735-00 EDA  
PRAX WW/YY

WW Week  
YY Year

## PARAMETERS TESTED (per transformer)

| Parameter       | Min   | Typ   | Max   | Unit | Condition      |
|-----------------|-------|-------|-------|------|----------------|
| Inductance (W1) | 225,0 | 250,0 | 275,0 | uH   | 10kHz, 0,1Vac  |
| Leakage (W1)    | 30,24 | 33,6  | 36,96 | uH   | 10kHz, 0,1Vac  |
| DCR (W1)        |       |       | 17,2  | mΩ   | 23±3°C         |
| Turns ratio     | -     | 1 : 1 | -     | -    | 10kHz, 0,1Vac  |
| Hi-Pot (W1-W2)  | 4000  |       |       | Vac  | 50 Hz, 2mA, 2s |

Units: mm / General dimension tolerance unless otherwise stated: ±0,3  
Product specification draft has the only purpose to communicate product characteristics, tested or theoretically estimated, of a preliminary design. It is not the product specification resulting of the completed product development process.

Designed by AH  
Approved by DP

