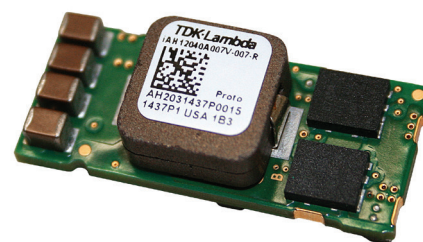


## 150W, 40A Non-Isolated SMT Point-Of-Load

<https://product.tdk.com/en/power/iAH>  
[www.emea.lambda.tdk.com/iAH](http://www.emea.lambda.tdk.com/iAH)



Industrial



Test



COMM



Broadcast

The iAH series of non-isolated Point-Of-Load (POL) converters provide localized voltage conversion from either a 5V or 12V bus. With its wide input and wide output voltage adjustment range, this compact-sized DC-DC module can deliver up to 150W making it a versatile solution for various board mount power requirements.

### Features

- DOSA Compatible Footprint
- Surface Mountable and Reflow Solder Compatible
- Constant Switching Frequency
- No External Loop Tuning Components Needed
- Excellent Transient Response

### Benefits

- Established Industry Footprint / Multisource
- Ease of Manufacturing and Assembly
- Predictable EMI
- Simplifies Deployment and Saves Board Space
- Stable / Reliable Output During Dynamic Load

### Model Selector

| Model                               | Input Voltage (V) | Output Voltage (V) | Maximum Current (A) | Maximum Power (W) | On/Off Polarity | Efficiency, Full Load (typ) |
|-------------------------------------|-------------------|--------------------|---------------------|-------------------|-----------------|-----------------------------|
| <a href="#">iAH12040A007V-006-R</a> | 3.5 - 17          | 0.7 - 5.0          | 40                  | 150               | Pos             | 96%                         |
| <a href="#">iAH12040A007V-007-R</a> | 3.5 - 17          | 0.7 - 5.0          | 40                  | 150               | Neg             | 96%                         |

### Related Products

| Type                         | Part Number                    | Description                                                                                           |
|------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------|
| Isolated DC-DC Converter     | <a href="#">iQL</a>            | 300W, Input 36-75V or 18-36V, Isolated Quarter Brick                                                  |
| Isolated DC-DC Converter     | <a href="#">iQG</a>            | 300W~504W, Input 36-75V, Isolated Quarter Brick                                                       |
| Isolated DC-DC Converter     | <a href="#">iEH</a>            | 300W, Input 36-75V, Isolated Eighth Brick                                                             |
| Isolated DC-DC Converter     | <a href="#">GQA</a>            | 120W Industrial, Input 9-36V, Isolated Quarter Brick                                                  |
| Non-Isolated DC-DC Converter | <a href="#">iBH</a>            | 80W/20A, 3.5-14Vin, 0.7 - 5.5Vout, DOSA Compatible                                                    |
| Non-Isolated DC-DC Converter | <a href="#">iCH</a>            | 85W/12A, 4.5-14Vin, 0.7 - 8.5Vout, DOSA Compatible                                                    |
| Input Filter                 | <a href="#">iDQ</a>            | 75V / 10A Filter                                                                                      |
| Evaluation Board             | <a href="#">FQX-HQA-EVK-D0</a> | Evaluation board (no modules) accepting standard Eighth or Quarter brick and FQx or iDQ input filters |

| Specifications                                                                              |      |                                                                    |
|---------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------|
| Model                                                                                       |      | iAH                                                                |
| <b>Input</b>                                                                                |      |                                                                    |
| Input Voltage Range                                                                         | Vdc  | 3.5 - 17                                                           |
| Input Current (max)                                                                         | A    | 35                                                                 |
| Turn-On Input Voltage (typ)                                                                 | Vdc  | 2.7                                                                |
| Turn-Off Input Voltage (typ)                                                                | Vdc  | 2.5                                                                |
| Efficiency (typical)                                                                        | %    | 96%                                                                |
| Safety Certifications and Markings                                                          | -    | IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark              |
| <b>Output</b>                                                                               |      |                                                                    |
| Output Voltage Initial Setpoint                                                             | %    | ± 2                                                                |
| Output Voltage Tolerance                                                                    | %    | ± 3                                                                |
| Line Regulation (typ)                                                                       | mV   | 4                                                                  |
| Load Regulation (typ)                                                                       | mV   | 7                                                                  |
| Output Current (max) $V_o \leq 2.5V$ and $V_{in} > 4.5V$<br>$V_o > 2.5V$ or $V_{in} < 4.5V$ | A    | 40 <sup>(1)</sup>                                                  |
|                                                                                             |      | 30 <sup>(1)</sup>                                                  |
| Output Power (max)                                                                          | W    | 150                                                                |
| External Load Capacitance                                                                   | uF   | 200 - 2000                                                         |
| Ripple & Noise (typ)                                                                        | mVpp | 20                                                                 |
| Transient Response                                                                          |      | 500 mV, 100 $\mu$ s (25% to 75% step Load; 10A/ $\mu$ s)           |
| Switching Frequency (fixed)                                                                 | kHz  | 600                                                                |
| Overcurrent Protection Threshold (Hiccup)                                                   | A    | 50                                                                 |
| <b>Environmental</b>                                                                        |      |                                                                    |
| Operating Temperature (Tc)                                                                  | °C   | -40 to 115                                                         |
| Storage Temperature                                                                         | °C   | -55 to 125                                                         |
| Humidity (non condensing)                                                                   | %RH  | 10 - 95                                                            |
| Cooling                                                                                     | -    | Convection or forced air (See product specifications for derating) |
| Isolation Voltage (Input to Output)                                                         | Vdc  | NA                                                                 |
| Isolation Resistance                                                                        | MΩ   | NA                                                                 |
| Shock                                                                                       | -    | MIL-STD-202G, Method 213B, Test Condition I                        |
| Vibration                                                                                   |      | MIL-STD-202G, Method 201A                                          |
| <b>Other</b>                                                                                |      |                                                                    |
| Weight (max)                                                                                | g    | 12                                                                 |
| Size (LxWxH)                                                                                | inch | 1.3 x 0.53 x 0.4                                                   |
|                                                                                             | mm   | 33.0 x 13.5 x 10.2                                                 |
| Moisture Sensitivity Level                                                                  | -    | MSL 2                                                              |
| MTBF - Telcordia SR-332 (100% Load, 40°C)                                                   | MHrs | > 12                                                               |
| Warranty                                                                                    | yrs  | 3                                                                  |

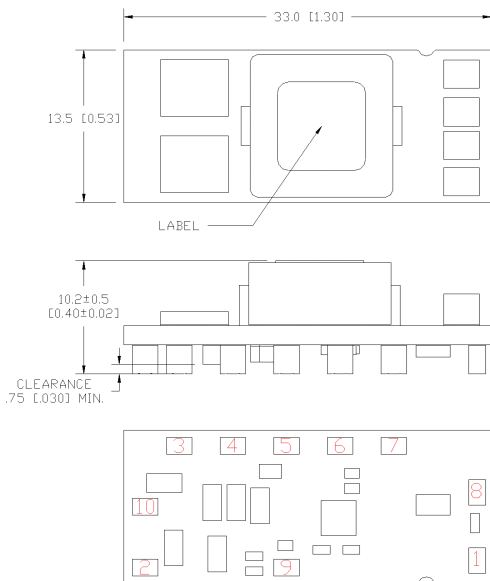
## Notes:

(1) Observe maximum power limit.

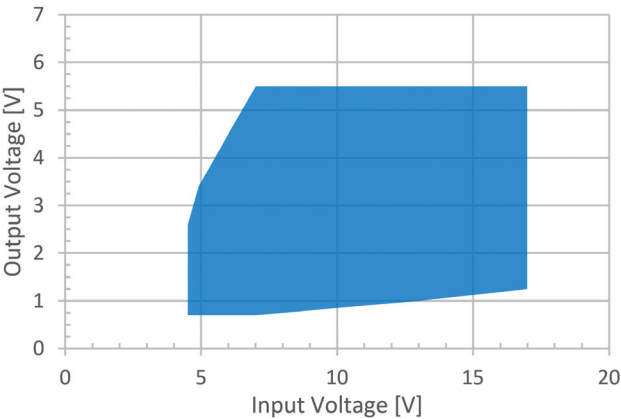
(2) See the website for detailed product [specifications](#).

## Mechanical Specification

Dimensions are in mm [in]. Unless otherwise specified, tolerances are:  
 $x.x \pm 0.5$  [0.02],  $x.xx \pm 0.25$  [[0.010]



## Output vs. Input Voltage Operating Range

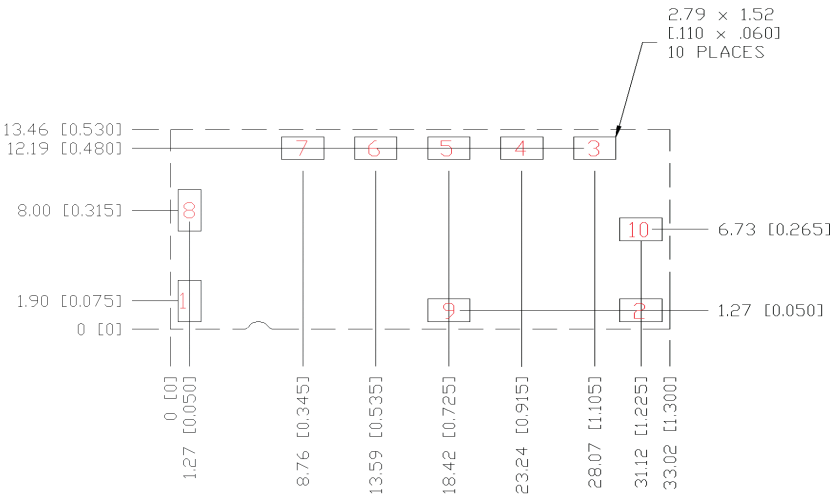


## PIN Assignment

| Pin | Function       | Pin | Function               |
|-----|----------------|-----|------------------------|
| 1   | ON / OFF       | 6   | TRIM                   |
| 2   | VIN            | 7   | SENSE (+)              |
| 3   | SEQ * (option) | 8   | SENSE (-) (Reserved) * |
| 4   | GND            | 9   | PWR GOOD               |
| 5   | VOUT           | 10  | SYNC (Reserved) *      |

\* Contact Technical Support. SMT pins are not populated

## Recommended PCB Hole Pattern



**TDK-Lambda France SAS**

Tel: +33 1 60 12 71 65  
 ttf.fr.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/fr

**Italy Sales Office**

Tel: +39 02 61 29 38 63  
 ttf.it.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/it

**Netherlands**

ttf.nl.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/nl

**TDK-Lambda Germany GmbH**

Tel: +49 7841 666 0  
 tlq.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/de

**Austria Sales Office**

Tel: +43 2256 655 84  
 tlq.at.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/at

**Switzerland Sales Office**

Tel: +41 44 850 53 53  
 tlq.ch.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/ch

**Nordic Sales Office**

Tel: +45 8853 8086  
 tlq.dk.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/dk

**TDK-Lambda UK Ltd.**

Tel: +44 (0) 12 71 85 66 66  
 tlu.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/uk

**TDK-Lambda Ltd.**

Tel: +9 723 902 4333  
 tli.powersolutions@tdk.com  
 www.emea.lambda.tdk.com/il-en

**TDK-Lambda Americas**

Tel: +1 800-LAMBDA-4 or 1-800-526-2324  
 tia.powersolutions@tdk.com  
 www.us.lambda.tdk.com

**TDK Electronics do Brasil Ltda**

Tel: +55 11 3289-9599  
 sales.br@tdk-electronics.tdk.com  
 www.tdk-electronics.tdk.com/en

**TDK-Lambda Corporation**

Tel: +81-3-6778-1113  
 www.jp.lambda.tdk.com

**TDK-Lambda (China) Electronics Co. Ltd.**

Tel: +86 21 6485-0777  
 tlc.powersolutions@tdk.com  
 www.lambda.tdk.com.cn

**TDK-Lambda Singapore Pte Ltd.**

Tel: +65 6251 7211  
 tls.marketing@tdk.com  
 www.sg.lambda.tdk.com

**TDK India Private Limited, Power Supply Division**

Tel: +91 80 4039-0660  
 mathew.philip@tdk.com  
 www.sg.lambda.tdk.com

