

## 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               | Neg             | 96%                         |
| <a href="#">iAH12040A007V-007-R</a> | 3.5 - 17          | 0.7 - 5.0          | 40                  | 150               | Pos             | 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)                      | 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 µs (25% to 75% step Load; 10A/µs)                      |
| 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  |

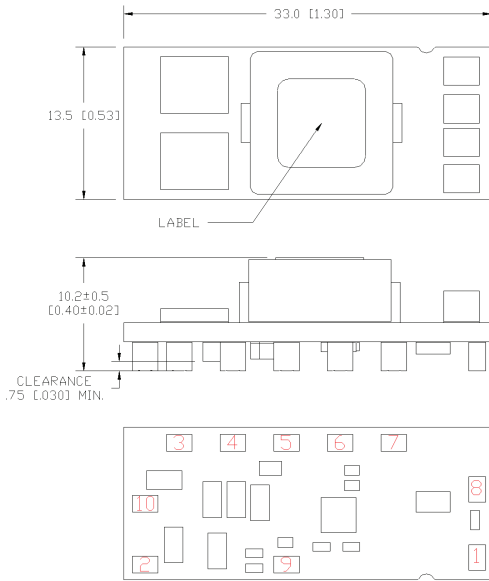
## Notes:

(1) Observe maximum power limit.

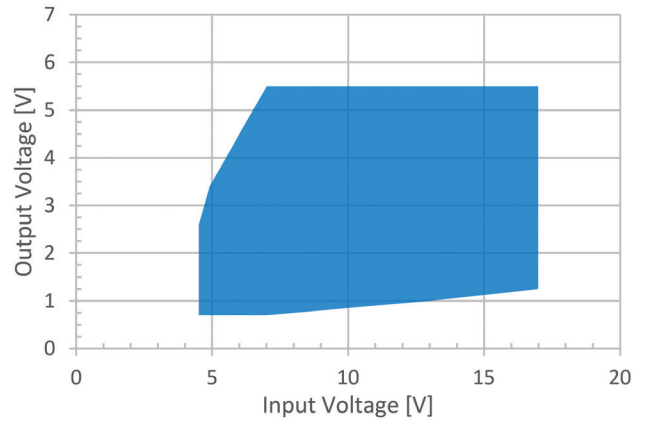
(2) See the website for detailed product [specifications](#).

## 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

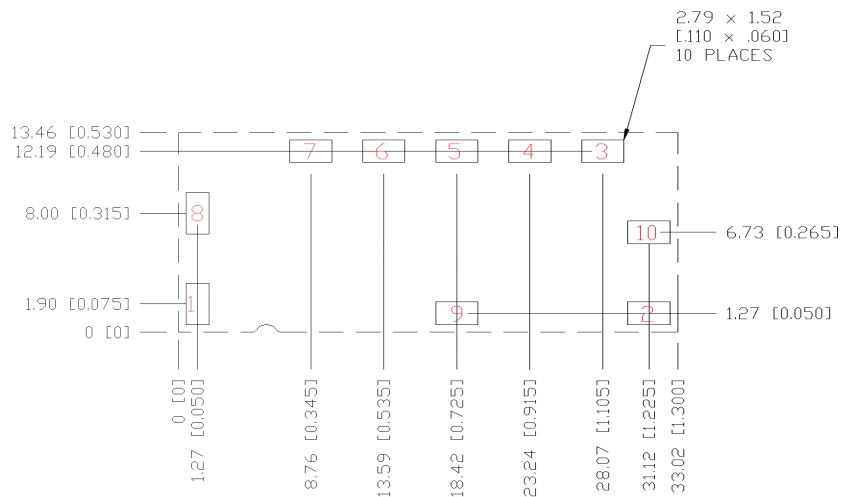


## PIN Assignment

| 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





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