AC – DC

## Features

- Universal input 85-265VAC
- High Efficiency Rating up to 93.5%
- Operating ambient temperature range: -40°C to +85°C
- Approved to UKCA, CE, CB, cURs, FCC, RoHS & REACH
- EN/IEC/UL 62368-1 Safety Approved
- Output Voltage 05 - 53VDC

Ideal Power's 43TxD65-USxy 65W AC/DC Power Supply Module Series are certified to cURus, UKCA, CE, FCC, CB, RoHS, REACH & EN 62368-1/IEC 62368-1/UL 62368-1 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Audio & Video Industries and customised solutions are available upon request.

## Part Number Structure

| TAD/TED<br>TUD/TDD | - | 65 | U | S | 12 | C | - | □ | □ | □ |
|---|---|---|---|---|---|---|---|---|---|---|
| Series Name | | Output Power (W) | Input Voltage (V AC) | Output Quantity | Output Voltage (V DC) | Protection Type | | Fan Options | Application Options | Conformal Coating Options |
| **A:** Open type<br>**E:** Enclosed type<br>**U:** U Chassis type<br>**D:** Din Rail type | | | **U:** Universal 85 ~ 264 | **S:** Single | **05:** 5<br>**7P5:** 7.5<br>**09:** 9<br>**12:**12<br>**15:**15<br>**24:**24<br>**241:** 24<br>**28:**28<br>**36:**36<br>**48:**48<br>**53:**53 | □ : CLASS I<br>B: CLASS II<br><br>□ : CLASS I (※NRND)<br>B: CLASS II (※NRND)<br><br>**※NRND:** Not recommend for new designs | | □: JST<br>**M:** Molex<br>**T:** Terminal block | □: None<br>**C:** OVC III<br>**A:** DC In*<br><br>*(Only for TAD class III) | □ : None<br>R : Conformal Coating |

AC – DC

## Models

| Model Number | Input Range V AC | Output Voltage V DC | Output Current Natural Convection A | Max Output Power W | Input Power @ No Load W | Efficiency % | Maximum Capacitor Load µF |
|---|---|---|---|---|---|---|---|
| 43TAD65US05C<br>43TUD65US05C<br>43TED65US05C<br>43TDD65US05C | 85 ~ 264 | 5 | 10 | 50 | 0.11 | 90 | 20000 |
| 43TAD65US7P5C<br>43TUD65US7P5C<br>43TED65US7P5C<br>43TDD65US7P5C | 85 ~ 264 | 7.5 | 8.67 | 65 | 0.11 | 90 | 11560 |
| 43TAD65US09C<br>43TUD65US09C<br>43TED65US09C<br>43TDD65US09C | 85 ~ 264 | 9 | 7.23 | 65 | 0.11 | 91 | 8033 |
| 43TAD65US12C<br>43TUD65US12C<br>43TED65US12C<br>43TDD65US12C | 85 ~ 264 | 12 | 5.42 | 65 | 0.11 | 92.5 | 4520 |
| 43TAD65US15C<br>43TUD65US15C<br>43TED65US15C<br>43TDD65US15C | 85 ~ 264 | 15 | 4.34 | 65 | 0.11 | 93.5 | 2900 |
| 43TAD65US18C<br>43TUD65US18C<br>43TED65US18C<br>43TDD65US18C | 85 ~ 264 | 18 | 3.62 | 65 | 0.11 | 93.0 | 2015 |
| 43TAD65US24C<br>43TUD65US24C<br>43TED65US24C<br>43TDD65US24C | 85 ~ 264 | 24 | 2.71 | 65 | 0.11 | 93.5 | 1130 |
| 43TAD65US241C<br>36TUD65US241C<br>43TED65US241C<br>43TDD65US241C | 85 ~ 264 | 24 | 2.71 | 65 | 0.11 | 92 | 1130 |
| 43TAD65US28C<br>43TUD65US28C<br>43TED65US28C<br>43TDD65US28C | 85 ~ 264 | 28 | 2.33 | 65 | 0.11 | 93.5 | 830 |
| 43TAD65US281C<br>43TUD65US281C<br>43TED65US281C<br>43TDD65US281C | 85 ~ 264 | 28 | 2.33 | 65 | 0.11 | 91.5 | 830 |
| 43TAD65US36C<br>43TUD65US36C<br>43TED65US36C<br>43TDD65US36C | 85 ~ 264 | 36 | 1.81 | 65 | 0.11 | 92.5 | 520 |
| 43TAD65US48C<br>43TUD65US48C<br>43TED65US48C<br>43TDD65US48C | 85 ~ 264 | 48 | 1.36 | 65 | 0.11 | 93 | 285 |
| 43TAD65US53C<br>43TUD65US53C<br>43TED65US53C<br>43TDD65US53C | 85 ~ 264 | 53 | 1.24 | 65 | 0.11 | 92.5 | 235 |

## Input Specifications

| Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating input voltage range | AC input<br>DC input | 85<br>120 | | 264<br>370 | VAC<br>VDC |
| Input frequency | AC input | 47 | | 63 | Hz |
| Input current | 100VAC and Full Load<br>240VAC and Full Load | | | 1.6<br>0.9 | A |
| No load input power | 230VAC | | 0.11 | | W |
| Leakage current | 264VAC | | 75 | | µA |
| Start up time | | | | 1000 | ms |
| Rise time | | | 200 | | ms |
| Hold up time | 115VAC and Full Load | | 16 | | ms |
| Input inrush current | 230VAC | | 60 | | A |
| Input protection | Internal fuse in line and neutral | | T3.15A/250VAC | | |

## Output Specifications

| Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Output power | | | | | 65 | W |
| Initial set voltage accuracy | 230VAC and Full Load | | -1.0 | | +1.0 | % |
| Line regulation | Low Line to High Line at Full Load | | -0.2 | | +0.2 | % |
| Load regulation | No Load to Full Load | 5Vout | -0.7 | | +0.7 | % |
| | | Others | -0.5 | | +0.5 | % |
| | 10% Load to 90% Load | 5Vout | -0.6 | | +0.6 | % |
| | | Others | -0.4 | | +0.4 | % |
| Voltage adjustability | Single output | 53Vout | -20 | | +10 | % |
| | | Others | -10 | | +10 | % |
| Minimum load | | | | 0 | | |
| Ripple and noise | Measured by 20MHz bandwidth | | | | | mVp-p |
| | With a 1µF/25V 1206 X7R MLCC | 5Vout, 7.5Vout, 9Vout | | 75 | | mVp-p |
| | | 12Vout, 15Vout, 18Vout | | 75 | | mVp-p |
| | With a 1µF/50V 1206 X7R MLCC | 24Vout, 28Vout, 36Vout | | 75 | | mVp-p |
| | With a 0.1µF/100V 1206 X7R MLCC | 48Vout, 53Vout | | 100 | | mVp-p |
| Temperature coefficient | | | -0.02 | | +0.02 | %/°C |
| Transient response | Load step from 50 ~ 75% change at 2.5A/µs | Peak deviation | | | 3 | % Vout |
| | | Recovery time | | 600 | | µs |
| Over voltage protection | % of Vout(nom); Latch mode | | 125 | | 140 | % |
| Over load protection | % of maximum Iout rated; Hiccup mode | | | 145 | | % |
| Short circuit protection | | | Continuous, automatics recovery | | | |

## General Specifications

| Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Isolation voltage | 1 minute | Input to Output | 3000 | | | V AC |
| | (Reinforced insulation) | Input (Output) to F.G | 2500 | | | |
| Isolation resistance | 500V DC | | 0.1 | | | GΩ |
| Switching frequency | 230VAC, Full load | 5Vout | | 60 | | kHz |
| | | 7.5Vout | | 80 | | |
| | | 9Vout | | 70 | | |
| | | Others | | 120 | | |
| Safety approvals | IEC/ EN/ UL 62368-1 | | | | | UL:E193009<br>CB:UL(Demko) |
| Weight | 43TAD | | | | | 117g (4.13oz) |
| | 43TUD | | | | | 157g (5.54oz) |
| | 43TED | | | | | 172g (6.07oz) |
| | 43TDD | | | | | 193g (6.81oz) |
| MTBF | MIL-HDBK-217F Ta=25℃, Full load | | | | | 1.494 x $10^5$ hrs |

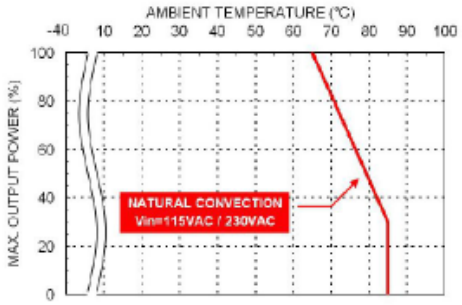
## Environmental Specifications

| Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Operating ambient temperature | Natural Convection | With derating | -40 | | +85 | ℃ |
| Storage temperature range | | | -40 | | +85 | ℃ |
| Operating altitude | | | | | 5000 | m |
| Shock | | | | | IEC60068-2-27 | |
| Vibration | | | | | IEC60068-2-6 | |
| Relative humidity | Non-condensing | | | | 5% to 95% RH | |

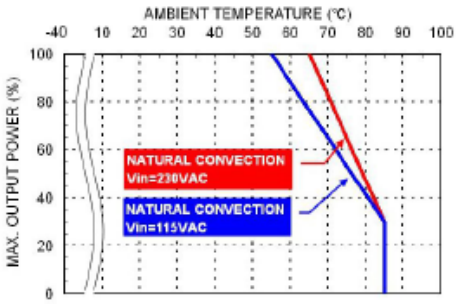
## EMC Specifications

| Parameter | Conditions | | Level | |
|---|---|---|---|---|
| EMI | EN55032 and FCC Part 15<br>External components may be required for class I application. | | Conducted<br>Radiated | Class B<br>Class B |
| Harmonic currents | EN61000-3-2 | Full Load | | Class A |
| Voltage flicker | EN61000-3-3 | | | |
| EMS | EN55024 | and Complies with EN 61850-3 | | |
| ESD | EN61000-4-2 | | | Perf. Criteria A |
| Radiated immunity | EN61000-4-3 | 20 V/m | | Perf. Criteria A |
| Fast transient | EN61000-4-4 | ± 4kV | | Perf. Criteria A |
| Surge | EN61000-4-5 | DM ± 2kV and CM ± 4kV | | Perf. Criteria A |
| Conducted immunity | EN61000-4-6 | 20 Vr.m.s | | Perf. Criteria A |
| Power frequency magnetic field | EN61000-4-8 | 100 A/m | | Perf. Criteria A |
| Dip and interruptions | EN61000-4-11 | | | |
| Damped Oscillatory Wave | EN61000-4-18 | DM ± 1kV and CM ± 2.5kV | | Perf. Criteria A |

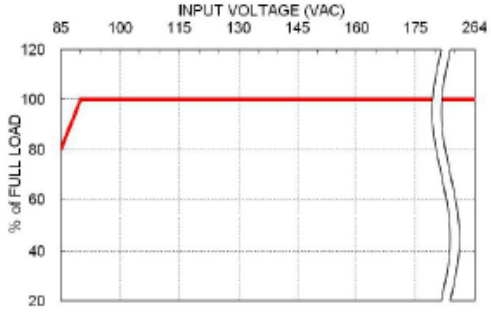
## Characteristic Curve



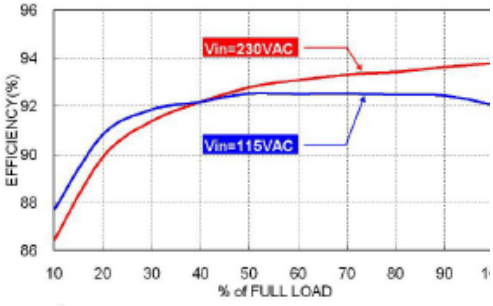

43TAD65 & 43TUD65 Derating Curve vs. Ambient Temperature



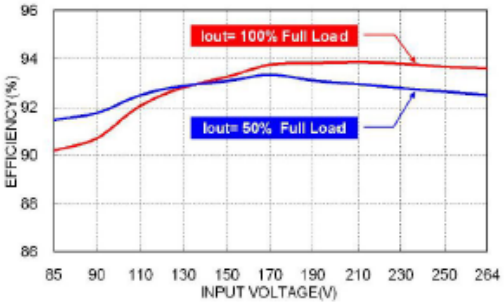

43TED65 & 43TDD65 Derating Curve vs. Ambient Temperature




Derating Curve vs. Input Voltage



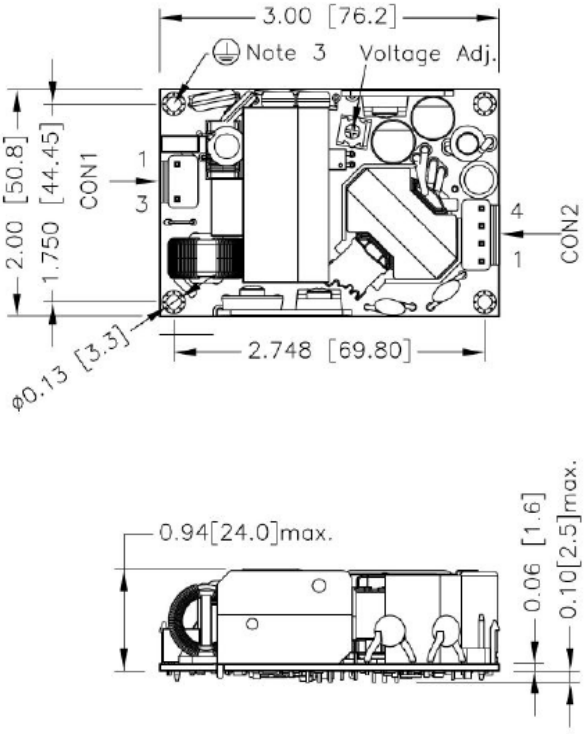

43T□D65US24C Efficiency VS Output Load




43T□D65US24C Efficiency VS Input Voltage

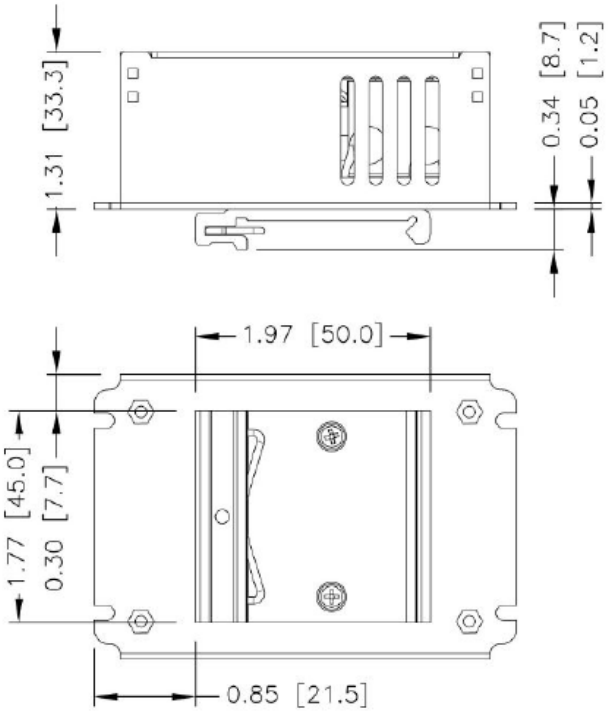
## Mechanical Drawing

43TAD Open Type




FRONT VIEW

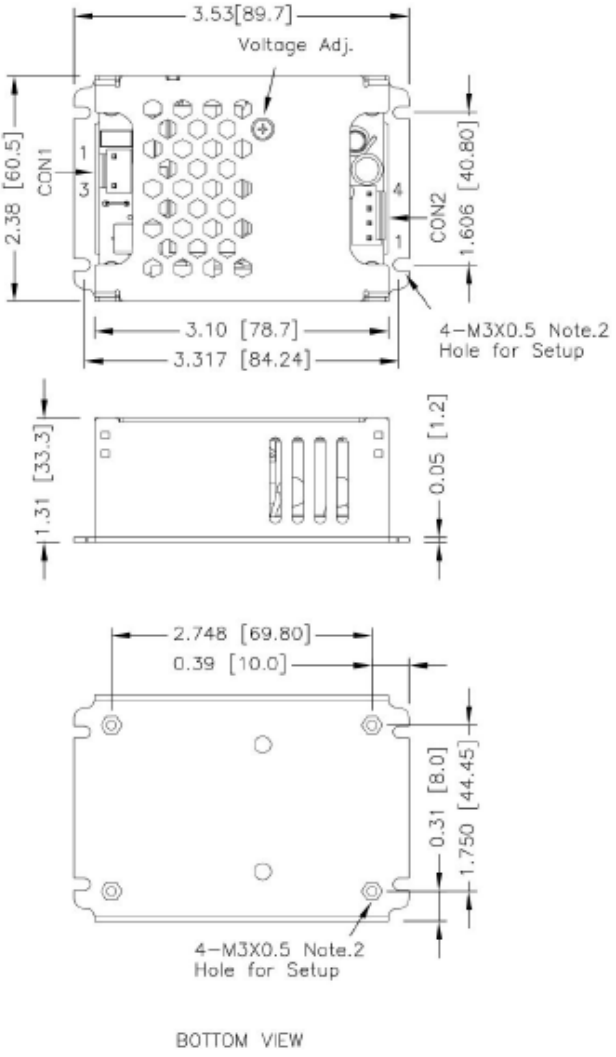
43TDD Din Rail Type




BOTTOM VIEW

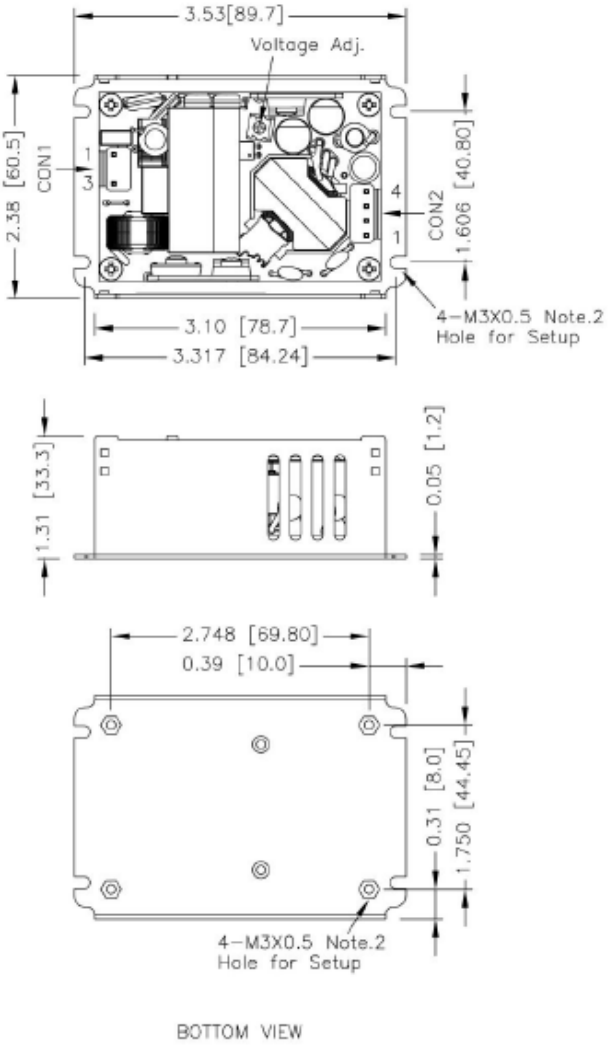
## Mechanical Drawing (continued)

43TED Enclosed Type



## Mechanical Drawing (continued)

43TUD U Chassis Type



| CON1-Input Connector | | |
|---|---|---|
| Pin Number | AC Input | DC Input<br>43T□D65USXXC,<br>43T□D65USXXD |
| Pin 1 | Line | DC+ |
| Pin 3 | Neutral | DC- |

| CON2-Output Connector | |
|---|---|
| Pin 1,2 | -Vout |
| Pin 3,4 | +Vout |

## Connector Options

**Blank:** JST Type
Mates with housing
CON1: **VHR-3N**
CON2: **VHR-4N**

Crimp terminals
CON1: **SVH-21T-P1.1**
CON2: **SVH-21T-P1.1**

**-M** Molex Type
Mates with housing
CON1: **09-50-8031**
CON2: **09-50-8041**

Crimp terminals
CON1: **SD-2478**
CON2: **SD-2478**

**-T** Terminal Block

**Screw locked torque**
**MAX 2Kgf.cm/0.2N.m**

**Wire dimension range**
**26 ~ 16AWG**

AC – DC