



P-DUKE POWER

TAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES
Up to 40 Watts

3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT

+85°C
-40°C
AMBIENT TEMP.



Automation



Datacom



IPC



Industry



Measurement



Telecom



Medical



Automobile



Boat



Charger



PV



Railway

UL US CB CE UK CA



- 3000 VAC
Reinforced Insulation
- ADJ.
Output Voltage
- Internal EN55032
Class B Filter
- LOW Leakage Current
- LOW Standby Power
- Operating Altitude 5000 meter
- Protection Class I Class II
- OCP
- OVP
- SCP

PART NUMBER STRUCTURE

| T | A | D | 40 | U | S | 12 | C | - | □ | □ | □ |
|----------------------|---|----------------|------------------|-----------------------|-----------------|---|--|---|--|---------------------------------|---|
| Application | Package Code | Dimension Code | Output Power (W) | Input Voltage (VAC) | Output Quantity | Output Voltage (VDC) | Protection Type | Connector Options | Application Options | Conformal Coating Options | |
| Industry Application | A: Open type U: U chassis type E: Enclosed type D: Din rail type | | | U: Universal 85 ~ 264 | S: Single | 05:5 7P5:7.5 09:9 12:12 121:12 15:15 151:15 18:18 24:24 28:28 36:36 48:48 53:53 | C: CLASS I D: CLASS II □: CLASS I (※NRND) B: CLASS II (※NRND) ※NRND: Not recommended for new designs | □: JST M: Molex T: Terminal Block | □: None C: OVC III □ A: DC IN* *(Only for TAD CLASS II) | □: None R: Conformal Coating | |

TECHNICAL SPECIFICATION All specifications are typical at 230VAC input, full load and 25°C unless otherwise noted

| Model Number | Input Range | Output Voltage | Output Current Natural Convection | Max. Output Power | Input Power @No Load | Efficiency | Maximum Capacitor Load |
|--|-------------|----------------|-----------------------------------|-------------------|----------------------|------------|------------------------|
| | VAC | VDC | A | W | W | % | μF |
| TAD40US05C TUD40US05C TED40US05C TDD40US05C | 85 ~ 264 | 5 | 8 | 40 | 0.11 | 90 | 16000 |
| TAD40US7P5C TUD40US7P5C TED40US7P5C TDD40US7P5C | 85 ~ 264 | 7.5 | 5.34 | 40 | 0.11 | 90 | 7120 |
| TAD40US09C TUD40US09C TED40US09C TDD40US09C | 85 ~ 264 | 9 | 4.45 | 40 | 0.11 | 91 | 4945 |
| TAD40US12C TUD40US12C TED40US12C TDD40US12C | 85 ~ 264 | 12 | 3.34 | 40 | 0.11 | 92 | 2785 |
| TAD40US121C TUD40US121C TED40US121C TDD40US121C | 85 ~ 264 | 12 | 3.34 | 40 | 0.11 | 90 | 2785 |
| TAD40US15C TUD40US15C TED40US15C TDD40US15C | 85 ~ 264 | 15 | 2.67 | 40 | 0.11 | 92 | 1780 |
| TAD40US151C TUD40US151C TED40US151C TDD40US151C | 85 ~ 264 | 15 | 2.67 | 40 | 0.11 | 90 | 1780 |
| TAD40US18C TUD40US18C TED40US18C TDD40US18C | 85 ~ 264 | 18 | 2.23 | 40 | 0.11 | 91 | 1250 |
| TAD40US24C TUD40US24C TED40US24C TDD40US24C | 85 ~ 264 | 24 | 1.67 | 40 | 0.11 | 92 | 700 |
| TAD40US28C TUD40US28C TED40US28C TDD40US28C | 85 ~ 264 | 28 | 1.43 | 40 | 0.11 | 91 | 510 |
| TAD40US36C TUD40US36C TED40US36C TDD40US36C | 85 ~ 264 | 36 | 1.12 | 40 | 0.11 | 92 | 310 |
| TAD40US48C TUD40US48C TED40US48C TDD40US48C | 85 ~ 264 | 48 | 0.84 | 40 | 0.11 | 93 | 175 |
| TAD40US53C TUD40US53C TED40US53C TDD40US53C | 85 ~ 264 | 53 | 0.77 | 40 | 0.11 | 92.5 | 140 |

| INPUT SPECIFICATIONS | | | | | |
|-------------------------------|----------------------|------|---------------|------|-------|
| Parameter | Conditions | Min. | Typ. | Max. | Unit |
| Operating input voltage range | AC input | 85 | | 264 | VAC |
| | DC input | 120 | | 370 | VDC |
| Input frequency | AC input | 47 | | 63 | Hz |
| Input current | 100VAC and Full Load | | | 1.0 | A |
| | 240VAC and Full Load | | | 0.5 | |
| No load input power | 230VAC | | 0.11 | | Watts |
| Leakage current | 264VAC | | 75 | | μA |
| Start up time | | | | 1000 | ms |
| Rise time | | | 20 | | ms |
| Hold up time | 115VAC and Full Load | | 25 | | ms |
| Input inrush current | 230VAC | | 60 | | A |
| Input protection | Internal fuse | | T3.15A/250VAC | | |

| OUTPUT SPECIFICATIONS | | | | | |
|------------------------------|--|--------------------------------|------|-------|-------|
| Parameter | Conditions | Min. | Typ. | Max. | Unit |
| Output power | | | | 40 | Watts |
| 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 | % |
| | | 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 | | +10 | % |
| | | Others | -20 | +10 | |
| Minimum load | | | 0 | | % |
| Ripple and noise | Measured by 20MHz bandwidth With a 10μF/25V 1206 X7R MLCC | 5Vout, 7.5Vout, 9Vout | 75 | | mVp-p |
| | | 12Vout, 15Vout, 18Vout | 75 | | |
| | With a 1μF/50V 1206 X7R MLCC | 24Vout, 28Vout, 36Vout | 75 | | |
| | With a 0.1μF/100V 1206 X7R MLCC | 48Vout, 53Vout | 150 | | |
| 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 Iout rated; Hiccup mode | | 145 | | % |
| Short circuit protection | | Continuous, automatic recovery | | | |

| GENERAL SPECIFICATIONS | | | | | |
|------------------------|----------------------------------|------------------------|------|----------------------------|------|
| Parameter | Conditions | Min. | Typ. | Max. | Unit |
| Isolation voltage | 1 minute (Reinforced insulation) | Input to Output | 3000 | | VAC |
| | | Input (Output) to F.G. | 2500 | | |
| Isolation resistance | 500VDC | 0.1 | | | GΩ |
| Switching frequency | 230VAC | 5Vout | 70 | | kHz |
| | | Others | 120 | | |
| Safety approvals | IEC/ EN/ UL62368-1 | | | UL:E193009 CB:UL(Demko) | |
| Weight | | TAD | | 114g (4.02oz) | |
| | | TUD | | 154g (5.43oz) | |
| | | TED | | 169g (5.96oz) | |
| | | TDD | | 190g (6.70oz) | |
| MTBF | MIL-HDBK-217F, Full load | | | 3.010 x 10 ⁵ | hrs |

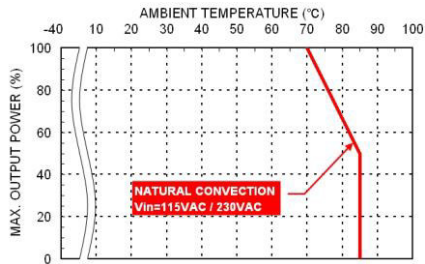
ENVIRONMENTAL SPECIFICATIONS

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

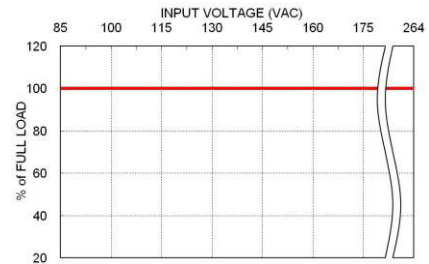
EMC SPECIFICATIONS

| Parameter | Conditions | Level | |
|--------------------------------|--|-----------|------------------|
| EMI | EN55032 and FCC Part 15 | Conducted | Class B |
| | External components may be required for class I application. | Radiated | Class B |
| Harmonic currents | EN61000-3-2 Full Load | | Class A |
| Voltage flicker | EN61000-3-3 | | |
| EMS | EN55035 and Complies with EN61850-3 | | |
| 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 |

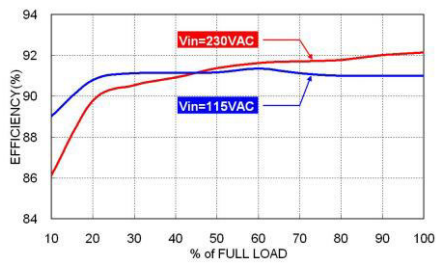
CHARACTERISTIC CURVE



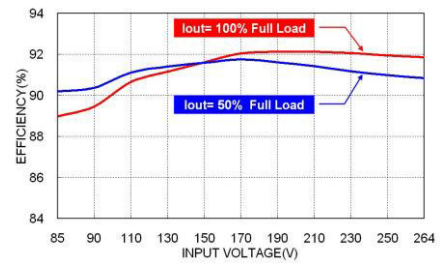
Derating Curve vs. Ambient Temperature



TAD40 Derating Curve vs. Input Voltage



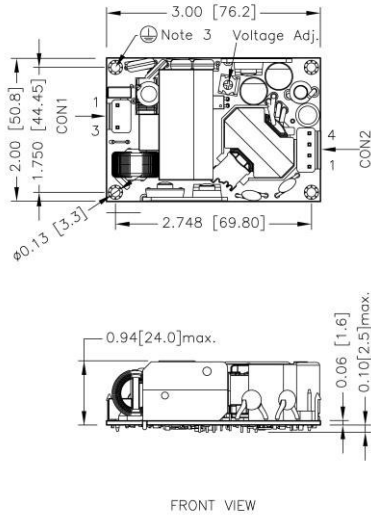
TAD40US24B Efficiency vs. Output Load



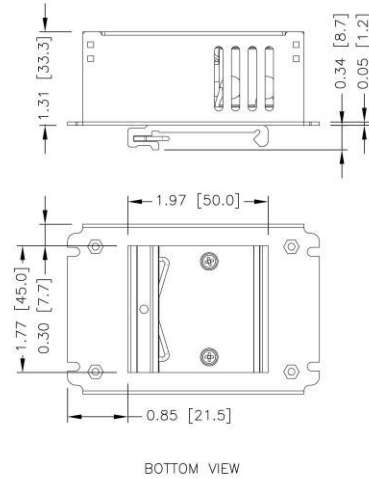
TAD40US24B Efficiency vs. Input Voltage

MECHANICAL DRAWING

TAD Open type



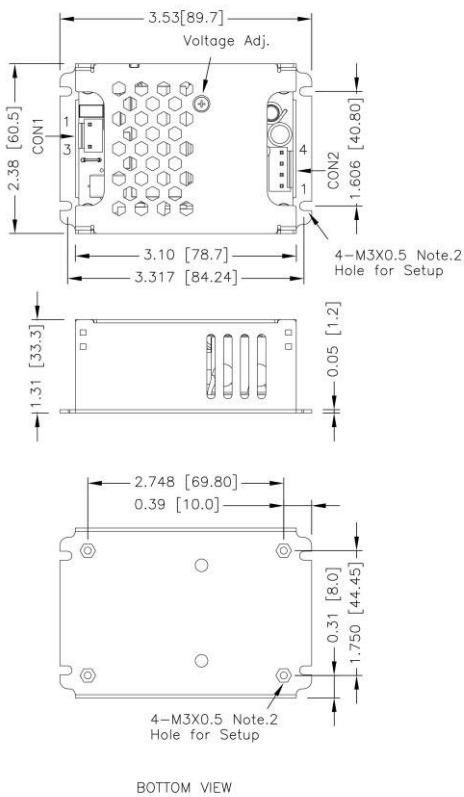
TDD Din rail type



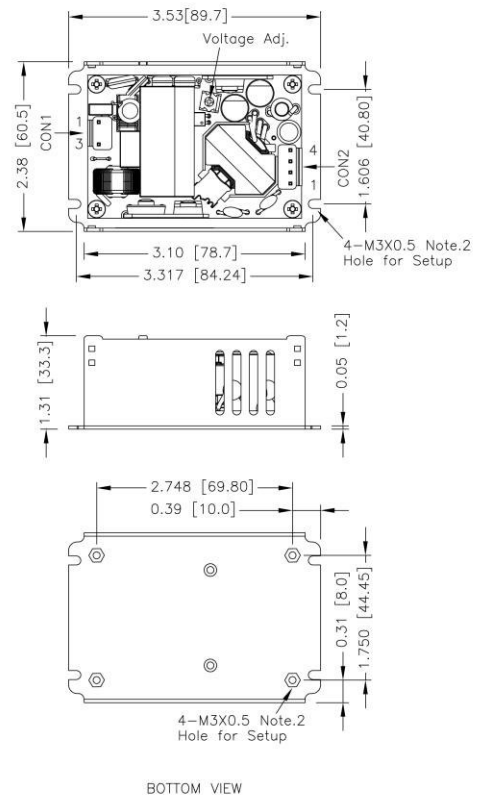
1. All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$] $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]
2. The screw locked torque: MAX 5.0kgf-cm/0.49N-m
3. The screws holes can be considered as PE connection for CLASS I application.

1. All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$] $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]

TED Enclosed type



TUD U chassis type



1. All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$] $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]
2. The screw locked torque: MAX 5.0kgf-cm/0.49N-m

1. All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$] $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]
2. The screw locked torque: MAX 5.0kgf-cm/0.49N-m




CONNECTOR CONNECTIONS

| CON1 – Input Connector | | |
|------------------------|----------|-------------------------|
| Pin Number | AC Input | DC Input |
| | | T□D40USXXC · T□D40USXXD |
| Pin 1 | Line | DC+ |
| Pin 3 | Neutral | DC- |

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

*Either one of four screws holes of Chassis type can be considered as PE connection for CLASS I application.

CONNECTOR OPTIONS

| Blank: | JST Type | -M | Molex Type | -T | Terminal Block |
|---|---|---|---|---|---|
|  | Mates with housing CON1: VHR-3N CON2: VHR-4N Crimp terminals CON1: SVH-21T-P1.1 CON2: SVH-21T-P1.1 |  | Mates with housing CON1: 09-50-8031 CON2: 09-50-8041 Crimp terminals CON1: SD-2478 CON2: SD-2478 |  | Screw locked torque MAX 2Kgf.cm/0.2N.m Wire dimension range 26 ~ 16AWG |