



P-DUKE POWER

TAD180 Series

2 X 3 Inch AC-DC POWER SUPPLIES
Up to 180 Watts

3

YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT

+85°C
-40°C
AMBIENT TEMP.



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway

UL US CB CE UK CA



3000 VAC
Reinforced
Insulation

ADJ.
Output
Voltage

Internal
EN55032
Class
Filter **B**

LOW
Leakage
Current

LOW
Standby
Power

Operating
Altitude
5000
meter

Protection
Class I
Class II

OCP

OVP

SCP

OTP

OVCIII

PART NUMBER STRUCTURE

TAD180

U

S

12

A

- M



Series Name

Universal
Input
(VAC)

Output
Quantity

Output
Voltage
(VDC)

Protection
Type

Package
Options

Application
Options

85-264

Single

12:12V
15:15V
18:18V
24:24V
28:28V
36:36V
48:48V
53:53V

A: CLASS I
B: CLASS II

Open type
E1: Enclosed type
D1: Din rail type

AC Input
C: OVC III (2000m)
G: DC Input

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		Input Power @ No Load	Efficiency	Maximum Capacitor Load
			Natural Convection	Forced Air Cooling With 10 CFM			
			VAC	VDC			
TAD180US12A-M	85 ~ 264	12	12.5	15	0.15	92	10000
TAD180US15A-M	85 ~ 264	15	10	12	0.15	92	6800
TAD180US18A-M	85 ~ 264	18	8.34	10	0.15	92	4700
TAD180US24A-M	85 ~ 264	24	6.25	7.5	0.15	94	2700
TAD180US28A-M	85 ~ 264	28	5.36	6.43	0.15	93	1800
TAD180US36A-M	85 ~ 264	36	4.17	5	0.15	93	1200
TAD180US48A-M	85 ~ 264	48	3.13	3.75	0.15	93	680
TAD180US53A-M	85 ~ 264	53	2.83	3.40	0.15	93	560

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			3	A
	240VAC and Full Load			1.5	A
No load input power	230VAC		0.15		Watts
Leakage current	264VAC			300	μA
Power factor		0.95			
Start up time				1500	ms
Rise time			15		ms
Hold up time	115VAC and 150W	10			ms
Input inrush current	230VAC			100	A
Input protection	Internal fuse			T4.0A/250VAC	

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output power	Forced air cooling with 10CFM			180	Watts
	Natural convection			150	Watts
Output peak power	Peak power			220	Watts
	Peak power time		5		s
	Peak power duty		20		%
	Average operation power (% of Full Load)		55		%
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	-0.5		+0.5	%
	10% Load to 90% Load	-0.4		+0.4	%
Voltage adjustability		-8		+8	%
Minimum load			0		%
Ripple and noise	Measured by 20MHz bandwidth				
	With a 1μF/25V 1206 X7R MLCC	12Vout, 15Vout, 18Vout	120		mVp-p
	With a 1μF/50V 1206 X7R MLCC	24Vout, 28Vout, 36Vout	120		mVp-p
	With a 0.1μF/100V 1206 X7R MLCC	48Vout, 53Vout	250		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response	Load step from 100 ~ 75% change at 2.5A/μs	Peak deviation	3		% Vout
		Recovery time	600		μs
Over voltage protection	% of Vout(nom); Latch mode	115		135	%
Over load protection	% of Iout rated; Hiccup mode		150		%
Short circuit protection					Continuous, automatics recovery

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute (Reinforced insulation) Input to Output Input (Output) to F.G.	3000 2000			VAC
Isolation resistance	500VDC	0.1			GΩ
Switching frequency	230VAC, Full load		170		kHz
Safety approvals	IEC/ EN/ UL 62368-1			UL:E193009 CB:UL(Demko)	
Weight	Open type Enclosed type Din rail type			162g (5.70oz) 218g (7.70oz) 240g (8.47oz)	
MTBF	MIL-HDBK-217F Ta=25°C, Full load			1.145 x 10 ⁶ hrs	

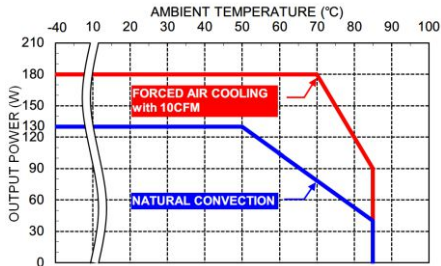
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	With derating	-40		+85	°C
Storage temperature range		-40		+85	°C
Over temperature protection	Internal thermistor; Hiccup mode		125		°C
Operating altitude				5000	m
Thermal shock				MIL-STD-810F	
Shock				IEC60068-2-27	
Vibration				IEC60068-2-6	
Relative humidity	Non-condensing			5% to 95% RH	

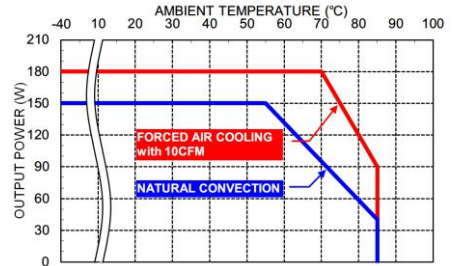
EMC SPECIFICATIONS

Parameter	Conditions	Level	
EMI	EN55032 and FCC Part 15	Conducted Radiated	Class B Class A Class D
Harmonic currents	EN61000-3-2 Full Load		Class D
Voltage flicker	EN61000-3-3		
EMS	EN55035		
ESD	EN61000-4-2		Perf. Criteria A
Radiated immunity	EN61000-4-3 20 V/m		Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV		Perf. Criteria A
Surge	EN61000-4-5 DM ± 1kV and CM ± 2kV		Perf. Criteria A
Conducted immunity	EN61000-4-6 20 Vr.m.s		Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 30A/m		Perf. Criteria A
Dip and interruptions	EN61000-4-11		

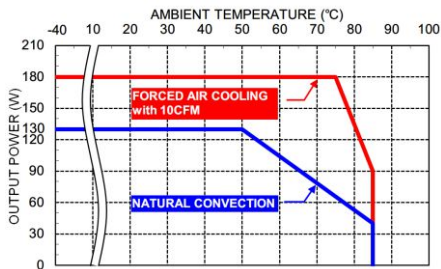
CHARACTERISTIC CURVE



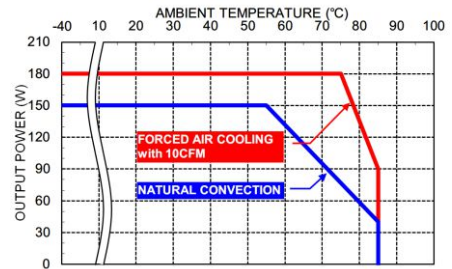
Derating Curve vs. Ambient Temperature
Vin=115VAC Open type



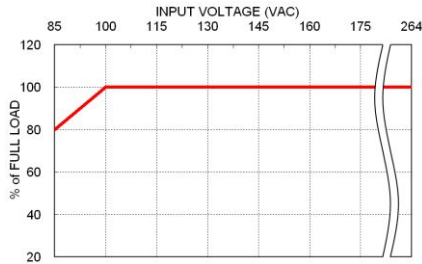
Derating Curve vs. Ambient Temperature
Vin=230VAC Open type



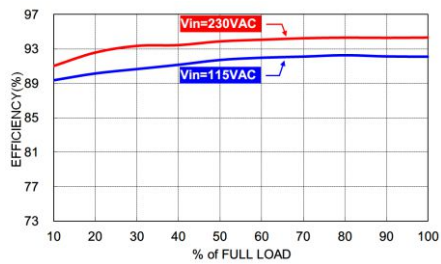
Derating Curve vs. Ambient Temperature
Vin=115VAC Enclosed type / Din rail type



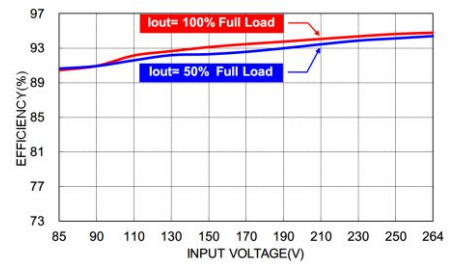
Derating Curve vs. Ambient Temperature
Vin=230VAC Enclosed type / Din rail type



Derating Curve vs. Input Voltage
TAD180



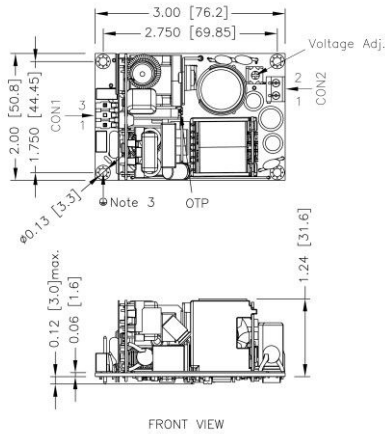
Efficiency vs. Output Load
TAD180US24 with Forced air cooling



Efficiency vs. Input Voltage
TAD180US24 with Forced air cooling

MECHANICAL DRAWING

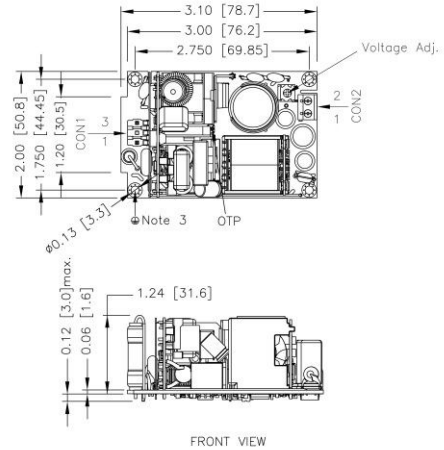
Open type- AC Input



FRONT VIEW

1. All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
 x.xxx±0.01 [x.xx±0.25]
- 2.The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m
- 3.The screws holes can be considered as PE connection for CLASS I application.

Open type -DC Input

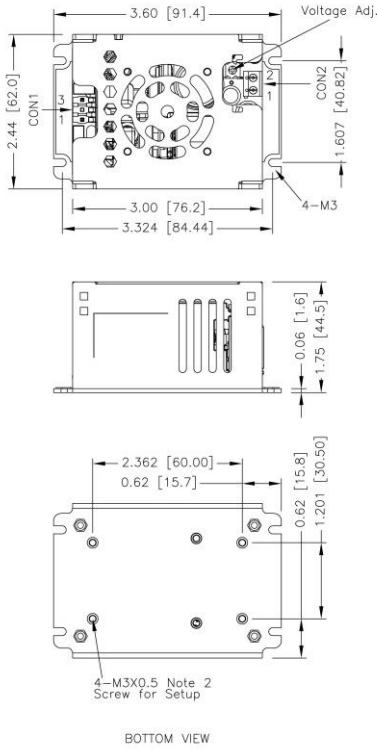


FRONT VIEW

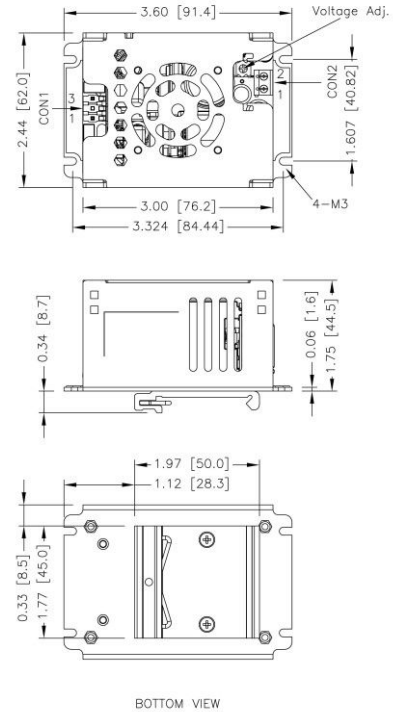
1. All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
 x.xxx±0.01 [x.xx±0.25]
- 2.The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m
- 3.The screws holes can be considered as PE connection for CLASS I application.

MECHANICAL DRAWING

Enclosed type



Din rail type



- All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]
 $x.xxx \pm 0.01$ [$x.xx \pm 0.25$]
- The screw locked torque: MAX 5Kgf.cm/0.49N.m
- The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m

- All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]
 $x.xxx \pm 0.01$ [$x.xx \pm 0.25$]
- The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m

CONNECTOR CONNECTIONS

CONNECTORS CONNECTIONS

CON1 – Input Connector

Pin Number	AC Input	DC Input
Pin 3	Line	DC+
Pin 1	Neutral	DC-

Mates with
Molex housing : **09-93-0300, 09-50-3031, 09-50-8031**
Molex crimp terminals : **2478**

CON2 – Output Connector

Pin 1	+Vout
Pin 2	-Vout

Mates with
Screw locked torque MAX 2.5Kgf.cm/0.25N.m
Wire dimension range 24 ~ 14AWG