



Power Mate Technology, Inc TAD65 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES
Up to 65 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	65	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 15:15 18:18 24:24 241:24 28:28 281:28 36:36 48:48 53:53	C: CLASS I D: CLASS II □: CLASS I (※NRND) B: CLASS II (※NRND)		□: JST M: Molex T: Terminal Block	□: None C: OVC III A: DC IN* *(Only for TAD CLASS II)	□: None R: Conformal Coating
※NRND: Not recommended for new designs											

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

Model Number	Input Range VAC	Output Voltage VDC	Output Current Natural Convection A	Max. Output Power W	Input Power @No Load W	Efficiency %	Maximum Capacitor Load μF
TAD65US05C TUD65US05C TED65US05C TDD65US05C	85 ~ 264	5	10	50	0.11	90	20000
TAD65US7P5C TUD65US7P5C TED65US7P5C TDD65US7P5C	85 ~ 264	7.5	8.67	65	0.11	90	11560
TAD65US09C TUD65US09C TED65US09C TDD65US09C	85 ~ 264	9	7.23	65	0.11	91	8033
TAD65US12C TUD65US12C TED65US12C TDD65US12C	85 ~ 264	12	5.42	65	0.11	92.5	4520
TAD65US15C TUD65US15C TED65US15C TDD65US15C	85 ~ 264	15	4.34	65	0.11	93.5	2900
TAD65US18C TUD65US18C TED65US18C TDD65US18C	85 ~ 264	18	3.62	65	0.11	93.0	2015
TAD65US24C TUD65US24C TED65US24C TDD65US24C	85 ~ 264	24	2.71	65	0.11	93.5	1130
TAD65US241C TUD65US241C TED65US241C TDD65US241C	85 ~ 264	24	2.71	65	0.11	92	1130
TAD65US28C TUD65US28C TED65US28C TDD65US28C	85 ~ 264	28	2.33	65	0.11	93.5	830
TAD65US281C TUD65US281C TED65US281C TDD65US281C	85 ~ 264	28	2.33	65	0.11	91.5	830
TAD65US36C TUD65US36C TED65US36C TDD65US36C	85 ~ 264	36	1.81	65	0.11	92.5	520

Model NumCer	Input Range VAC	Output Voltage VDC	Output Current Natural Convection A	Max. Output Power W	Input Power @No Load W	Efficiency %	Maximum Capacitor Load μF
TAD65US48C TUD65US48C TED65US48C TDD65US48C	85 ~ 264	48	1.36	65	0.11	93	285
TAD65US53C TUD65US53C TED65US53C TDD65US53C	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	85		264	VAC
	DC input	120		370	VDC
Input frequency	AC input	47		63	Hz
Input current	100VAC and Full Load			1.6	A
	240VAC and Full Load			0.9	
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		16		ms
Input inrush current	230VAC		60		A
Input protection	Internal fuse			T3.15A/250VAC	

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output power				65	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	%
		Other		+0.5	
		s		+0.6	
	10% Load to 90% Load	5Vout		+0.4	
Voltage adjustability	Single output	53Vout		+10	%
		Others		+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 36Vout With a 0.1μF/100V 1206 X7R MLCC	24Vout, 28Vout,	75		
		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 Input (Output) to F.G.	3000 2500			VAC
Isolation resistance	500VDC	0.1			GΩ
Switching frequency	230VAC 5Vout 7.5Vout 9Vout Others		60 80 70 120		kHz
Safety approvals	IEC/ EN/ UL 62368-1			UL:E193009 CB:UL(Demko)	
Weight	TAD TUD TED TDD			117g (4.13oz) 157g (5.54oz) 172g (6.07oz) 193g (6.81oz)	
MTBF	MIL-HDBK-217F, Full load			1.494 x 10 ⁶ hrs	

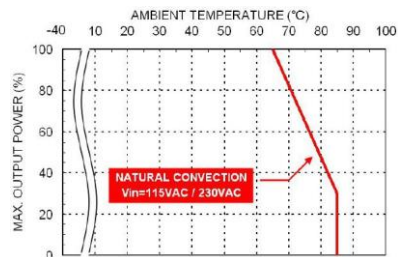
ENVIRONMENTAL SPECIFICATIONS

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	

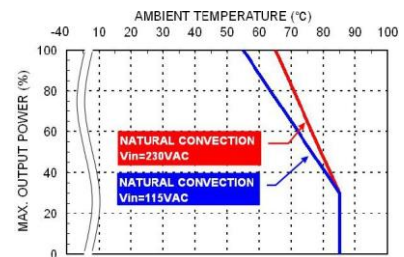
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032 and FCC Part 15 External components may be required for class I application.	Conducted Radiated Class B 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

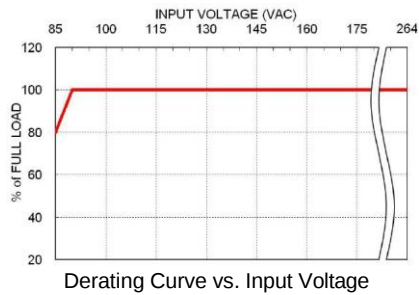
CHARACTERISTIC CURVE



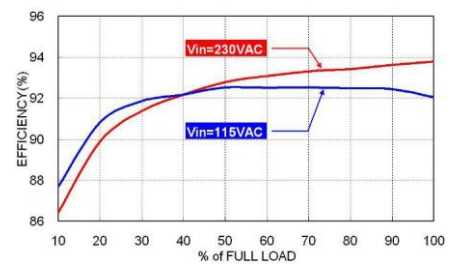
TAD65 & TUD65 Derating Curve vs. Ambient Temperature



TED65 & TDD65 Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



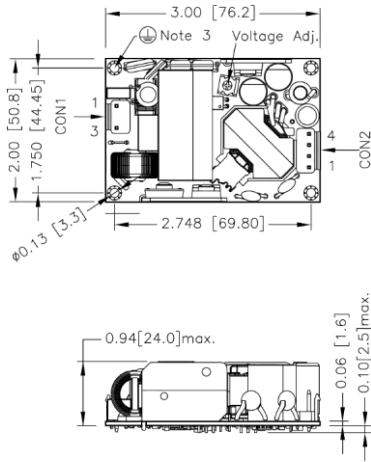
TAD65US24C Efficiency VS Output Load



TAD65US24C Efficiency VS Input Voltage

MECHANICAL DRAWING

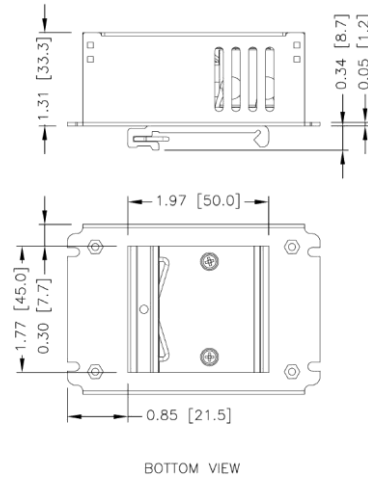
TAD Open type



FRONT VIEW

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.

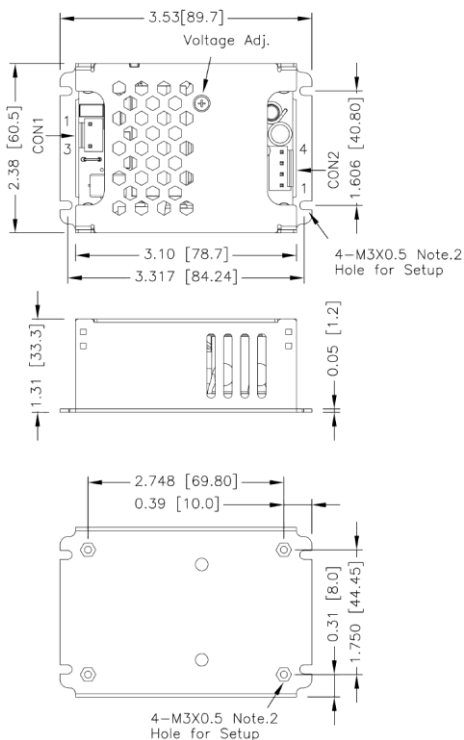
TDD Din rail type



BOTTOM VIEW

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

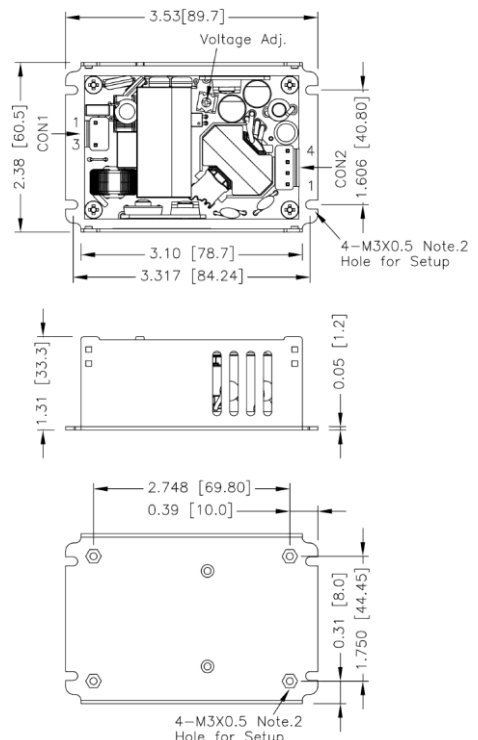
TED Enclosed type



BOTTOM VIEW

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

TUD U chassis type



BOTTOM VIEW

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□D65USXXC、T□D65USXXD
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

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

