



P-DUKE POWER

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



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
Industry Application	A: Open type			U:Universal	S:Single	05:5	C:CLASS I		 : JST	 : None	 : None
	U: U chassis type			85 ~ 264		7P5:7.5	D:CLASS II		M: Molex	C: OVC III	R: Conformal
	E: Enclosed type					09:9			T: Terminal	A: DC IN*	Coating
	D: Din rail type					12:12	 :CLASS I (※NRND)		Block	*(Only for TAD CLASS II)	
						15:15	B:CLASS II (※NRND)				
						18:18					
						24:24	※NRND: Not recommended				
						241:24	for new designs				
						28:28					
						281:28					
					36:36						
					48:48						
					53:53						

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
TAD65US05C	85 ~ 264	5	10	50	0.11	90	20000
TUD65US05C							
TED65US05C							
TDD65US05C							
TAD65US7P5C	85 ~ 264	7.5	8.67	65	0.11	90	11560
TUD65US7P5C							
TED65US7P5C							
TDD65US7P5C							
TAD65US09C	85 ~ 264	9	7.23	65	0.11	91	8033
TUD65US09C							
TED65US09C							
TDD65US09C							
TAD65US12C	85 ~ 264	12	5.42	65	0.11	92.5	4520
TUD65US12C							
TED65US12C							
TDD65US12C							
TAD65US15C	85 ~ 264	15	4.34	65	0.11	93.5	2900
TUD65US15C							
TED65US15C							
TDD65US15C							
TAD65US18C	85 ~ 264	18	3.62	65	0.11	93.0	2015
TUD65US18C							
TED65US18C							
TDD65US18C							
TAD65US24C	85 ~ 264	24	2.71	65	0.11	93.5	1130
TUD65US24C							
TED65US24C							
TDD65US24C							
TAD65US241C	85 ~ 264	24	2.71	65	0.11	92	1130
TUD65US241C							
TED65US241C							
TDD65US241C							
TAD65US28C	85 ~ 264	28	2.33	65	0.11	93.5	830
TUD65US28C							
TED65US28C							
TDD65US28C							
TAD65US281C	85 ~ 264	28	2.33	65	0.11	91.5	830
TUD65US281C							
TED65US281C							
TDD65US281C							
TAD65US36C	85 ~ 264	36	1.81	65	0.11	92.5	520
TUD65US36C							
TED65US36C							
TDD65US36C							

Model NumCer	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
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	-0.7		+0.7	%	
				+0.5		
	10% Load to 90% Load	-0.6		+0.6		
				+0.4		
Voltage adjustability	Single output	-20		+10	%	
		-10		+10		
Minimum load			0		%	
Ripple and noise	Measured by 20MHz bandwidth				mVp-p	
	With a 10μF/25V 1206 X7R MLCC		75			
	With a 1μF/50V 1206 X7R MLCC		75			
	With a 0.1μF/100V 1206 X7R MLCC		75			
Temperature coefficient		-0.02		+0.02	%/°C	
Transient response	Load step from 50 ~ 75% change at 2.5A/μs			3	% Vout	
			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/ UL60950-1, 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	

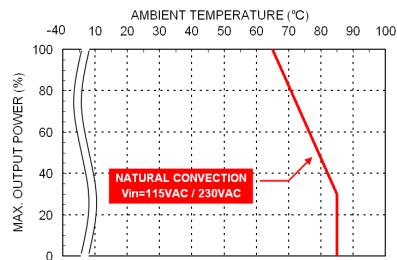
ENVIRONMENTAL SPECIFICATIONS

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	

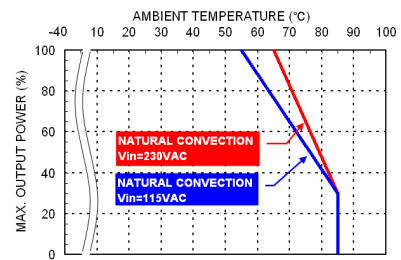
EMC SPECIFICATIONS

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 Air ± 15kV and Contact ± 6kV	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

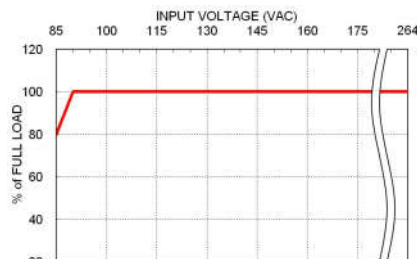
CHARACTERISTIC CURVE



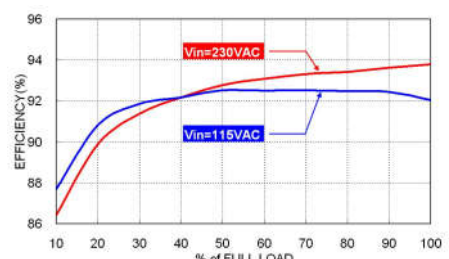
TAD65 & TUD65 Derating Curve vs. Ambient Temperature



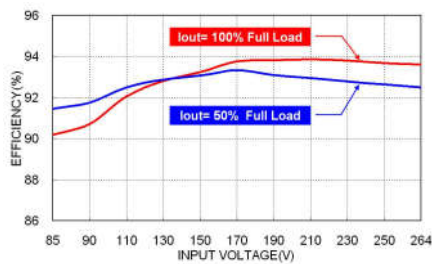
TED65 & TDD65 Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



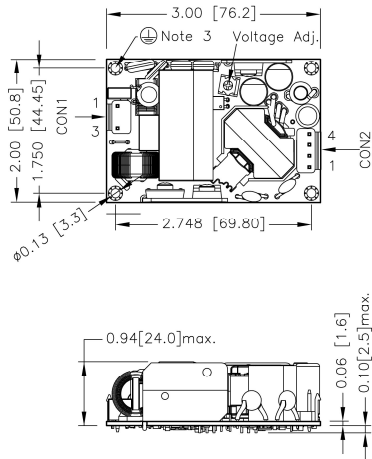
TD65US24C Efficiency VS Output Load



TD65US24C Efficiency VS Input Voltage

MECHANICAL DRAWING

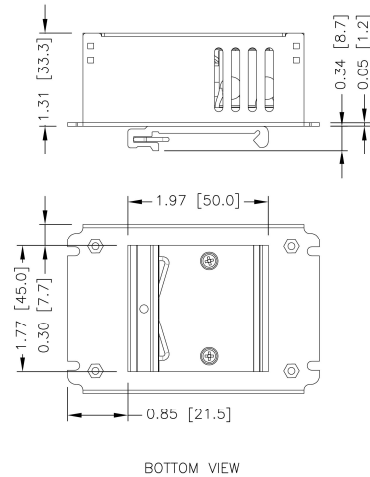
TAD Open type



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.

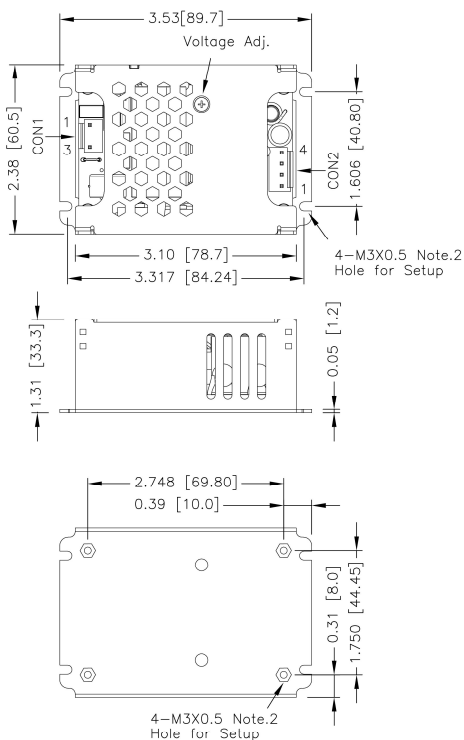
TDD Din rail type



BOTTOM VIEW

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

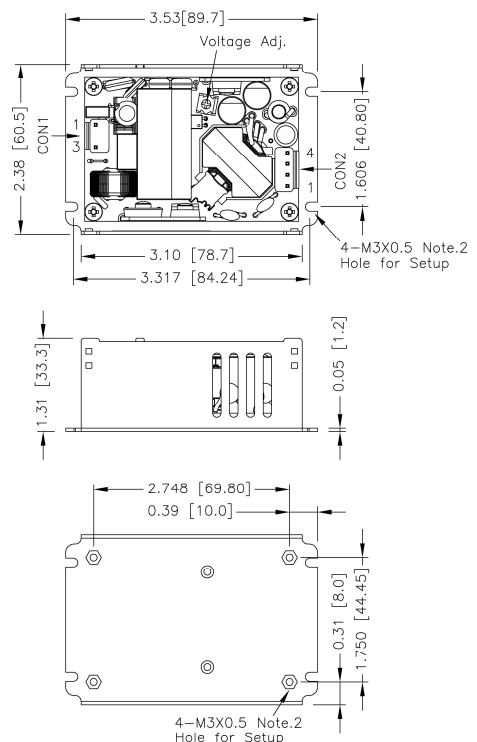
TED Enclosed type



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

Clank: 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: **09-50-8021**



Crimp terminals

CON1: **SD-2478**

CON2: **SD-2478**

-T

Terminal Block



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

Wire dimension range
18 ~ 14AWG