



P-DUKE POWER

TAD50 Series

1.5 X 3 Inch AC-DC POWER SUPPLIES
Up to 50 Watts

3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



+85°
-40°
AMBIENT TEMP



Automation



Datacom



IPC



Industry



Measurement



Telecom



Medical



Automobile



Boat



Charger



PV



Railway

c **UL** US

CB CE FC



PEAK
POWER

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

OVCIII

PART NUMBER STRUCTURE

TAD50	U	S	12	B	-	J	
Series Name	Universal Input (VAC)	Output Quantity	Output Voltage (VDC)	Protection Type		Connector Options	Application Options
	85 ~ 264	Single	05:5 7P5:7.5 09:9 12:12 15:15 18:18 24:24 36:36 48:48 53:53	A:CLASS I B:CLASS II		J: JST M: Molex T: Terminal Block	☐ : 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 Natural Convection	Max. Output Power	Input Power @No Load	Efficiency	Maximum Capacitor Load
	VAC	VDC	mA	W	mW	%	μF
TAD50US05B	85 ~ 264	5	8000	40	50	90.5	16000
TAD50US7P5B	85 ~ 264	7.5	6670	50	50	90.5	8900
TAD50US09B	85 ~ 264	9	5560	50	50	90.5	6200
TAD50US12B	85 ~ 264	12	4170	50	50	92.5	3500
TAD50US15B	85 ~ 264	15	3340	50	50	92.5	2300
TAD50US18B	85 ~ 264	18	2780	50	100	92.5	1600
TAD50US24B	85 ~ 264	24	2085	50	100	92.5	870
TAD50US36B	85 ~ 264	36	1390	50	100	91.5	390
TAD50US48B	85 ~ 264	48	1045	50	100	91.5	220
TAD50US53B	85 ~ 264	53	950	50	100	91.5	180

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			1.4	A
	240VAC and Full Load			0.8	
Leakage current	264VAC		150		μA
Start up time				1000	ms
Rise time			15		ms
Hold up time	115VAC and Full Load		12		ms
Input inrush current	230VAC		60		A
Input protection	Internal fuse		T3.15A/250VAC		

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output power	Full Load			40	Watts
	Others			50	
Output peak power	Peak power			56	Watts
	5Vout			65	
	7.5Vout			70	
	Others				
	Peak power time		5		s
	Peak power duty		20		%
	Average operation power (% of Full Load)		70		%
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	%
	Others	-0.5		+0.5	
	10% Load to 90% Load	-0.6		+0.6	
	Others	-0.4		+0.4	
Voltage adjustability	Single output	-10		+10	%
	Others	-20		+10	
Minimum load			0		%
Ripple and noise	Measured by 20MHz bandwidth				mVp-p
	With a 10μF/25V 1206 X7R MLCC	5Vout, 7.5Vout, 9Vout	75		
		12Vout, 15Vout, 18Vout	100		
	With a 1μF/50V 1206 X7R MLCC	24Vout, 36Vout	100		
	With a 0.1μF/100V 1206 X7R MLCC	48Vout, 53Vout	100		
Temperature coefficient		-0.02		+0.02	%/°C
Transient response	Load step from 50 ~ 75% change at 2.5A/μs			3	%Vout
	Peak deviation				
	Recovery time		300		μs
Over voltage protection	% of Vout(nom); Latch mode	115		135	%
Over load protection	% of Iout rated; Hiccup mode		165		%
Short circuit protection		Continuous, automatic recovery			

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute (Reinforced insulation)	3000			VAC
	Input to Output	2000			
	Input (Output) to F.G.				
Isolation resistance	500VDC	0.1			GΩ
Switching frequency	230VAC	70		95	kHz
	5Vout	95		120	
	7.5Vout	110		135	
	Others				
Safety approvals	IEC/ EN/ UL 62368-1			UL:E193009 CB:UL(Demko)	
Weight				78g (2.75oz)	
MTBF	MIL-HDBK-217F, Full load			1.487 x 10 ⁶ hrs	

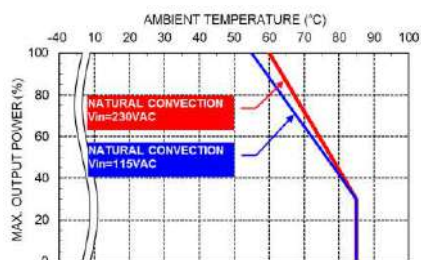
ENVIRONMENTAL SPECIFICATIONS

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

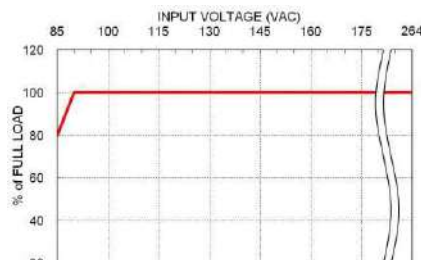
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032 and FCC Part 15	Conducted Radiated
	External components may be required for class I application.	Class B Class B
Harmonic currents	EN61000-3-2	Full Load
Voltage flicker	EN61000-3-3	
EMS	EN55024	
ESD	EN61000-4-2	
Radiated immunity	EN61000-4-3	20 V/m
Fast transient	EN61000-4-4	± 2kV
Surge	EN61000-4-5	DM ± 1kV and CM ± 2kV
Conducted immunity	EN61000-4-6	20 Vr.m.s
Power frequency magnetic field	EN61000-4-8	10 A/m
Dip and interruptions	EN61000-4-11	

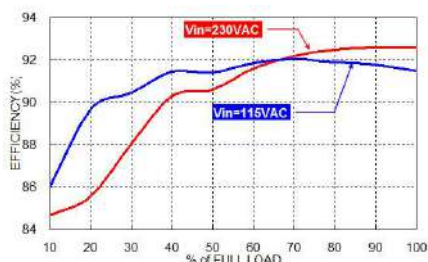
CHARACTERISTIC CURVE



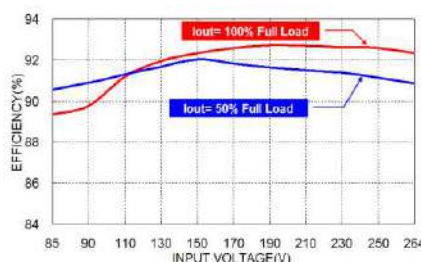
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



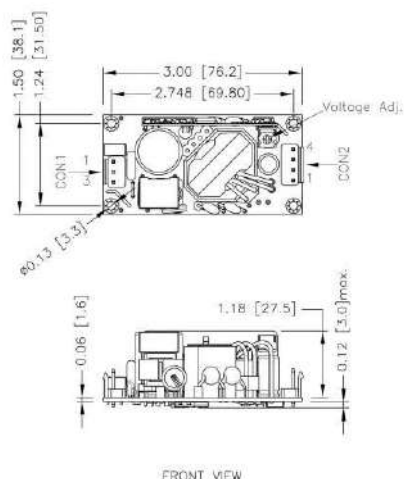
TAD50US12 Efficiency VS Output Load



TAD50US12 Efficiency vs. Input Voltage

MECHANICAL DRAWING

TAD Open type



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

CONNECTOR OPTIONS

-J

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

Mates with

Screw locked torque

MAX 2Kgf.cm/0.2N.m

Wire dimension range

26 ~ 16AWG

