



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



PEAK
POWER

3000
VAC
Reinforced
Insulation

ADJ.
Output
Voltage

Internal
EN55032
Class **B**
Filter

LOW
Standby
Power

LOW
Leakage
Current

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	Peak Power Support 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		☐ JST M: Molex T: Terminal Block	☐ None P: Peak Power	☐ 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 VAC	Output Voltage VDC	Output Current Natural Convection A	Max. Output Power W	Max. Peak Power W	Input Power @ No Load W	Efficiency %	Maximum Capacitor Load μF
TAD65US05C-P TUD65US05C-P TED65US05C-P TDD65US05C-P	85 ~ 264	5	10	50	65	0.11	90	20000
TAD65US7P5C-P TUD65US7P5C-P TED65US7P5C-P TDD65US7P5C-P	85 ~ 264	7.5	8.67	65	90	0.11	90	11560
TAD65US09C-P TUD65US09C-P TED65US09C-P TDD65US09C-P	85 ~ 264	9	7.23	65	90	0.11	91	8033
TAD65US12C-P TUD65US12C-P TED65US12C-P TDD65US12C-P	85 ~ 264	12	5.42	65	90	0.11	92.5	4520
TAD65US15C-P TUD65US15C-P TED65US15C-P TDD65US15C-P	85 ~ 264	15	4.34	65	90	0.11	93.5	2900
TAD65US18C-P TUD65US18C-P TED65US18C-P TDD65US18C-P	85 ~ 264	18	3.62	65	90	0.11	93.0	2015
TAD65US24C-P TUD65US24C-P TED65US24C-P TDD65US24C-P	85 ~ 264	24	2.71	65	90	0.11	93.5	1130
TAD65US241C-P TUD65US241C-P TED65US241C-P TDD65US241C-P	85 ~ 264	24	2.71	65	90	0.11	92	1130
TAD65US28C-P TUD65US28C-P TED65US28C-P TDD65US28C-P	85 ~ 264	28	2.33	65	90	0.11	93.5	830
TAD65US281C-P TUD65US281C-P TED65US281C-P TDD65US281C-P	85 ~ 264	28	2.33	65	90	0.11	91.5	830
TAD65US36C-P TUD65US36C-P TED65US36C-P TDD65US36C-P	85 ~ 264	36	1.81	65	90	0.11	92.5	520
TAD65US48C-P TUD65US48C-P TED65US48C-P TDD65US48C-P	85 ~ 264	48	1.36	65	90	0.11	93	285
TAD65US53C-P TUD65US53C-P TED65US53C-P TDD65US53C-P	85 ~ 264	53	1.24	65	90	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		mW
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	Full Load			65	Watts
Output peak power	Peak power 5Vout			65	Watts
	Peak power Others			90	Watts
	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 5Vout	-0.7		+0.7	%
	Others	-0.5		+0.5	
	10% Load to 90% Load 5Vout	-0.6		+0.6	
	Others	-0.4		+0.4	
Voltage adjustability		-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		
	With a 1μF/50V 1206 X7R MLCC 12Vout,15Vout,18Vout		75		
	With a 0.1μF/100V 1206 X7R MLCC 24Vout, 28Vout, 36Vout		150		
Temperature coefficient	48Vout,53Vout	-0.02		+0.02	%/°C
Transient response	Load step from 50 ~ 75% change at 2.5A/μs			3	%Vout
	Peak deviation		600		μs
	Recovery time				
Over voltage protection	% of Vout(nom); Automatics recovery	125		140	%
Over load protection	% of Iout rated; Hiccup mode		165		%
Short circuit protection		Continuous, automatics 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		60		kHz
		7.5Vout		110		
		9Vout		70		
		Others		120		
Safety approvals	IEC/ EN/ UL 62368-1					UL:E193009 CB:UL(Demko)
Weight		TAD				117g (4.13oz)
		TUD				157g (5.54oz)
		TED				172g (6.07oz)
		TDD				193g (6.81oz)
MTBF	MIL-HDBK-217F, Full load					1.494 x 10 ⁶ hrs

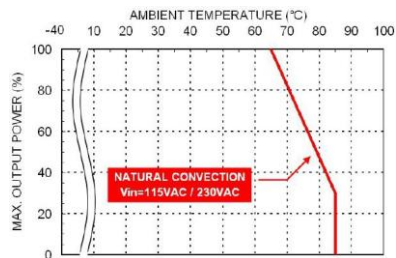
ENVIRONMENTAL SPECIFICATIONS

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	

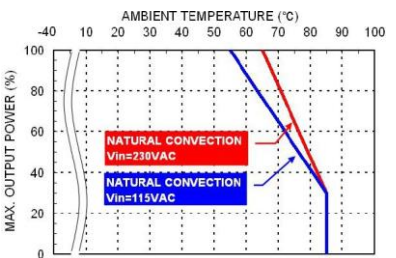
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032 and FCC Part 15 External components may be required for class I application.	Conducted Class B Radiated Class B
Harmonic currents	EN61000-3-2 Full Load	Class A
Voltage flicker	EN61000-3-3	
EMS	EN55024 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

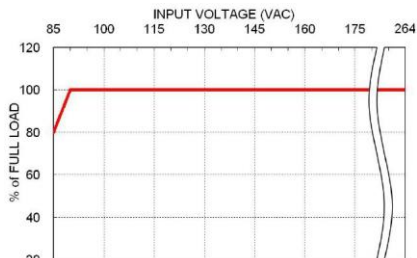
CHARACTERISTIC CURVE



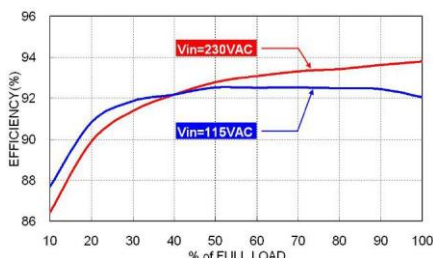
TAD65 & TUD65 Derating Curve vs. Ambient Temperature



TED65 & TDD65 Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



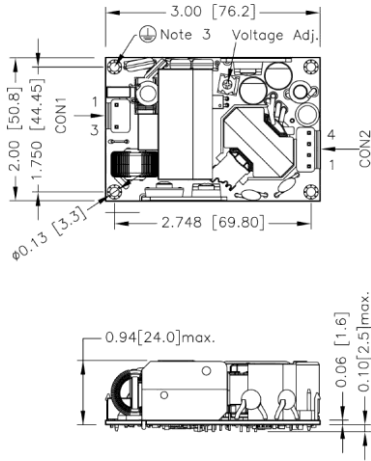
T65US24C-P Efficiency VS Output Load



T65US24C-P Efficiency VS Input Voltage

MECHANICAL DRAWING

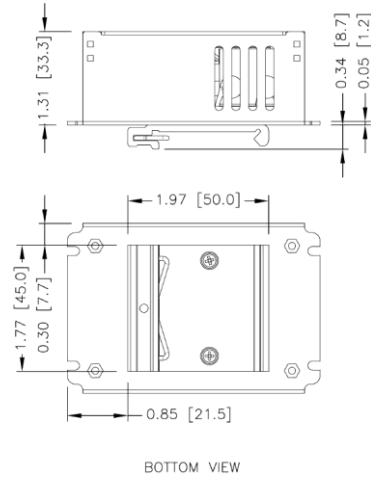
TAD Open type



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.

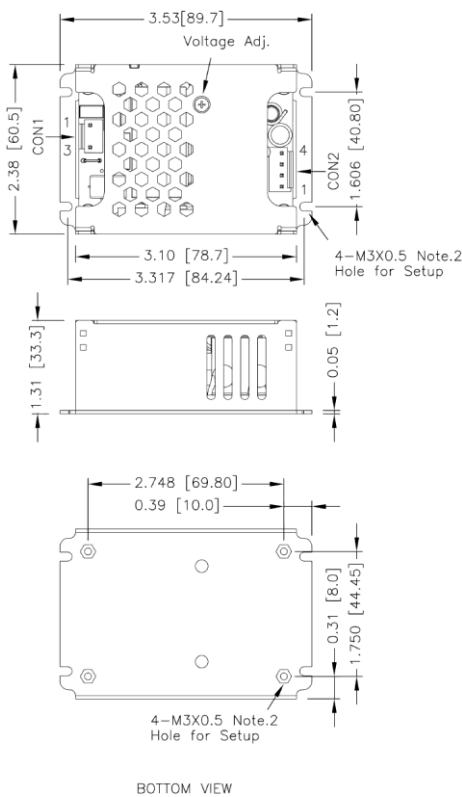
TDD Din rail type



BOTTOM VIEW

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

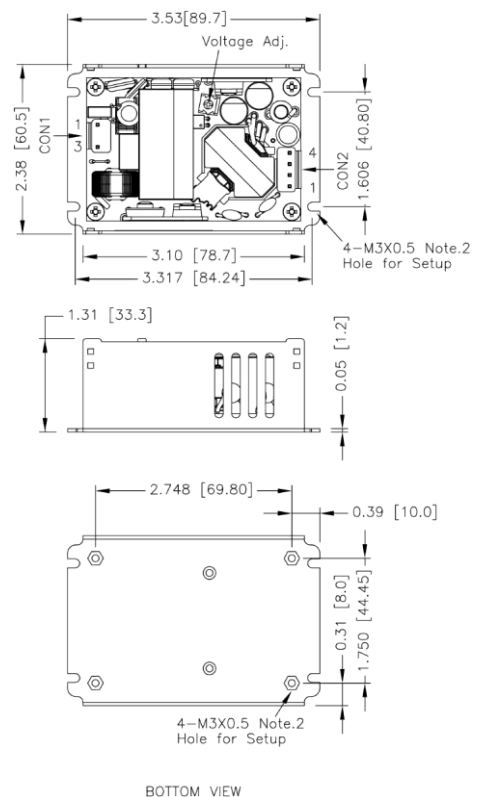
TED Enclosed type



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		CON2 – Output Connector	
Pin 1	Line	Pin 1,2	-Vout
Pin 3	Neutral	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
	Housing		Housing		Mates with
	CON1: VHR-3N		CON1: 09-50-8031		Screw locked torque
	CON2: VHR-4N		CON2: 09-50-8041		MAX 2Kgf.cm/0.2N.m
	Crimp terminals		Crimp terminals		Wire dimension range
	CON1: SVH-21T-P1.1		CON1: SD-2478		26 ~ 16AWG
	CON2: SVH-21T-P1.1		CON2: SD-2478		