Type O: Open Type

Size: 3” x 2” x 1.04”

Type U: U Chassis Type

Size: 3.53” x 2.38” x 1.31”

Type C: Enclosed Type

Size: 3.53” x 2.38” x 1.31”

Type D: Din Rail Type

Size: 3.67” x 2.37” x 1.31”

OPTIONS

- Package Type
  -Open Type
  -U Chassis Type
  -Enclosed Type
  -Din Rail Type
- Output Voltage
- Protection Class

APPLICATIONS

- Medical Equipment
- Wireless Network
- Telecom/Datacom
- Industry Control System
- Measurement Equipment
- Semiconductor Equipment

FEATURES

- Universal Input Voltage Range of 85~264VAC
- Compact ~3 x ~2 Inch Frame
- Low Standby Power Consumption
- Built-In Class B EMI Filter
- Output Voltages Ranging from 5VDC to 53VDC
- 4000VAC Input to Output 2MOPP Insulation
- Low Leakage Current
- Protection Type Class I and Class II
- RoHS Compliant
- Level VI Compliant
- High Operating Altitude of 5000M
- ANSI/AAMI ES60601-1, EN60601-1, IEC60601-1 3rd Edition Safety Approvals
- Over Voltage, Over Load, and Short Circuit Protection

DESCRIPTION

The PSMAD65 series of AC DC power supplies offers up to 65 watts of continuous output power in a compact package. Single output models are available with an input voltage range of 85~264VAC and output voltages ranging from 5VDC to 53VDC. Each model has a built in Class B EMI Filter, low leakage current, and high operating altitude. Models of this series are protected against over voltage, over load, and short circuit conditions, have 4000VAC input to output 2MOPP insulation, and have ANSI/AAMI ES60601-1, EN 60601-1, and IEC60601-1 3rd Edition safety approvals. Four package types are available for this series: open, u-chassis, enclosed, and din rail. Please call factory for ordering details.

MODEL SELECTION TABLE

Model Number(1)	Input Voltage Range	Output Voltage	Output Current(2)	Ripple & Noise	No Load Input Power	Output Power	Efficiency	Protection Type
PSMAD65-05S-X	85~264VAC	5VDC	10A	75 mVp-p	0.11W	50W	90%	Class I
PSMAD65-7.5S-X	85~264VAC	7.5VDC	8.67A	75 mVp-p	0.11W	65W	90%	Class I
PSMAD65-09S-X	85~264VAC	9VDC	7.23A	75 mVp-p	0.11W	65W	91%	Class I
PSMAD65-12S-X	85~264VAC	12VDC	5.42A	75 mVp-p	0.11W	65W	92.5%	Class I
PSMAD65-15S-X	85~264VAC	15VDC	4.34A	75 mVp-p	0.11W	65W	93.5%	Class I
PSMAD65-24S-X	85~264VAC	24VDC	2.71A	75 mVp-p	0.11W	65W	93.5%	Class I
PSMAD65-24S1-X	85~264VAC	24VDC	2.71A	75 mVp-p	0.11W	65W	92%	Class II
PSMAD65-28S-X	85~264VAC	28VDC	2.33A	75 mVp-p	0.11W	65W	93.5%	Class I
PSMAD65-28S1-X	85~264VAC	28VDC	2.33A	75 mVp-p	0.11W	65W	91.5%	Class II
PSMAD65-36S-X	85~264VAC	36VDC	1.81A	75 mVp-p	0.11W	65W	92.5%	Class I
PSMAD65-48S-X	85~264VAC	48VDC	1.36A	150 mVp-p	0.11W	65W	93%	Class I
PSMAD65-53S-X	85~264VAC	53VDC	1.24A	150 mVp-p	0.11W	65W	92.5%	Class I

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
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		W
Leakage Current	264VAC				75	µA
Input Inrush Current	230VAC				60	A
Input Protection	Internal Fuse in Line and Neutral		T3.15A/250VAC			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Initial Set Voltage Accuracy	230VAC and Full Load		-1.0		+1.0	%
Line Regulation	Low Line to High Line		-0.2		+0.2	%
Load Regulation	No Load to Full Load	5Vout	-0.7		+0.7	%
		All others	-0.5		+0.5	
	10% Load to 90% Load	5Vout	-0.6		+0.6	
		All Others	-0.4		+0.4	
Voltage Adjustability	Single Output	53Vout	-20		+10	%
		All Others	-10		+10	
Output Power			See Table			
Output Current			See Table			
Minimum Load			0			%
Ripple & Noise (20MHz BW)	With a 10µF/25V 1206 X7R MLCC	5Vout, 7.5Vout, 9Vout, 12Vout, 15Vout		75		mVp-p
	With a 1µF/50V 1206 X7R MLCC	24Vout, 28Vout, 36Vout		75		
	With a 0.1µF/100V 1206 X7R MLCC	48Vout, 53Vout		150		
Transient Response	Load step from 50~75% change at 2.5A/µs	Peak Deviation			3	% Vout
		Recovery Time		600		µs
Start-Up Time					1000	ms
Rise Time				20		ms
Hold-Up Time	115VAC and Full Load			16		ms
Temperature Coefficient			-0.02		+0.02	%/ºC
PROTECTION						
Short Circuit Protection			Continuous, Automatic Recovery			
Over Load Protection	% of Iout rated; Hiccup mode			145		%
Over Voltage Protection	% of Vout(nom); Latch mode		125		140	%
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	Natural convention with derating		-40		+85	ºC
Storage Temperature Range			-40		+85	ºC
Relative Humidity	Non-Condensing		5		95	%RH
Operating Altitude					5000	M
Shock			IEC60068-2-27			
Vibration			IEC60068-2-6			
MTBF	MIL-HDBK-217F, Full Load			1,494,000		hours
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency	230VAC	5Vout		60		kHz
		7.5Vout		80		
		9Vout		70		
		All Others		120		
Isolation Voltage	1 minute (2MOPP insulation)	Input to Output	4000			VAC
		Input (Output) to F.G.	2500			
Isolation Resistance	500VDC		0.1			GΩ

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

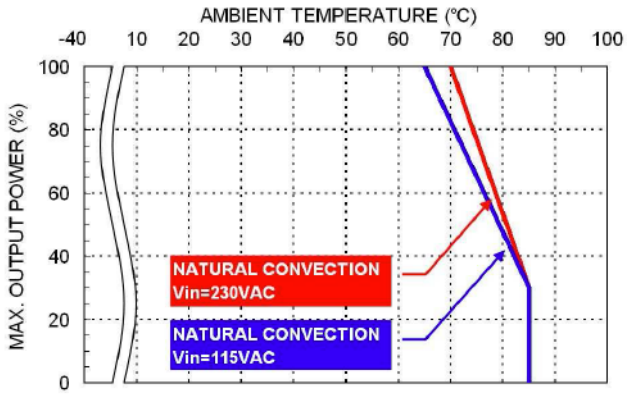
SPECIFICATION	TEST CONDITIONS				Min	Typ	Max	Unit
PHYSICAL SPECIFICATIONS								
Weight				O Type		4.13oz (117g)		
				U Type		5.54oz (157g)		
				C Type		6.07oz (172g)		
				D Type		6.81oz (193g)		
Dimensions (L x W x H)				O Type		3in x 2in x 1.04in (76.2mm x 50.8mm x 26.5mm)		
				U Type		3.53in x 2.38in x 1.31in (89.7mm x 60.5mm x 33.3mm)		
				C Type		3.53in x 2.38in x 1.31in (89.7mm x 60.5mm x 33.3mm)		
				D Type		3.67in x 2.37in x 1.31in (93mm x 60.4mm x 33.3mm)		
SAFETY & EMC CHARACTERISTICS								
Safety Approvals				ANSI/AAMI ES60601-1 EN60601-1 IEC60601-1				
EMI		EN55011, EN55022 and FCC Part 18				Conducted		Class B
						Radiated		Class B
Harmonic Currents	EN61000-3-2	Full Load						Class A
Voltage Flicker	EN61000-3-3							
ESD	EN61000-4-2	Air ±8kV and Contact ±6kV						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	10 A/m						Perf. Criteria A
Dip and Interruptions	EN60601-1-2 EN61000-4-11	230VAC 50Hz	30% 60% >95% >95%	500mS 100mS 10mS 5000mS				Perf. Criteria A Perf. Criteria A Perf. Criteria A Perf. Criteria B
		100VAC 50Hz	30% 60% >95% >95%	500mS 100mS 10mS 5000mS				Perf. Criteria A Perf. Criteria B Perf. Criteria A Perf. Criteria B

NOTES

(1) The last letter in model name indicates package type: “O”= Open Type, “U”= U Chassis Type, “C”= Enclosed Type, or “D”= Din Rail Type
“S1” Indicates Protection Type Class II
(2) Output Current @Convention cooled 60ºC Ta

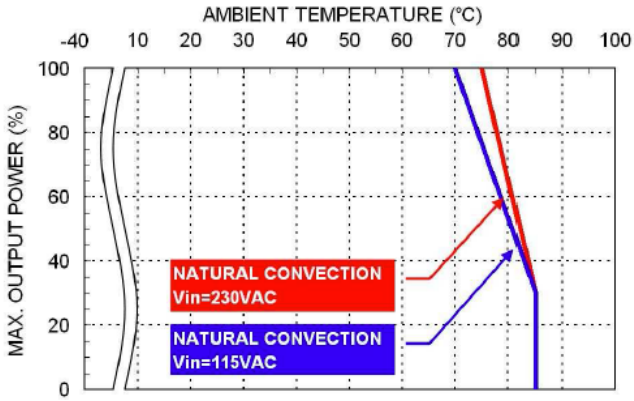
DERATING CURVES

Derating vs. Ambient Temperature
7.5V, 9V, 28VS1



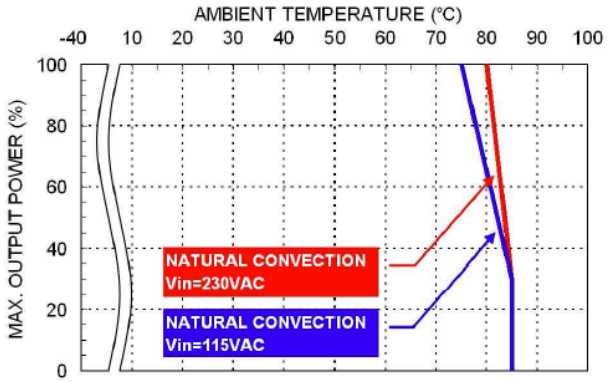
Derating Curve vs. Ambient Temperature

Derating vs. Ambient Temperature
5V, 12V, 24VS1, 36V, 48V,53V



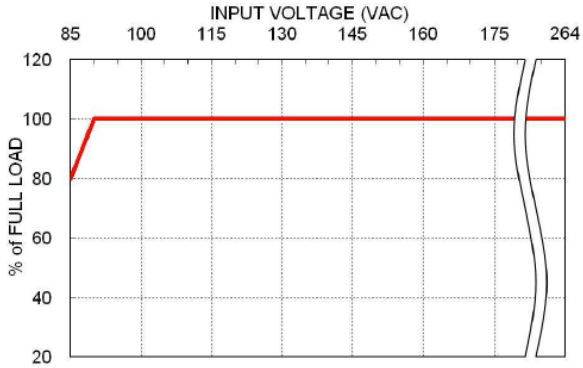
Derating Curve vs. Ambient Temperature

Derating vs. Ambient Temperature
15V, 24V, 28V



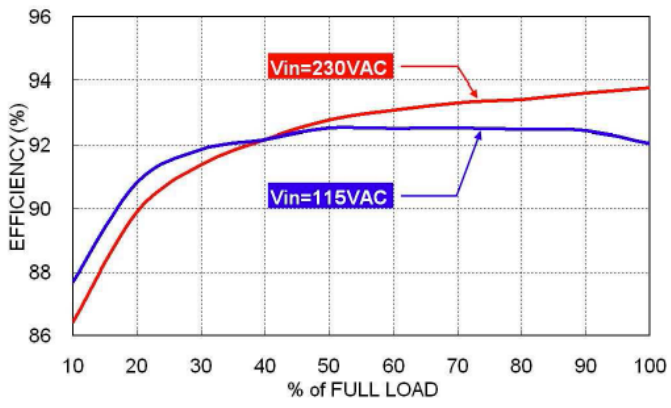
Derating Curve vs. Ambient Temperature

Derating vs. Input Voltage

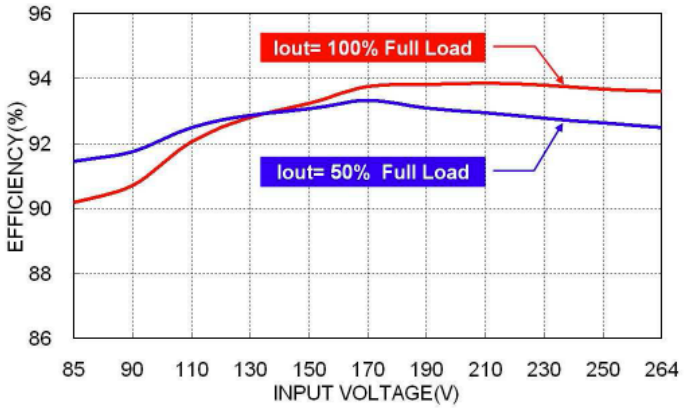


Derating Curve vs. Input Voltage

Efficiency vs. Output Load
PSMAD65-24S-O

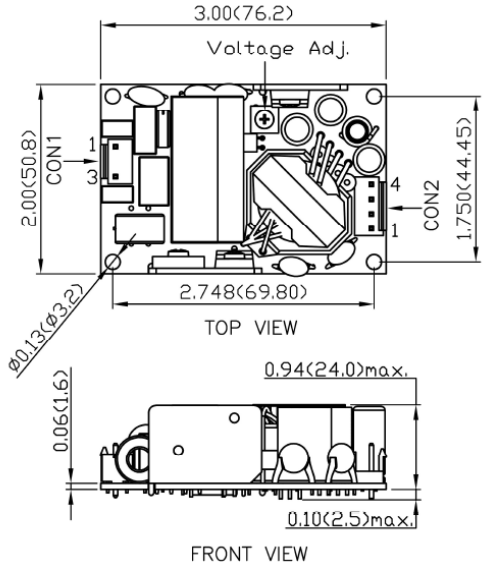


Efficiency vs. Input Voltage
PSMAD65-24S-O

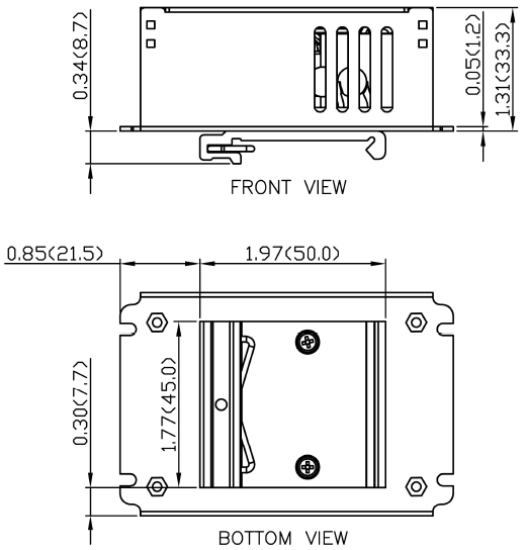


MECHANICAL DRAWINGS

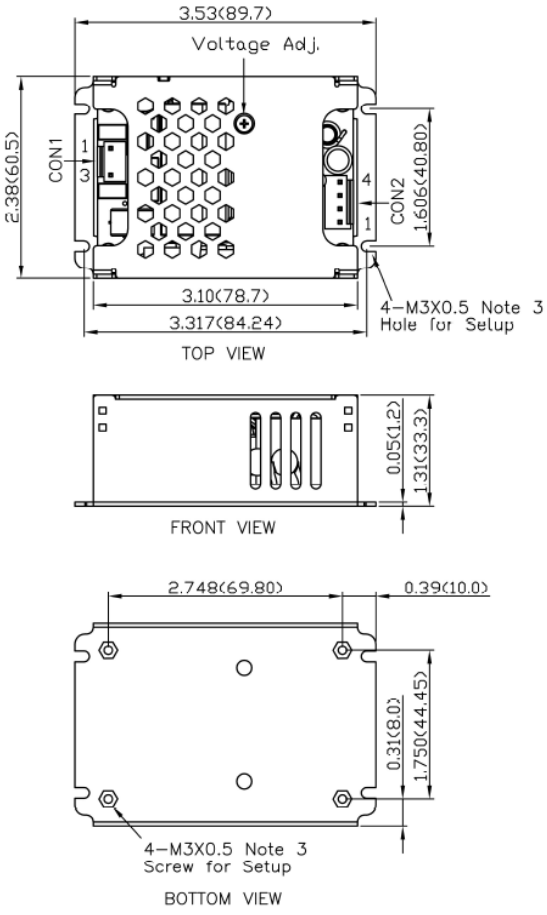
Type O- Open Type



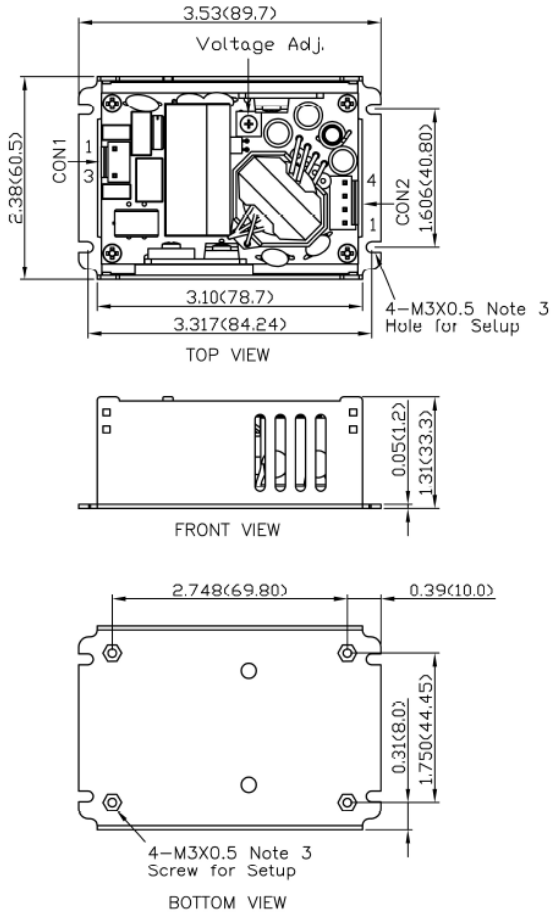
Type D- Din Rail Type



C Type- Enclosed Type



U Type- U Chassis Type



CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with:
JST Housing: **VHR-3N**
JST Crimp Terminals: **SVH-21T-P1.1**

Mounting holes marked with ⏚ must be connected to safety earth for CLASS I application

CON2-Output Connector

Pin 1,2	-Vout
Pin 3,4	+Vout

Mates with:
JST Housing: **VHR-4N**
JST Crimp Terminals: **SVH-21T-P1.1**

MODEL NUMBER SETUP

PS	MAD	65	-	24	S	1	-	O
Supply Type	Application	Output Power		Output Voltage	Output Quantity	Protection Type		Package Type
Open Frame	Medical Application	65W		**05:** 5 VDC **7.5:** 7.5 VDC **09:** 9 VDC **12:** 12 VDC **15:** 15 VDC **24:** 24 VDC **28:** 28 VDC **36:** 36 VDC **48:** 48 VDC **53:** 53 VDC	**S:** Single	**No Suffix:** CLASS I **1:** CLASS II		**O:** Open Frame **U:** U-Chassis **C:** Enclosed **D:** Din Rail

NOTES
1. Models with thru-hole inserts cannot be equipped with a heatsink.
2. Terminal block models (suffix “T”, “TF”, and “TF1”) cannot be equipped with a heatsink.
3. Only 0.200” pin length is available with terminal block options.
4. Models with EMC filter (suffix “TF” and “TF1”) meet EN55011, EN55022 Class A.

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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