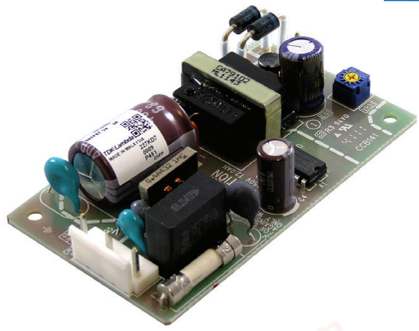
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TDK·Lambda

ZWS10-30B Series

https://product.tdk.com/en/power/zws-b
www.emea.lambda.tdk.com/zws-b

6.6 to 30W Single Output, High Reliability Power Supplies



Industrial Test COMM Broadcast

The ZWS-B industrial grade power supplies are used in a wide range of applications where equipment down-time cannot be tolerated during years of operation. Globally, process control, machinery, semiconductor fabrication and test and measurement equipment manufacturers depend upon the ZWS-B to provide a reliable source of power. Conservatively rated electrolytic capacitor temperatures offer improved field life-times of up to 10 years. Available in three power levels, 10W, 15W and 30W, the series provides a choice of 3.3 to 24V outputs. L bracket and cover mechanical configurations are available, in addition to a double sided board coating option.

Features	Benefits
• 10 Year Electrolytic Capacitor Lifetimes	• Improved Field Life
• Convection Cooled	• Reduced Dirt and Dust Contamination
• Curve B Radiated and Conducted EMI	• Easier System Compliance
• 5 year Warranty	• Low Cost of Ownership

Model Selector

Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Output Power (W)	Maximum Ripple & Noise (mV)	Over Current Protection (A)	Over Voltage Protection (V)	Efficiency (Typ) (%) (100/200Vac)
ZWS10B-3	3.3	2.97-3.63	2	6.6	120	>2.1	4.0-5.25	70 / 70
ZWS15B-3	3.3	2.97-3.63	3	9.9	120	>3.15	4.0-5.25	70 / 71
ZWS30B-3	3.3	2.97-3.63	6	19.8	120	>6.3	4.0-5.25	75 / 77
ZWS10B-5	5	4.5-5.5	2	10	120	>2.1	5.75-7.0	77 / 78
ZWS15B-5	5	4.5-5.5	3	15	120	>3.15	5.75-7.0	76 / 78
ZWS30B-5	5	4.5-5.5	6	30	120	>6.3	5.75-7.0	80 / 82
ZWS10B-12	12	10.8-13.2	0.9	10.8	150	>0.95	13.8-16.2	82 / 83
ZWS15B-12	12	10.8-13.2	1.3	15.6	150	>1.37	13.8-16.2	80 / 83
ZWS30B-12	12	10.8-13.2	2.5	30	150	>2.63	13.8-16.2	84 / 86
ZWS10B-15	15	13.5-16.5	0.7	10.5	150	>0.74	17.3-20.3	83 / 84
ZWS15B-15	15	13.5-16.5	1	15	150	>1.05	17.3-20.3	81 / 84
ZWS30B-15	15	13.5-16.5	2	30	150	>2.1	17.3-20.3	85 / 87
ZWS10B-24	24	21.6-26.4	0.5	12	150	>0.53	27.6-32.4	84 / 85
ZWS15B-24	24	21.6-26.4	0.7	16.8	150	>0.74	27.6-32.4	82 / 85
ZWS30B-24	24	21.6-26.4	1.3	31.2	150	>1.37	27.6-32.4	86 / 88

ZWS	30	-B	-	3	/	

Nominal power: 10, 15, 30

Output voltage: 3 (3.3V), 5, 12, 15, 24

Suffix	Description
Blank	Open frame
/A	L-bracket & cover
/L	L-bracket
/CO2	Double sided PCB coating

Option combinations are available, please contact your local sales office

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Specifications

Model		ZWS10B	ZWS15B	ZWS30B
Input				
Input Voltage Range (Operating)(1)	Vac	85 - 265		
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac only)		
Input Frequency	Hz	47 - 63		
DC Input Voltage Range	Vdc	120 - 370 (Note: Safety certified for AC input only)		
Input Current (100/200Vac)	A	3.3V: 0.18 / 0.11 5-24V: 0.25 / 0.13	3.3V: 0.24 / 0.15 5-48V: 0.34 / 0.17	3.3V: 0.5 / 0.3 5-48V: 0.65 / 0.35
Inrush Current at 200Vac (typ) (Cold Start)	A	30		
Leakage Current (230Vac 60Hz)	mA	<0.3		
No Load Power Consumption	W	<0.5		
Hold Up Time (typ) at 100Vac, 100% load	ms	20		
Efficiency	-	See Model Selector Table		
Conducted & Radiated EMI	-	EN55011 / EN55032-B, FCC-B, VCCI-B		
Immunity	-	IEC61000-6-2, EN61000-4-2 , -3, -4, -5, -6, -8, -11 (See immunity table)		
Insulation Class	-	Class I		
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, EN50178(OV II), CE Mark and UKCA Mark		

Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ± 8kV and contact ± 4kV	A	See IEC61000 immunity test report on website
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A	
Surge	EN61000-4-5	Normal ± 2kV Common ± 4kV	A	
Conducted Susceptibility	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	30A/m	A	
Voltage Dips	EN61000-4-11	30% 500ms 60% 200ms 100% 20ms 100% 5000ms	B B B B	

Specifications

Model		ZWS10B	ZWS15B	ZWS30B
Output				
Output Voltage Adjustment	-	See Model Selector Table		
Switching Frequency	kHz	100		
Line Regulation	mV	3.3-5V: 20, 12V: 48, 15V: 60, 24V: 96		
Load Regulation	mV	3.3-5V: 40, 12V: 96, 15V: 120, 24V: 150		
External Load Capacitance	uF	3.3/5V: 10,000, 12V: 2,000, 15V:1,400, 24V: 300	3.3/5V: 10,000, 12V: 2,500, 15V:1,000, 24V: 500	3.3/5V: 10,000, 12V: 2,700, 15V:1,500, 24V: 600
Ripple & Noise	-	See Model Selector Table		
Temperature Coefficient	%/°C	0.02		
Minimum Load	-	No minimum load required		
Overcurrent Protection	-	See Model Selector Table		
Overvoltage Protection	V	See Model Selector Table		
Remote Sense	-	-		
Remote On/Off	-	-		
Parallel Operation	-	Not possible		

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Specifications

Model		ZWS10B	ZWS15B	ZWS30B
Environmental				
Operating Temperature(2) (Convection Cooling, Horizontal Mounting)	°C	-10 to +70, derate from 100% to 20% load from 50 to 70	-10 to +70, derate from 100% to 40% load from 50 to 70	-10 to +70, derate from 100% to 20% load from 50 to 70
Operating Temperature(2) (Forced Air Cooling, 0.7m/s)	°C	-10 to +70, derate linearly from 100% to 70% load from 60 to 70		
Storage Temperature	°C	-30 to +75		
Humidity (non condensing)	%RH	30 - 90 operating, 10 - 95 storage		
Cooling	-	Convection. (Forced air will reduce derating at high ambient temperatures)		
Altitude	m	3,000		
Withstand Voltage (For 1 minute)	Vac	Input to Ground 2,000, Input to Output 3,000, Output to Ground 500		
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500VDC		
Vibration (Non operating)	-	10-55Hz (Sweep for 1min.) 19.6m/s^2 Constant X,Y,Z 1 hour each		
Shock (Non operating)	-	Less than 196m/s^2		
Other				
Weight (Typ) (Open frame models)	g	45	55	105
Size (LxWxH) (Open frame models)	mm	73.5 x 50 x 22	87.5 x 50 x 22	105 x 50 x 26
Size (LxWxH) (Open frame models)	Inches	2.89 x 1.97 x 0.87	3.44 x 1.97 x 0.87	4.13 x 1.97 x 1.02
Connectors	-	JST		
MTBF - JEITA RCR-9102B(3)	Hours	433,084	399,466	336,105
Warranty	Years	5		

Notes:

See website for detailed specifications, test methods and installation manual

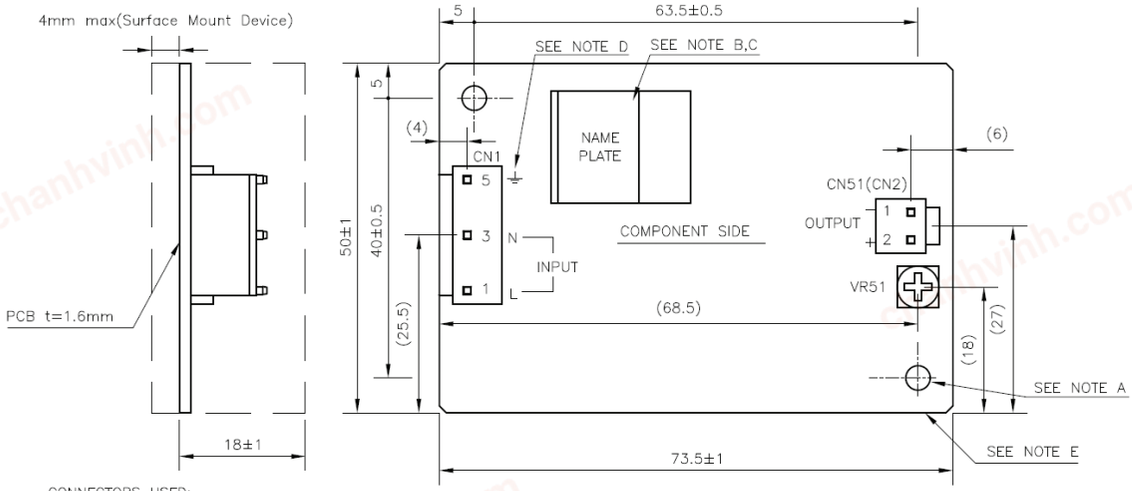
(1) Derate linearly to 90% load from 90 to 85Vac input

(2) See Instruction manual for further details and mounting orientations

(3) Component count method, ground fixed. Note the JEITA RCR-9102B calculation method produces figures significantly lower than Telcordia

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Outline Drawing ZWS10B (Open Frame)



CONNECTORS USED:

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	JST	1
PIN HEADER(OUTPUT SIDE CN51(CN2))	B2P-VH	JST	1

MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):

SOCKET HOUSING (CN1)	VHR-5N	JST	1
SOCKET HOUSING (CN51(CN2))	VHR-2N	JST	1
TERMINAL PINS	SVH-21T-P1.1	JST	5

HAND CRIMPING TOOL : YC-160R CN1,CN51(CN2) MANUFACTURER : JST

NOTES

A: THE 2-ø3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.

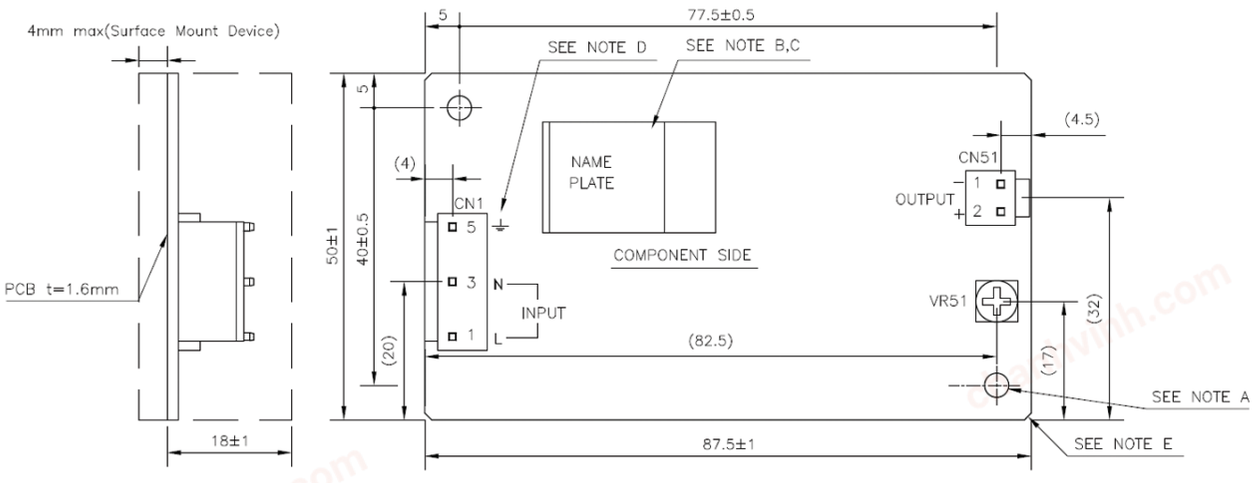
B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D: ⏚ IS PROTECTIVE BONDING TERMINAL.

E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC-BOARD EDGE AND CUSTOMER'S CHASSIS.

Outline Drawing ZWS15B (Open Frame)



CONNECTORS USED:

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	JST	1
PIN HEADER(OUTPUT SIDE CN51)	B2P-VH	JST	1

MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):

SOCKET HOUSING (CN1)	VHR-5N	JST	1
SOCKET HOUSING (CN51)	VHR-2N	JST	1
TERMINAL PINS	SVH-21T-P1.1	JST	5

HAND CRIMPING TOOL : YC-160R CN1,CN51 MANUFACTURER : JST

NOTES

A: THE 2-ø3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.

B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

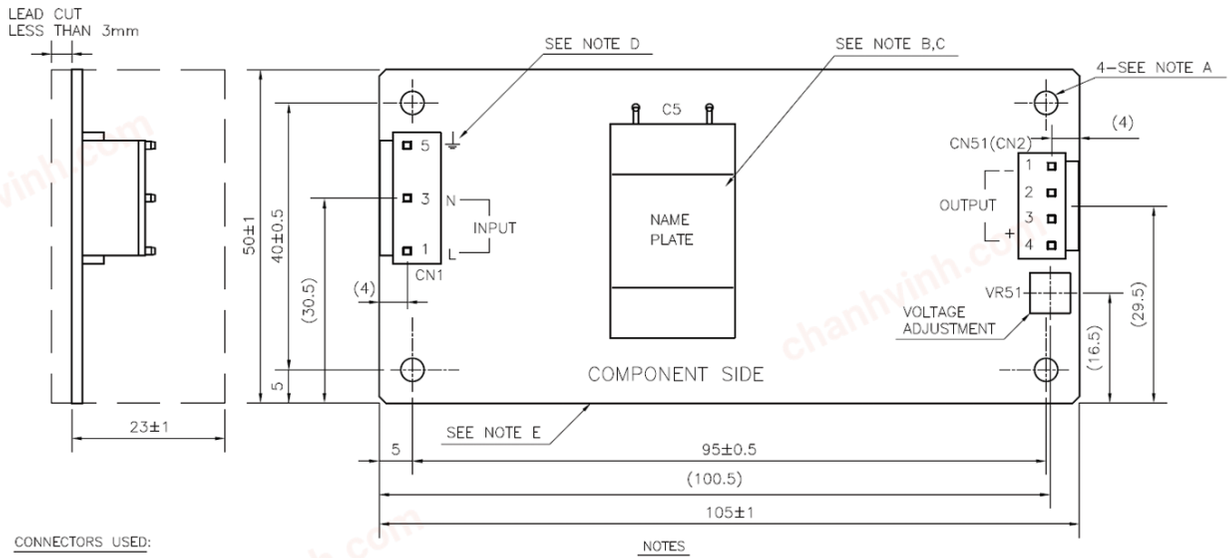
C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D: ⏚ IS PROTECTIVE BONDING TERMINAL.

E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC-BOARD EDGE AND CUSTOMER'S CHASSIS.

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Outline Drawing ZWS30B (Open Frame)



CONNECTORS USED:

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5–VH	JST	1
PIN HEADER(OUTPUT SIDE CN51(CN2))	B4P–VH	JST	1

*OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):

SOCKET HOUSING (CN1)	VHR–5N	JST	1
SOCKET HOUSING (CN51(CN2))	VHR–4N	JST	1
TERMINAL PINS	SVH–21T–P1.1	JST	7

HAND CRIMPING TOOL : YC–160R CN1,CN51(CN2) MANUFACTURER : JST

NOTES

A: THE 4–ø3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.

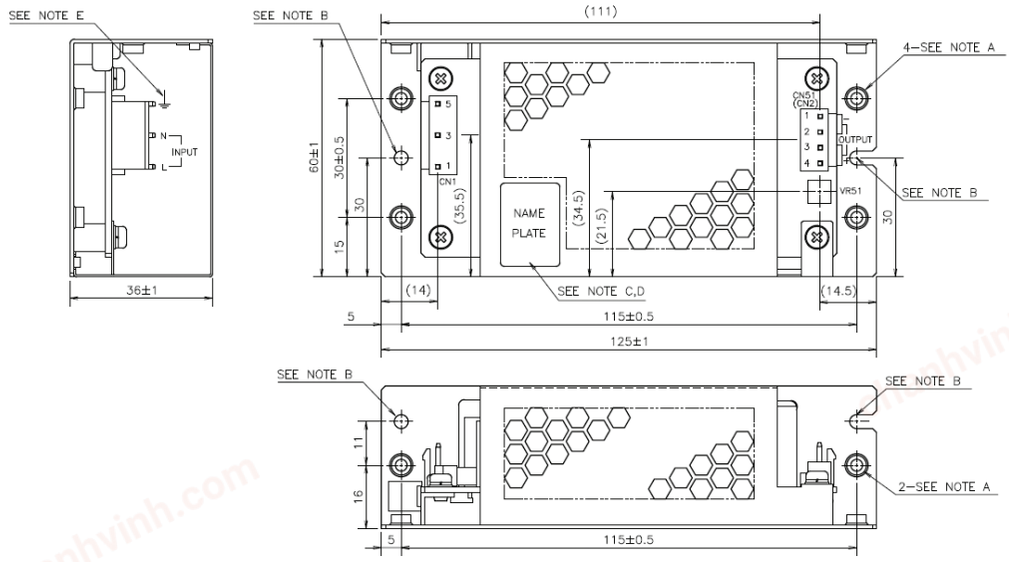
B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D: ⏚ IS PROTECTIVE BONDING TERMINAL.

E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC–BOARD EDGE AND CUSTOMER'S CHASSIS.

Outline Drawing ZWS30B/A



CONNECTORS USED:

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5–VH	J.S.T.	1
PIN HEADER (OUTPUT SIDE CN51(CN2))	B4P–VH	J.S.T.	1

*OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

MATCHING HOUSINGS, PINS & TOOL (NOT INCLUDED WITH THE PRODUCT):

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
SOCKET HOUSING (CN1)	VHR–5N	J.S.T.	1
SOCKET HOUSING (CN51(CN2))	VHR–4N	J.S.T.	1
TERMINAL PINS	SVH–21T–P1.1	J.S.T.	7
	BVH–21T–P1.1		
HAND CRIMPING TOOL	YC–160R	J.S.T.	–

NOTES

A: M3 EMBOSSED TAPPED & COUNTERSINK HOLES (6) ARE FOR CUSTOMER'S CHASSIS MOUNTING.

B: ø3.5 HOLES (2) AND R1.75 SLOT HOLES (2) ARE FOR CUSTOMER'S CHASSIS MOUNTING.

C: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWNHERE IN ACCORDANCE WITH THE SPECIFICATIONS.

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