RWS1500B/CO2

TDK-Lambda

SPECIFICATIONS (1/2)

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3 Maximum Output Power W 1500 1500 1512 1512 1512 1536 4 Efficiency (Typ) 100/15VAC % 81/82 81/82 85/85 84/85 5 Input Voltage Range (*13) 200/230VAC A 150 1512 1512 1536 6 Input Voltage Range (*2)(*11) - 85 - 265VAC (47 - 63Hz) or 120 - 340VDC 7 Inrush Current (Typ) (*0)(15VAC A - 10 / 16 7 Inrush Current (Typ) (*1)(*3) - 20A / 40A at 1st Inrush, 60A / 60A at 2nd Inrush 8 PFHC - Designed to meet IEC61000-3-2 - - 0.808.05 10 Output Voltage Range V 10.2 - 14.4 12.8 - 18.0 20.4 - 28.8 30.6 - 43.2 40.8 - 35 11 Maximum Load Regulation (*6)(*1) mV 48 60 96 144 192 13 Maximum Load Regulation (*6)(*1) mV 96 120 144 12.8 180 200 300 400 60.0 - 72	1				12	15	24	36	48	
3 Maximum Output Power W 1500 1510 1512 1512 1512 1536 4 Efficiency (Typ) 100/115VAC % 81/82 81/82 85/85 85/85 84/85 5 Input Voltage Range (*2)(*11) . 85 - 265VAC (47 - 63H2) or 120 - 340VDC 6 Input Current (Typ) 100/115VAC A	2	* *		А	125	100	63	42	32	
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	4		100/115VAC	%	81/82	81/82	85/85	85/85	84/85	
6 Input Current (Typ) 100/115VAC A 19/16 7 Inrush Current (Typ) (*13) 200230VAC A 10/8 7 Inrush Current (Typ) (*1) - 20A/40A at 1st Inrush, 60A/60A at 2nd Inrush 8 PFHC - 0.98095 - 0.98095 10 Output Voltage Range V 10.2-14.4 12.8-18.0 20.4-28.8 30.6-43.2 40.8-57 11 Maximum Ripple & Noise 0⊆Ta≤60°C mV 150 150 180 250 300 12 Maximum Load Regulation (*5)(*11) mV 48 60 96 144 192 13 Maximum Load Regulation (*6)(*11) mV 96 120 144 216 288 14 Temperature Coefficient - Less than 0.02% / °C - - 20ms 180138.9 2036.0 45.0 - 54.0 60.0 - 77 17 Hold-up Time (Typ) (*14) - Demote Stan 1.2mA - - </td <td></td> <td>• • • • • •</td> <td>200/230VAC</td> <td>%</td> <td>84/85</td> <td>84/85</td> <td>88/88</td> <td>88/88</td> <td>87/88</td>		• • • • • •	200/230VAC	%	84/85	84/85	88/88	88/88	87/88	
6 Input Current (Typ) 100/115VAC A 19/16 (*13) 200230VAC A 10/8 10/8 7 Inrush Current (Typ) (*1)(*3) - 20A/40A at 1st Inrush, 60A/60A at 2nd Inrush 8 PFHC - 0stronged to meet IEC61000-3-2 0stronged to meet IEC61000-3-2 9 Power Factor (Typ) (*1) - 0stronged to meet IEC61000-3-2 10 Output Voltage Range V 10.2 - 14.4 12.8 - 18.0 20.4 - 28.8 30.6 - 43.2 40.8 - 57 10 Maximum Ripple & Noise 0strongedow (*5)(*11) mV 48 60 96 144 192 12 Maximum Lead Regulation (*6)(*11) mV 48 60 96 144 126 288 14 Temperature Coefficient - Less than 0.02% / °C 50.0 - 50.0 60.0 - 72 44.1 - 33.6 - 50.0 60.0 - 72 15 Over Votage Protection (*8) V 150 180.18.8 - 22.5 30.0 -36.0 60.0 - 72 16	5	、 <i>/</i>								
(*13) 200/230VAC A 10 / 8 7 Inrush Current (Typ) (*1)(*3) - $20A / 40A$ at 1st Inrush, $60A / 60A$ at 2nd Inrush 9 Perker - Designed to meet IECG1000-3-2 9 Power Factor (Typ) (*1) - 0.98/0.95 10 Output Voltage Range V 10.2 - 14.4 12.8 - 18.0 20.4 - 2.88 30.6 - 43.2 40.8 - 57 11 Maximum Ripple & Noise 0 Tot 278 0.98/0.95 300 400 12 Maximum Line Regulation (*5)(*11) mV 48 60 96 144 192 13 Maximum Load Regulation (*6)(*11) mV 48 60 96. 144 192 14 Temperature Coefficient - Less than 0.02% / °C 150 18.8 - 22.5 30.0 - 36.0 45.0 - 54.0 60.0 - 72 15 Over Outage Protection (*1) - 20ms 18 Leakage Current (*9) - Leakage Current (*9) -	6				· · · · ·					
8 PFHC - Designed to meet IEC61000-3-2 9 Power Factor (Typ) (*1) - $0.241.4$ $12.8 - 18.0$ $20.4 \cdot 28.8$ $30.6 - 43.2$ $40.8 - 57$ 10 Output Voltage Range V $10.2 - 14.4$ $12.8 - 18.0$ $20.4 \cdot 28.8$ $30.6 - 43.2$ $40.8 - 57$ 11 Maximum Ripple & Noise $0 \leq Ta \leq 60^{\circ}$ C mV 150 180 250 300 12 Maximum Line Regulation (*5)(*11) mV 48 60 96 144 192 13 Maximum Load Regulation (*6)(*11) mV 96 120 144 216 288 14 Temperature Coefficient - Less than $0.02\% / *C$ 200 ms <t< td=""><td></td><td></td><td>200/230VAC</td><td>А</td><td colspan="5"></td></t<>			200/230VAC	А						
8 PFHC - Designed to meet IEC61000-3-2 9 Power Factor (Typ) (*1) - $0.244 \cdot 28.5$ $30.6 - 43.2$ $40.8 - 5$ 10 Output Voltage Range V $10.2 - 14.4$ $12.8 - 18.0$ $20.4 \cdot 28.8$ $30.6 - 43.2$ $40.8 - 5$ 11 Maximum Ripple & Noise $0 \leq Ta \leq 60^{\circ}$ C mV 150 180 250 300 12 Maximum Line Regulation (*5)(*11) mV 48 60 96 144 192 13 Maximum Load Regulation (*6)(*11) mV 96 120 144 216 288 14 Temperature Coefficient - $ -$	7	· /		-	20A / 40A at 1st Inrush , 60A / 60A at 2nd Inrush					
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$ \begin{array}{ c c c c c c } \hline 10 & \mbox{Output Voltage Range} & V & 10.2 - 14.4 & 12.8 - 18.0 & 20.4 - 28.8 & 30.6 - 43.2 & 40.8 - 57 \\ \hline 11 & \mbox{Maximum Ripple & Noise} & \begin{tabular}{ c c c c c } \hline 0 & \mbox{V} & \mbox{Iso} & 150 & 180 & 250 & 300 & 400 \\ \hline 12 & \mbox{Maximum Line Regulation} & (*4) & -20 \le \pi \circ \circ^{\circ} \mbox{W} & \mbox{Iso} & 180 & 200 & 300 & 4400 \\ \hline 12 & \mbox{Maximum Line Regulation} & (*5)(*11) & \mbox{W} & \mbox{M} & \mbox{G} & \mbox{Off} & \mbox{Iso} & $	9									
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18Leakage Current(*9)-Less than 1.2mA19Remote Sensing(*14)-Possible20Monitoring Signal21Remote Control22Parallel Operation23Series Operation(*14)-24Operating Temperature(*10)(*11)-25Operating Temperature(*10)(*11)-26Storage Temperature27Storage Temperature28Cooling29Withstand Voltage-Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA), Input - Chapter to Chassis : 500VDC31Vibration32Shock-Less than 196m/s²33Safety-Approved by UL62368-1, CSA62368-1, UL60950-1, CSA60950-1, EN60950-1, EN60950-1, 20/12/2020) Designed to meet Den-an Appendix 12 (J60950-1),34Line DIP-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B36Radiated Emission(*12)-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B37Immunity(*12)-Designed to meet IEC61000-6-237Immunity(*12)-Designed to meet IEC61000-6-2	17	-		-						
19Remote Sensing(*14)-Possible20Monitoring Signal21Remote Control22Parallel Operation23Series Operation(*14)-Possible24Operating Temperature(*10)(*11)20 - $+60^{\circ}$ C (-20 - $+50^{\circ}$ C:100%, $+60^{\circ}$ C:60%)25Operating Temperature(*10)(*11)- $-20 - 90^{\circ}$ RH (No Condensing)26Storage Temperature- $-30 - +75^{\circ}$ C27Storage Humidity-10 - 90%RH (No Condensing)28Cooling-Forced Air Cooling29Withstand Voltage-Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA) for 1min30Isolation Resistance-More than 100M\Omega at 25°C and 70%RH Output to Chassis : 500VDC31Vibration-At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s² Constant, X, Y, Z Ihour each.32Shoek-Less than 196m/s²33Safety-Approved by UL62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) Designed to meet Den-an Appendix 12 (160950-1), Designed to meet EM55011/EN55032-B, FCC-B, VCCI-B34Line DIP-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B35Radiated Emission(*12)Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B36Radiated Emission(*12)Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B	18			-						
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21Remote Control22Parallel Operation23Series Operation(*14)-24Operating Temperature(*10)(*11)-20 + 60°C (-20 + 50°C:100%, +60°C:60%)25Operating Humidity-20 - 90%RH (No Condensing)26Storage Temperature30 - $+75^{\circ}C$ 27Storage Humidity-10 - 90%RH (No Condensing)28Cooling-Forced Air Cooling29Withstand Voltage-Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA) for 1min30Isolation Resistance-More than 100M\Omega at 25°C and 70%RH Output to Chassis : 500VDC31Vibration-Less than 196m/s²32Shock-Less than 196m/s²33Safety-Approved by UL62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1: 20/12/2020) Designed to meet Den-an Appendix 12 (J60950-1).34Line DIP-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B36Radiated Emission(*12)-37Immunity(*12)-37Immunity(*12)-37Immunity(*12)-			. ,	-						
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23Series Operation(*14)-Possible24Operating Temperature(*10)(*11) $-20 - 460^{\circ}C (-20 - +50^{\circ}C:100\%, +60^{\circ}C:60\%)$ 25Operating Humidity- $20 - 90\%$ RH (No Condensing)26Storage Temperature- $-30 - 475^{\circ}C$ 27Storage Humidity-10 - 90%RH (No Condensing)28Cooling-Forced Air Cooling29Withstand Voltage-Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA) for 1min30Isolation Resistance-More than 100MΩ at 25°C and 70%RH Output to Chassis : 500VDC31Vibration-At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s² Constant, X, Y, Z Ihour each.32Shock-Less than 196m/s²33Safety-Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) Designed to meet Den-an Appendix 12 (J60950-1).34Line DIP-Designed to meet SEMI-F47 (200VAC Line only)35Conducted Emission(*12)-36Radiated Emission(*12)-37Immunity(*12)-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B36Radiated Emission(*12)-Designed to meet EN5011/EN55032-B, FCC-B, VCCI-B										
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26 Storage Temperature - -30 - +75°C 27 Storage Humidity - 10 - 90%RH (No Condensing) 28 Cooling - Forced Air Cooling 29 Withstand Voltage - Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) 30 Isolation Resistance - More than 100MΩ at 25°C and 70%RH Output to Chassis : 500VDC 31 Vibration - At no operating, 10 - 55Hz (Sweep for 1min) 32 Shock - Less than 196m/s² 33 Safety - Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) 34 Line DIP - Designed to meet SEMI-F47 (200VAC Line only) 35 Conducted Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B 36 Radiated Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B 36 Radiated Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B	25			-						
27 Storage Humidity - 10 - 90%RH (No Condensing) 28 Cooling - Forced Air Cooling 29 Withstand Voltage - Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) 30 Isolation Resistance - More than 100MΩ at 25°C and 70%RH Output to Chassis : 500VDC 31 Vibration - At no operating, 10 - 55Hz (Sweep for 1min) 32 Shock - Less than 196m/s² 33 Safety - Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) 34 Line DIP - Designed to meet SEMI-F47 (200VAC Line only) 35 Conducted Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B 36 Radiated Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B 37 Immunity (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B	26			-						
28 Cooling - Forced Air Cooling 29 Withstand Voltage - Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) 30 Isolation Resistance - More than 100MΩ at 25°C and 70%RH Output to Chassis : 500VDC 31 Vibration - At no operating, 10 - 55Hz (Sweep for 1min) 32 Shock - Less than 196m/s² 33 Safety - Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) 34 Line DIP - Designed to meet Den-an Appendix 12 (J60950-1). 35 Conducted Emission (*12) - Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B 36 Radiated Emission (*12) - Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11	27			-						
29Withstand Voltage-Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (20mA) for 1min30Isolation Resistance-More than 100MΩ at 25°C and 70%RH Output to Chassis : 500VDC31Vibration-At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s² Constant, X,Y,Z 1hour each.32Shock-Less than 196m/s²33Safety-Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) Designed to meet Den-an Appendix 12 (J60950-1).34Line DIP-Designed to meet SEMI-F47 (200VAC Line only)35Conducted Emission(*12)-Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B37Immunity(*12)-Designed to meet IEC61000-6-237Immunity(*12)-Designed to meet IEC61000-6-2	28			-	· • •					
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37 Immunity (*12) - Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11				-						
			. ,	-						
38 Weight (Typ) g 3000	38	Weight (Typ)	· -/	g	3000					
					127 x 63 x 261 (Refer to Outline Drawing)					

RWS1500B/CO2

TDK-Lambda

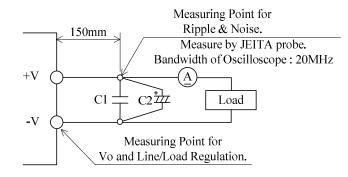
SPECIFICATIONS (2/2)

- *To improve resistance against dust environment, both sides of assembled PCB are coated.
- However, complete effect is not guaranteed because some areas on the board are not coated.
- *Read instruction manual carefully, before using the power supply unit.

=NOTES=

- *1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 240VAC(50-60Hz).
- *3. Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- *4. Please refer to Fig. A for measurement of Vo, line & load regulation and ripple voltage.
- *5. 85 265VAC, constant load.
- *6. No load-Full load, constant input voltage.
- *7. Constant current limit with automatic recovery. Over current condition for more than 5 seconds will cause the output to shut down. Avoid to operate at over load or short circuit condition.
- *8. OVP circuit will shut down output, manual reset (Re power on).
- *9. Measured by the each measuring method of UL, CSA, EN and Den-an(at 60Hz), Ta=25°C.
- *10. Output Derating
 - Refer to LOAD vs. AMBIENT TEMPERATURE(A274-01-02_).
- Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
- *11. Output derating needed when input voltage less than 90VAC. Refer to LOAD vs. INPUT VOLTAGE(A274-01-02_).
- *12. The power supply is considered a component which will be installed into a final equipment.
- The final equipment should be re-evaluated that it meets EMC directives.
- *13. Ta=25°C, nominal output voltage and maximum output power.
- *14. Refer to instruction manual(A273-04-01_).

Fig.A



 $\begin{array}{l} C1:Film\ Cap.\ 0.1\mu F\\ C2:Elect.\ Cap.\ 47\mu F \end{array}$