

**SERIES: VDRS-150 | DESCRIPTION: AC-DC DIN RAIL**
**FEATURES**

- up to 150 W continuous power
- universal input (88~264 Vac / 124~373 Vdc)
- 150% peak load capability<sup>2</sup>
- DIN Rail power supplies
- two peak load mode selector
- built-in remote ON/OFF function
- over voltage, over load, and over temperature protections
- UL 508 and TUV safety approvals
- built-in active PFC function (PF 0.90 at 115 Vac, 0.98 at 230 Vac)
- efficiency up to 87%



MODEL	output voltage	output current max	output power max	ripple and noise <sup>1</sup> max	efficiency
	(Vdc)	(A)	(W)	(mVp-p)	(%)
VDRS-150-24	24	6.3	150	240	87
VDRS-150-48	48	3.2	150	480	87

Note: 1. at full load, 230 Vac input, measured at 20MHz bandwidth with a 47  $\mu$ F and 0.1  $\mu$ F parallel cap on the output  
 2. 3 seconds or 20% duty cycle max. The average output power should not exceed the rated power.

**PART NUMBER KEY**
**VDRS - 150 - XX**

Base Number

Output Voltage

**INPUT**

parameter	conditions/description	min	typ	max	units
voltage		88		264	Vac
		124		373	Vdc
frequency		47		63	Hz
current	at 115 Vac			2.6	A
	at 230 Vac			1.3	A
inrush current	at 115 Vac			33	A
	at 230 Vac			65	A
power factor correction	at 230 Vac			0.90	
	at 115 Vac			0.98	
leakage current	at 240 Vac			1	mA

**OUTPUT**

parameter	conditions/description	min	typ	max	units
voltage accuracy				±1	%
line regulation				±0.5	%
load regulation			5	±1	%
temperature coefficient	(0 ~ 50°C)		±0.03		%/°C
hold-up time	at 115 / 230 Vac, cold start	16			ms
voltage adjustment range		-2		+8	%

Note: 1. All specification are measured at 230 Vac input, rated load, 25°C unless otherwise specified.

**PROTECTIONS**

parameter	conditions/description	min	typ	max	units
	latch-off mode, restart	120		138	%
	to recover from fault	117		135	%
over voltage protection	Kicks in between 105~150% rated output power when the fault persist for about 3 sec, then clamps output voltage down, automatic recovery' >150% rated power or short circuit would cause the power supply to go in to constant current limiting; if fault condition is not removed after 5 times, then the converter will shutdown and need to be restarted to recover from fault.				
over load protection	constant current limiting, automatically recovers after fault condition is removed	105		150	%
over temperature protection	output shut down and auto restart upon reduction of temperature	90	95	100	°C
DC ok relay contact ratings	at 0.3 A			60	Vdc
	at 1 A and 0.5 A			30	Vdc

**SAFETY & COMPLIANCE**

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute			4,242	Vdc
	input to case for 1 minute			2,121	Vdc
	output to case, output to DC OK for 1 minute			707	Vdc
isolation resistance	input to output, input to case, output to case, 500 Vdc	100			MΩ
safety approvals	UL 508, TUV EN 60950-1				
EMI/EMC <sup>2</sup>	EN 55022 (CISPR22) Class B, EN 61000-3-(2, 3), EN 61000-4-(2,3,4,5,6,8,11) ENV 50204, EN 55024, EN 61000-6-2 (EN50082-2), EN 61204-3, heavy industry level, criteria A, meet SEMI F47				
RoHS compliant	yes				

Note: 2. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**ENVIRONMENTAL**

parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-40		85	°C
operating humidity	non-condensing	20		90	%
storage humidity		10		95	%
vibration	(10 ~ 500 Hz, 1 hour per axis, 3 hours total)		2		Grms

## MECHANICAL

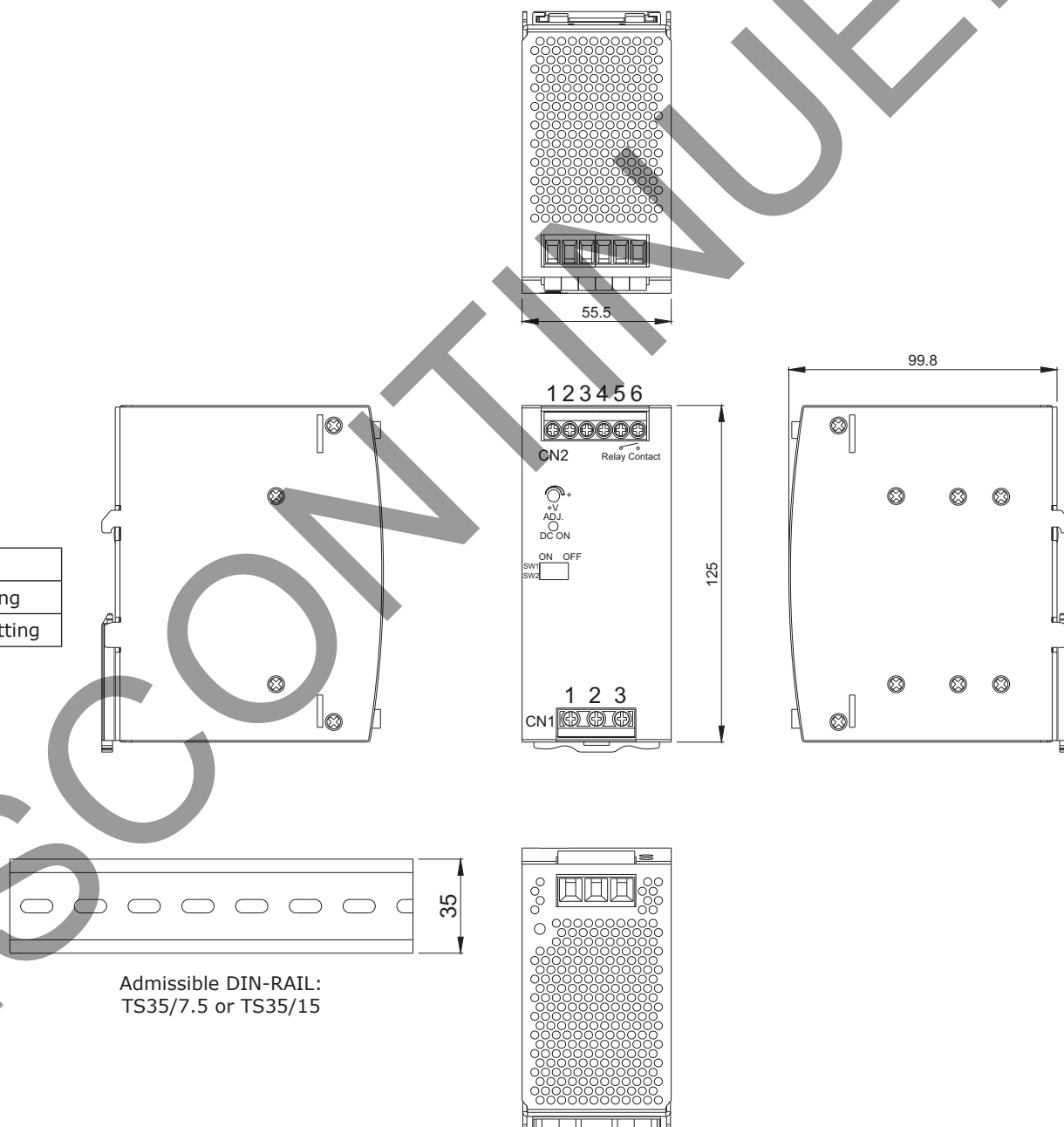
parameter	conditions/description	min	typ	max	units
dimensions	2.185 x 4.921 x 3.929 (55.5 x 125 x 99.8 mm)				inch

## MECHANICAL DRAWING

CN1	
1	FG ⊕
2	ac line
3	ac neutral

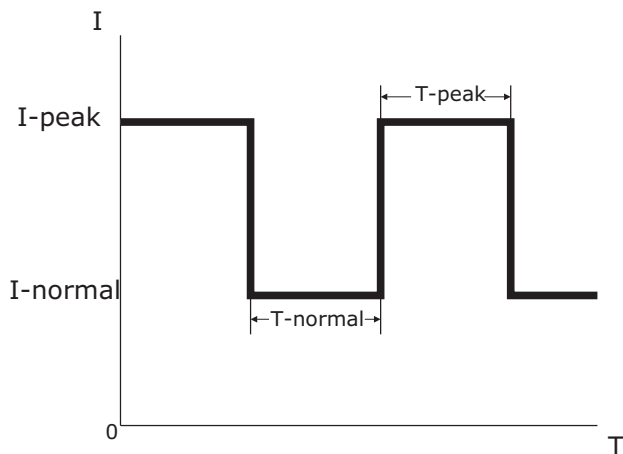
CN2	
1	DC+
2	DC-
3	INH+
4	INH-
5	relay contact
6	relay contact

Switch	
1	peak load setting
2	remote on/off setting



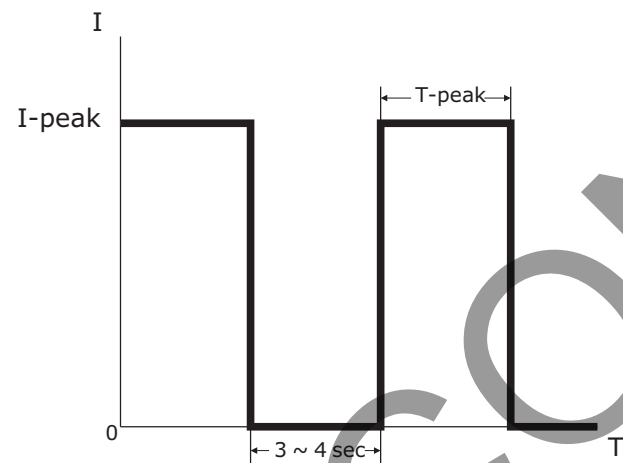
Admissible DIN-RAIL:  
TS35/7.5 or TS35/15

## PEAK LOADING SW1 ON (MODE1) DEFAULT SETTING

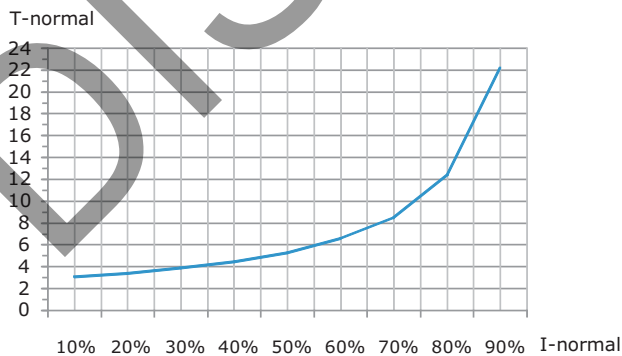


T-peak presents while the unit is working within 110%~150% rated output power. See Curve "B" for the variation in T-Peak between output current and hold-up time. If T-peak is more than the time setting in Curve "B", the output current will drop to the constant limit (I-normal) that is 105% of the rated power. Meanwhile, I-normal and T-normal will be presenting. See Curve "A" for the timing back to I-Peak of T-normal and this mode can be used for easy 2-stage battery chargers.

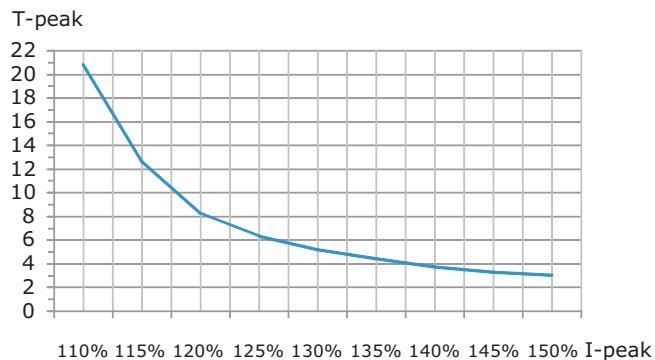
## PEAK LOADING SW1 OFF (MODE2)



T-peak presents while the unit is working within 110%~150% rated output power. See Curve "B" for the variation of T-peak between output current and hold-up time. If T-peak is more than the time setting in Curve "B", the output voltage will be shut down for 3~4 seconds and then auto-recover.



CURVE A



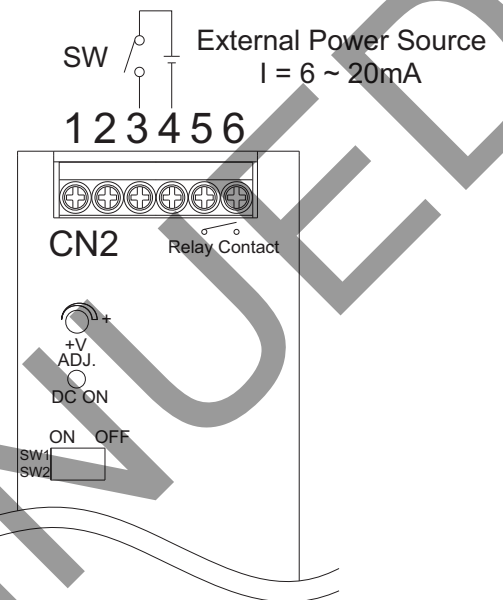
CURVE B

## REMOTE ON/OFF

The power supply can be turned on/off by using the "remote control" function.

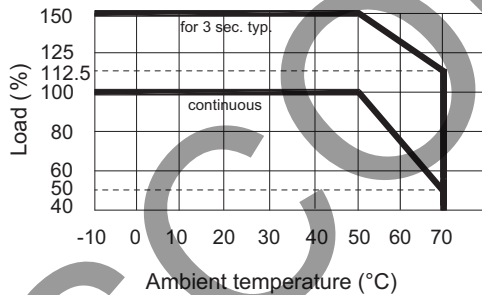
SW2	INH+(3 PIN)/INH-(4 PIN)	Output Status
off	SW ON (>2.5 V)	ENABLE
off	SW OFF (<0.8 V)	DISABLE
on	SW ON (>2.5 V)	DISABLE
on	SW OFF (<0.8 V)	ENABLE

(default setting)

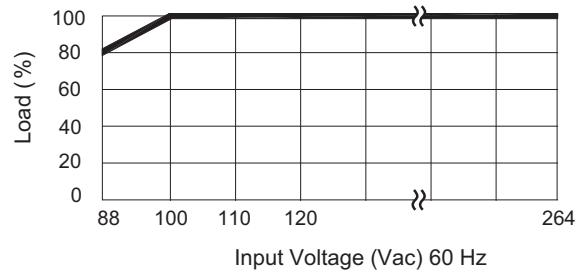


## DERATING CURVE

Output power vs. Ambient temperature



Output power vs. Input Voltage



Note: 1. Derating may be needed under low input voltage. Please check the derating curve for more details.

## ACTIVE DC SIGNAL - RELAY CONTACT

Contact Close	When the output voltage reaches the adjusted output voltage
Contact Open	When the output voltage drops below 45%
Contact Ratings (MAX)	30 V / 1 A resistive load

## REVISION HISTORY

rev.	description	date
1.0	initial release	10/17/2012
1.01	spec. update	11/07/2012
1.02	spec. update	01/17/2013

The revision history provided is for informational purposes only and is believed to be accurate.



**CUI INC**<sup>®</sup>

**Headquarters**  
20050 SW 112th Ave.  
Tualatin, OR 97062  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

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