

SERIES: VDRS-240 | **DESCRIPTION:** AC-DC DIN RAIL

FEATURES

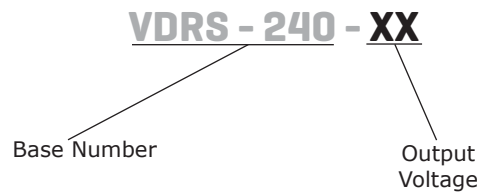
- up to 240 W continuous power
- universal input (88~264 Vac / 124~373 Vdc)
- 150% peak load capability²
- DIN Rail power supplies
- two peak load mode selector
- built-in remote ON/OFF function
- over voltage, over load, and over temperature protections
- UL 508 and TUV safety approvals
- built-in active PFC function (PF 0.96)
- efficiency up to 92%



| MODEL | output voltage | output current | output power | ripple and noise ¹ | efficiency |
|-------------|----------------|----------------|--------------|-------------------------------|------------|
| | (Vdc) | max (A) | max (W) | max (mVp-p) | (%) |
| VDRS-240-24 | 24 | 10 | 240 | 240 | 91 |
| VDRS-240-48 | 48 | 5 | 240 | 480 | 92 |

Note: 1. at full load, 230 Vac input, measured at 20MHz bandwidth with a 47 µF and 0.1 µF 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



INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|--------------------------|-----------|-----|------------|------------|
| voltage | | 88 124 | | 264 373 | Vac Vdc |
| frequency | | 47 | | 63 | Hz |
| current | at 115 Vac at 230 Vac | | | 2.6 1.3 | A A |
| inrush current | at 115 Vac at 230 Vac | | | 33 65 | A A |
| power factor correction | | | | 0.96 | |
| leakage current | at 240 Vac | | | 1 | mA |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-------|------|-------|
| voltage accuracy | | | | ±1 | % |
| line regulation | | | | ±0.5 | % |
| load regulation | | | | ±1 | % |
| temperature coefficient | (0 ~ 50°C) | | ±0.03 | | %/°C |
| hold-up time | at 115 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 | 24 V model | 120 | 138 | % |
| | to recover from fault | 48 V model | 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 ² | EN 55022 Class B, EN 61000-3-3, EN 61204-3, EN 55024, light 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 | | -25 | | 70 | °C |
| storage temperature | | -40 | | 85 | °C |
| operating humidity | non-condensing | 20 | | 95 | % |
| storage humidity | | 10 | | 95 | % |
| vibration | (10 ~ 500 Hz, 1 hour per axis, 3 hours total) | | 2 | | Grms |

MECHANICAL

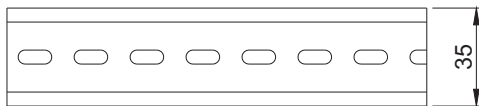
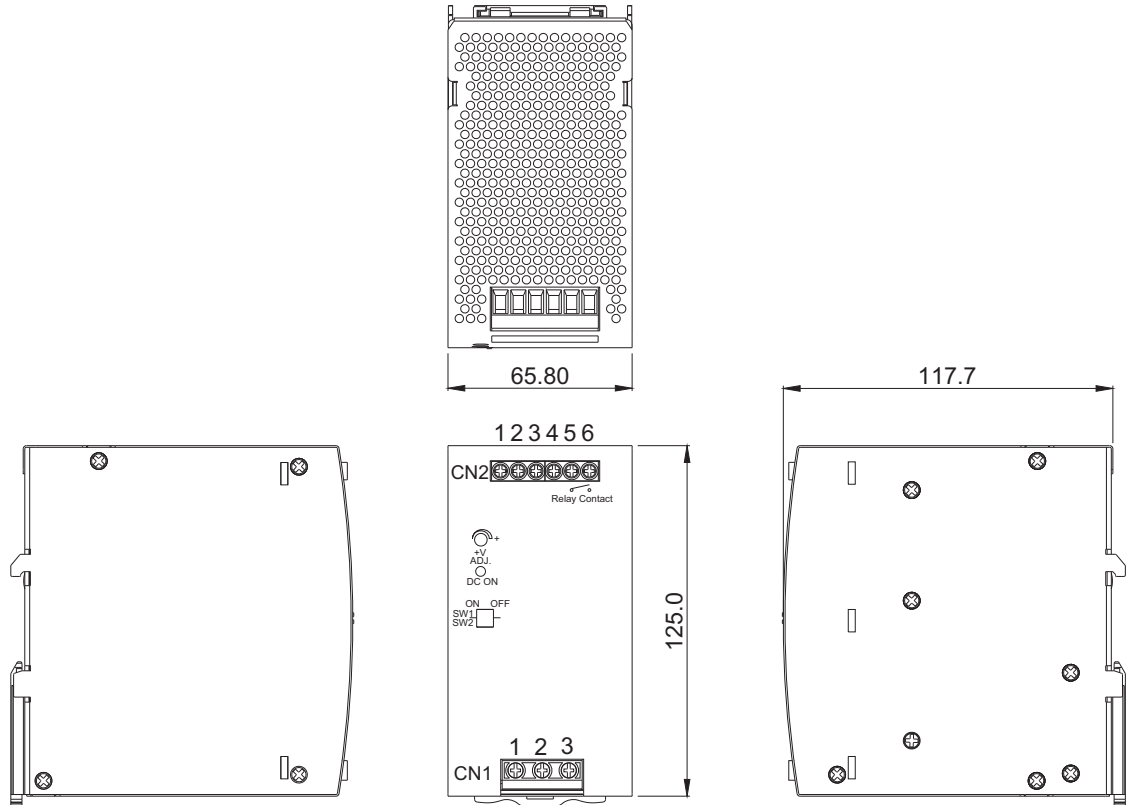
| parameter | conditions/description | min | typ | max | units |
|------------|---|-----|-----|-----|-------|
| dimensions | 2.591 x 4.921 x 4.634 (65.8 x 125 x 117.7 mm) | | | | inch |

MECHANICAL DRAWING

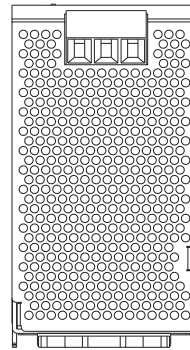
| CN1 | |
|-----|------------|
| 1 | FG ⊕ |
| 2 | ac line |
| 3 | ac neutral |

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

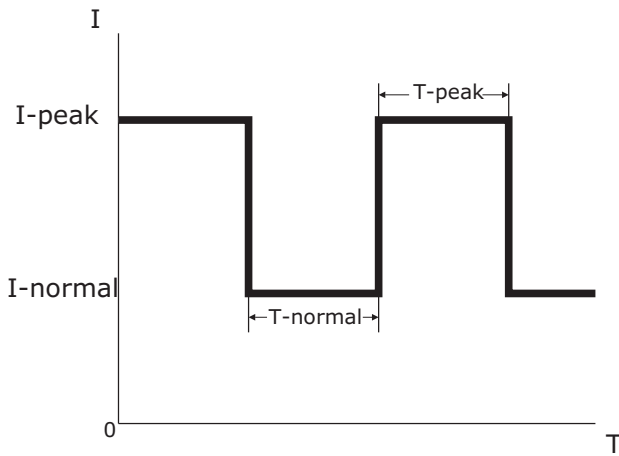
| Switch | |
|--------|-----------------------|
| 1 | peak load setting |
| 2 | remote on/off setting |



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

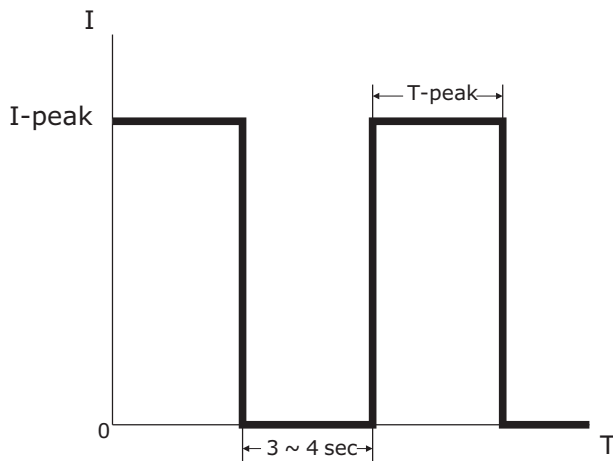


PEAK LOADING SW1 ON (MODE1) DEFAULT SETTING

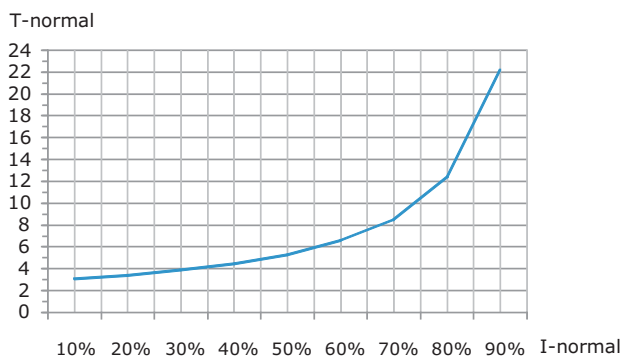


T-peak presents while the unit is working within 110%~150% rated output power. See Curve "B" for the variation in T-Peak between output current and hold-up time. If T-peak is more than the time setting in Curve "B", the output current will drop to the constant limit (I-normal) that is 105% of the rated 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.

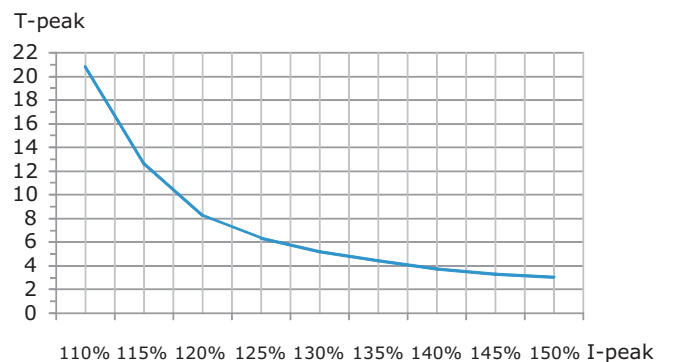
PEAK LOADING SW1 OFF (MODE2)



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



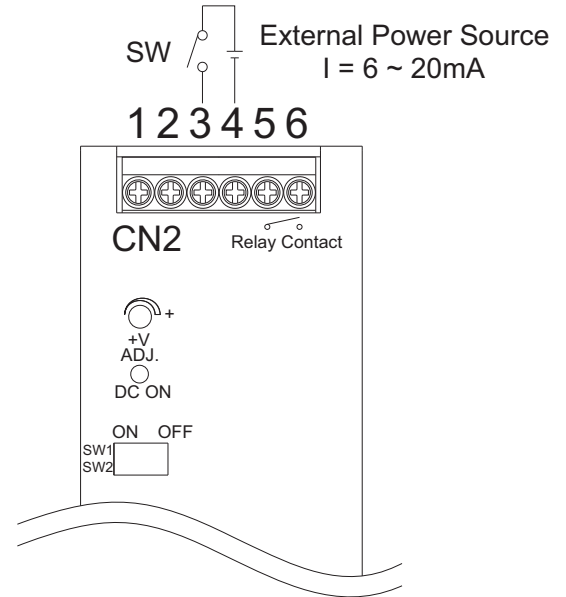
CURVE B

REMOTE ON/OFF

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

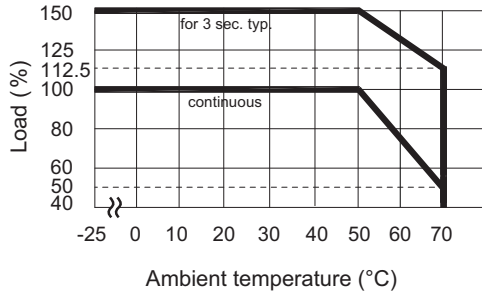
| SW2 | INH+(3 PIN)/INH-(4 PIN) | Output Status |
|-----|-------------------------|---------------|
| off | SW ON (>2.5 V) | ENABLE |
| off | SW OFF (<0.8 V) | DISABLE |
| on | SW ON (>2.5 V) | DISABLE |
| on | SW OFF (<0.8 V) | ENABLE |

(default setting)

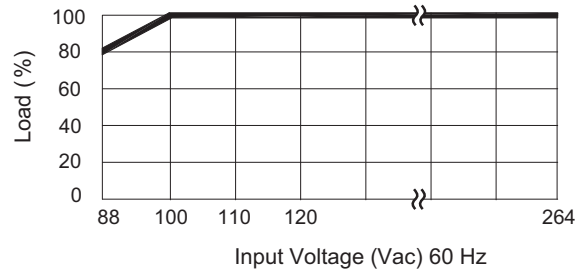


DERATING CURVE

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 | updated derating curve | 01/17/2013 |

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



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