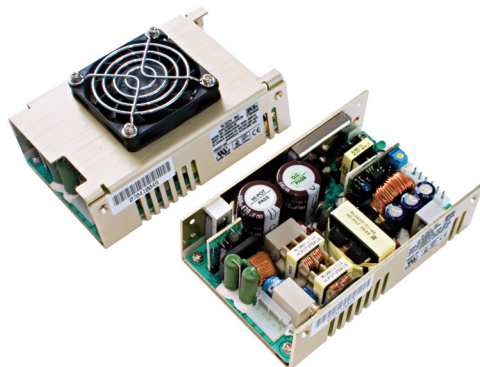


250 Watts

SDR Series



- 3.2"x 5" Footprint
- Fits 1U Applications
- Low Leakage Current
- Up to 600 W Peak Power
- Single & Dual Outputs
- Top Fan & Convection-cooled Versions
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|---|
| Input Voltage | • 90-132 VAC/180-264 VAC, auto ranging |
| Input Frequency | • 47-63 Hz |
| Input Current | • 6 A at 115 VAC, 3 A at 230 VAC |
| Inrush Current | • Max 70 A at 230 VAC, 35 A at 115 VAC, cold start at 25 °C |
| Power Factor | • EN61000-3-2, class A |
| Earth Leakage Current | • <500 μ A at 264 VAC/50 Hz |
| Input Protection | • Internal T8A/250 V fuse in line |

Output

| | |
|----------------------------|---|
| Output Voltage | • See tables |
| Output Voltage Trim | • \pm 5% on V1 (V2 of dual output models will track by same % of adjustment) |
| Initial Set Accuracy | • \pm 1% |
| Minimum Load | • 1% on single output models, 10% on both outputs for dual models |
| Start Up Delay | • 1.5 s max at 120 VAC |
| Start Up Rise Time | • 50 ms typical |
| Hold Up Time | • 20 ms min at 80% of full load |
| Line Regulation | • \pm 0.5% |
| Load Regulation | • \pm 1% 1-100% load for single outputs \pm 3% V1, \pm 7% V2 for dual outputs (except 0312 & 0512 models, \pm 10% regulation on V2) |
| Over/Undershoot | • 5% max |
| Transient Response | • 5% max deviation, recovery to within 1% in 500 μ s for a 50% load change |
| Ripple & Noise | • 1% pk-pk (see note 3) |
| Overvoltage Protection | • <130% Vnom on output V1, recycle input to reset |
| Overtemperature Protection | • Measured internally with auto recovery |
| Overload Protection | • 110-140% |
| Short Circuit Protection | • Trip & restart (hiccup mode), auto recovery |
| Remote On/Off | • Requires a low signal to inhibit output (hiccup mode) |
| Fan Supply | • 12 VDC, 300 mA, not available on '-F' version with built-in fan |

General

| | |
|---------------------|--|
| Efficiency | • Single output models: 3.3 V & 5 V models 70%, 12 V models 80%, all other models >83% at 230 V & full load. Dual output models: >70% at 230 V & full load |
| Isolation | • 3000 VAC Input to Output 1500 VAC Input to Ground 100 VDC Output to Ground |
| Switching Frequency | • 29 kHz typical |
| Power Density | • 10.4 W/in ³ |
| Signals | • Power Good TTL HIGH within 100-500 ms and LOW \leq 1 ms before loss of regulation |
| MTBF | • 150 kHrs typical to MIL-HDBK-217F at 25 °C, GB |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • 0 °C to +70 °C, derate at 2.5%/ °C from +50 °C to +70 °C for single output & forced air cooled dual output models. For convection cooled dual output models, (see note 7) |
| Storage Temperature | • -20 °C to +85 °C |
| Operating Humidity | • 5-90%, non-condensing |
| Storage Humidity | • 5-90%, non-condensing |
| Cooling | • '-F' version has built-in fan, others require 16 CFM to meet forced air ratings |
| Operating Altitude | • 3000 m |
| Vibration | • 5-50 Hz, acceleration 7.35 m/s ² on X, Y and Z axis |

EMC & Safety

| | |
|----------------------|---|
| Emissions | • EN55032 level B conducted & radiated |
| Harmonic Currents | • EN61000-3-2, class A |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 3 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 3 V/m Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 2 Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3, Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 3V Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B |
| Safety Approvals | • UL62368-1, CSA62368-1 via cUL, EN62368-1, CE (Meets all applicable directives), UKCA (Meets all applicable legislation) |

Models and Ratings

| Output Voltage | Output Power | Output Current | | Ripple & Noise PK-PK ⁽²⁾ | Model Number ^(3,4) |
|----------------|--------------|----------------|---------------------|--|-------------------------------|
| | | Nominal | Peak ⁽¹⁾ | | |
| 5 V | 200 W | 40.00 A | 120.00 A | 50 mV | SDR250AS05-F ⁽⁶⁾ |
| 9 V | 225 W | 25.00 A | 66.67 A | 90 mV | SDR250AS09-F ⁽⁶⁾ |
| 12 V | 250 W | 20.83 A | 50.00 A | 120 mV | SDR250AS12-F |
| 15 V | 250 W | 16.70 A | 40.00 A | 150 mV | SDR250AS15-F |
| 18 V | 250 W | 13.89 A | 33.30 A | 180 mV | SDR250AS18-F ⁽⁶⁾ |
| 24 V | 250 W | 10.42 A | 25.00 A | 240 mV | SDR250AS24-F |
| 28 V | 250 W | 8.93 A | 21.43 A | 280 mV | SDR250AS28-F ⁽⁶⁾ |
| 36 V | 250 W | 6.94 A | 16.67 A | 360 mV | SDR250AS36-F |
| 48 V | 250 W | 5.21 A | 12.50 A | 480 mV | SDR250AS48-F ⁽⁶⁾ |
| 54 V | 250 W | 4.63 A | 11.10 A | 540 mV | SDR250AS54-F ⁽⁶⁾ |
| 60 V | 250 W | 4.17 A | 10.00 A | 600 mV | SDR250AS60-F ⁽⁶⁾ |

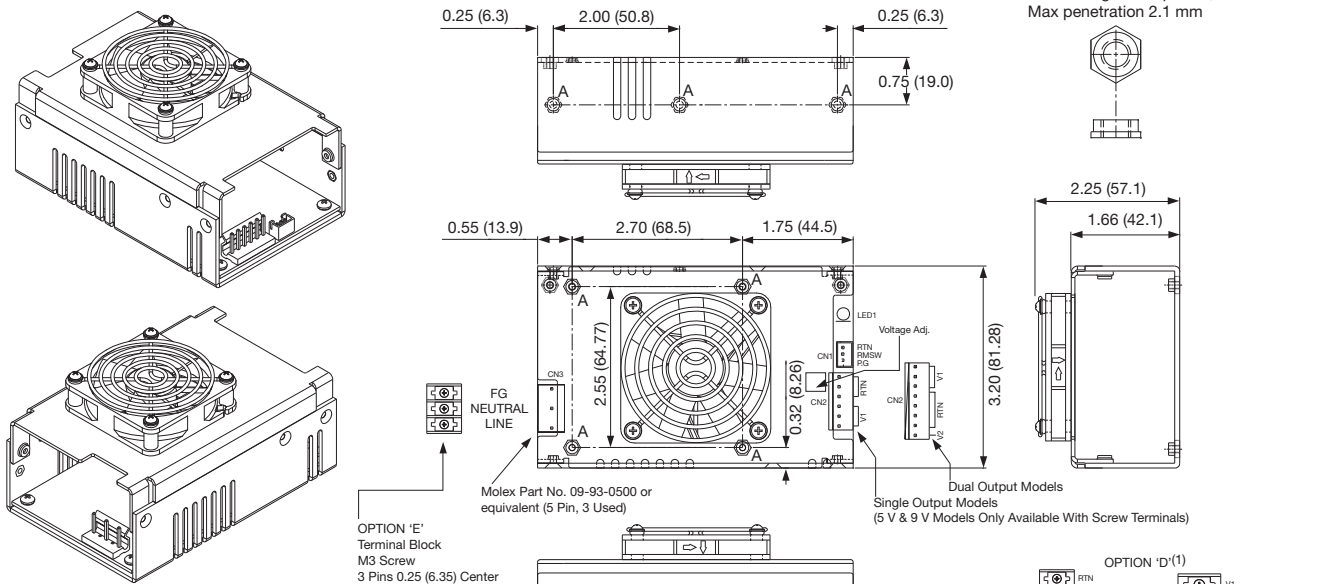
| Output Voltage | Output Power | Output Current | | Ripple & Noise PK-PK ⁽²⁾ | Model Number ^(3,4) |
|----------------|--------------|----------------|---------------------|--|-------------------------------|
| | | Nominal | Peak ⁽¹⁾ | | |
| V1 : +3.3V | 200 W | 24.0 A | 28.8 A | 50 mV | SDR250AD0312-F ⁽⁶⁾ |
| V2 : +12.0V | | 12.0 A | 14.4 A | 120 mV | |
| V1 : +3.3V | 200 W | 24.0 A | 28.8 A | 50 mV | SDR250AD0324-F ⁽⁶⁾ |
| V2 : +24.0V | | 6.0 A | 7.2 A | 240 mV | |
| V1 : +5.0V | 200 W | 24.0 A | 28.8 A | 50 mV | SDR250AD0512-F ⁽⁶⁾ |
| V2 : +12.0V | | 12.0 A | 14.4 A | 120 mV | |
| V1 : +5.0V | 200 W | 24.0 A | 28.8 A | 50 mV | SDR250AD0524-F ⁽⁶⁾ |
| V2 : +24.0V | | 6.0 A | 7.2 A | 240 mV | |
| V1 : +5.0V | 200 W | 24.0 A | 28.8 A | 50 mV | SDR250AD0548-F ⁽⁶⁾ |
| V2 : +48.0V | | 3.0 A | 3.6 A | 480 mV | |
| V1 : +12.0V | 250 W | 12.0 A | 14.4 A | 120 mV | SDR250AD1224-F |
| V2 : +24.0V | | 6.0 A | 7.2 A | 240 mV | |

Notes

1. Peak load can be taken for 500 μ s. Average power not to exceed max power.
2. Ripple & noise is measured using a 0.1 μ F ceramic capacitor in parallel with 22 μ F electrolytic and 20 MHz bandwidth.
3. Add suffix 'D' for optional output terminal block except the 5 V and 9 V output models which are only available with output terminal blocks.⁽⁶⁾
4. Add suffix 'E' for optional input terminal block.⁽⁶⁾
5. Available for OEM quantities, contact Sales.

Mechanical Details

Enclosed with top fan (option -F)



Notes

1. All dimensions are in inches (mm). Tolerance: ± 0.012 (± 0.3)
2. Weight: 0.95 lbs (430 g)
3. Signal connector CN1 mates with JST XHP-3 or equivalent & crimp terminals SXH-002T-P0.6.
4. Input: Molex No. 09-93-0500, crimp terminals Molex series 6838.
5. Output: Molex No. 09-93-0600 for 12 V to 60 V single output models, 09-93-0800 for dual output models, crimp terminals Molex series 6838.
6. Terminal block for 5 V to 9 V single output models.

Mechanical Details

| Output Voltage | Forced-cooled | | Convection-cooled | | Peak Current ⁽²⁾ | Ripple & Noise Pk-Pk ⁽³⁾ | Model Number ^(1,4,5,6) |
|----------------|---------------|----------------|-------------------|----------------|-----------------------------|-------------------------------------|-----------------------------------|
| | Output Power | Output Current | Output Power | Output Current | | | |
| 5 V | 200 W | 40.00 A | 100 W | 20.00 A | 120.00 A | 50 mV | SDR250AS05 ⁽⁶⁾ |
| 9 V | 225 W | 25.00 A | 121 W | 13.50 A | 66.67 A | 90 mV | SDR250AS09 ⁽⁶⁾ |
| 12 V | 250 W | 20.83 A | 135 W | 11.23 A | 50.00 A | 120 mV | SDR250AS12 |
| 15 V | 250 W | 16.70 A | 135 W | 9.00 A | 40.00 A | 150 mV | SDR250AS15 |
| 18 V | 250 W | 13.89 A | 135 W | 7.50 A | 33.30 A | 180 mV | SDR250AS18 ⁽⁶⁾ |
| 24 V | 250 W | 10.42 A | 135 W | 5.63 A | 25.00 A | 240 mV | SDR250AS24 |
| 28 V | 250 W | 8.93 A | 135 W | 4.82 A | 21.43 A | 330 mV | SDR250AS28 ⁽⁶⁾ |
| 36 V | 250 W | 6.94 A | 135 W | 3.75 A | 16.67 A | 360 mV | SDR250AS36 |
| 48 V | 250 W | 5.21 A | 135 W | 2.81 A | 12.30 A | 480 mV | SDR250AS48 ⁽⁶⁾ |
| 54 V | 250 W | 4.63 A | 135 W | 2.50 A | 11.10 A | 540 mV | SDR250AS54 ⁽⁶⁾ |
| 60 V | 250 W | 4.17 A | 135 W | 2.25 A | 10.00 A | 600 mV | SDR250AS60 ⁽⁶⁾ |

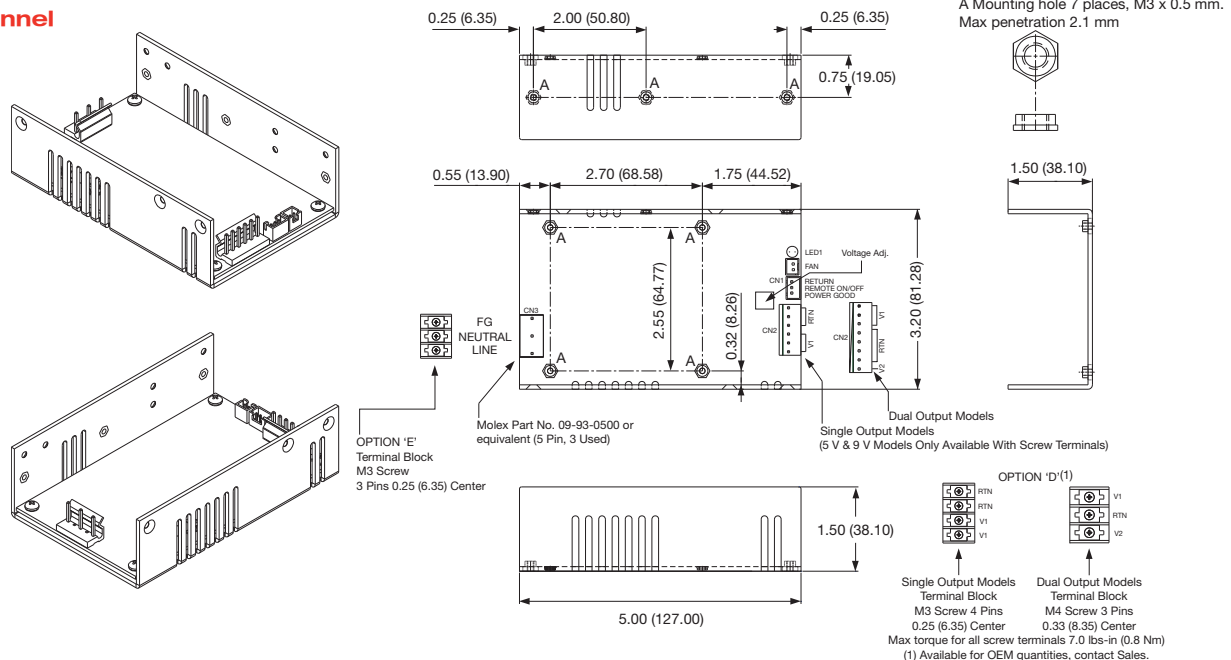
| Output Voltage | Forced-cooled | | Convection-cooled | | Peak Current ⁽²⁾ | Ripple & Noise Pk-Pk ⁽³⁾ | Model Number ^(1,4,5,6,7) |
|----------------|---------------|----------------|-------------------|----------------|-----------------------------|-------------------------------------|-------------------------------------|
| | Output Power | Output Current | Output Power | Output Current | | | |
| V1 : +3.3 V | 200 W | 24.0 A | 100 W | 12.0 A | 28.8 A | 50 mV | SDR250AD0312 ⁽⁶⁾ |
| V2 : +12.0 V | | 12.0 A | | 7.0 A | 14.4 A | 120 mV | |
| V1 : +3.3 V | 200 W | 24.0 A | 100 W | 12.0 A | 28.8 A | 50 mV | SDR250AD0324 ⁽⁶⁾ |
| V2 : +24.0 V | | 6.0 A | | 4.0 A | 7.2 A | 240 mV | |
| V1 : +5.0 V | 200 W | 24.0 A | 100 W | 12.0 A | 28.8 A | 50 mV | SDR250AD0512 ⁽⁶⁾ |
| V2 : +12.0 V | | 12.0 A | | 7.0 A | 14.4 A | 120 mV | |
| V1 : +5.0 V | 200 W | 24.0 A | 100 W | 12.0 A | 28.8 A | 50 mV | SDR250AD0524 ⁽⁶⁾ |
| V2 : +24.0 V | | 6.0 A | | 4.0 A | 7.2 A | 240 mV | |
| V1 : +5.0 V | 200 W | 24.0 A | 100 W | 12.0 A | 28.8 A | 50 mV | SDR250AD0548 ⁽⁶⁾ |
| V2 : +48.0 V | | 3.0 A | | 2.0 A | 3.6 A | 480 mV | |
| V1 : +12.0 V | 250 W | 12.0 A | 135 W | 7.0 A | 14.4 A | 120 mV | SDR250AD1224 |
| V2 : +24.0 V | | 6.0 A | | 4.0 A | 7.2 A | 240 mV | |

Notes

1. Add suffix 'L' to model number for optional 500 μA leakage current.⁽⁸⁾
2. Peak load can be taken for 500 μs. Average power not to exceed max power.
3. Ripple & noise is measured using a 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth.
4. For optional vented cover add suffix '-C' to model number.
5. Add suffix '-D' for optional output terminal block except the 5 V and 9 V output models which are only available with output terminal blocks.⁽⁶⁾
6. Add suffix '-E' for optional input terminal block.⁽⁸⁾
7. Operating temperature - 0 °C to +60 °C, derate at 5%/ °C from 50 °C to 60 °C for convection cooled dual output models.
8. Available for OEM quantities, contact Sales.

Mechanical Details

U-Channel

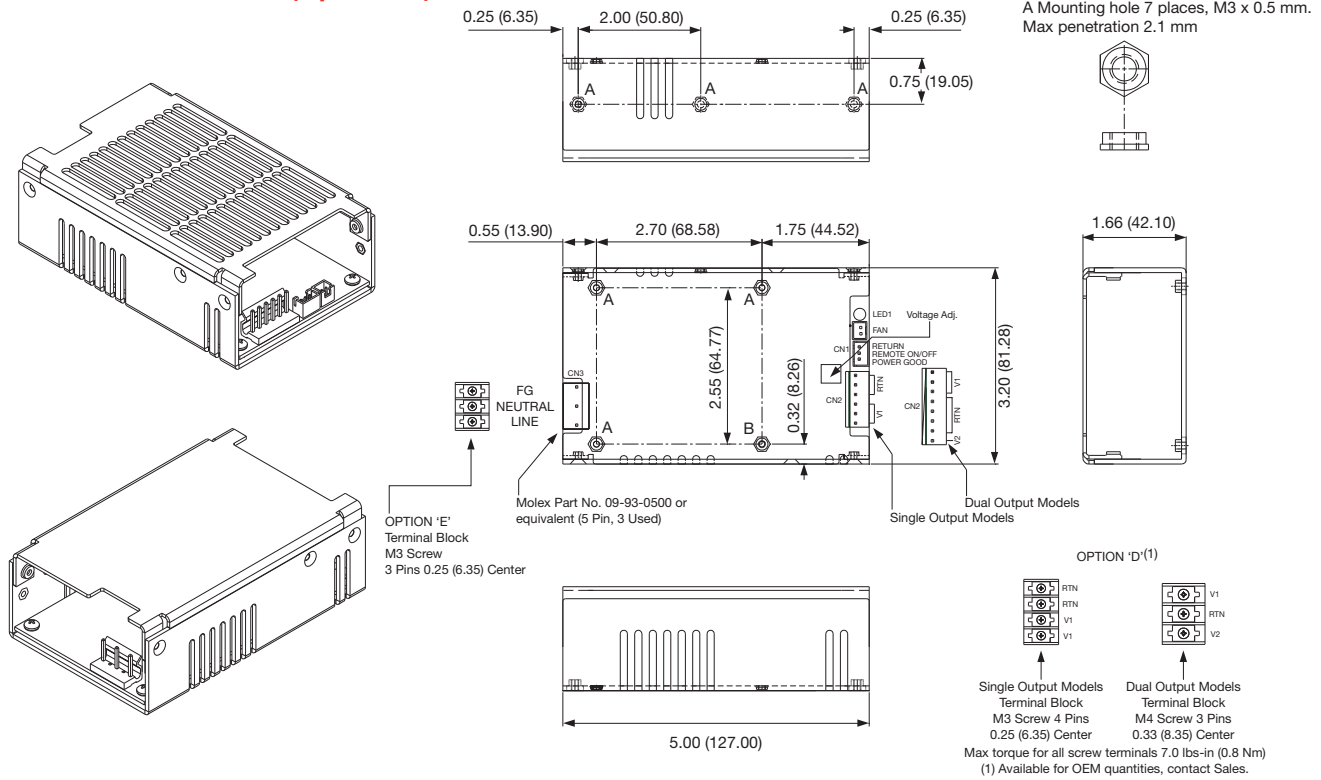


Notes

1. All dimensions are in inches (mm). Tolerance: ±0.012 (±0.3)
2. Weight: 0.88 lbs (400 g)
3. Signal connector CN1 mates with JST XHP-3 or equivalent & crimp terminals SXH-002T-P0.6.
4. Fan connector mates with JST XHP-2 or equivalent & crimp terminals.
5. Input: Molex No. 09-93-0500, crimp terminals Molex series 6838.
6. Output: Molex No. 09-93-0600 for 12 V to 60 V single output models, 09-93-0800 for dual output models, crimp terminals Molex series 6838.
7. Terminal block for 5 V to 9 V single output models.

Mechanical Details

U-Channel with cover (Option 4C)

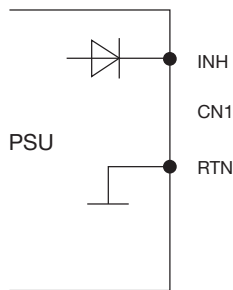


Notes

1. All dimensions are in inches (mm). Tolerance: ± 0.012 (± 0.3)
2. Weight: 0.93 lbs (420 g)
3. Signal connector CN1 mates with JST XHP-3 or equivalent & crimp terminals SXH-002T-P0.6.
4. Fan connector mates with JST XHP-2 or equivalent & crimp terminals.
5. Input: Molex No. 09-93-0500, crimp terminals Molex series 6838.
6. Output: Molex No. 09-93-0600 for 12 V to 60 V single output models, 09-93-0800 for dual output models, crimp terminals Molex series 6838.
7. Terminal block for 5 V to 9 V single output models

Application Notes

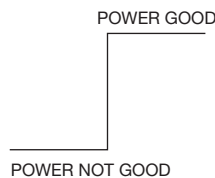
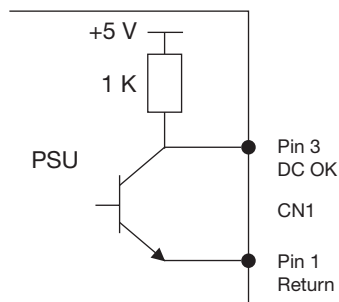
Remote On/Off



Note:

1. Applying $< 0.3V$ or short between pins 2 and 1 turns the output OFF.
2. Applying $> 4.5V$ or open circuit between pins 2 and 1 turns output ON.
3. The output will enter hiccup mode. Recommended maximum time is 3 minutes.

Power Good



Sink current = 6 mA
Source current = 1 mA