



- Small 2.3" x 1.45" x 0.47" Size
- Constant Frequency (300kHz, typ)
- High Typical Efficiency of 91%
- Low Output Noise
- Output Over Voltage Protection
- Current Limit/Short Circuit Protection
- Adjustable Output Voltage 80-110% of  $V_o$
- Open Frame Construction
- Logic ON/OFF Control (Optional Configurations Available)

**DESCRIPTION:**

The ASD150QV Series of products are open frame, high density, dc/dc converters designed for use in distributed power architectures and may, in many cases, be used as fit and function replacements for industry standard half brick modules with a 40% space savings. Synchronous Rectification enables these power supplies to produce up to 150W of high efficiency power in an 1/4th brick (2.3in. x 1.45in. x 0.47in. ) package.

<b>Model Number</b>	<b>Output Voltage</b>	<b>Output Amps</b>	<b>Input Range</b>	<b>Max. Iin FL</b>	<b>Max Output Power</b>
ASD150-24S3.3QV	3.3 VDC	40	18-36 VDC	11A	132 Watts
ASD150-24S5QV	5 VDC	30	18-36 VDC	13A	150 Watts
ASD150-24S12QV	12 VDC	12.5	18-36 VDC	13A	150 Watts
ASD150-48S3.3QV	3.3 VDC	40	36-75 VDC	6A	132 Watts
ASD150-48S5QV	5 VDC	30	36-75 VDC	7A	150 Watts
ASD150-48S12QV	12 VDC	12.5	36-75 VDC	7A	150 Watts

## ABSOLUTE MAXIMUM RATINGS (MIN TO MAX.)

Input Voltage (+In to -In)	24Vin: 18-36VDC Continuous
	48Vin: 36-75VDC Continuous
Transient Input Voltage	24Vin: 50VDC (100mS max.)
	48Vin: 100VDC (100mS max.)
Storage Temperature (Ambient)	150°C
Wave Solder Temperature	260°C for 10 Seconds

## INPUT SPECIFICATIONS (300LFM AIRFLOW)

Input Operation Voltage:	See Model Chart on Page 1
Input Current FL (0 Vin - Vin max.)	See Model Chart on Page 1
Input Transient	1A <sup>†</sup>
Input Reflected Ripple Current	50mA <sub>p-p</sub> , typ. (Note 1)
Startup Input Voltage (Note 4)	24Vin: 17-19VDC
	48Vin: 33-36VDC
Shutoff Input Voltage	24Vin: 16-18VDC
	48Vin: 30-33VDC
Hysteresis	1V

## OUTPUT SPECIFICATIONS (300LFM AIRFLOW)

Output Voltage	See Model Chart on Page 1
Output Current (I <sub>o</sub> , max.)	See Model Chart on Page 1
Output Set Point (V <sub>o, set</sub> )	+/-1.5%, Nominal Vin, FL
Total Output Voltage Range	+/- 3%
Load/Load Regulation	+/-1%
Temperature Regulation	+/-1%, I <sub>o</sub> =40A, T <sub>a</sub> =-40 to 70°C
Ripple/Noise	150mV p-p max., 30mV <sub>rms</sub> (Note 2)
Dynamic Response:	(Note 3)
Peak Deviation	4%
Settling Time	200uS V <sub>out</sub> within 1% V <sub>nom</sub>
Over Voltage Protection	110-140% of Output, Hiccup Mode
Over Temperature Protection	104-125°C, auto recover
External Capacitance	10 to 5000uF max. (Electrolytic)
Short Circuit Protection (rms)	30Arms, Hiccup, R <sub>out</sub> ≤10M Ω
Current Limit (rms.)	110-140%, V <sub>o</sub> =90% of V <sub>nom</sub>
Efficiency	
@ 50% I <sub>o</sub> :	90%
@ 75% I <sub>o</sub> :	91%
@ 100% I <sub>o</sub> :	90%

## ISOLATION SPECIFICATIONS

Input-Output	1500VDC
Input-Output Capacitance	1500pF
Isolation Resistance	10MΩ

## GENERAL SPECIFICATIONS

MTBF	1Mhrs, 48Vin, 80% Load
Weight	3.52 oz (100g)
Dimensions	2.3" x 1.45" x 0.47" (58.4 x 36.8 x 12mm)

## CONTROL SPECIFICATIONS

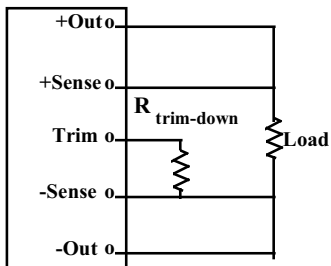
Turn-On Time	500mS, FL, V <sub>o</sub> =90% V <sub>o, set</sub>
Trim Adjustment Range	80-110% See <b>TRIM CIRCUIT</b>

## NOTES

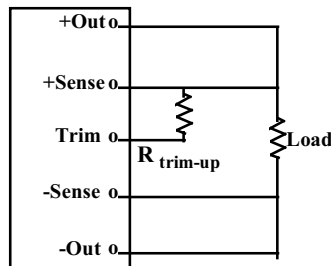
1. Measured before Input Filter
2. Scope measurement should be made using a BNC connector with 1uF and 10uF aluminum electrolytic capacitor across output. Scope set to read at 20MHz bandwidth.
3. 25%-50%-75% load, 0.1A/uS
4. The Cold Start condition is a uniform converter temperature of -40°C after thermal stabilization. The Hot Start condition for start up is a uniform converter temperature of 65°C after thermal stabilization.

*All specifications are typical at nominal input, full load, and 25DegC unless otherwise noted*

**TRIM CIRCUIT**



Trim Down



Trim Up

$$R_{\text{trim-down}} = (511 / \Delta \%) - 10.22 \text{ kOhms}$$

$$R_{\text{trim-up}} = (5.11V_{\text{out}}[100 + \Delta \%] / 1.225\Delta \%) - (511/\Delta \%) - 10.22 \text{ kohms}$$

Where:

$$\Delta \% = [(V_{\text{nominal}} - V_{\text{desired}}) / V_{\text{nominal}}] \times 100\%$$

Example: For  $V_{\text{out}} = 2.97$ , use  $R_{\text{trim-down}} = 40.2 \text{ kOhms}$

For  $V_{\text{out}} = 3.63$ , use  $R_{\text{trim-up}} = 168 \text{ kOhms}$

**PIN OUTS**

Pin	Function	Pin	Function
1	+Vin	4	-Vout
		5	-Sense
2	Enable (on/off)	6	Trim
		7	+Sense
3	-Vin	8	+Vout

