



SUPERVERTER[®] DUAL

100W, DC-DC CONVERTER

MODEL SVD48-3325

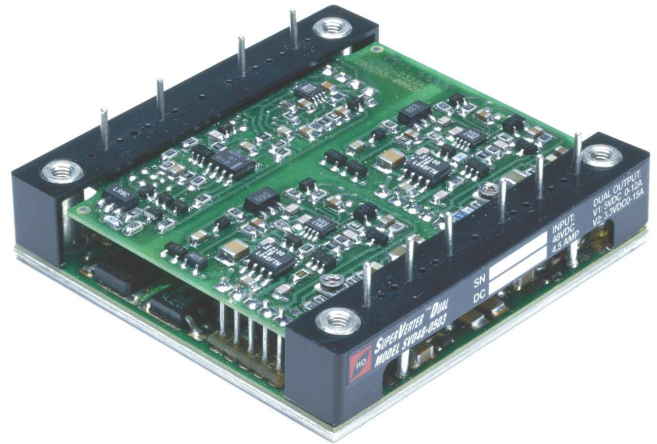
PRELIMINARY DATA SHEET

Distributed Power in Telecom, Internet, Wireless, & Computer Electronics

- INPUT: 36 - 75VDC
- DUAL OUTPUT: 3.3VDC @ 15A
2.5VDC @ 20A

FEATURES

- Independently Regulated, Dual Outputs (Common Gnd. Standard, Floating Outputs Optional*)
- Excellent Dynamic Cross Regulation
- Auto-Recovery Circuit Protection: OCP, OVP, OTP
- -40 to +100°C Operation
- Constant Frequency
- Independent, ±10% Trim for Each Output
- High Power Density: 36.4 W/cu. in.
- Low Noise
- Open Frame Construction
- Safety Agency Approved
- Compatible With Industry Standard, Dual Output, DC-DC Converters



ORDERING INFORMATION

Model Number	Input Voltage (Vdc)	V1 Output Voltage (Vdc)	V1 Output Current (A)	V2 Output Voltage (Vdc)	V2 Output Current (A)
SVD48-3325	36-75	3.3	15	2.5	20

Positive logic On/Off is standard. For optional* negative logic add -1 suffix to the model number.

*Minimum quantity and lead-time restrictions apply.

For other models check www.roassoc.com/products/duals.htm

Evaluation Boards are Available

DESCRIPTION

The SUPERVERTER[®] dual output DC-DC converter is a high density, dual output module packaged in the industry standard “half brick” size. Its state-of-the-art topology provides independent regulation of each output; which minimizes ground loops, improves static and dynamic cross-regulation, and allows an optional isolated output version to be offered. The module’s high efficiency allows both outputs to be simultaneously operated at rated current, and the switching of the primary and both secondary power stages is synchronized to minimize noise at low “beat” frequencies. All of this power and functionality is squeezed into a tiny, open-frame package (just 2.28 x 2.4 x 0.5 inches) with an industry standard footprint.

SUPERVERTER® Dual Output DC-DC Converter

SVD48-3325

ABSOLUTE MAXIMUM RATINGS

Exceeding absolute maximum ratings may cause permanent damage and may reduce reliability.

PARAMETER	MIN	MAX	UNITS	CONDITIONS
Transient Input Voltage (+In to -In)	-0.3	100	Vdc	100 msec. max.
On/Off Voltage (On/Off to -In)	-0.3	30	Vdc	
Storage Temperature	-40	+125	°C	
Operating Temperature	-40	+100	°C	Baseplate
Soldering Temperature (Wave Solder)		260	°C	< 5 sec.
Soldering Temperature (Hand Solder)		390	°C	< 7 sec.

ELECTRICAL SPECIFICATIONS

Electrical specifications apply at nominal input voltage, full load, and 25°C unless indicated otherwise.

INPUT PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Input Voltage	36	48	75	Vdc	
Startup Voltage	34	35	36	Vdc	
Shut Down Voltage	30	31	32	Vdc	
Maximum Input Current			4.7	A	See Input Characteristic Curve
Reflected Ripple Current			80	mA p-p	V _{in} = 48 V, Full Load, 0 – 20 MHz
Input Ripple Rejection		60		dB	@120 Hz

OUTPUT PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Voltage Set Point – Output 1	3.25	3.3	3.35	Vdc	48 V _{in} , 25°C, Full Load
Voltage Set Point – Output 2	2.45	2.50	2.55	Vdc	48 V _{in} , 25°C, Full Load
Load Regulation			0.5	%	0 A to Full Load
Line Regulation			0.2	%	Over V _{in} Range
Voltage Drift w/Temperature			0.02	%/°C	-40 to +100 °C
Output 1 Ripple			75 20	mV p-p mV RMS	5 Hz to 20 MHz, with 1 µF ceramic and 10 µF electrolytic external capacitors
Output 2 Ripple			75 20	mV p-p mV RMS	5 Hz to 20 MHz, with 1 µF ceramic and 10 µF electrolytic external capacitors
Rated Current – Output 1	1.5		15	A	
Rated Current – Output 2	2.0		20	A	
Output Power			100	W	
Current Limit Inception	110	125	140	% F.L.	V _{out} = 95% V _{out} nominal
Short Circuit Current			150	% F.L.	V _{out} = 250 mV
Transient Response Peak Deviation (0.1A/µsec slew rate)		1		% V _{out}	Load Change from 50% to 75% to 50% Full Load
Transient Response Settling Time (0.1A/µsec slew rate)		500		µsec	V _{out} within 1% V _{out} nominal
Efficiency		78		%	V _{in} = 48 V, 50W Load, 25 °C Case

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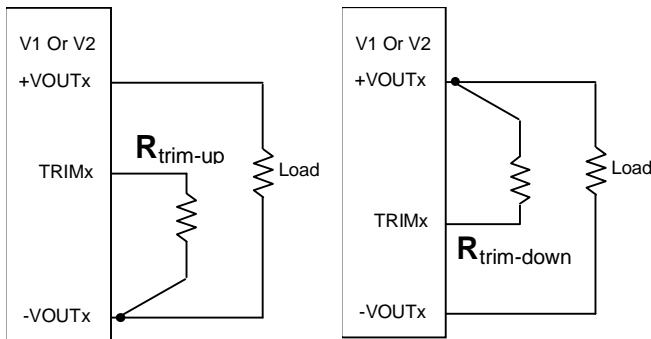
ELECTRICAL SPECIFICATIONS (continued)

ISOLATION PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Input/Output Isolation			1500	Vdc	
Input/Baseplate Isolation			1500	Vdc	
Output/Baseplate Isolation			500	Vdc	
Input-to-Output Capacitance		2000		pF	Case Floating
Input-to-Output Resistance	10			M Ohms	

MECHANICAL PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Weight	68 (2.4)			g (oz.)	
Size	2.28 x 2.4 x 0.5			Inches	See Outline Drawing
Thermal Resistance, Case-to-Ambient	6.6			°C/W	Case Temperature = 100 °C

FEATURE PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Trim Range	-10		+10	%	
Over Voltage Protection (Non-Shutdown, Auto. Recovery)	115		140	% V _{out} (nom)	25 °C Case
Over Temperature Shut-down	105	110	115	°C	Case Temperature
Turn-On Time		10		msec	80% F.L., V _{out} within 1% of Final Value
Logic On/Off					
Logic Low	0.5			V	V _{out} = 0
On/Off Source Current		2		mA	@V _{on/off} < 0.5 V
Logic High			15	V	
On/Off Sink Current			50	µA	@V _{on/off} = 15 V

TRIM CIRCUIT CONFIGURATIONS



Trim Up

Trim Down

TRIM RESISTOR CALCULATIONS

$$3.3V R_{trim-up} = \left(\frac{2.069 - 5.110\Delta V_o}{\Delta V_o} \right) k\Omega$$

$$3.3V R_{trim-down} = \left(\frac{3.437 - 6.779\Delta V_o}{\Delta V_o} \right) k\Omega$$

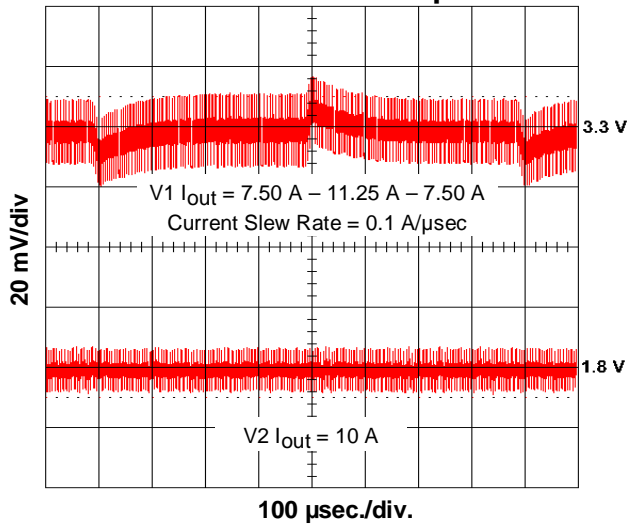
$$2.5V R_{trim-up} = \left(\frac{6.250 - 10.00\Delta V_o}{\Delta V_o} \right) k\Omega$$

$$2.5V R_{trim-down} = \left(\frac{6.350 - 15.04\Delta V_o}{\Delta V_o} \right) k\Omega$$

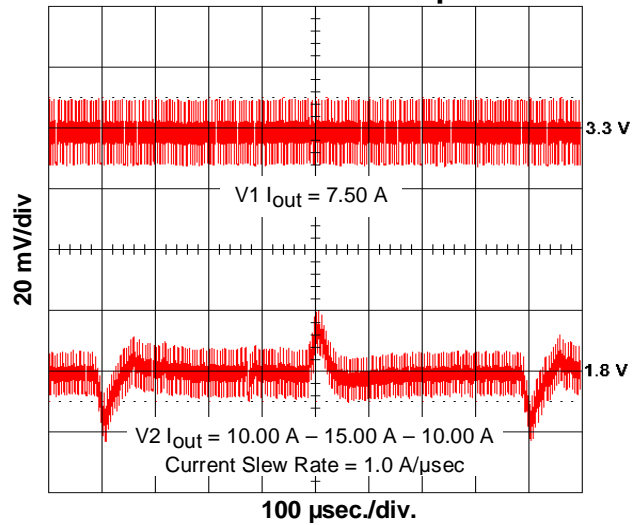
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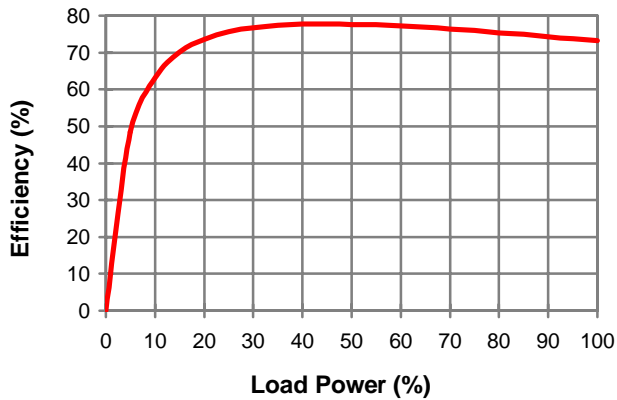
3.3V Transient Response



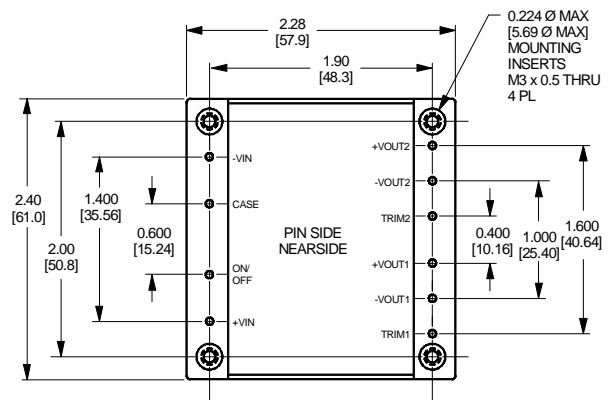
2.5V Transient Response



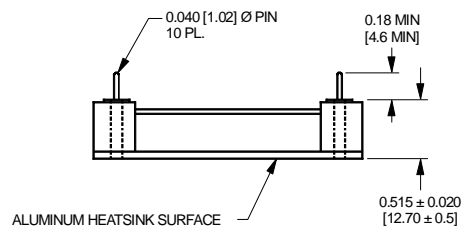
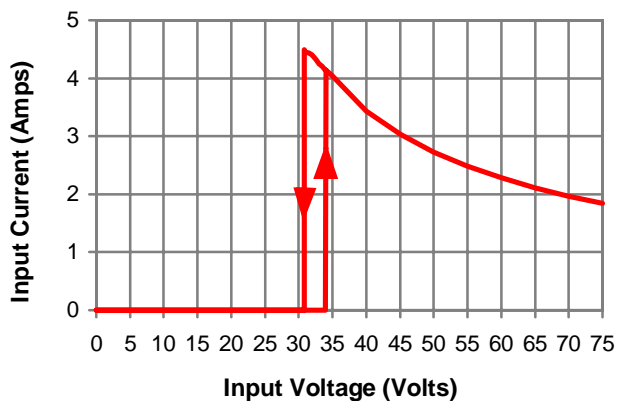
Efficiency



Outline Drawing



Input Characteristics



NOTES - UNLESS SPECIFIED OTHERWISE
ALL DIMENSIONS ARE GIVEN IN INCHES [MILLIMETERS]
TOLERANCES: x.xx in. ± 0.02 in. x.xxx in. ± 0.010 in.
[x.x mm. ± 0.5 mm.] [x.xx mm. ± 0.25 mm.]

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