

High efficiency Dual output Industry Standard DC-DC Converter



Size: 60.96mm x 57.91mm x 13.00mm
(2.40in. x 2.28in. x 0.51in.)

FEATURES

- ▶ High Power Density - Up to 41 W/in³
- ▶ Constant Frequency - 370kHz
- ▶ High Efficiency: 80% Typical
- ▶ Low Output Noise
- ▶ Industry Standard Size
- ▶ Metal Baseplate
- ▶ 2:1 Input Voltage Range
- ▶ Over Temperature Protection
- ▶ Over Voltage Protection
- ▶ Current Limit/Short Circuit Protection
- ▶ Logic ON/OFF
- ▶ Safety Agency Pending
- ▶ Industry Standards Pinout

OPTION

- ▶ Choice Of Remote On/off Logic Configuration
- ▶ Heat Sink Available For Extended Operation

SPECIFICATION

ABSOLUTE MAXIMUM RATINGS:

Exceeding absolute maximum ratings may cause permanent damage and reduce reliability

PARAMETER	MIN	MAX	UNITS	CONDITIONS
Input Voltage		100	Vdc	Continuous
Input/Output Isolation		1500	Vdc	100 ms max.
Operating Case Temperature	-40	100	°C	
Storage Temperature	-40	110	°C	

- Electrical Specifications: Unless otherwise indicated specifications apply over all operating input voltage, resistive load, and temperature conditions.

INPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Operation Input Voltage (V_i)	36	48	75	V	
Maximum Input Current ($I_{i,max}$)			4.8	A	$V_i = 0Vdc$ to 75
Input Reflected-Ripple Current: Peak to Peak		5		mAp-p	5Hz-20MHz 12 μ H Source Impedance@
Input Ripple Rejection		60		dB	120Hz

MODEL SELECTION

Model Name	Vin(Vdc)	Vout(Vdc)	Io(Amps)	Watts	API P/N
SDV48-AF-110-1	36-75	5/3.3	12/15	110	API0DC03-001

DESCRIPTION

The Super Dual Verter(SDV) series are dual output fully isolated converters that feature high efficiency topologies and open frame packaging. The SDV series allows designers complete freedom to deliver a vast combination of power output within each outputs maximum rating. The SDV series uses planar magnetics and open frame packaging, providing 1500VDC isolation and over 1.3 million hours MTBF.

The Dual Output DC-DC converters provide up to 110W with OVP, OTP, and Short Circuit Protection. All SDV modules are high efficiency, and high power density designs for use in distributed power architectures, workstations, EDP equipment, and telecommunication applications.

⚠ Caution: This power module is not internally fused. An input must always be used.

OUTPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Output Voltage Set Point ($V_{o, set}$)					$T_c = 25^\circ\text{C}$, $V_i = 48\text{V}$, $I_o = I_{o, max}$
V_{o1}	4.95	5.00	5.05	V	
V_{o2}	3.25	3.3	3.35	V	
Line Regulation		0.2			$V_i = 36\text{V}$ to 75V
Load Regulation		0.5		%	$I_o = \text{min to max}$
Voltage Drift with Temperature			0.02	%	$T_c = -40$ to 100°C
Total Regulation			1.3	% / $^\circ\text{C}$	
Output Ripple and Noise Voltage:					5Hz to 20MHz.
RMS: V_{o1}			40,	mVrms	
V_{o2}			20	mVrms	
Peak to Peak: V_{o1}			100	mVp-p	
V_{o2}			75	mVp-p	
Output Power	0	60	110	W	
Output Current(I_o):					At $I_o < I_{o, min}$, the modules may exceed output ripple specifications
V_{o1}	1.2		12	A	
V_{o2}	1.5		15	A	
Output Current limit	110	125	140	% $I_{o, max}$	$V_o = 95\%$ of $V_{o, set}$
Output Short Circuit Current			150	% $I_{o, max}$	$V_o = 250\text{mV}$
Switching Frequency		370		kHz	
Efficiency		80		%	$V_i = 48\text{V}$, $P_o = 60\text{W}$, 25°C case
Dynamic Response:					50%-75%-50% Max Load, $T_c = 25^\circ\text{C}$, $V_i = 48\text{V}$
Peak Deviation		4		% $V_{o, set}$	
Slew Rate		0.1		A / μs	
Settling Time			500	μs	

CONTROL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Logic On/Off:					$V_o = 0$
Logic Low: $I_{on/off}$			2	mA	$V_{on/off} < 0.5\text{V}$
$V_{on/off}$	0.5		1	V	
Logic High: $I_{on/off}$ (Leakage Current)			50	μA	$V_{on/off} = 15\text{V}$
$V_{on/off}$			15	V	
Turn-On Time		10		ms	$I_o = 80\%$ $I_{o, max}$ V_o within $\pm 1\%$ $V_{o, set}$
Output Voltage Trim Range	10		10	% $V_{o, set}$	
Over Voltage Protection	115		140	% $V_{o, set}$	Auto Recovery, 25°C Case
Over Temperature Protection	105	110	115	$^\circ\text{C}$	Case Temperature

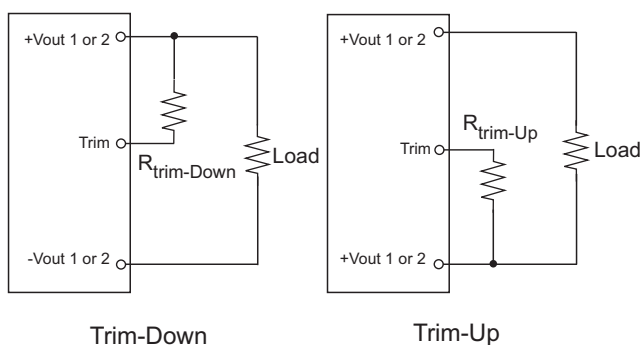
ISOLATION SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Input to Case		1500		Vdc	
Input To Output		1500		Vdc	
Output To Case		500		Vdc	
Input To Output Capacity		2000		pF	
Isolation Resistance	10			Mohm	

GENERAL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX		CONDITIONS
MTBF		1.3		Mhrs	$T_c=40^{\circ}\text{C}$, $I_o=80\%$ of $I_{o,max}$
Weight		68		g	
Size		2.40x2.28x0.51		in^3	

TRIM CIRCUIT



$$5\text{V Rtrim-up} = \left(\frac{2.50-3.32 \Delta V_o}{\Delta V_o} \right) \text{ Kohms}$$

$$5\text{V Rtrim-down} = \left(\frac{2.50-4.32 \Delta V_o}{\Delta V_o} \right) \text{ Kohms}$$

$$3.3\text{V Rtrim-up} = \left(\frac{0.80-0.365 \Delta V_o}{\Delta V_o} \right) \text{ Kohms}$$

$$3.3\text{V Rtrim-down} = \left(\frac{0.256-0.685 \Delta V_o}{\Delta V_o} \right) \text{ Kohms}$$

ΔV_o = Desired Output Voltage Change

Rtrim-up= External Resistor Value to Increase V_o

Rtrim-down= External Resistor Value to Decrease V_o

OUTLINE DRAWING

