



SPECIFICATION

For

SWITCHING DC to DC Converter

M/N: MDSB300W Series

Revision History

REV.	DATE	DESCRIPTION
	Jan. 14 th 2015	Established.



FEATURES

- 300W Isolated Output
- Efficiency to 91%
- Input under voltage protection
- Over Voltage / Circuit Protection
- Over Temperature Protection
- Remote On /Off
- Industry Standard Half-Brick Package
- Design to meet UL 60950-1, EN60950-1 and IEC 60950-1
- CE Mark Meets 2004/108/EC
- Fully isolated 1500VDC

1. Description

Models	Input Voltage	Output Voltage	Output Current		Input Current		Efficiency	Capacitor Load Max. (Note 2)
			Min.	Max.	No Load	Full Load		
MDSB300W-2405	9-36 VDC	5 VDC	0 mA	60 A	200 mA	14.12 A	88 %	470~10000 uF
MDSB300W-2412		12 VDC		25 A	200 mA	13.74 A	91 %	330~10000 uF
MDSB300W-2424		24 VDC		12.5 A	80 mA	14.2 A	88 %	220~4700 uF
MDSB300W-2428		28 VDC		10.7A	80 mA	14.12 A	88 %	220~4700 uF
MDSB300W-2448		48 VDC		6.25 A	100 mA	14.2 A	88 %	220~2200 uF
MDSB300W-4805	18-75 VDC	5 VDC	0 mA	60 A	100 mA	6.49 A	89 %	0~10000 uF
MDSB300W-4812		12 VDC		25 A	100 mA	74 A	90 %	0~10000 uF
MDSB300W-4824		24 VDC		12.5 A	80 mA	4.72 A	89 %	0~4700 uF
MDSB300W-4828		28 VDC		10.7A	80 mA	4.72 A	89 %	0~4700 uF
MDSB300W-4848		48 VDC		6.25 A	80 mA	4.83 A	88 %	220~2200 uF

Note: 1) Nominal input voltage 48VDC.

2) The output terminal of Models required a minimum Capacitor to maintain specified regulation

3) Output Peak Power 350W<3 sec. with maximum duty cycle of 10%; average output power cannot exceed 300W.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage (Note 2.)	Continuous input range	9 18	24 48	36 75	VDC
Input Surge Voltage	24 Vin 100 mS max. 48 Vin 100 mS max.			50 100	VDC
Under Voltage Lockout	24 Vin Power up Power down		8.8 8.0		VDC
	48 Vin Power up Power down		17 16		VDC
Positive Logic Remote ON/OFF (Note 1.)	Logic Compatibility Module ON Module OFF			Open Collector ref. to -Input > 3.5 to 75 VDC or Open Circuit < 1.2 VDC	
Input Filter					PI Type or LC Type

Note: 1) Suffix "N" to the model number with negative logic remote ON/OFF.

Module ON.....< 1.2 VDC.

Module OFF.....> 3.5 to 75 VDC or Open Circuit

2) The input terminal recommend to parallel with 1000uF for 24Vin, 220uF for 48Vin models ESR<0.7Ω to reduce the input ripple voltage.



3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Voltage Accuracy				± 1.5	%
Transient Response	25% step load change			500	μ sec.
External Trim Adj. Range <small>(Note 2)</small>				± 10	%
Ripple & Noise <small>(Note 1)</small>	20MHz bandwidth	5 V	RMS	40	mV
			Pk - Pk	100	
		12 V	RMS	60	
			Pk - Pk	120	
		24 V & 28V	RMS	100	
			Pk - Pk	280	
48 V	RMS	200			
	Pk - Pk	480			
Temperature Coefficient				± 0.03	% / °C
Line Regulation	Measured from high line to low line			± 0.2	%
Load Regulation	Measured from full load to zero load			± 0.2	%
Start Up time			120		mS
Current Limit			120-160% nominal output		

Note: 1) Output ripple and noise measured with 10uF tantalum and 1uF ceramic capacitor across output.

2) Trim up: Connect a resistor between the trim pin and sense (+)

Trim down: Connect a resistor between the trim pin and sense (-)

4. Interface Signals and Internal Protection

Parameter	Conditions/Description
Short Circuit Protection	The power supply will go into hiccup mode against short circuit or over load conditions. The trigger point is 120% - 160% of nominal output current.
Over Voltage Protection	For some reason the power supply fails to control itself, the build-in over voltage protection circuit will shut down the outputs to prevent damaging external circuits. The trigger point is 115% - 140% of nominal output voltage.

5. Model Name Coding

M D S B 3 0 0 W - X Y Z

X =	Input Voltage (VDC)
24	9 - 36
48	18 - 75

Z =	Logic Remote ON/OFF
blank	Positive
N	Negative

Y =	Output Voltage (VDC)
05	5
12	12
24	24
28	28
48	48



6. Safety Approvals, EMI and EMS, General Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Safety Approvals	UL 60950-1				Design to meet
	EN 60950-1				
	IEC 60950-1				
Dielectric Strength	Input to output	1.5K			VDC
	Input to case	1.5K			
	Output to case	1.5K			
Isolation Resistance		10 ⁷			Ω
Isolation Capacitance			2000		pF
Switching Frequency			220K		Hz

7. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Case Temperature		- 40		+ 100	°C
Storage Temperature		- 55		+ 105	°C
Humidity	Non condensing			95%	RH
Thermal Shutdown	Case Temp.		+ 110		°C
MTBF	MIL-STD-217F, GB, 25°C, full load		TBD		Hrs

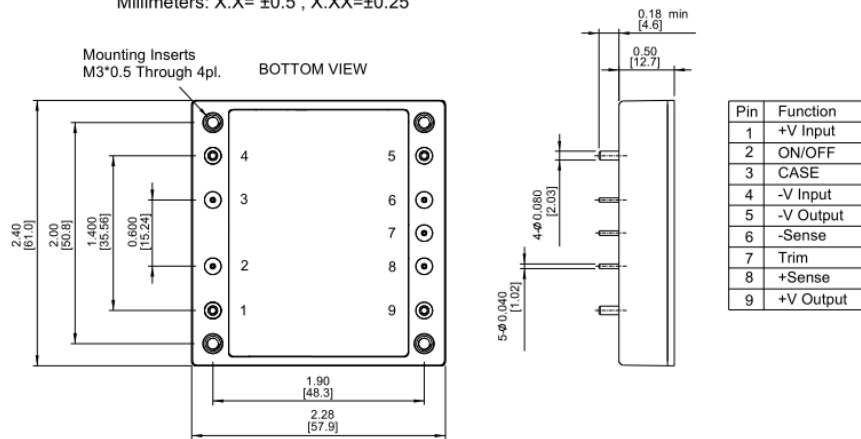
8. Mechanical Specification

Parameter	Conditions/Description																								
Dimension	61 (L) x 57.9 (W) x 12.7 (H) mm, Tolerance ± 0.5mm.																								
Case Material	Aluminum base plate with plastic case																								
Weight	Approx. 114g																								
Pin Assignment	<table border="1"> <thead> <tr> <th>Pin</th> <th>Assignment</th> <th>Pin</th> <th>Assignment</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Vin (+)</td> <td>6</td> <td>Sense (-)</td> </tr> <tr> <td>2</td> <td>ON / OFF</td> <td>7</td> <td>Trim</td> </tr> <tr> <td>3</td> <td>Case</td> <td>8</td> <td>Sense (+)</td> </tr> <tr> <td>4</td> <td>Vin (-)</td> <td>9</td> <td>Vout (+)</td> </tr> <tr> <td>5</td> <td>Vout (-)</td> <td></td> <td></td> </tr> </tbody> </table>	Pin	Assignment	Pin	Assignment	1	Vin (+)	6	Sense (-)	2	ON / OFF	7	Trim	3	Case	8	Sense (+)	4	Vin (-)	9	Vout (+)	5	Vout (-)		
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	3	Case	8	Sense (+)																					
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5	Vout (-)																								

Mechanical Drawing:

CASE HB

All Dimensions In Inches(mm)
 Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
 Millimeters: X.X= ±0.5 , X.XX=±0.25

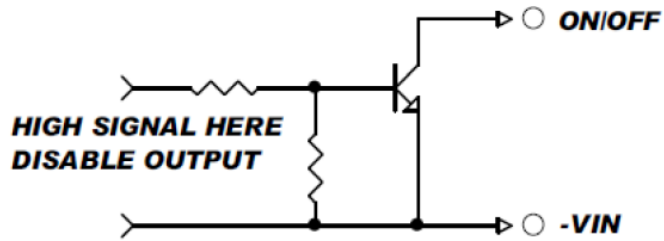


*All specifications typical at nominal line, full load and 25°C unless otherwise noted.

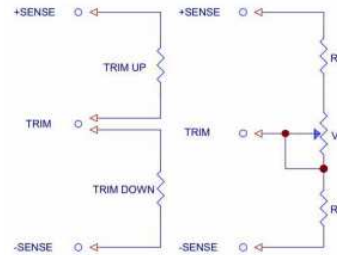


9. Application Note:

REMOTE ON/OFF CONTROL



EXTERNAL OUTPUT TRIM



Note: 1) Trim-upconnect a resistor between the trim pin and + sense.
Trim-down.....connect a resistor between the trim pin and – sense.