



## DC/DC STEP DOWN POWER SUPPLY

PRELIMINARY DATA

## **FEATURES**

- MODULE DC/DC STEP DOWN SINGLE OUTPUT
- WIDE RANGE INPUT VOLTAGE 100÷370 V<sub>dc</sub>
- OUTPUT POWER 1.8W, 4.5W OR 12W MAX
- OUTPUT VOLTAGE PRECISION 5% FOR 4.5W AND 12W
- OUTPUT VOLTAGE PRECISION 10% FOR 1.8W
- OUTPUT SHORT CIRCUIT PROTECTION



The DC/DC module is a high efficiency DC/DC not insulated switch mode constant voltage generator.

Designed for industrial application where low voltages are required from main.

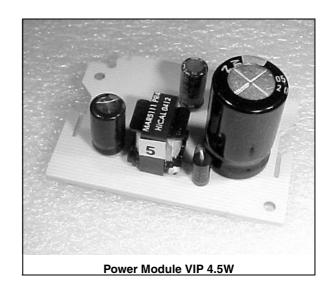
Step down converter performs a max 1.8W, 4.5 W and 12W power conversion.

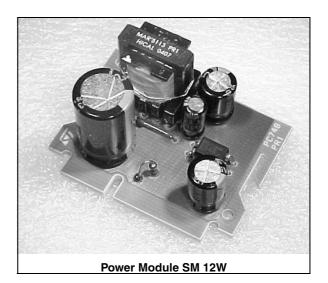
The output voltages and current level are set up by design in accordance with customer requirements.

Typical reference values for the shelf solution are:

- -single output -12V, ±10%, 0.15A for 1.8W;
- -single output -12V, ±5%, 0.35A for 4.5W;
- -single output -12V, ±5%, 1A for 12W.







Rev. 1

Figure 1. Application Diagram for 1.8W and 4.5W

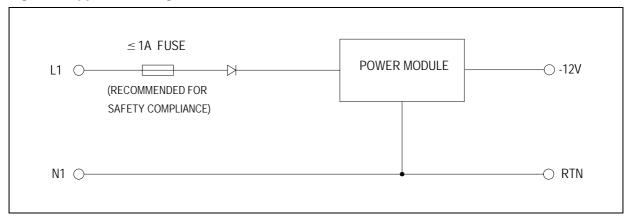


Figure 2. Application Diagram for 12W

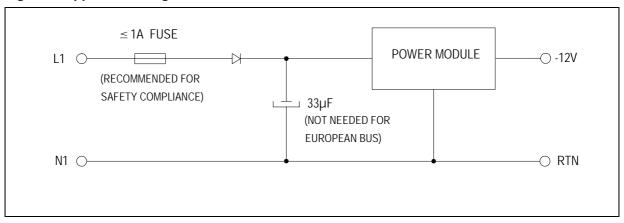


Table 1. Electrical Characteristics ( $T_{amb}$ =25°C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Vi	Input Voltage	Output Power 1.8W, 4.5W and 12W	100		370	V <sub>dc</sub>
V <sub>o1</sub>	Output Voltage	$V_i = 100 \text{ to } 370 \text{ V}_{dc} \text{ for } 4.5 \text{W} \text{ and } 12 \text{W}$	-12.6	-12	-11.4	V
V <sub>o2</sub>	Output Voltage	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> for 1.8W	-10.8	-12	-13.2	V
I <sub>o1</sub>	Output Current	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> for 1.8W	0.15			Α
I <sub>02</sub>	Output Current	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> for 4.5W	0.35			Α
I <sub>o3</sub>	Output Current	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> for 12W	1			Α
V <sub>or</sub>	Output Ripple	V <sub>i</sub> = 100 to 370 V <sub>dc</sub>			5%	mVpp
I <sub>osc</sub>	Output short circuit current	V <sub>i</sub> = 100 to 370 V <sub>dc</sub>	Hiccup Mode		Α	
n	Efficiency	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> I <sub>o</sub> =0.15 A for 1.8W	70			%
n	Efficiency	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> I <sub>o</sub> =0.35 A for 4.5W	80			%
n	Efficiency	V <sub>i</sub> = 100 to 370 V <sub>dc</sub> I <sub>o</sub> =1 A for 12W	83			%
P stand by	Power losses in no load condition	$\begin{aligned} V_i &= 320 \ V_{dc} \\ I_0 &= 0 \ mA \end{aligned}$			0.3	W
l <sub>ir</sub>	Inrush input current	V <sub>i</sub> = 320 V <sub>dc</sub>		30		Α
T <sub>op</sub>	Operating Ambient Temperature		0		70	°C
T <sub>stg</sub>	Storage Temperature Range		-20		85	°C

## **AGENCY APPROVALS**

The safety and EMI compliance has to be assured by the user.

Figure 3. Mechanical Data for 1.8W (dimensions in mm)

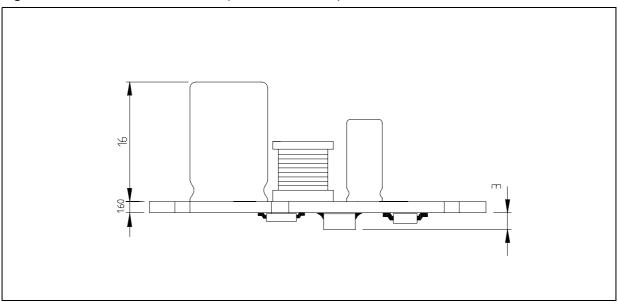


Figure 4. Mechanical Data for 4.5W (dimensions in mm)

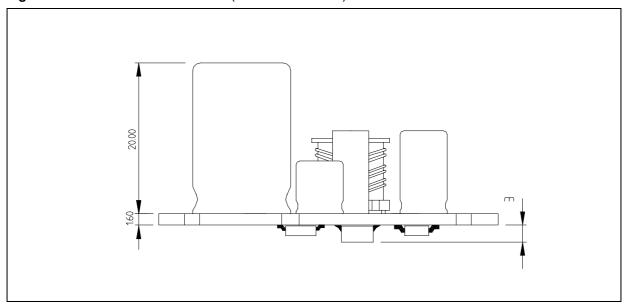


Figure 5. Mechanical Data for 12W (dimensions in mm)

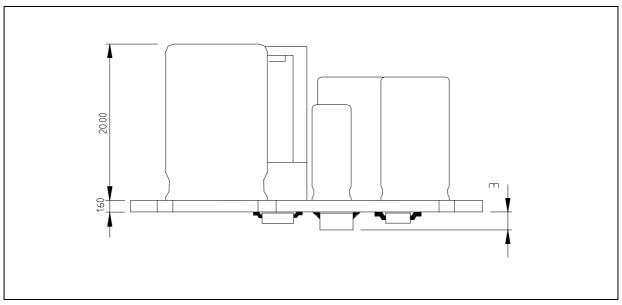


Figure 6. Mechanical Data for 1.8W (dimensions in mm)

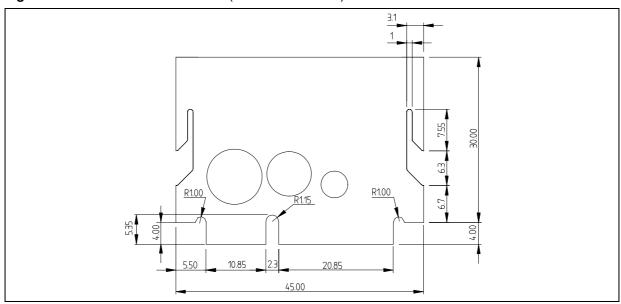


Figure 7. Mechanical Data for 4.5W (dimensions in mm)

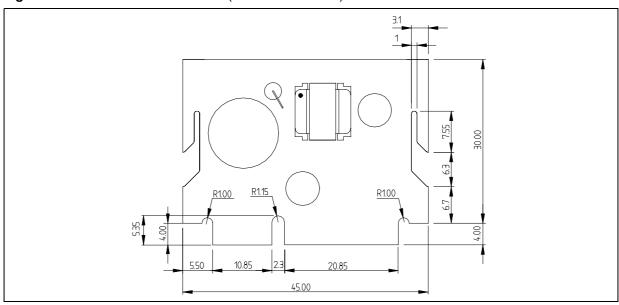


Figure 8. Mechanical Data for 12W (dimensions in mm)

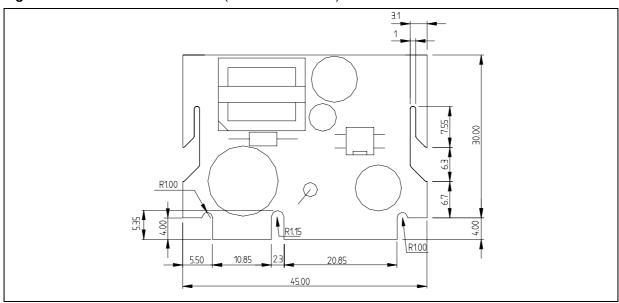


Figure 9. Mechanical Data (dimensions in mm)

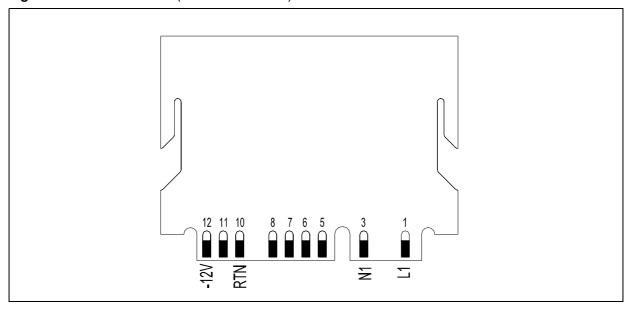
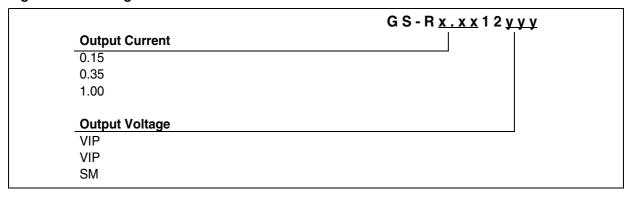


Figure 10. Ordering Information Scheme



**Table 2. Revision History** 

Date	Revision	Description of Changes
14-Dec2004	1	First Release

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners

© 2004 STMicroelectronics - All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America http://www.st.com