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ADSD01043030-XX Step Down DC/DC ADSD78043030-XX Step Down DC/DC

Description

The ADSDxxxxxxx-xx is a step down switching power supply module family that supplies up to 3A. The module is available in standard output voltages, see table 1. The output voltage can be factory adjustable to any required value in the operating range.

Features

- Input Voltage: 4.5 ÷ 30VDC
- Output Voltage: 1.3VDC ÷ Vin-2V
- Output Voltage stability: ±2% over temperature
- Maximum Output Current: 3A
- Operating Temperature: -40°C ÷ 85°C
- Switching Frequency: 1Mhz

Ordering Information

Part Number	Output Voltage	Power	Package
ADSD01043030-1.5	1.5V	5W	ADSD01
ADSD01043030-1.8	1.8V	7W	ADSD01
ADSD01043030-2.5	2.5V	7W	ADSD01
ADSD01043030-2.7	2.7V	7W	ADSD01
ADSD01043030-3.0	3.0V	7W	ADSD01
ADSD01043030-3.3	3.3V	7W	ADSD01
ADSD01043030-5.0	5.0V	7W	ADSD01
ADSD01043030-12	12V	7W	ADSD01
ADSD01043030-Adj	Adjustable	7W	ADSD01
ADSD78043030-1.5	1.5V	5W	ADSD78
ADSD78043030-1.8	1.8V	6W	ADSD78
ADSD78043030-2.5	2.5V	6W	ADSD78
ADSD78043030-2.7	2.7V	6W	ADSD78
ADSD78043030-3.0	3.0V	6W	ADSD78
ADSD78043030-3.3	3.3V	6W	ADSD78
ADSD78043030-5.0	5.0V	6W	ADSD78
ADSD78043030-12	12V	6W	ADSD78
ADSD78043030-Adj	Adjustable	6W	ADSD78

Table 1: Standard Output Voltage

Pin Description

Pin Name	Pin Number ADSD01	Pin Number ADSD78	Description
VIN	7, 8	1	Module Power Input
VOUT	5, 6	3	Module Power Output
GND	1, 2, 3, 4	2	Module Power Ground

Table 2: Pin Description

Absolute Maximum Ratings (1)

Parameter	Value	Unit
Input voltage	-0.3 to 32	V
Output current	3.3	A
Operating temperature	-40 to +85	°C
Storage temperature		

(1) Stresses beyond those listed above may cause permanent damage to the device

Table 3: Absolute Maximum Rating

Typical Characteristics

At $T_A = 25^\circ\text{C}$, $C_{in} = 22\mu\text{F}$, $C_{out} = 100\mu\text{F}$

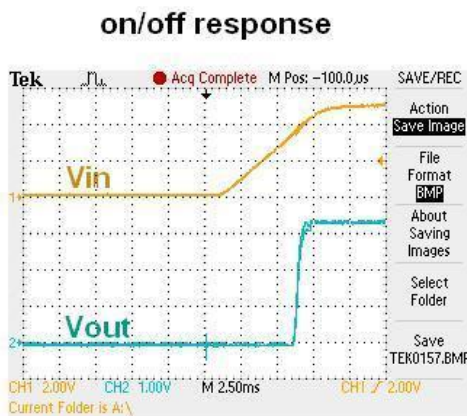


Figure 1: Power on response

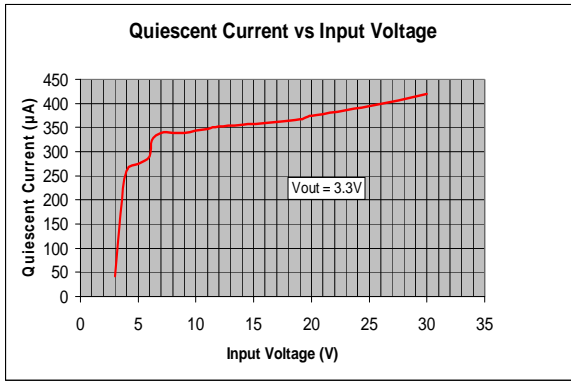


Figure 2: Quiescent Current vs Input Voltage

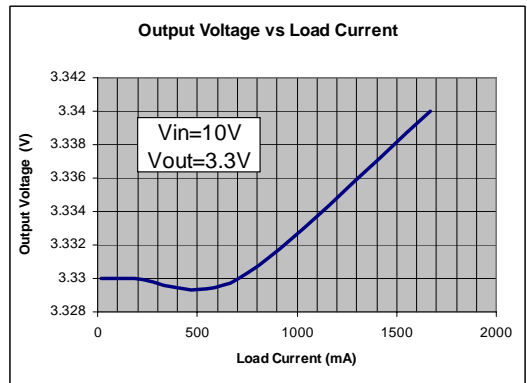


Figure 3: Output Voltage vs Load Current

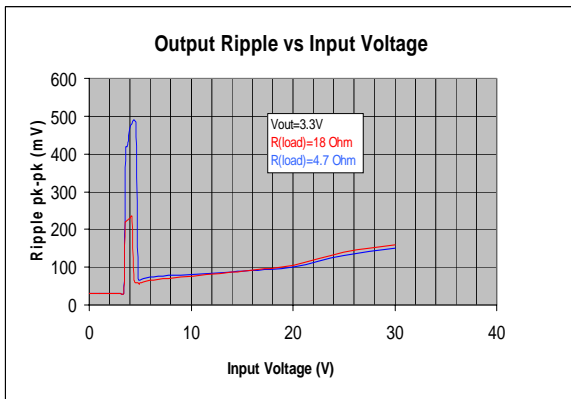


Figure 4: Output Ripple vs Input Voltage

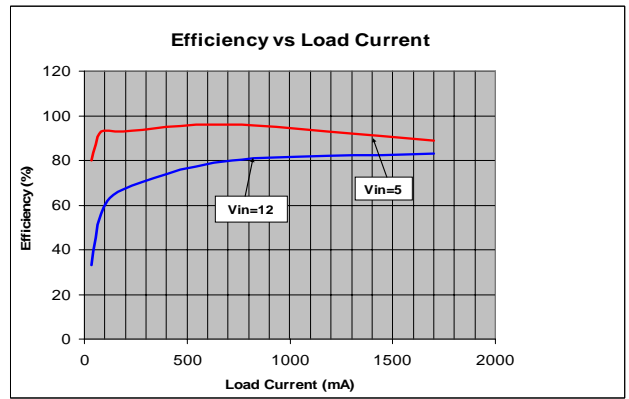


Figure 5: Efficiency vs Load Current

Design Consideration

OUTPUT CAPACITOR SELECTION (C_{OUT})

The use of ceramic capacitors is common in many power supply designs. However, their very low ESR may increase output ripple. In such a case, a low value resistor should be added in series with the ceramic output capacitor.

Other types of capacitor, such as Sanyo POS CAP, Panasonic SP CAP, may be used without additional series resistor. Choose capacitor voltage to match output voltage of the module.

INPUT CAPACITOR SELECTION (C_{IN})

A bypass capacitor C_{IN} is required between the input source and ground. C_{IN} should be located as close as possible to the V_{IN} pin of the module.

Use low ESR electrolytic capacitor and pay attention to the working voltage.

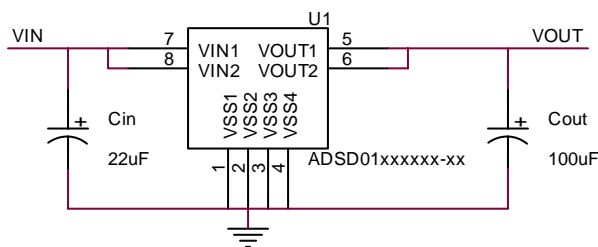


Figure 6: Reference Design for ADSD01 module

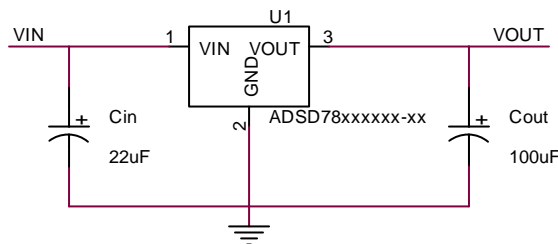


Figure 7: Reference Design for ADSD78 module

Physical Dimensions (mm)

ADSD01

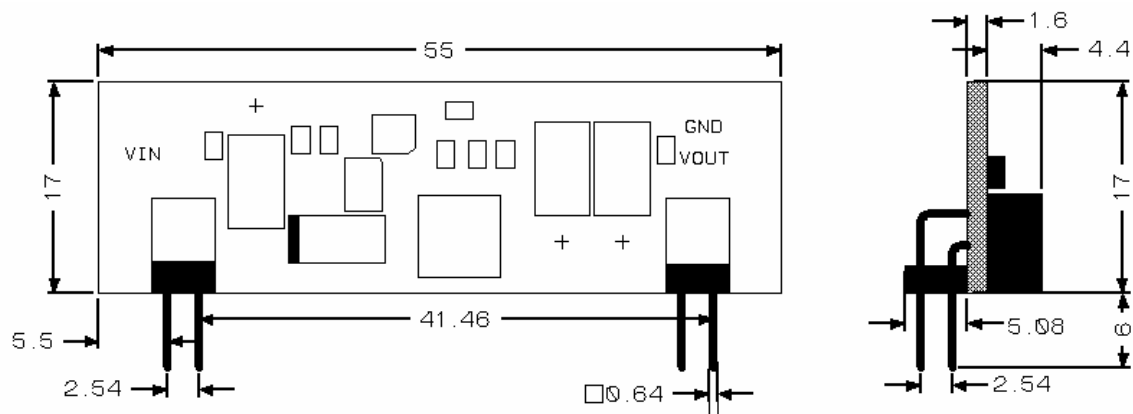


Figure 8: Mechanical data

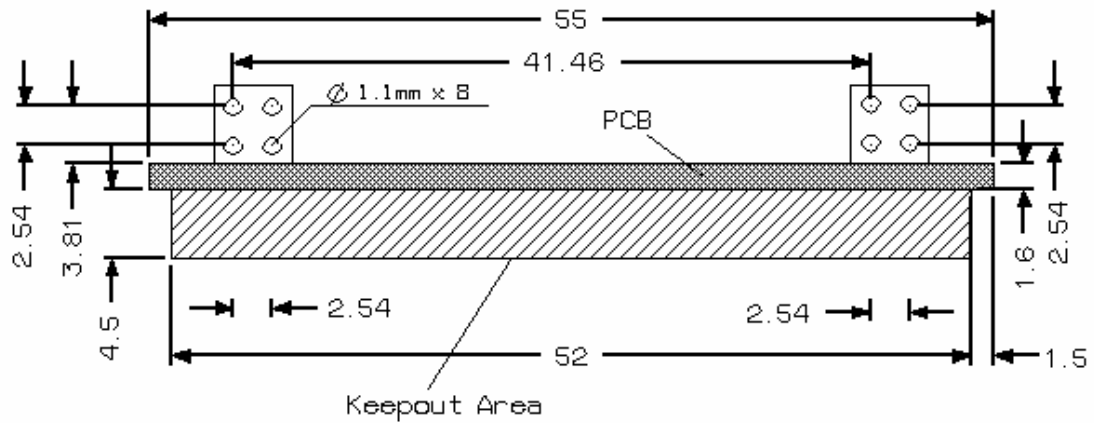


Figure 9: Footprint Recommendation – TOP View



Figure 10: Pin Number viewed from TOP

ADSD01xxxxxx-xx Package

ADSD78
78xx TO220 footprint

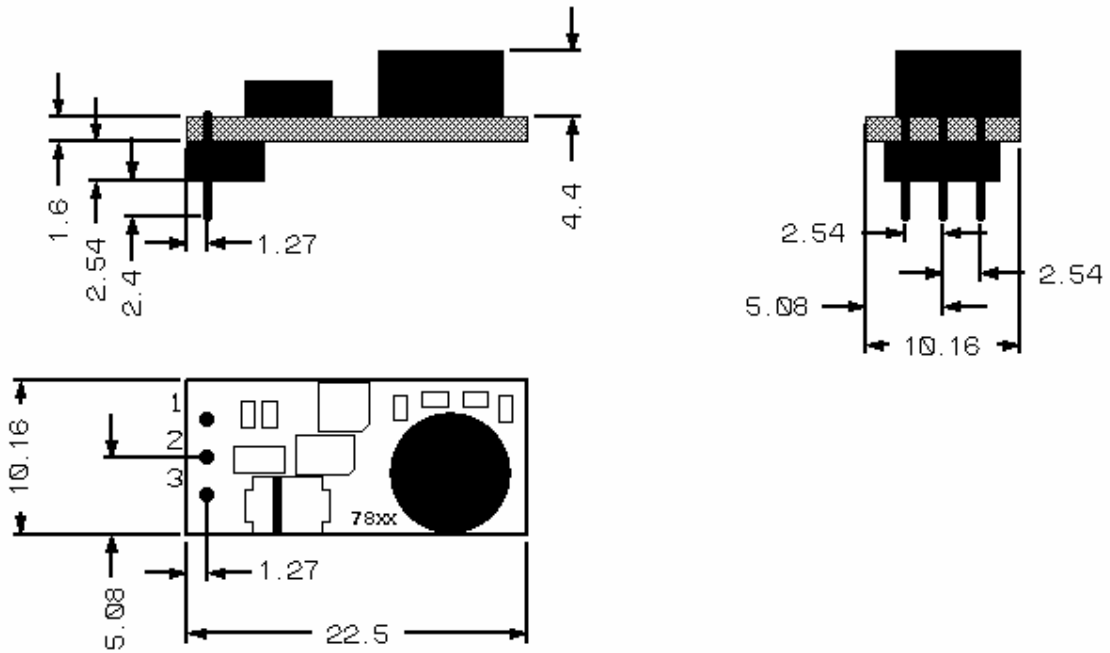


Figure 11: Mechanical data

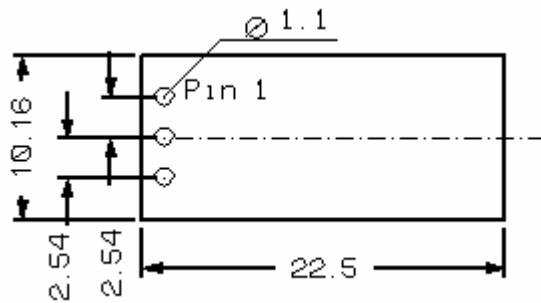


Figure 12: Footprint Recommendation – TOP View

ADSD78xxxxxx-xx Package