



Evaluation Board DB_SY20306DCC_1

Dual High Efficiency 1.5MHz 1.0A Synchronous Step Down Regulator

Introduction

DB_SY20306DCC_1 is intended for evaluating dual 1.5MHz 1.0A synchronous buck regulator. It features Enable controls.

Design Specifications

Input Voltage (V)	Output Current (A)	Output Voltage (V)
2.5~5.5V	0~1.0A (each channel)	$V_{out1}=1.2V$ (channel 1)
		$V_{out2}=1.8V$ (channel 2)

Schematic

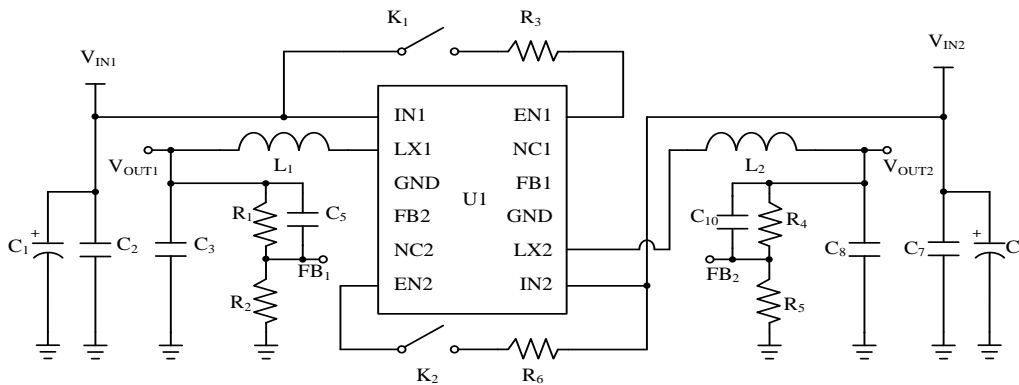


Figure1. Schematic Diagram

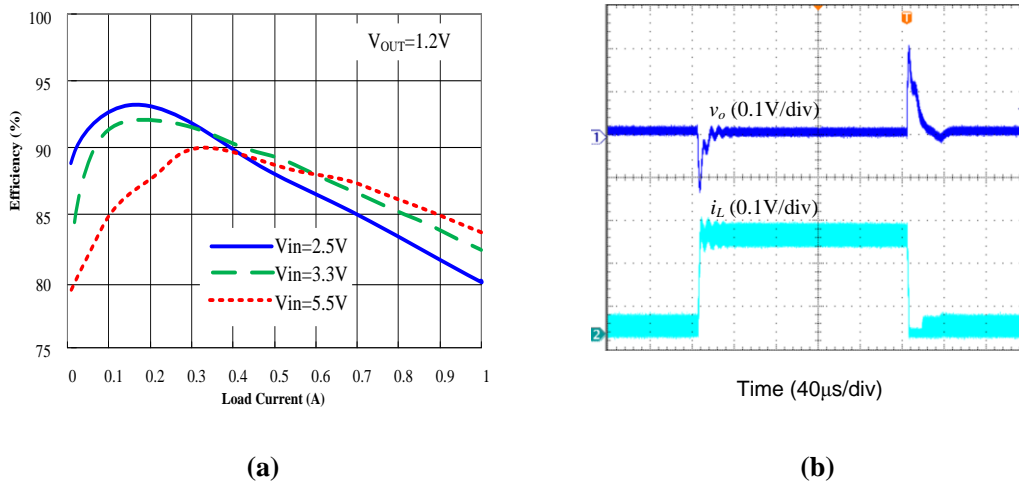


Figure2. Test Results (Preliminary) : (a) Efficiency vs Load Current
(b) Load Transient: Load current changes between 100mA and 1.0 A

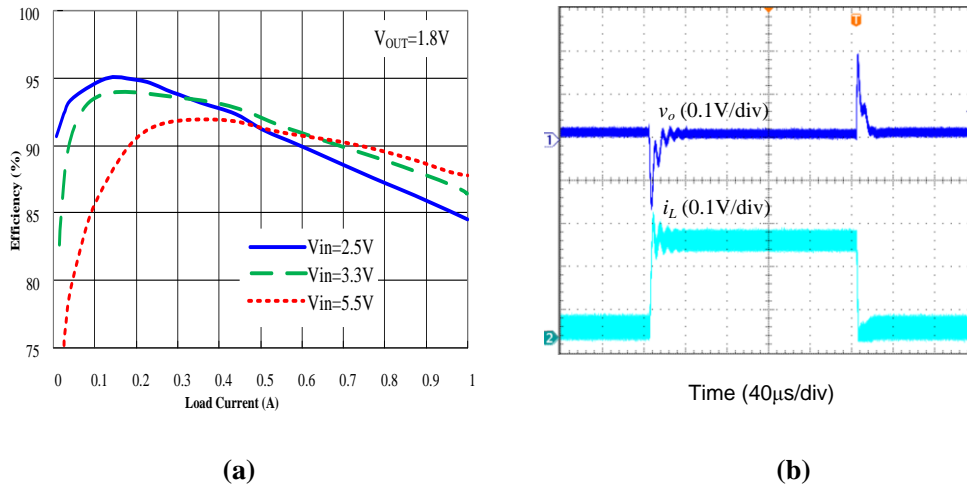


Figure 3. Test Results (Preliminary) : (a) Efficiency vs Load Current
(b) Load Transient: Load current changes between 100mA and 1.0A

Quick Start Guide (Refer to Figure 4)

1. Connect the output load to VOUT and GND output connectors. Preset the load current to between 0A and 1.0A.
2. Preset the input supply to a voltage between 2.5V and 5.5V. Turn the supply off. Connect the input supply to VIN and GND input connectors.
3. Short jumper K1、K2. Turn on the input supply and measure the output voltage.

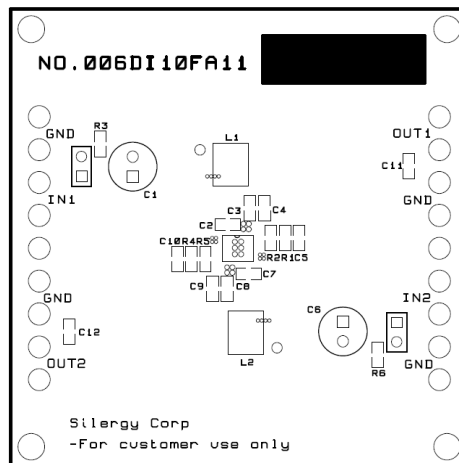
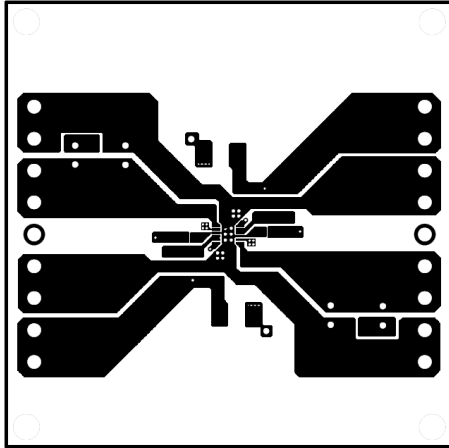
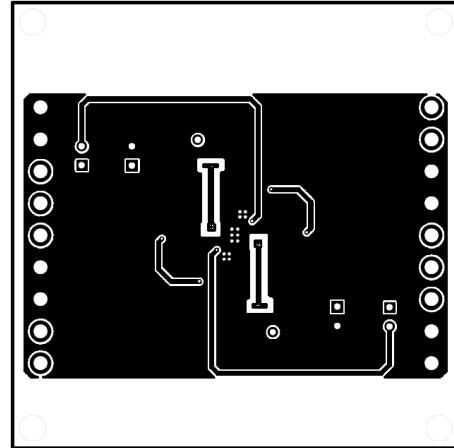


Figure 4. Top Silkscreen

PCB Layout



(a) Top layer



(b) Bottom layer

Figure5. PCB Layout Plots

BOM List

Reference Designator	Description	Part Number	Manufacturer
U1	1.0A, 1.5MHz Sync Buck (DFN3x3-12)		
L ₁ , L ₂	2.2uH/2.3A Inductor	VLF5014ST-2R2M	TDK
C ₁ , C ₆	100uF/16V Ecap		
C ₂ , C ₇	10uF/6.3V, 0603, X5R	C1608X5R0J106M	TDK
C ₃ , C ₈	10uF/6.3V, 0603, X5R	C1608X5R0J106M	TDK
C ₅ , C ₆	22pF/50V, 0603, X5R	C1608C0G1H220J	TDK
R ₃ , R ₆	1M, 0603		
R ₁	200k, 1%, 0603		
R ₂	200k, 1%, 0603		
R ₄	200k, 1%, 0603		
R ₅	100k, 1%, 0603		

Output voltage ripple test

A proper output ripple measurement should be done according to Figure 6 setup. Output voltage ripple should be measured across the output ceramic cap near the IC.

1. Remove the ground clip and head of the probe. Wind thin wires around the ground ring of the probe. Solder the end of the ground ring wire to the negative node of the COUT. Touch the probe tip to the positive node of the COUT. Refer to Figure.6.
2. Minimize the loop formed by COUT terminals, probe tip and ground ring.
3. Change the probing direction to decouple the electromagnetic noise generated from the nearby buck inductor (Refer to Figure.6).

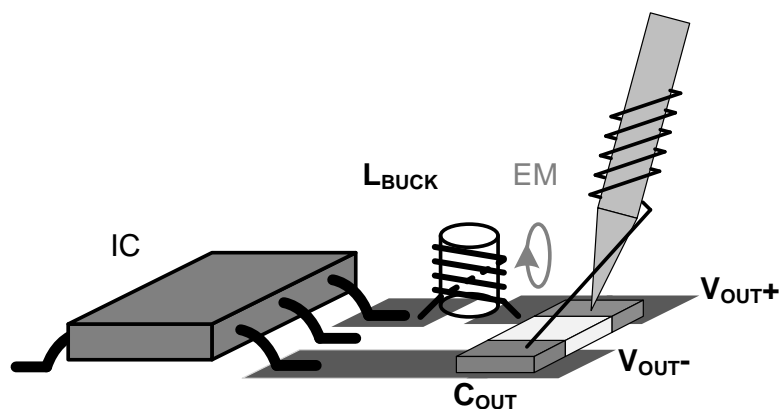


Figure.6 Recommended way to measure the output voltage ripple