
3.6V-36V Vin, 3A, High Efficiency Synchronous Step-down DCDC Converter

SCT2434DQ

ORDERABLE DEVICE	PACKAGING TYPE	STANDARD PACK QTY	PACKAGE MARKING	PINS	PACKAGE DESCRIPTION	MSL

DESCRIPTION	MIN	MAX	UNIT

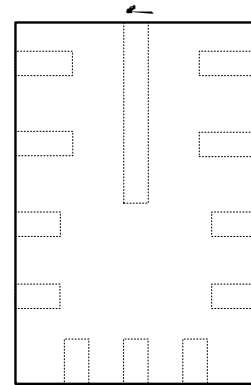


Figure 1. 12-Lead QFN 2mmx3mm

NAME	NO.	PIN FUNCTION

SCT2434DQ

PARAMETER	DEFINITION	MIN	MAX	UNIT

PARAMETER	DEFINITION	MIN	MAX	UNIT

PARAMETER

THERMAL METRIC

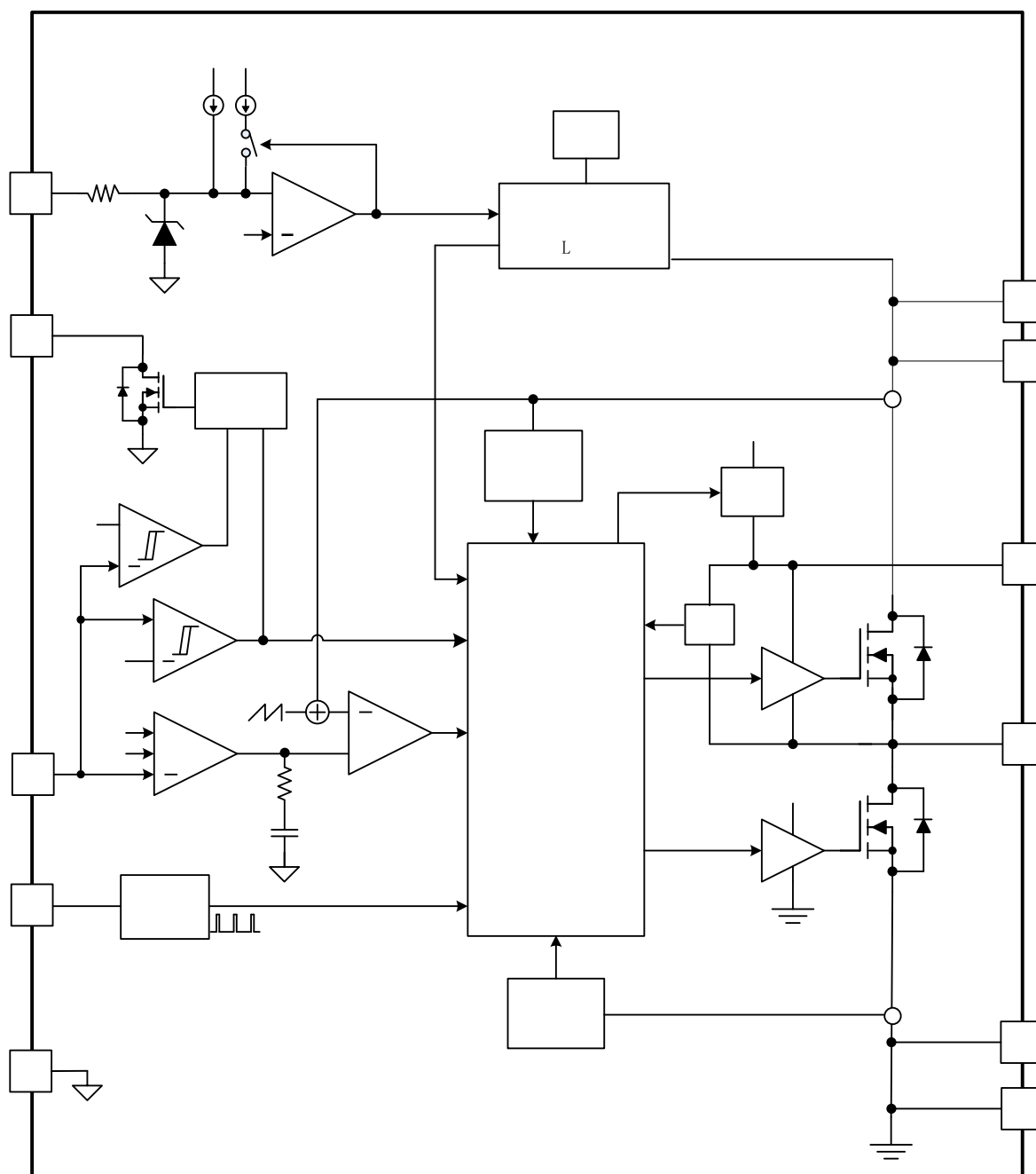
QFN-12L

SCT2434DQ

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Supply						
Power MOSFETs						
Reference						
Current Limit and Over Current Protection						
Enable and Soft Startup						
Switching Frequency and External Clock Synchronization						
Power Good						

SCT2434DQ

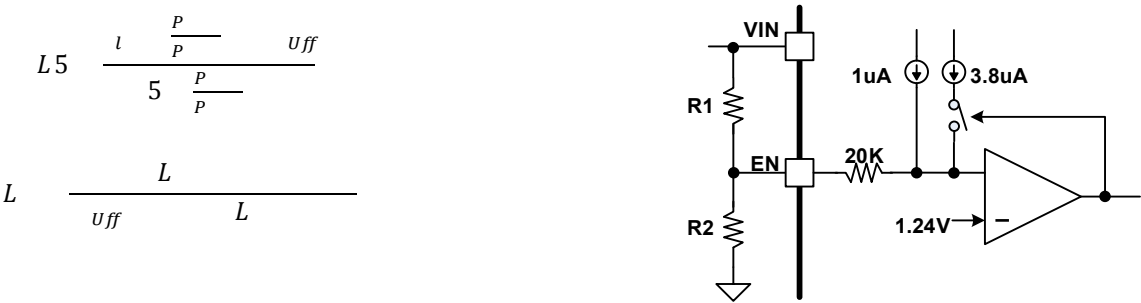
SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
Protection						



Overview

Peak Current Mode Control

Enable and Under Voltage Lockout Threshold



Output Voltage

$$L \quad NI \quad \frac{I \, ON}{L} \quad 5 \quad L \quad I \, N$$

Internal Soft-Start

Frequency Spread Spectrum

Fsw	R ₆ (R _{Fsw})

Fsw	R ₆ (R _{Fsw})

Bootstrap Voltage Regulator and Low Drop-out Operation

Over Current Limit and Hiccup Mode

Thermal Shutdown

SCT2434DQ

Output Voltage

$$L \quad \frac{I_{ON}}{L} \quad 5 \quad L$$

V _{OUT}	R ₃	R ₄

Switching Frequency

F _{sw}	R ₆ (R _{Fsw})

F _{sw}	R ₆ (R _{Fsw})

Under Voltage Lock-Out



$$L \quad \frac{L}{Uff} \quad L$$

Inductor Selection

$$F \quad \frac{P \quad P \quad 5P}{P \quad F}$$

$$C \quad \frac{P}{FCL \ C} \quad 5 \quad \frac{P}{P}$$

$$\begin{array}{ccccccc} & & & & C & & \\ & F & E & I & O & N & \hline & & & & & & \\ \hline & F & L & M & & I & O & N & & \hline & & & & & & & & F \end{array}$$

Input Capacitor Selection

$$C_{MIN} = \frac{I_{ON}}{5 \times \frac{I_{ON}}{I_{ON}}}$$

$$C_{MIN} = I_{ON}$$

$$C_{MIN} = \frac{Q_{ON}}{M} \times \frac{I_{ON}}{5 \times \frac{I_{ON}}{I_{ON}}}$$

Bootstrap Capacitor Selection

Output Capacitor Selection

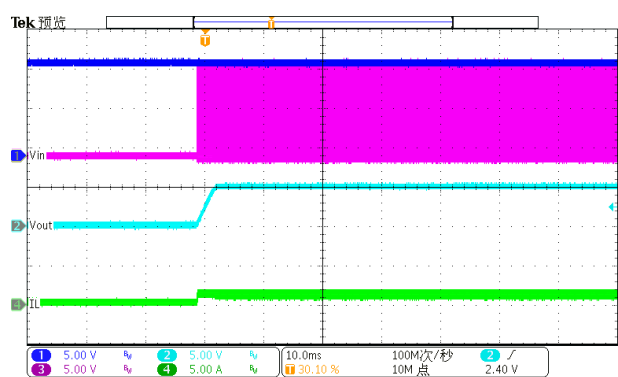
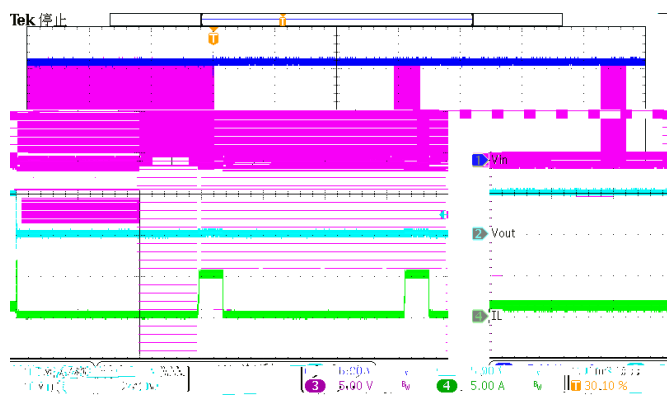
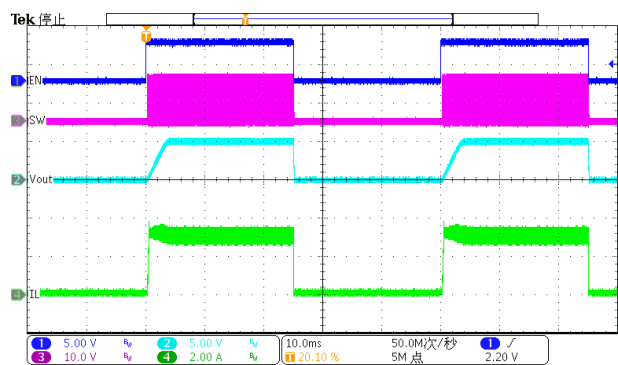
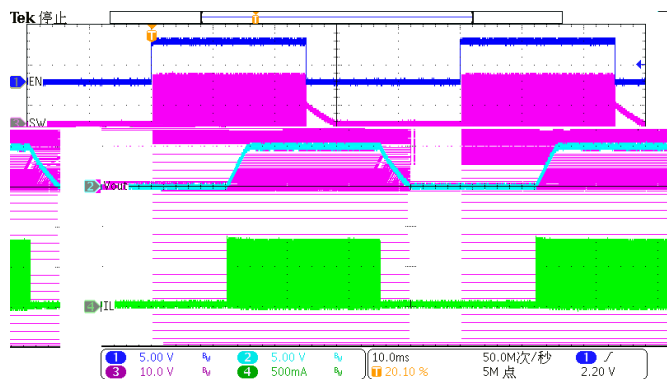
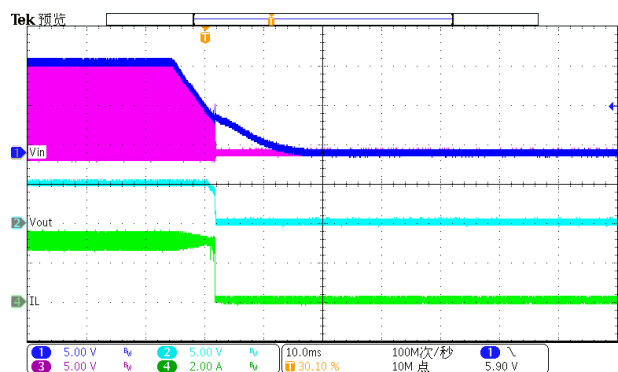
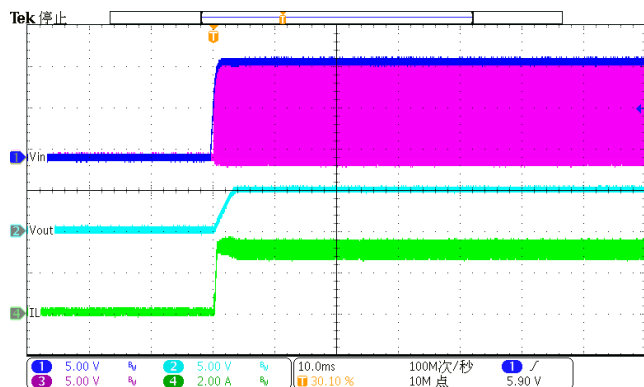
I ON $\frac{P}{2} \quad \frac{P}{F} \quad \frac{5P}{P}$

I ON

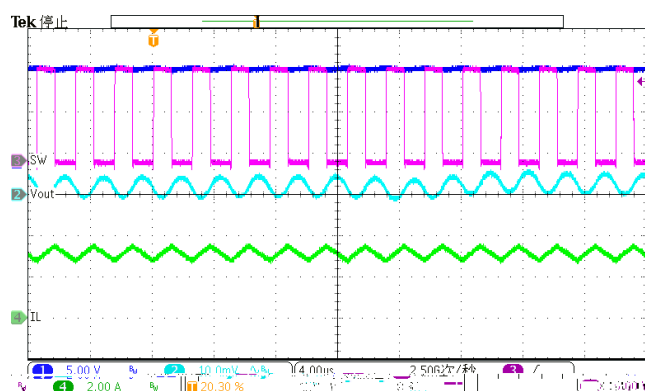
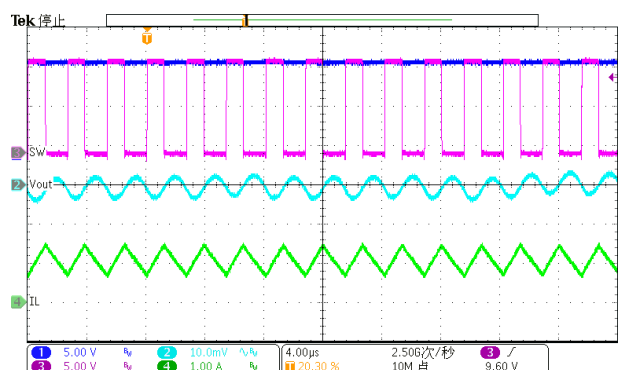
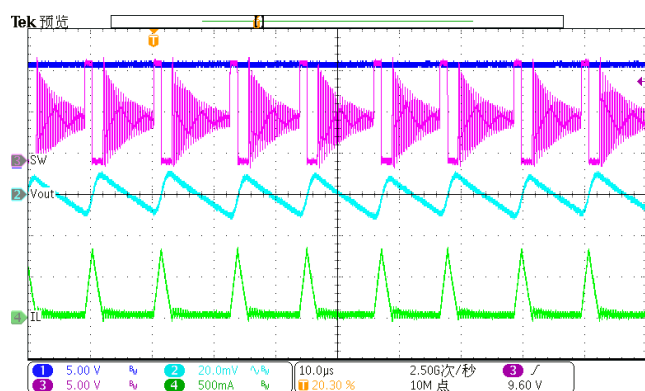
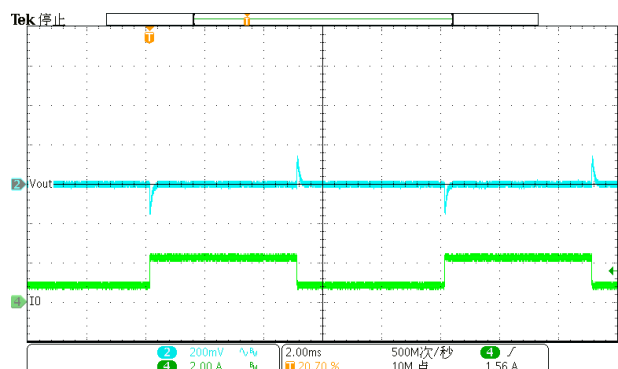
Table 4: Typical External Component Values

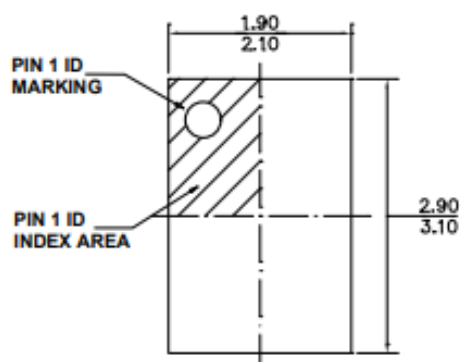
SCT2434DQ

Application Waveforms

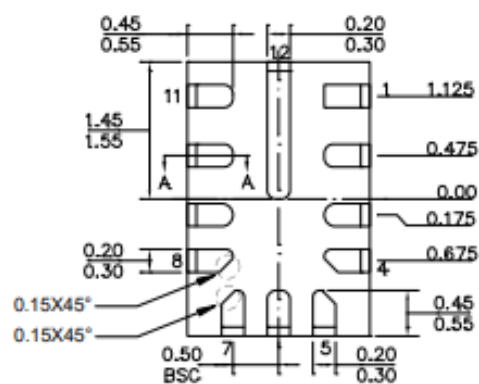


Application Waveforms





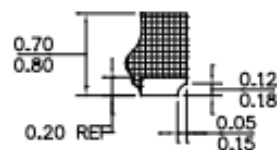
TOP VIEW



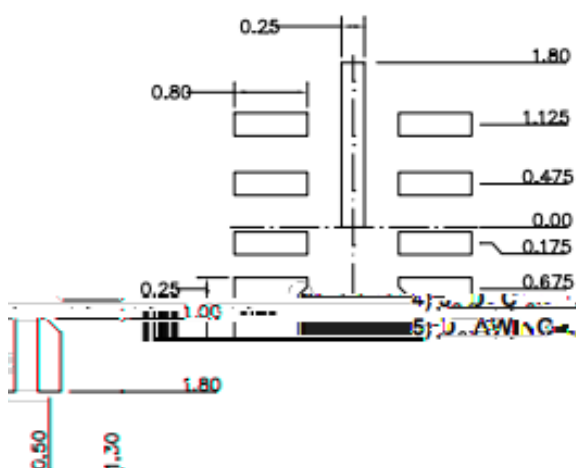
BOTTOM VIEW



SIDE VIEW



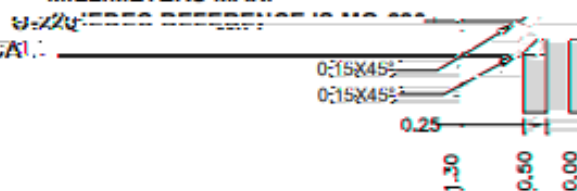
SECTION A-A



LAND PATTERN

NOTE:

- 1) THE LEAD SIDE IS WETTABLE.
2) ALL DIMENSIONS ARE IN MILLIMETERS.
3) LEAD COPLANARITY SHALL BE 0.08
MILLIMETERS MAX.



RECOMMENDED

SCT2434DQ

