

SCT82630

REVISION HISTORY

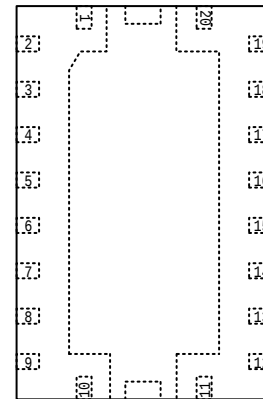
DEVICE ORDER INFORMATION

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

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	MIN	MAX	UNIT
			o
			o

PIN CONFIGURATION



PIN FUNCTIONS

NAME	NO.	I/O ⁽¹⁾	PIN FUNCTION
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[illegible]

RECOMMENDED OPERATING CONDITIONS

PARAMETER

SCT82630

THERMAL INFORMATION

PARAMETER	THERMAL METRIC	DFN3.5X4.5-20L	UNIT

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
Soft-start and Voltage Tracking						
Power Good Indicator						
Switching Frequency and External Clock Synchronization						

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SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT

Over Current Protection and Valley Current Limiting

Short Circuit Protection – Duty Cycle Clamp

DIODE Emulation

Gate Driver

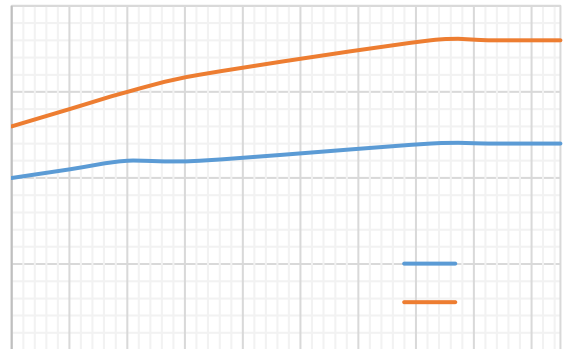
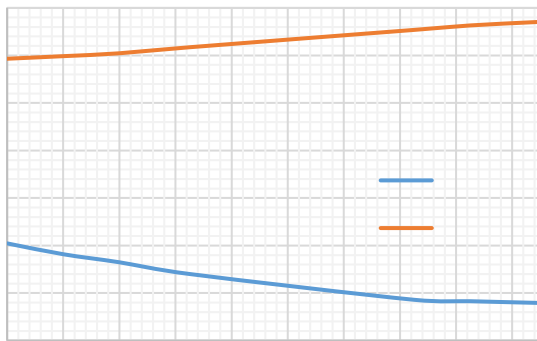
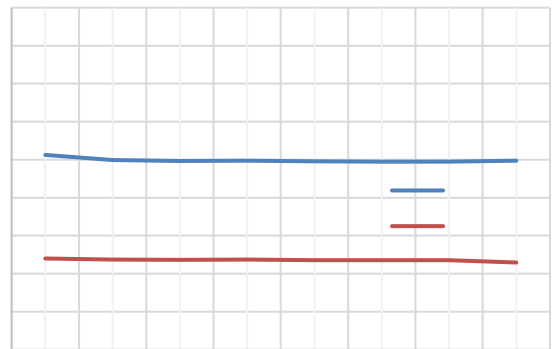
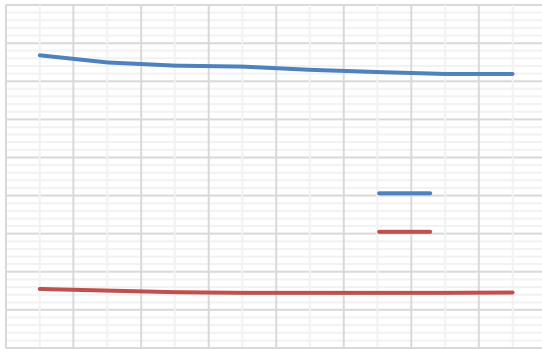
SCT82630

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT

TYPICAL CHARACTERISTICS

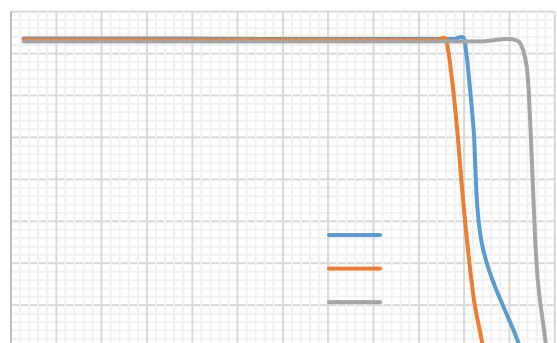
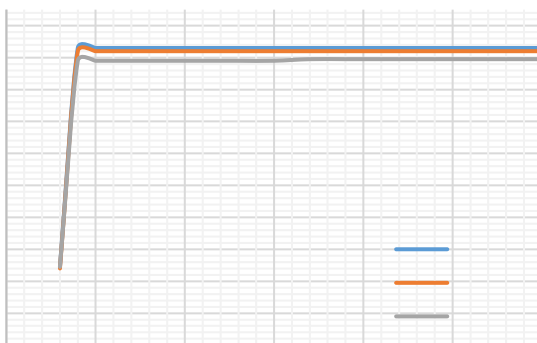
TYPICAL CHARACTERISTICS

TYPICAL CHARACTERISTICS

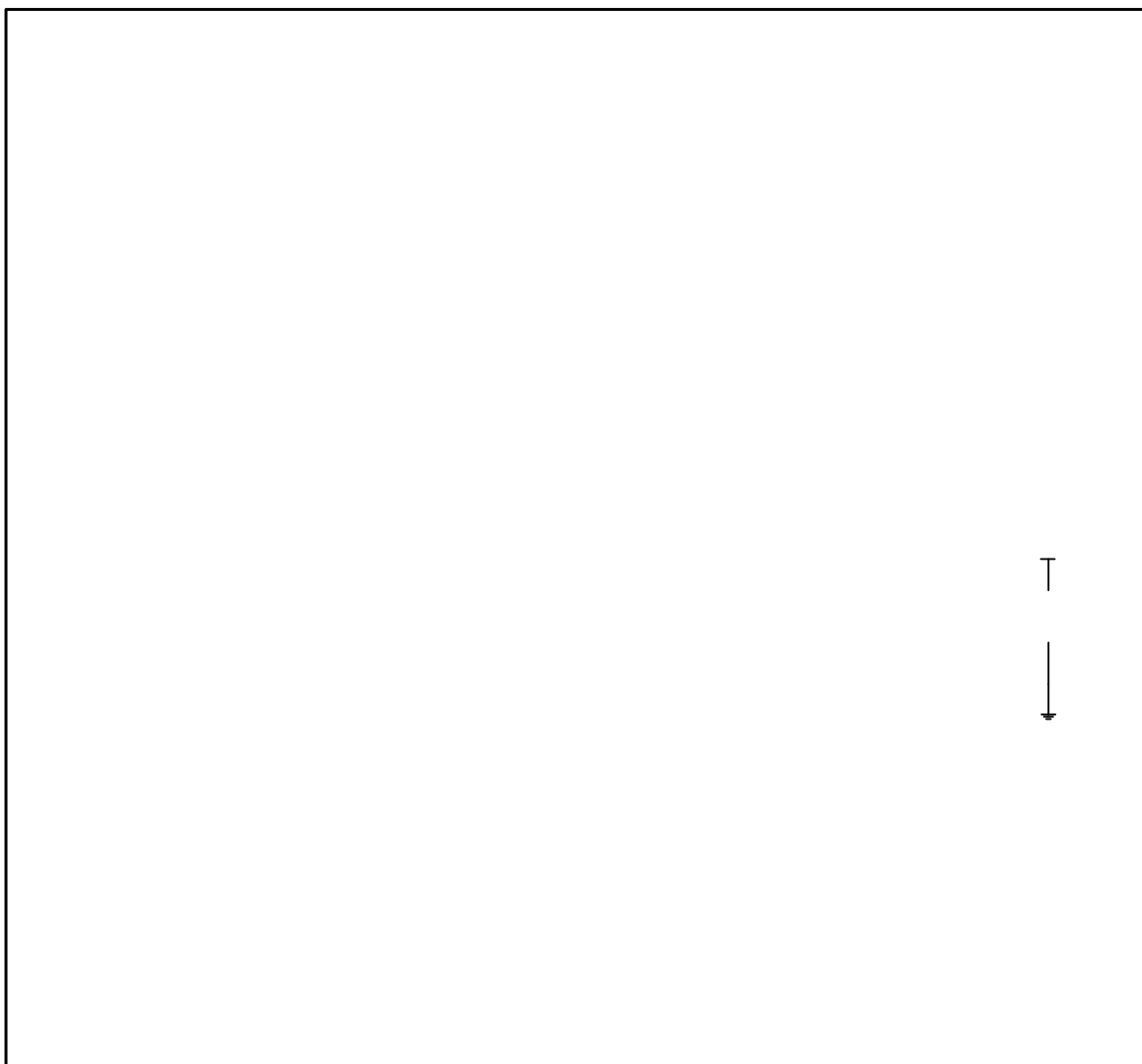


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FUNCTIONAL BLOCK DIAGRAM



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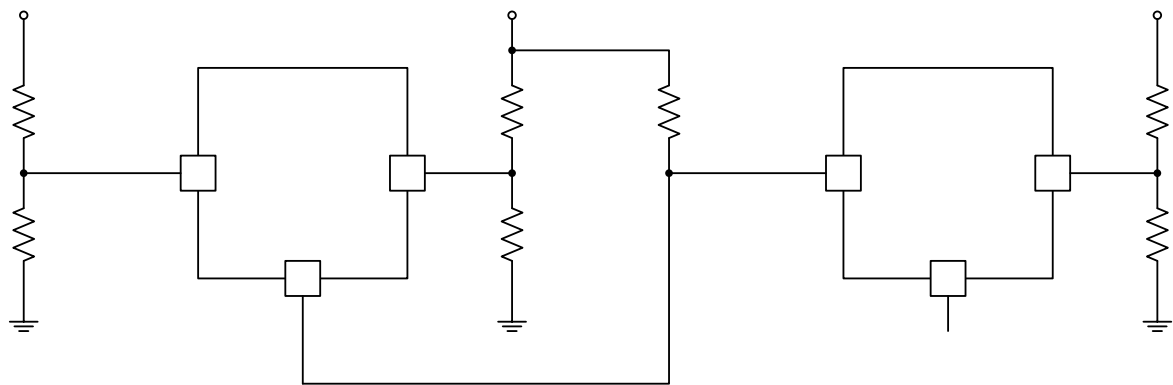
OPERATION

Overview

Input Voltage Range

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Power Good Monitor PGOOD



Switching Frequency and Clock Synchronization

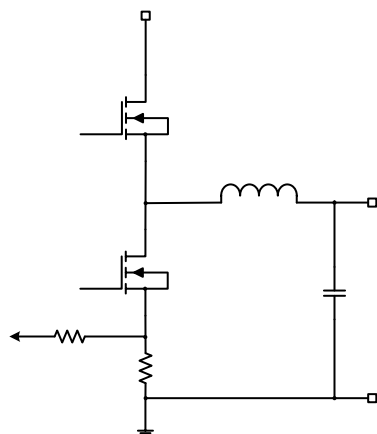
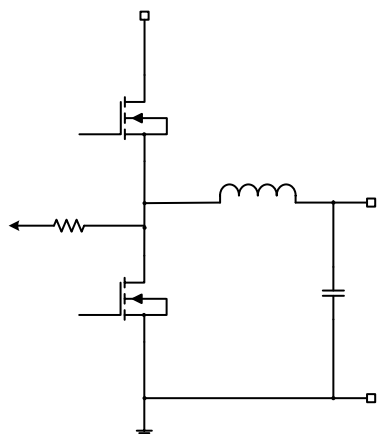
Switching Frequency (kHz)	Frequency Set Resistance (kΩ)

Frequency Spread Spectrum

Voltage Mode Control

Gate Drivers

Current Sensing and Overcurrent Protection



Device Functional Modes

Shutdown Mode

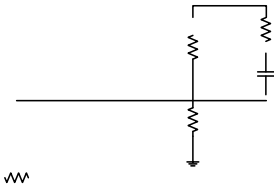
Standby Mode

Active Mode

Diode Emulation Mode

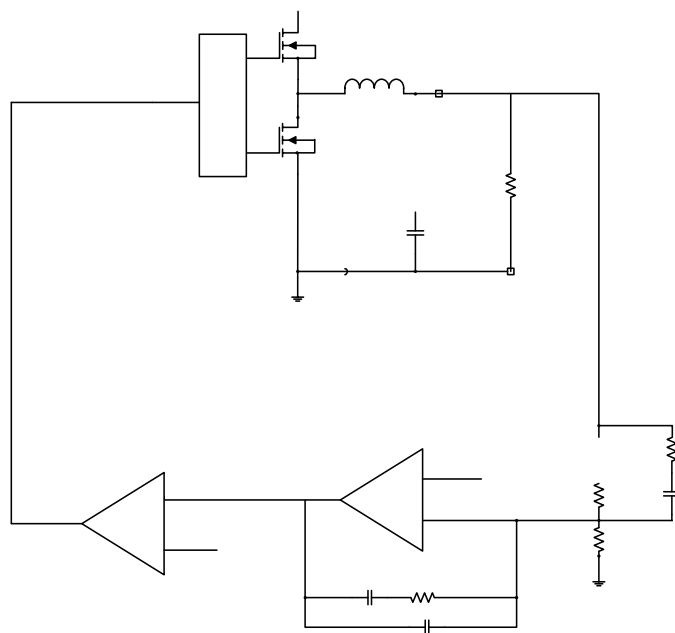
Thermal Shutdown

Control loop compensation



	$\left(\right) \frac{\left(\right)}{\left(\right)} \frac{\left(\right)}{\left(\right)} \frac{\left(\right)}{\left(\right)} \left(\right) \left(\right)$

	$() = \frac{()}{()} \quad \frac{1}{1} \frac{1}{2}$
	$() = \frac{()}{()} \quad \frac{1}{1} \frac{1}{1} \frac{1}{2}$
	$\frac{()}{()} \quad \frac{1}{1}$



$\sqrt{\quad}$	$\frac{1}{\quad}$	$\begin{array}{r} 1 \\ 1 \quad 2 \end{array}$	$\begin{array}{r} 1 \\ 1 \quad 1 \end{array}$
		$\begin{array}{r} 1 \\ 2 \quad 3 \end{array}$	$\begin{array}{r} 1 \\ 1 \quad 2) \quad 3 \end{array}$

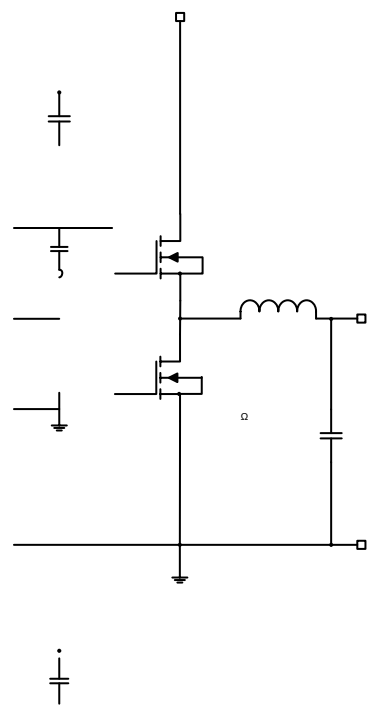
() $\frac{1}{1 \quad 1} \frac{1}{\quad}$

$\omega_{z1} = K \cdot \omega_o$, $\omega_{z2} = \omega_o$, $\omega_{p1} = \omega_{SW} / 2$, $\omega_{p2} = \omega_{ESR}$

$^2 \frac{\quad \quad \quad 1}{\quad \quad \quad / \quad \quad \quad 1}$	$_1 \quad \quad \quad / \quad 2 \quad \quad \quad _1 \quad)$
$_1 \frac{\quad \quad \quad 1}{\quad \quad \quad o \quad \quad \quad 1}$	$^2 \frac{\quad \quad \quad 1}{\quad \quad \quad 1 \quad \quad \quad 1}$
$^2 \frac{\quad \quad \quad 0}{\quad \quad \quad \quad \quad \quad 0} \quad \quad \quad 1$	$_3 \frac{\quad \quad \quad 1}{\quad \quad \quad \quad \quad \quad 2}$

APPLICATION INFORMATION

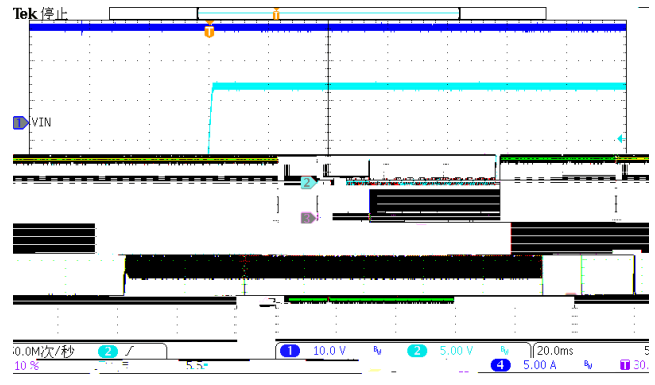
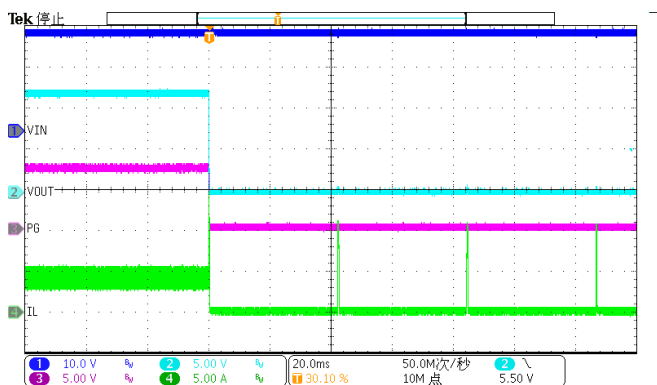
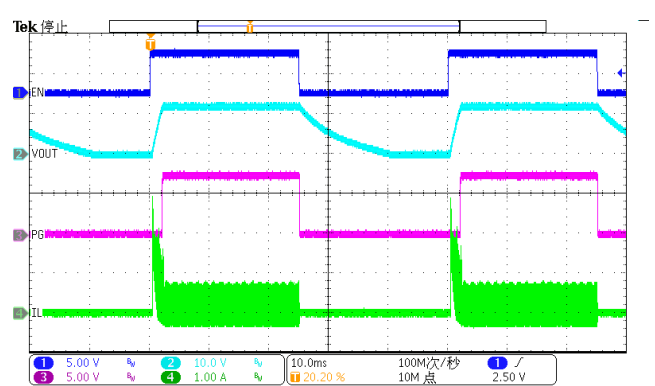
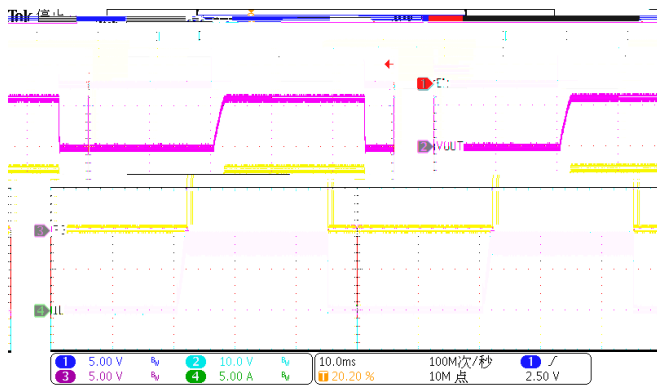
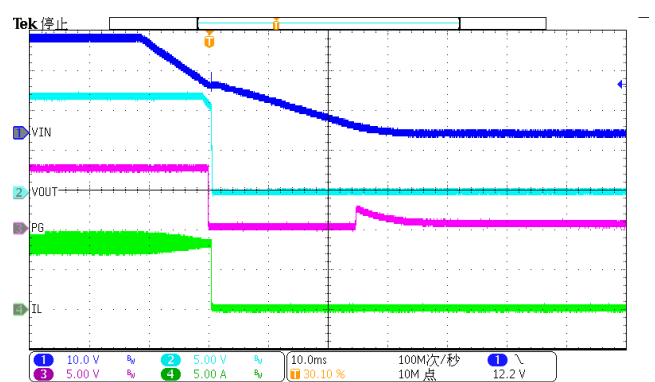
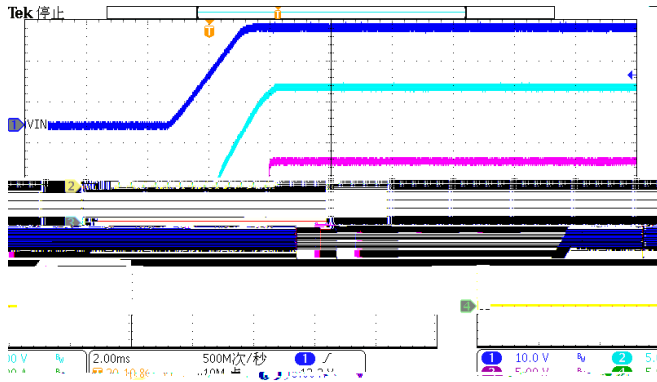
Typical Application



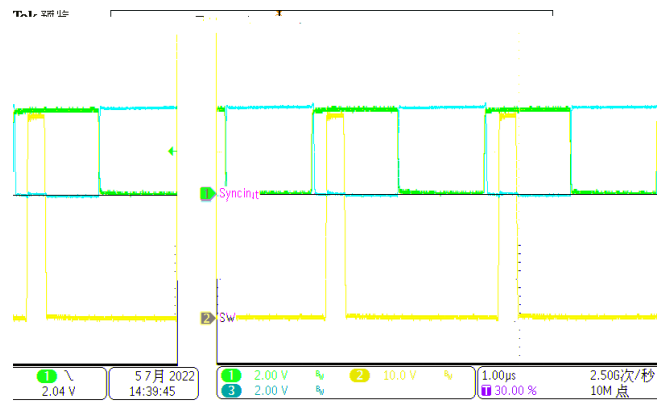
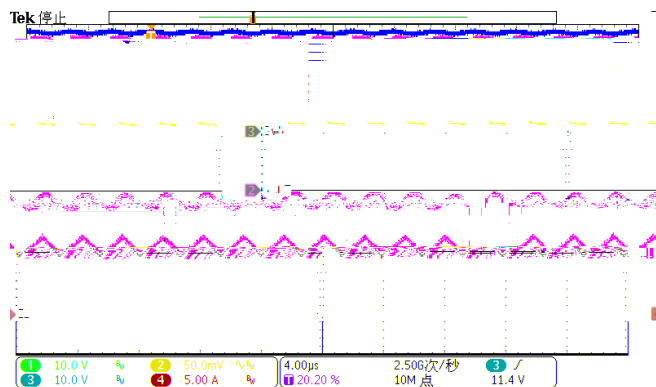
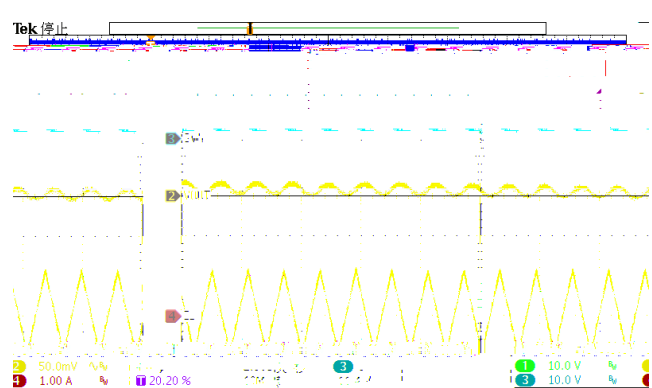
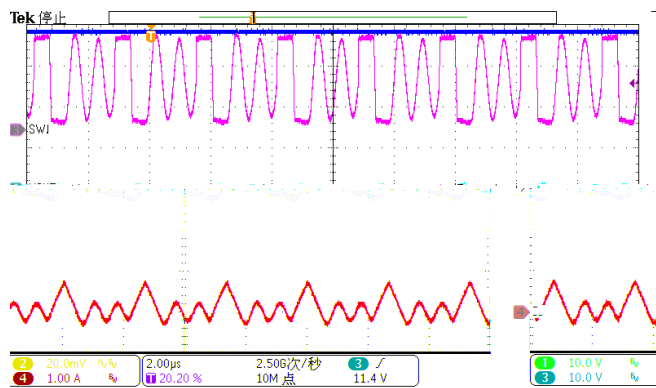
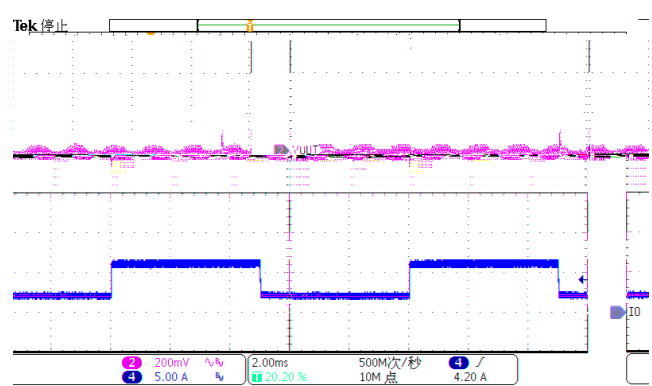
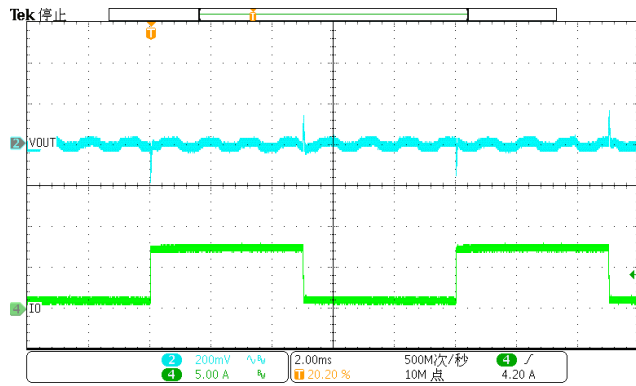
Design Parameters

Design Parameters	Example Value

Application Waveforms



Application Waveforms(continued)



Typical Application

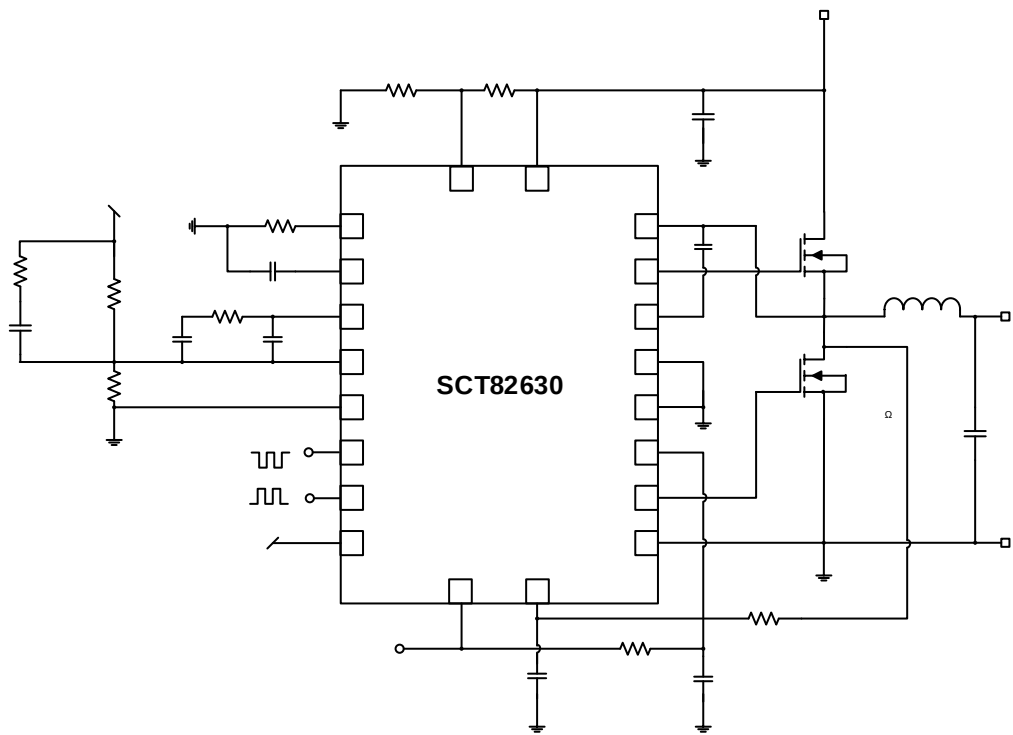
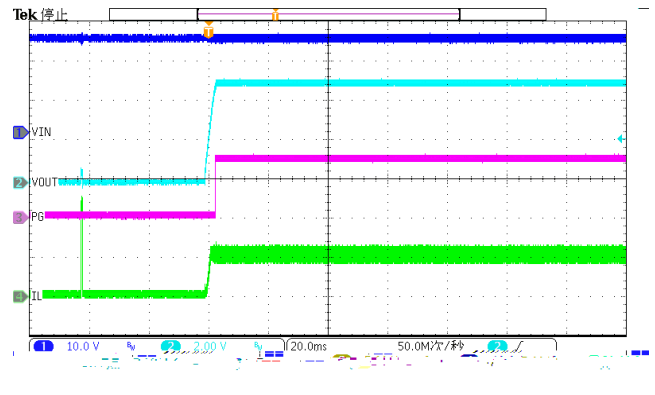
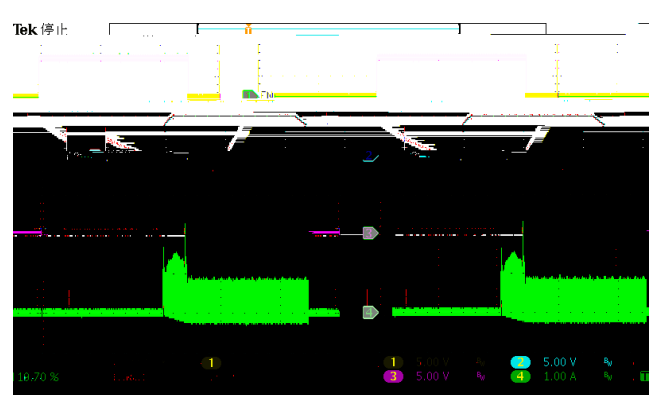
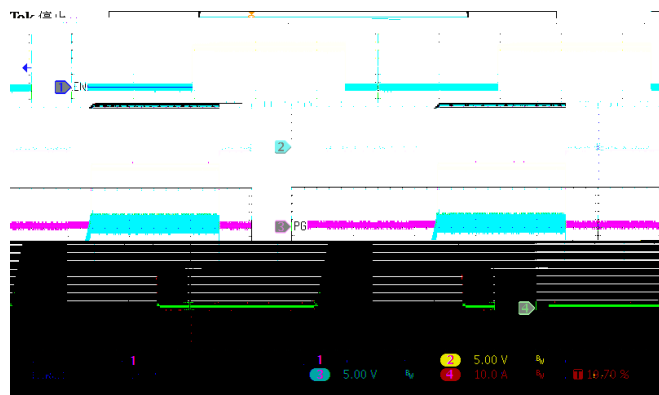
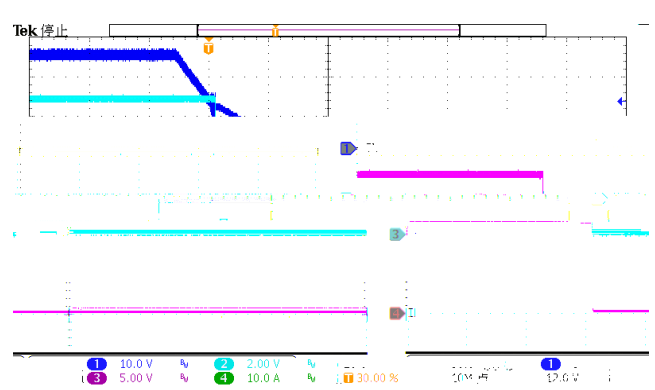
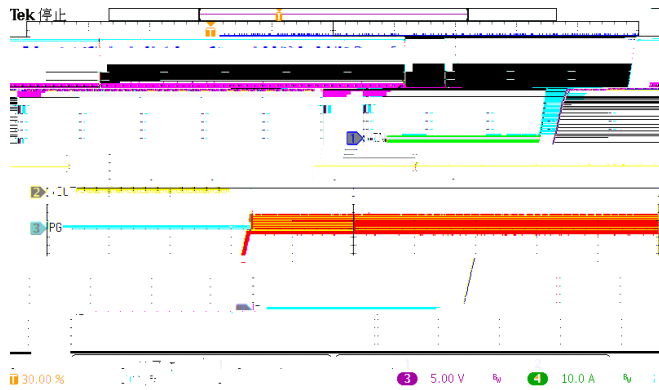


Figure 41. Application Schematic, 24V to 5V, 20A Buck Regulator at 400kHz

Design Parameters	
Design Parameters	Example Value

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Application Waveforms

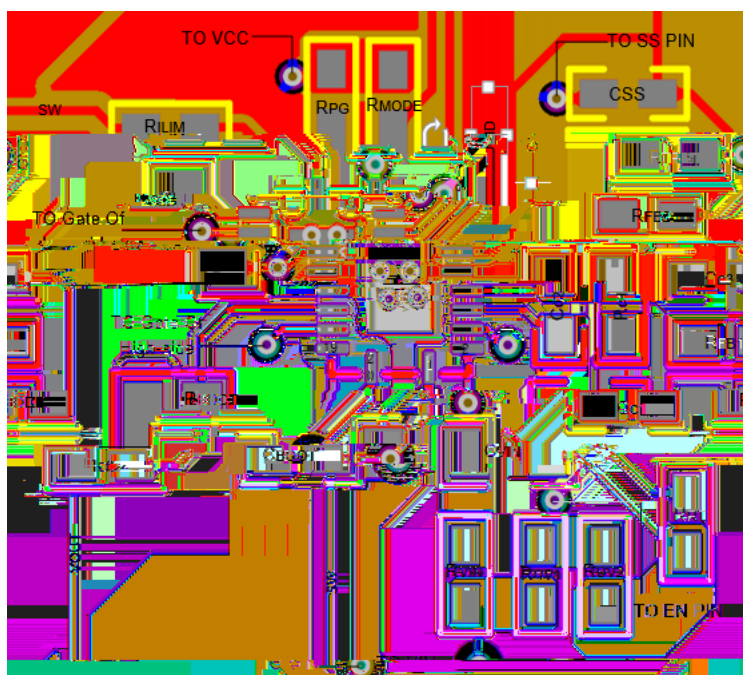


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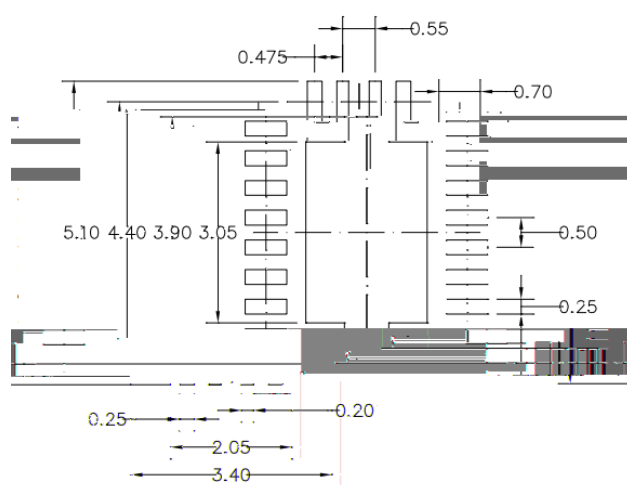
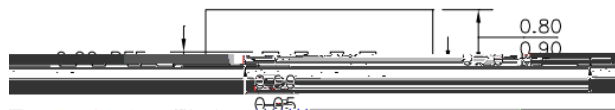
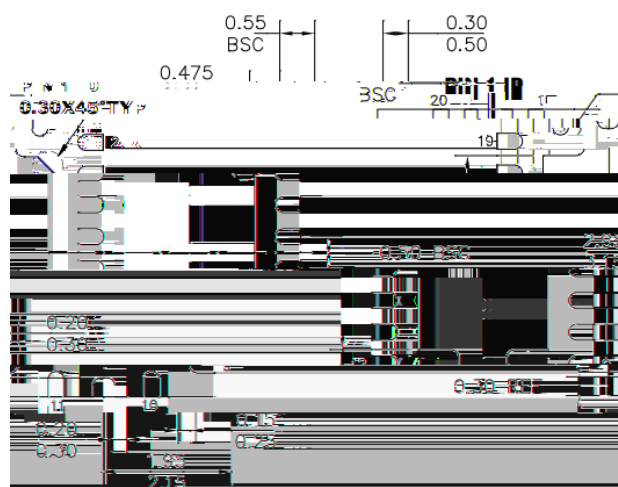
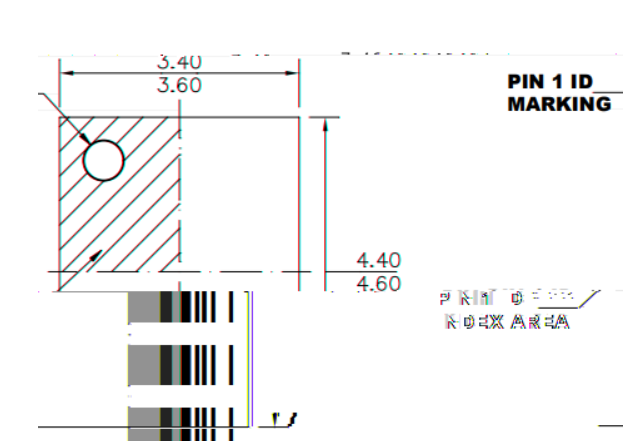
Table 5: Compensation Values for Typical Output Voltage/Capacitor Combinations at fsw=400KHz

		E				E	E		E

Layout Guideline



PACKAGE INFORMATION



NOTE:

TAPE AND REEL INFORMATION

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