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SCT2230H

E E DE
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E E E

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

E E C

SYMBOL	RATING	UNIT	
()			EHC E VIN SW GND 1 2 3 6 5 4 FB EN BST

E E		
NAME	PIN	PIN FUNCTION
		1

E C E E

PARAMETER	DEFINITION	MIN	MAX	UNIT

E C

PARAMETER	DEFINITION	MIN	MAX	UNIT
	1			
	1			
	1			

D E E

PARAMETER	THERMAL METRIC	SOT563	UNIT

SCT2230H

E D E E

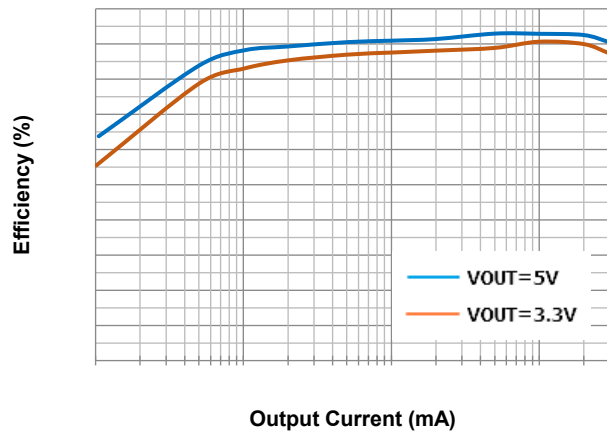


Figure 1. SCT2230H Efficiency, Vin=12V

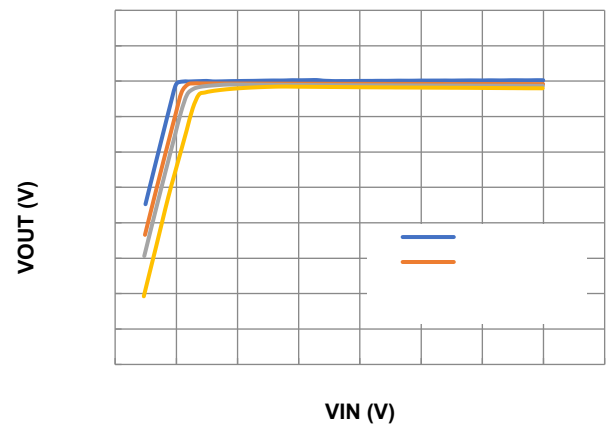


Figure 2. VOUT Vs. VIN

Figure 3. Load Regulation

Figure 4. FB Voltage Vs. Temperature

Figure 5. UVLO Vs. Temperature

Figure 6. Quiescent Current Vs. Temperature

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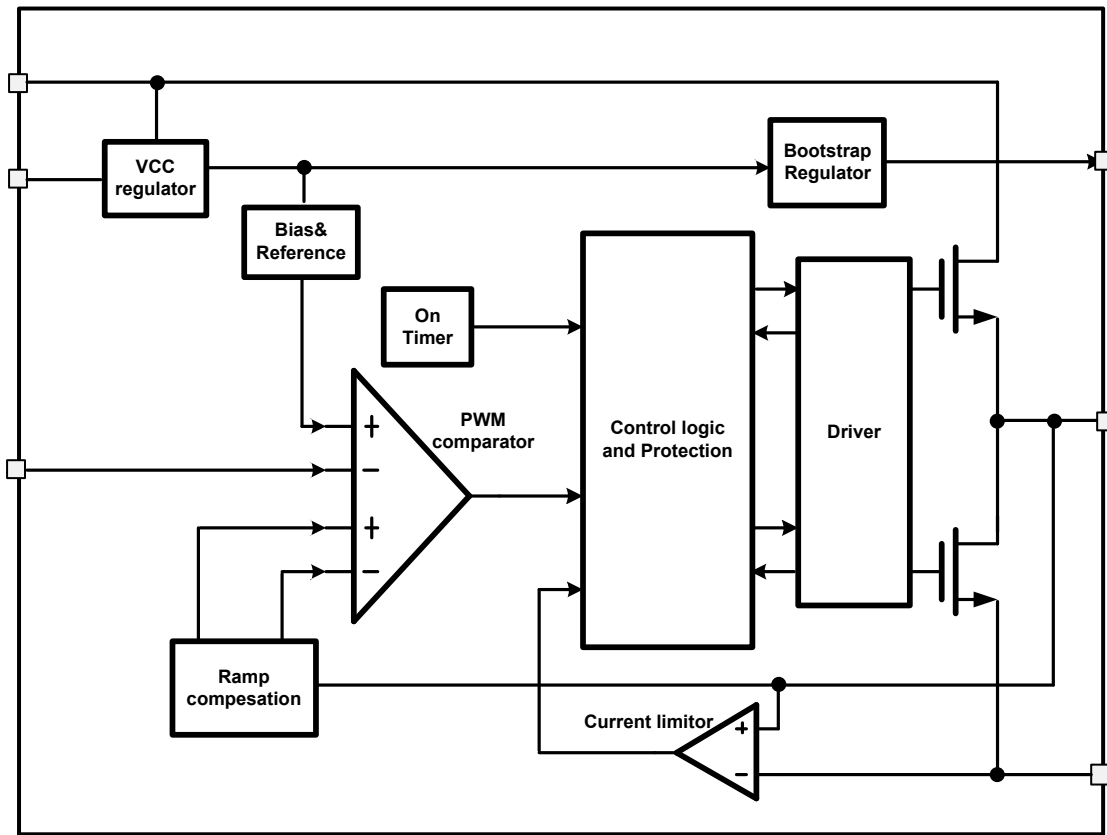
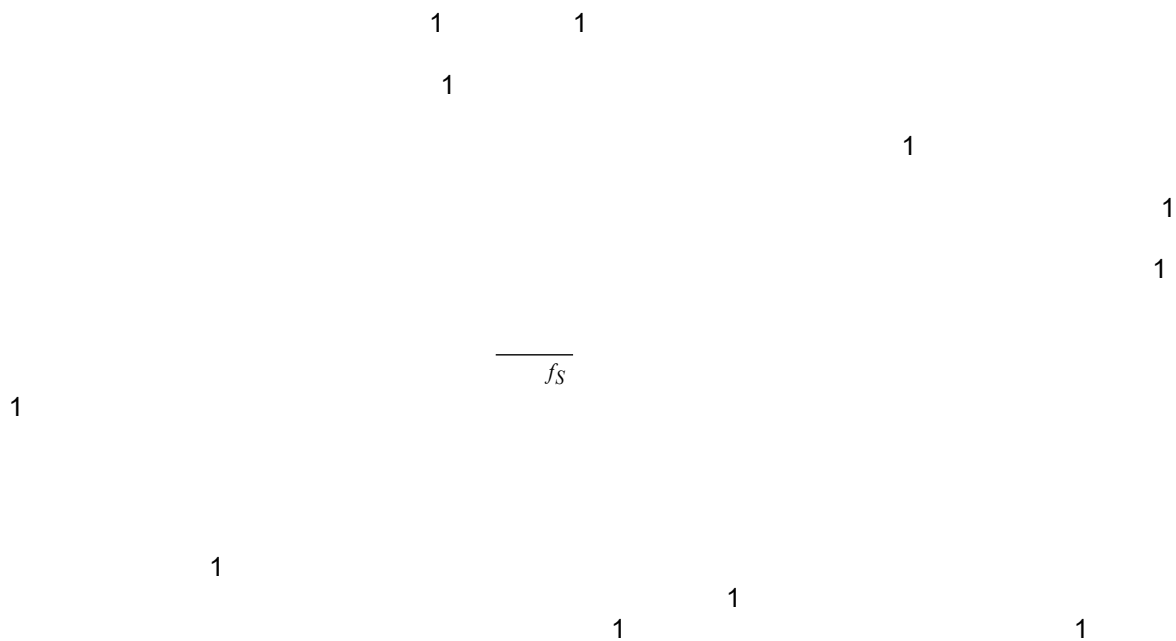


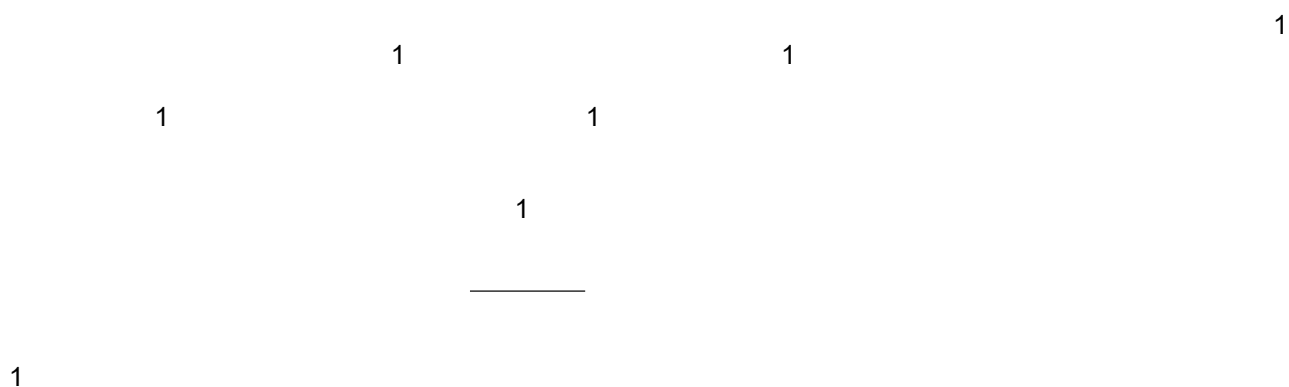
Figure 7. Functional Block Diagram

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Adaptive On-time Control



Power Saving Mode (PSM)

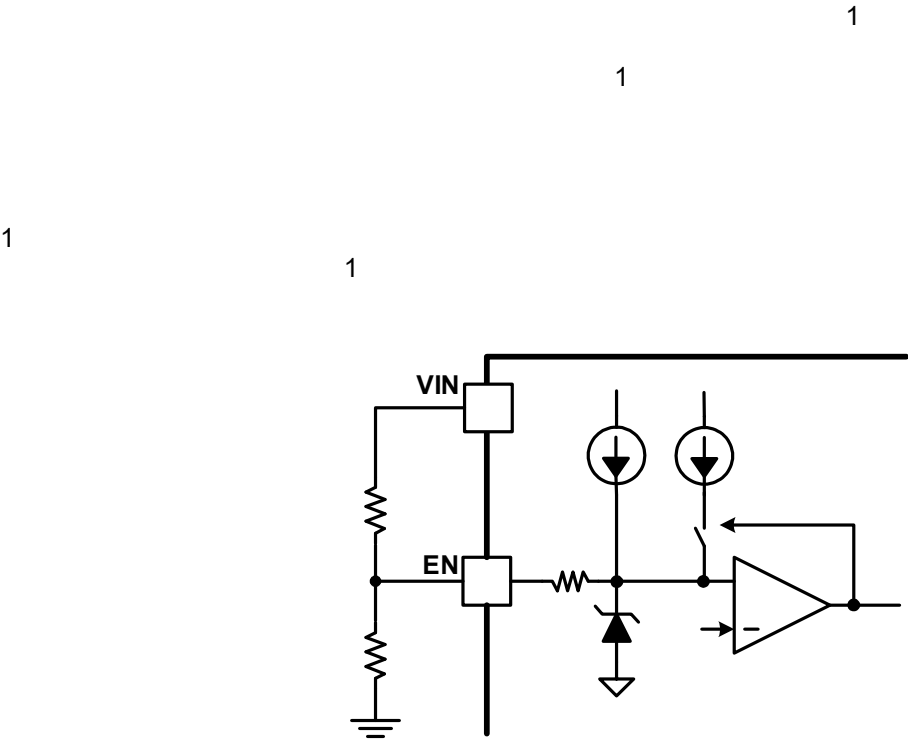


VIN Power



Under Voltage Lockout UVLO

Enable and Start up



$$3 = \frac{(\text{---}) -}{1(1 - \text{---}) + 2}$$

$$4 = \frac{3 \times}{- + 3(1 + 2)}$$

- 1
- 1
 - 1
 -
 -
 -
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Over Current Protection (OCP) and Hiccup Mode

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Bootstrap Voltage Regulator

Thermal Shutdown

° 1 °

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Typical Application

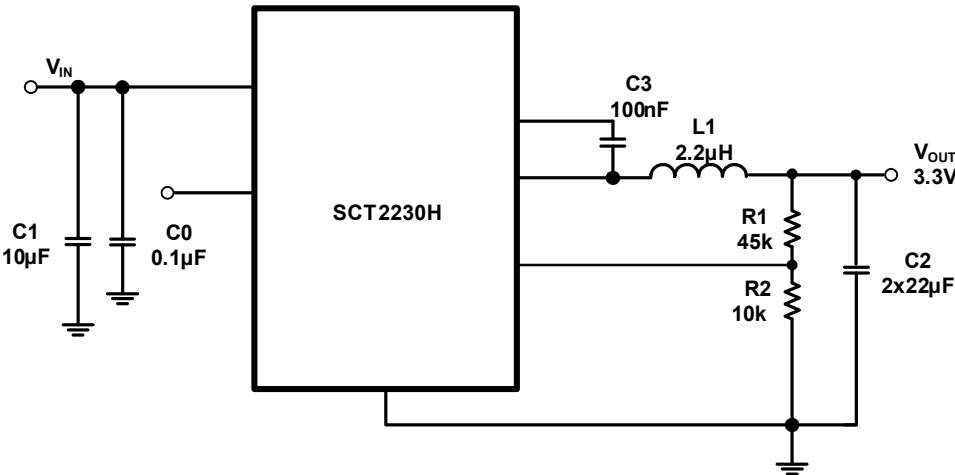


Figure 9. 12V Input, 3.3V/3A Output

Design Parameters

Design Parameters	Example Value

Input Capacitor Selection

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$$\Delta = \frac{1}{x} \times \frac{V_{OUT}}{V_{IN}} \times (1 - \frac{1}{x})$$

1

1

1

Inductor Selection

1

1

1

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1

1

1

1

1

1

1

1

1

1

1

= $\frac{\times (\quad - \quad)}{\times \quad \times \quad \times}$

1

1

1

1

= $\quad + \quad \times \frac{\quad}{2}$

1

1

Table 1. Recommended Inductors

Part Number	L (uH)	DCR Max (mΩ)	Saturation Current/Heat Rating Current (A)	Size Max (LxWxH mm)	Vendor

Output Feedback Resistor Divider Selection

$$R_1 = \frac{(V_{in} - V_{out}) \times R_2}{V_{out}}$$

Table 2. Recommended Component Selections

Output Voltage (V)	R1 (kΩ)	R2 (kΩ)	L (μH)	C1 (μF)	C2 (μF)	C3 (nF)

Application Waveforms

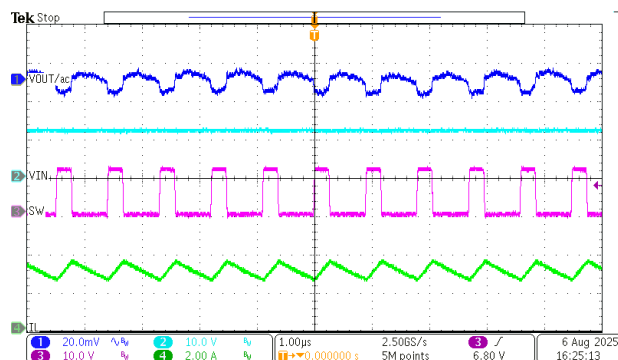


Figure 9. SW node waveform and Output Ripple
VIN=12V, VOUT=3.3V IOUT=3A

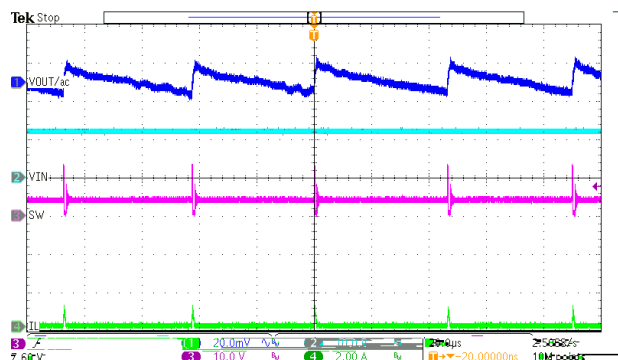


Figure 10. SW node Waveform and Output Ripple
VIN=12V, VOUT=3.3V IOUT=10mA

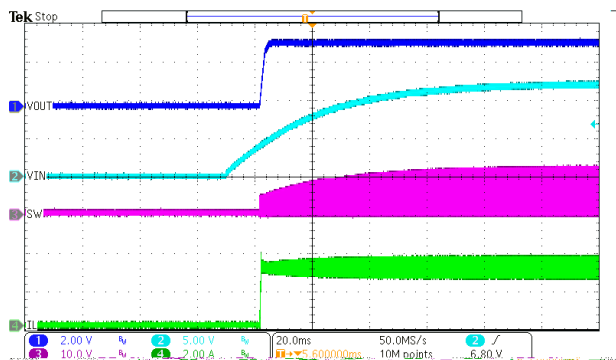


Figure 11. Power Up
VIN=12V, VOUT=3.3V, IOUT=3A

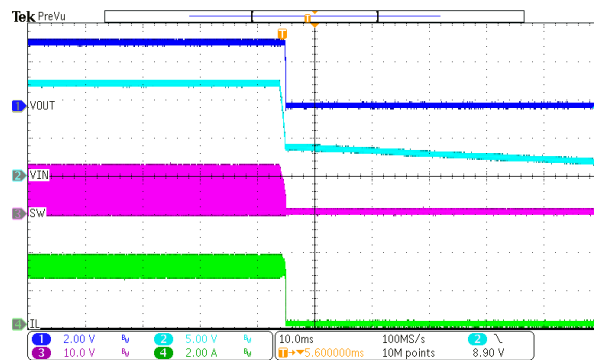


Figure 12. Power Down
VIN=12V, VOUT=3.3V, IOUT=3A

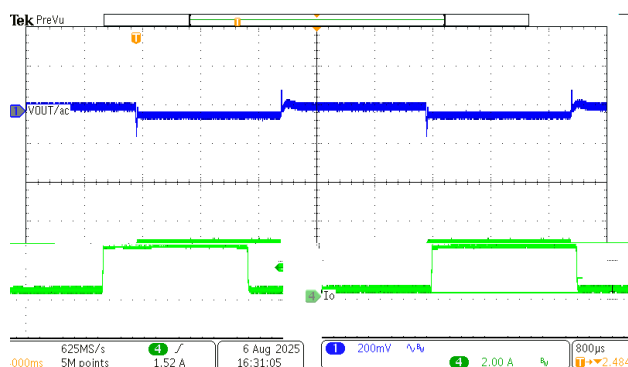


Figure 13. Load Transient
VOUT=3.3V, IOUT=0.3A to 2.7A, SR=250mA/us

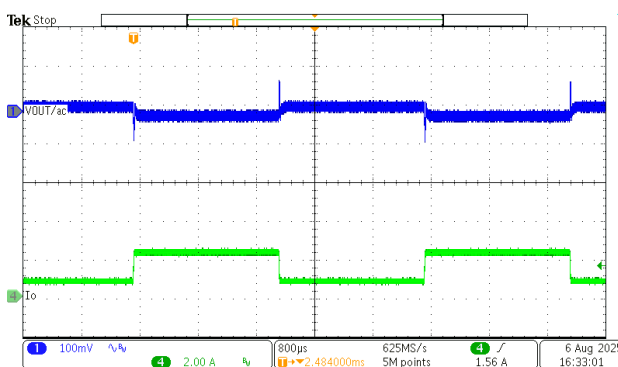


Figure 14. Load Transient
VOUT=3.3V, IOUT=0.75A to 2.25A, SR=250mA/us

Layout Guideline

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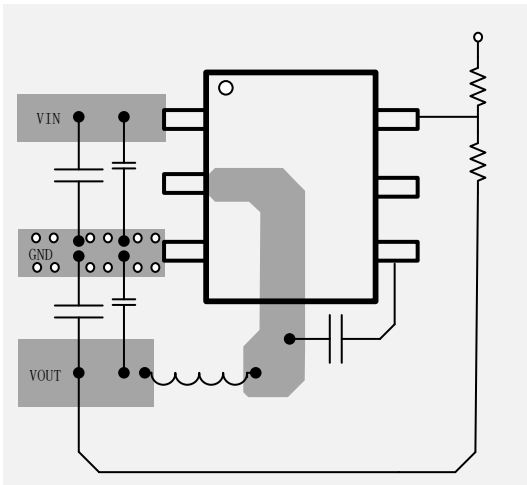


Figure 15. PCB Layout Example

Thermal Considerations

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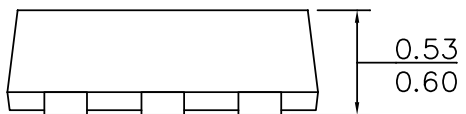
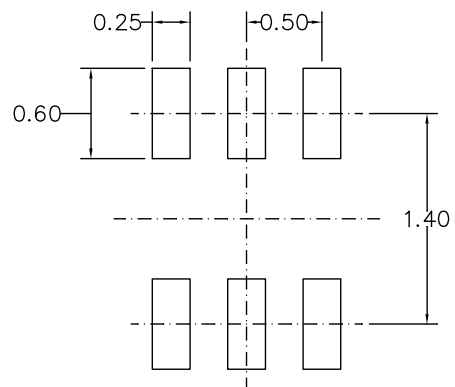
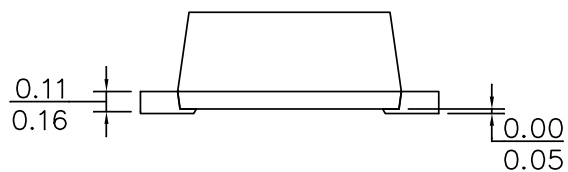
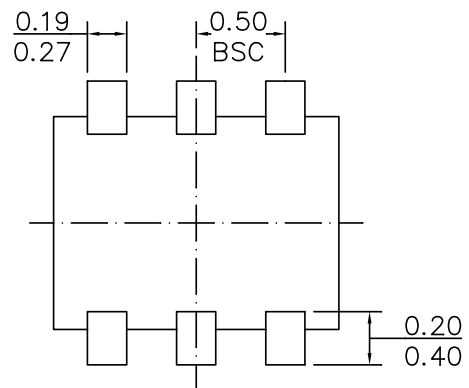
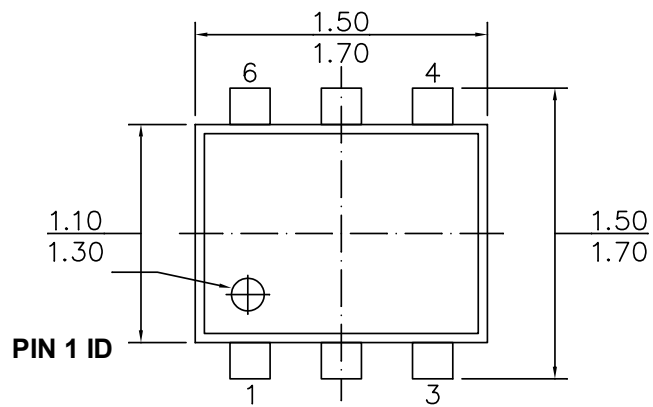
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() = $\frac{125 -}{\theta_{JA}}$

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NOTE:

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