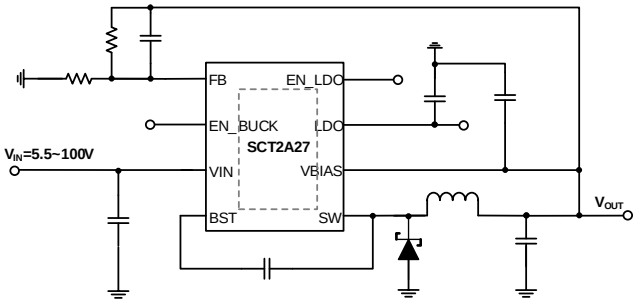
5.5V-100V Vin, 4A Peak Current Limit, High Efficiency Asynchronous Step-down DCDC Converter with a 200mA LDO Integrated

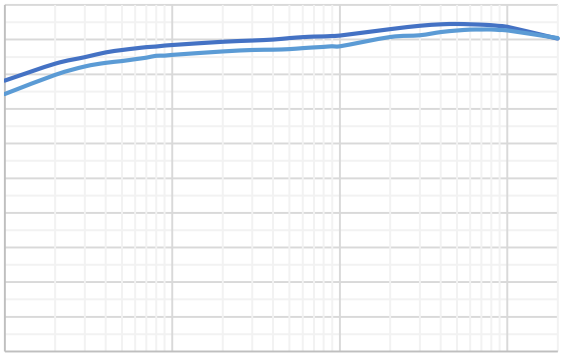
FEATURES

DESCRIPTION

APPLICATIONS

TYPICAL APPLICATION





REVISION HISTORY

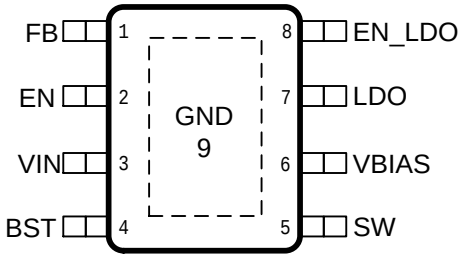
DEVICE ORDER INFORMATION

ABSOLUTE MAXIMUM RATINGS

(1)

(2)

PIN CONFIGURATION



PIN FUNCTIONS

		a) b) c)

RECOMMENDED OPERATING CONDITIONS

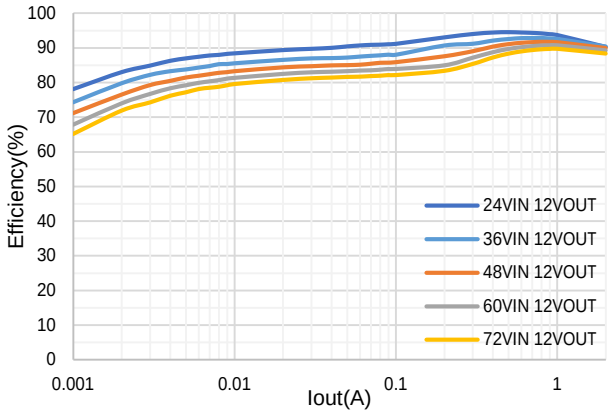
ESD RATINGS

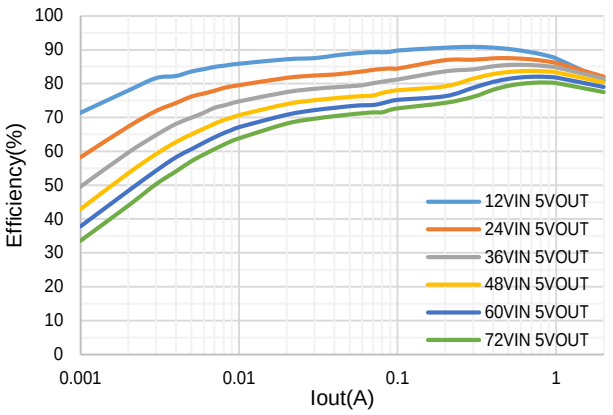
(1)
(2)

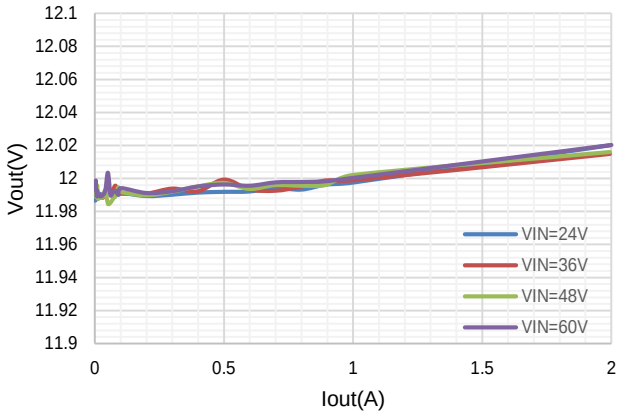
THERMAL INFORMATION

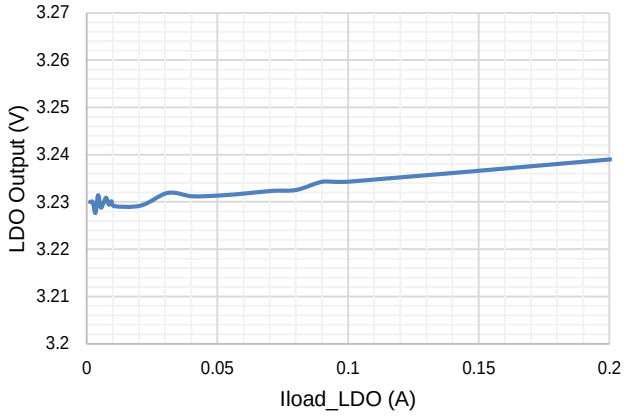
ELECTRICAL CHARACTERISTICS

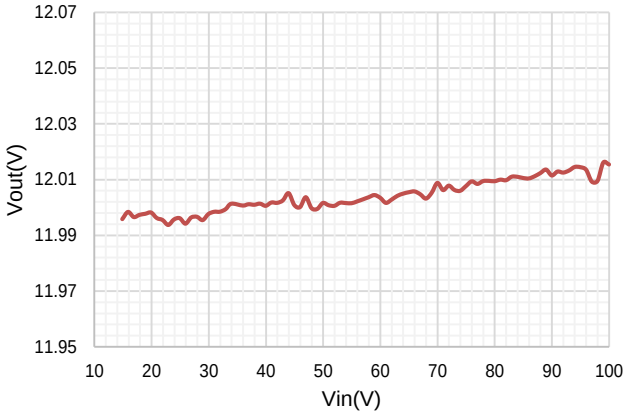
TYPICAL CHARACTERISTICS

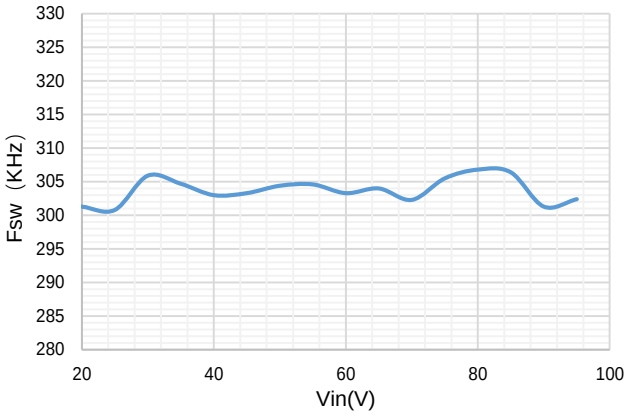






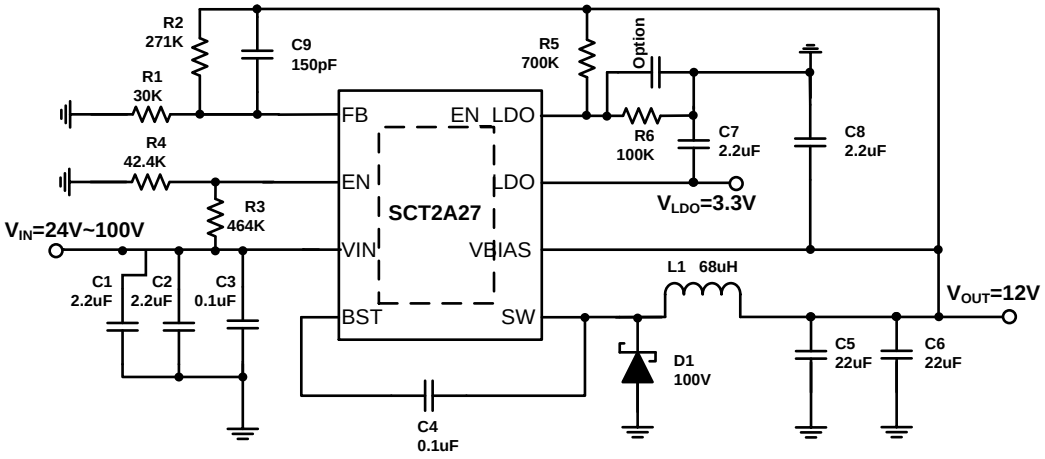






1% tolerance

APPLICATION INFORMATION



$$R_2 = \left(\frac{V_{OUT}}{V_{REF}} - 1\right) * R_1$$

$$L_{MIN} = \frac{V_{OUT}}{f_{SW} * LIR * I_{OUT(max)}} * (1 - \frac{V_{OUT}}{V_{IN(max)}})$$

$$P_D = \frac{(V_{IN_MAX} - V_{OUT}) \times I_{OUT} \times V_d}{V_{IN_MAX}} + \frac{C_j \times f_{SW} \times (V_{IN} + V_d)^2}{2}$$

$$I_{CINRMS} = I_{OUT} * \sqrt{\frac{V_{OUT}}{V_{IN}} * (1 - \frac{V_{OUT}}{V_{IN}})}$$

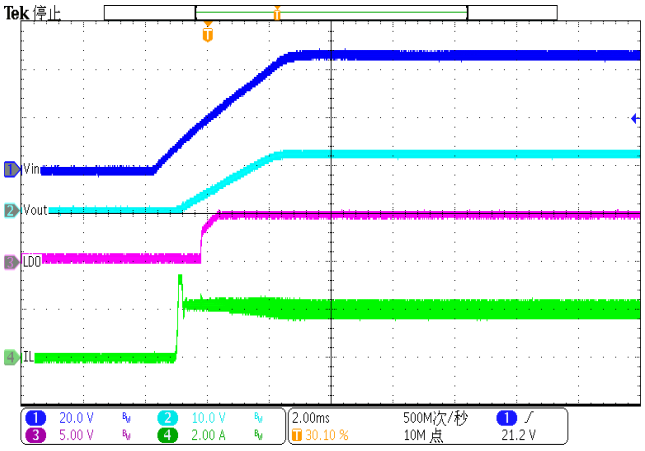
$$I_{CINRMS} = 0.5 * I_{OUT}$$

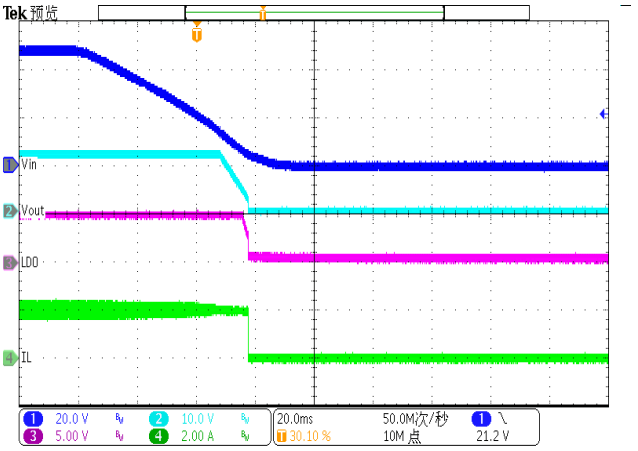
$$\Delta V_{IN} = \frac{I_{OUT}}{f_{SW} * C_{IN}} * \frac{V_{OUT}}{V_{IN}} * (1 - \frac{V_{OUT}}{V_{IN}})$$

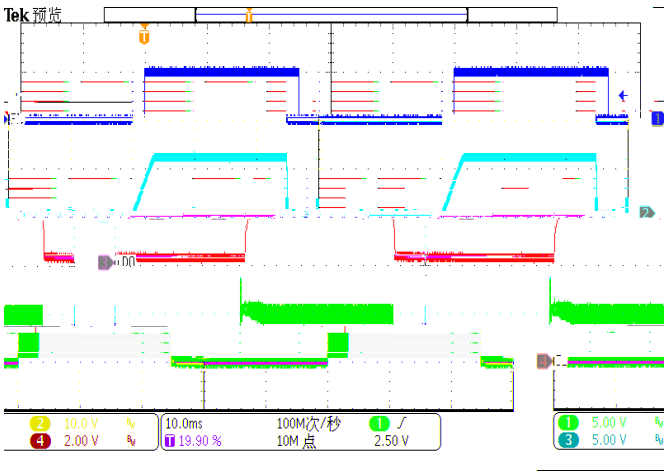
$$\Delta V_{OUT} = \frac{V_{OUT} * (V_{IN} - V_{OUT})}{8 * {f_{SW}}^2 * L * C_{OUT} * V_{IN}}$$

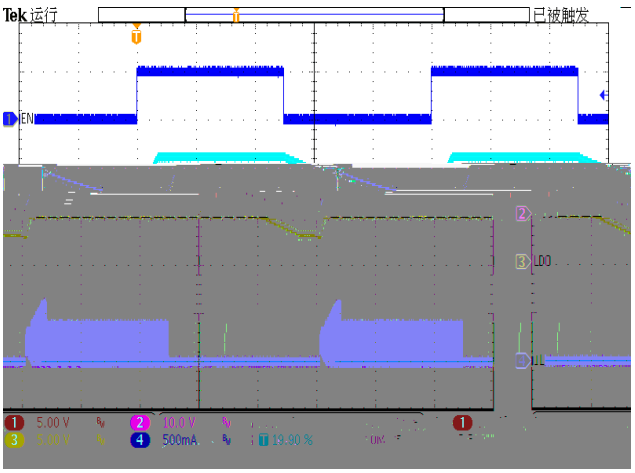
V_{OUT}

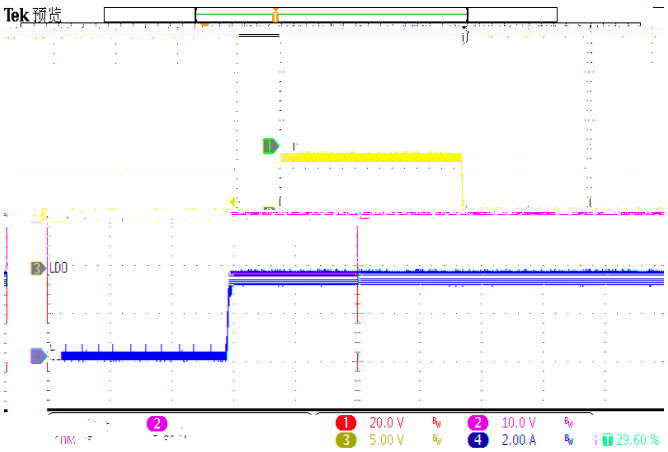
Vout	L1	COUT	R2	R1	C7
5V	33uH	2*22uF	95K	30K	68pF
12V	68uH	2*22uF	271K	30K	150pF
24V	100uH	2*22uF	191k	10K	150pF

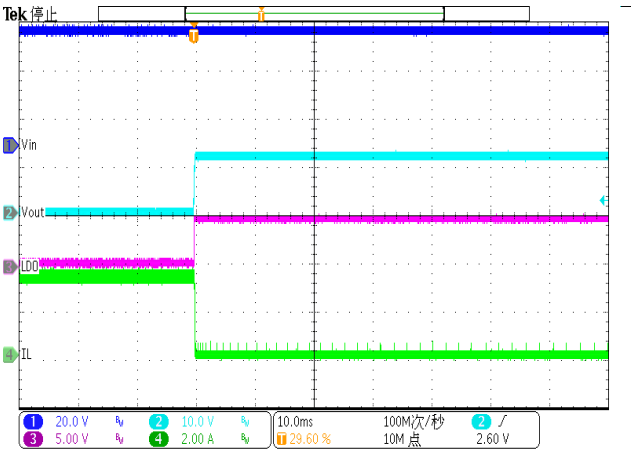

Tek 停止
Vin
Vout
LDO
IL
20.0 V
10.0 V
5.00 V
2.00 A
2.00ms
500M次/秒
30.10 %
10M 点
21.2 V

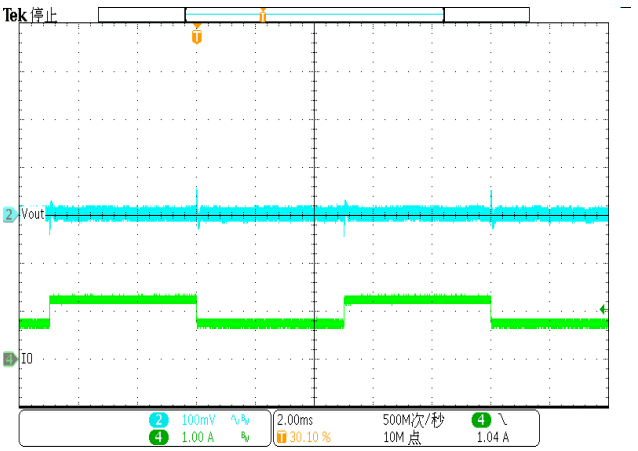

Tek 预览
Vin
Vout
LDO
IL
20.0 V
10.0 V
5.00 V
2.00 A
20.0ms
50.0M次/秒
30.10 %
10M 点
21.2 V

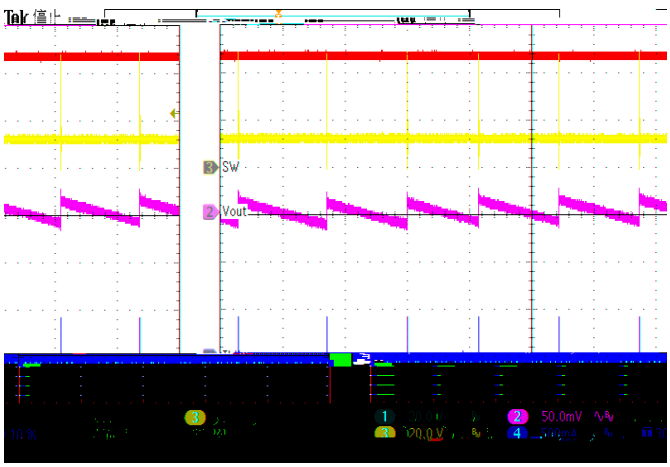

Tek 预览
LDO
10.0 V
2.00 V
10.0ms
100M次/秒
19.90 %
10M 点
2.50 V
5.00 V
5.00 V

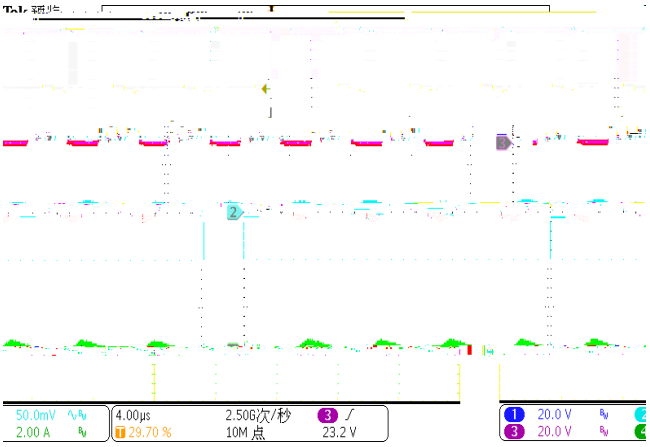

Tek 运行 已被触发
EN
LDO
IL
5.00 V
10.0 V
500mA

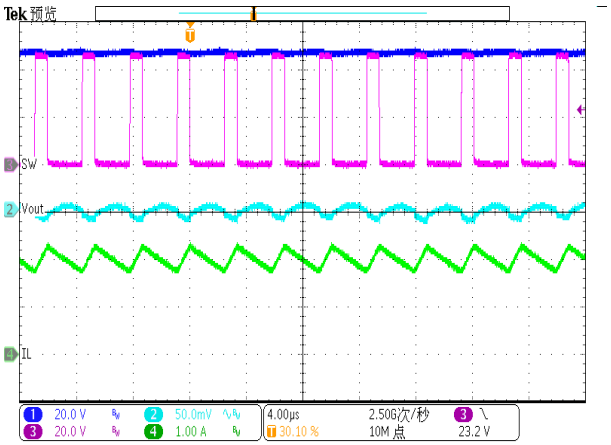

Tek 预览
LDO
20.0 V
10.0 V
5.00 V
2.00 A
29.60 %

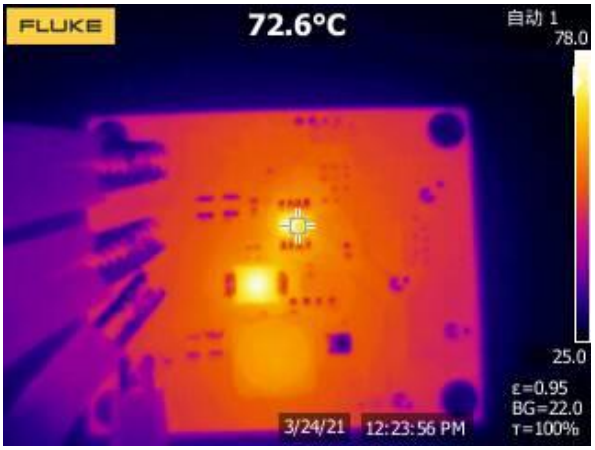

Tek 停止
Vin
Vout
LDO
IL
20.0 V
10.0 V
5.00 V
2.00 A
10.0ms
100M次/秒
29.60 %
10M 点
2.60 V


Tek 停止
2 Vout
IO
2 100mV
4 1.00 A
2.00ms
30.10 %
500M次/秒
10M 点
4
1.04 A

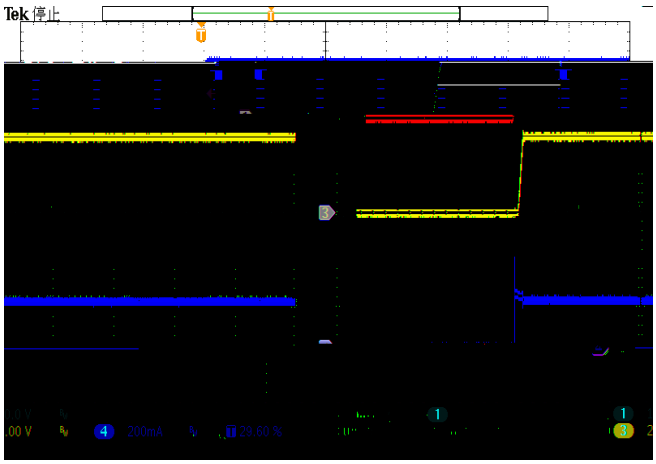

Tek 停止
SW
2 Vout
2 50.0mV

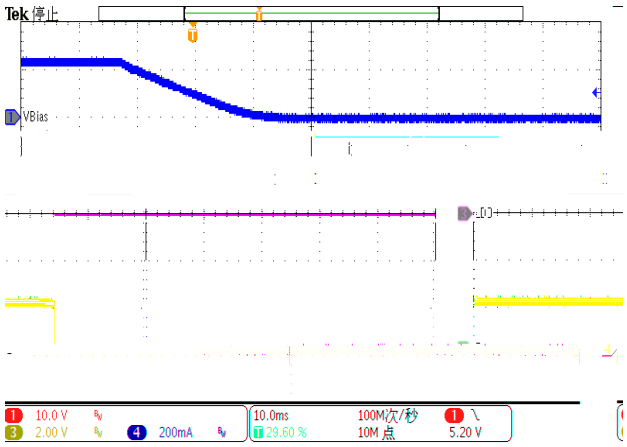

50.0mV
2.00 A
4.00µs
29.70 %
2.50G次/秒
10M 点
3
23.2 V
1 20.0 V
3 20.0 V

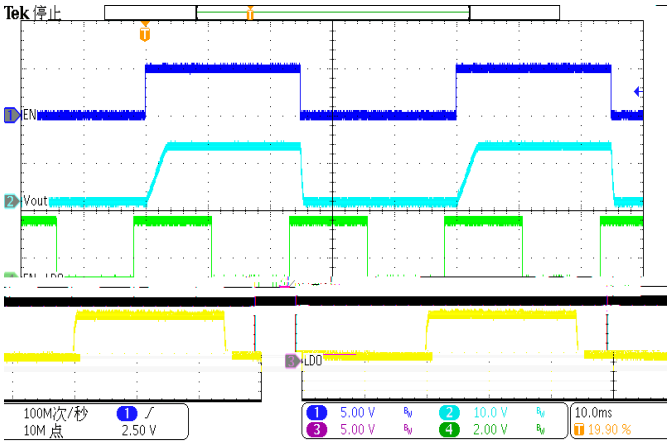

Tek 预览
SW
2 Vout
IL
1 20.0 V
3 20.0 V
2 50.0mV
4 1.00 A
4.00µs
30.10 %
2.50G次/秒
10M 点
3
23.2 V

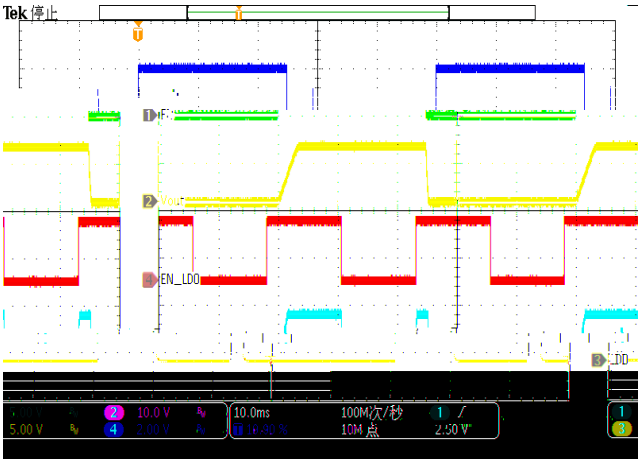

FLUKE
72.6°C
自动 1
78.0
25.0
ε=0.95
BG=22.0
T=100%
3/24/21
12:23:56 PM

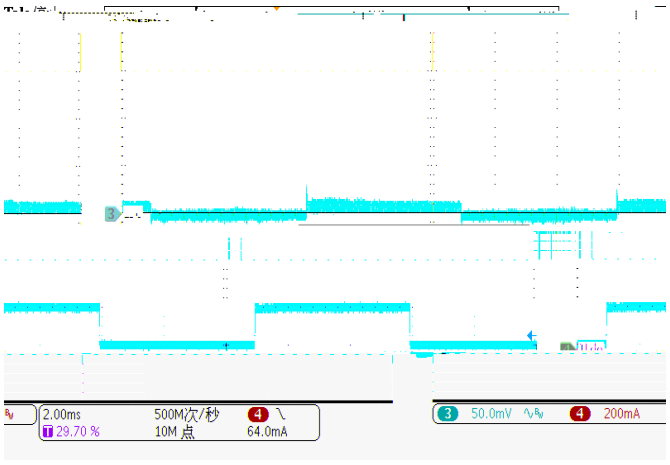
LDO

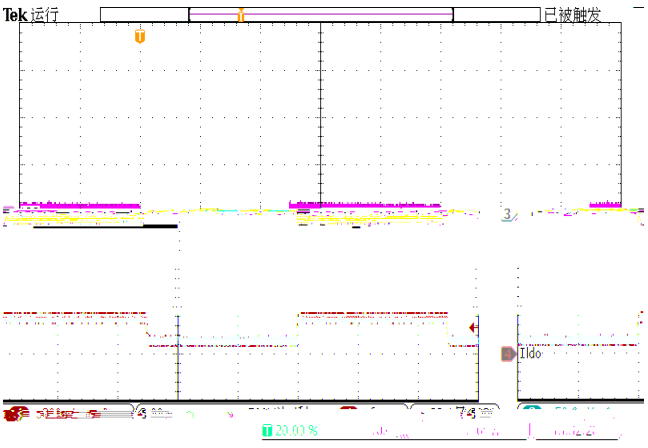

Tek 停止


Tek 停止
VBias
LDO
10.0 V
2.00 V
200mA
10.0ms
29.60 %
100M次/秒
10M 点
5.20 V


Tek 停止
EN
Vout
LDO
100M次/秒
10M 点
2.50 V
5.00 V
5.00 V
10.0 V
2.00 V
10.0ms
19.90 %


Tek 停止
EN_LDO
LDO
10.0 V
2.00 V
10.0ms
100M次/秒
10M 点
2.50 V
5.00 V


2.00ms
29.70 %
500M次/秒
10M 点
64.0mA
50.0mV
200mA


Tek 运行
已被触发
Ildo
20.00 %

1.

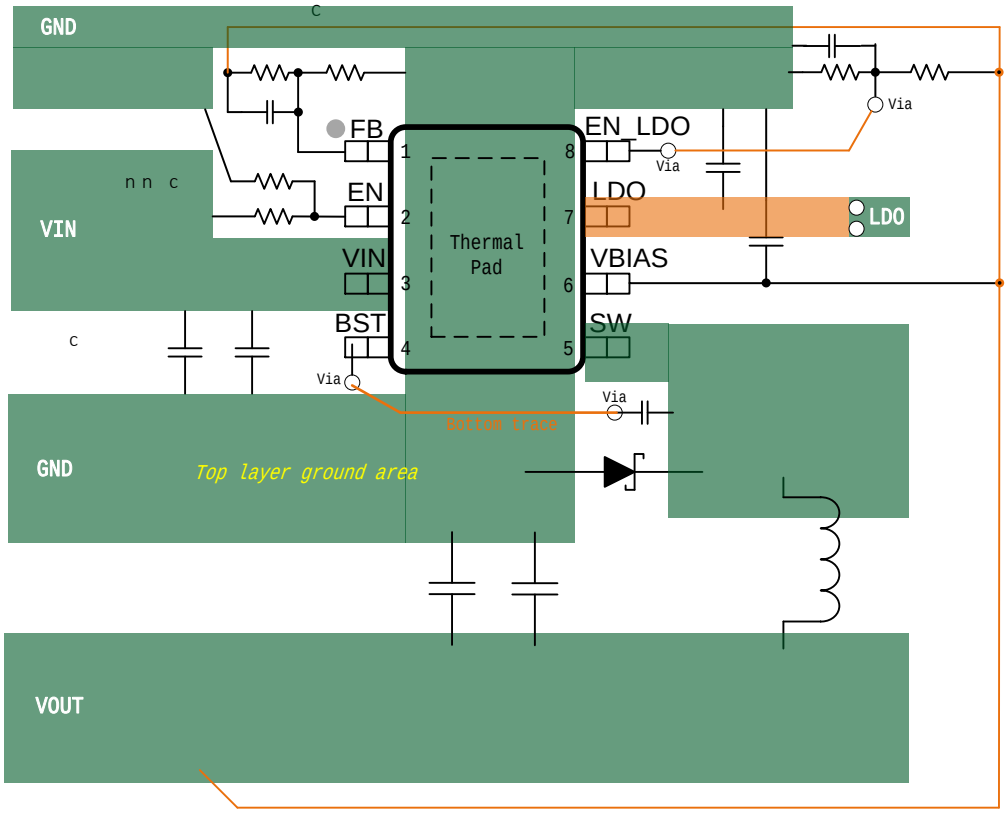
2.

3.

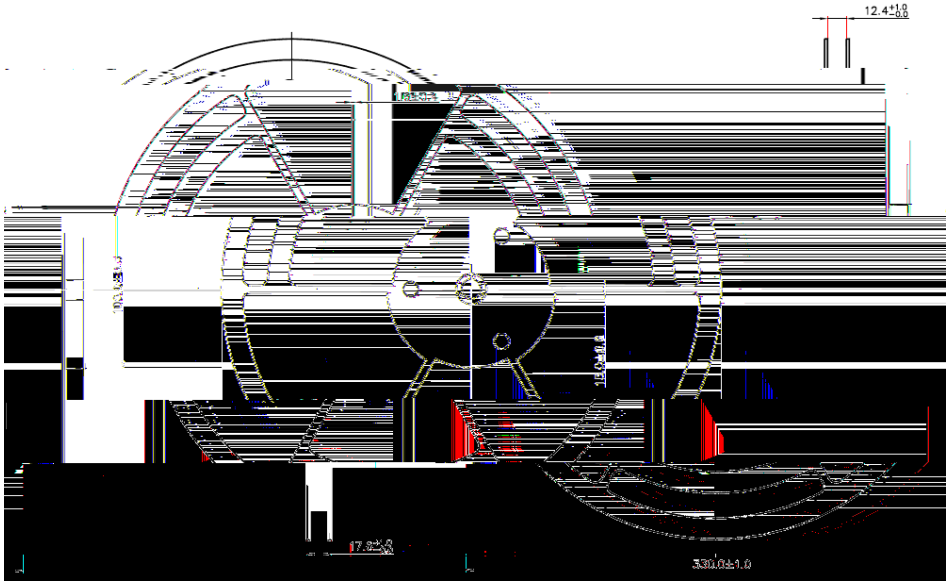
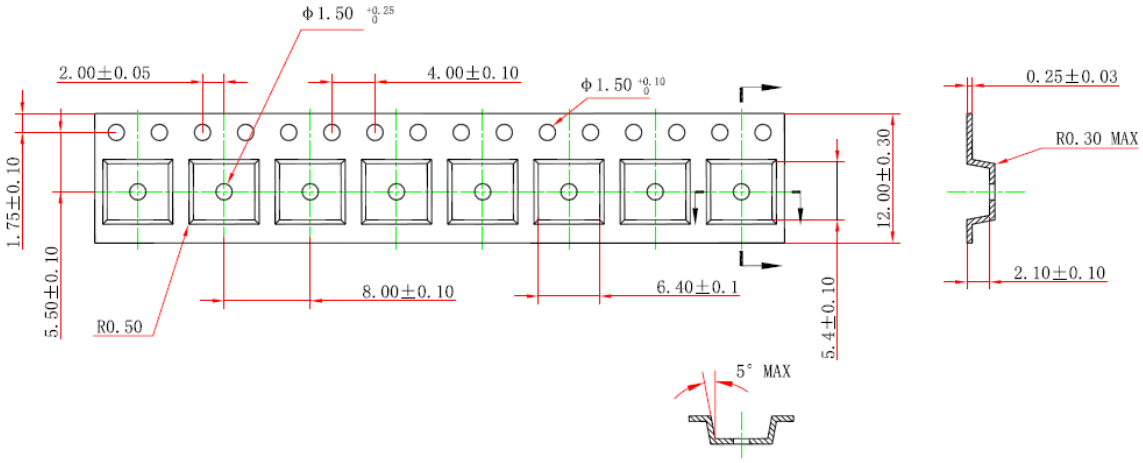
4.

5.

6.


GND
C
FB
EN
VIN
VIN
BST
Thermal
Pad
EN_LDO
LDO
LDO
VBIAS
SW
Via
Via
Via
Via
Bottom trace
GND
Top layer ground area
VOUT

PACKAGE INFORMATION

1.

TAPE AND REEL INFORMATION