



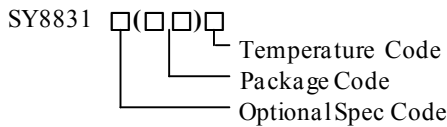
SY8831

High Efficiency 1.5MHz, Dual 1A Synchronous Step Down Regulator Advanced Design Specification

General Description

The SY8831 is a dual-output, high efficiency 1.5MHz synchronous step down DC-DC regulator IC, capable of delivering up to 1A output current for each output channel. The SY8831 operates over a wide input voltage range from 2.5V to 5.5V and integrates main switch and synchronous switch with very low $R_{DS(ON)}$ to minimize the conduction loss.

Ordering Information



Ordering Number	Package type	Note
SY8831AIC	TSOT23-8	--

Features

- Input range: 2.5V to 5.5V input voltage
- 1.5MHz switching frequency
- 180° out of phase operation
- Output current: 1A per channel
- Quiescent Current: Typical 60uA for both channels on
- Low $R_{DS(ON)}$ for internal switches (PFET/NFET): 260mΩ/170mΩ
- Internal soft-start
- 100% dropout operation
- RoHS Compliant and Halogen Free
- Compact package: TSOT23-8

Applications

- SSD
- Cell Phones
- Digital Cameras
- PDAs
- Portable Media Players

Typical Applications

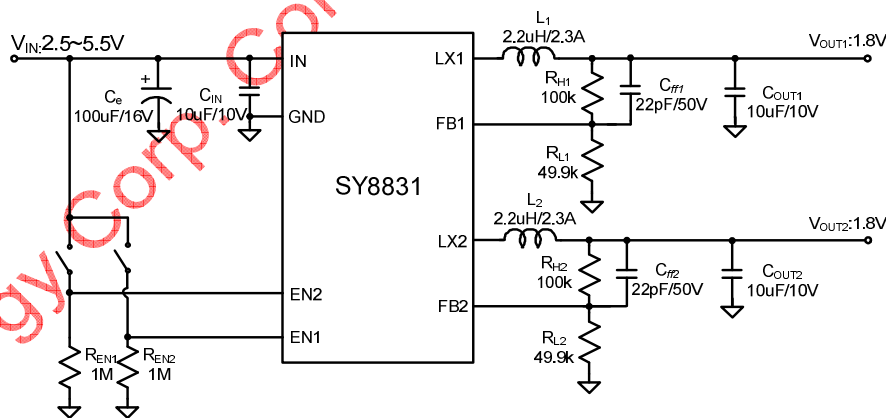
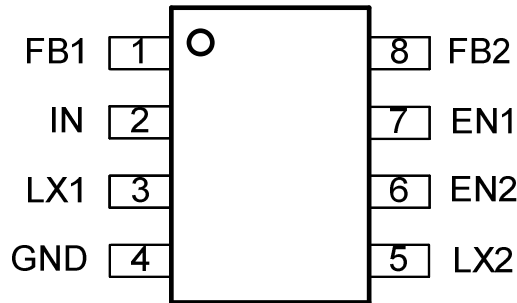


Figure 1. Schematic Diagram



Top Mark: Nbxyz (Device code: Nb, x=year code, y=week code, z= lot number code)

Pin Name	Pin Number	Pin Description
FB1	1	Feedback pin for channel1. Connect this pin to the center point of the output resistor divider (as shown in Figure 1) to program the output1 voltage: $V_{OUT1}=0.6V*(1+R_{H1}/R_{L1})$
IN	2	Power input pin. Decouple this pin to ground pin at least 10uF ceramic cap
LX1	3	Inductor pin for output1. Connect this pin to the switching node of inductor.
GND	4	Ground pins.
LX2	5	Inductor pin for channel 2. Connect this pin to the switching node of inductor.
EN2	6	Enable pin for channel 2. Do not leave it floating.
EN1	7	Enable pin for channel 1. Do not leave it floating.
FB2	8	Feedback pin for channel2. Connect this pin to the center point of the output resistor divider (as shown in Figure 1) to program the channel2 voltage: $V_{OUT2}=0.6V*(1+R_{H2}/R_{L2})$

Absolute Maximum Ratings (Note 1)

All pins ----- 6V
 Power Dissipation, P_D @ $T_A = 25^\circ C$ TSOT23-8 ----- TBD
 Package Thermal Resistance (Note 2)
 θ_{JA} ----- TBD
 θ_{JC} ----- TBD
 Junction Temperature Range ----- $150^\circ C$
 Lead Temperature (Soldering, 10 sec.) ----- $260^\circ C$
 Storage Temperature Range ----- $-65^\circ C$ to $150^\circ C$

Recommended Operating Conditions (Note 3)

Supply Input Voltage ----- 2.5V to 5.5V
 EN1, EN2, FB1, FB2 Voltage ----- $V_{IN}+0.3V$
 Junction Temperature Range ----- $-40^\circ C$ to $125^\circ C$
 Ambient Temperature Range ----- $-40^\circ C$ to $85^\circ C$

**SILERGY****SY8831****Electrical Characteristics**(V_{IN}= 5V, V_{OUT1}=V_{OUT2}=2.5V, L₁=L₂=2.2uH, C_{OUT1}=C_{OUT2}=10uF, T_A = 25°C unless otherwise specified)

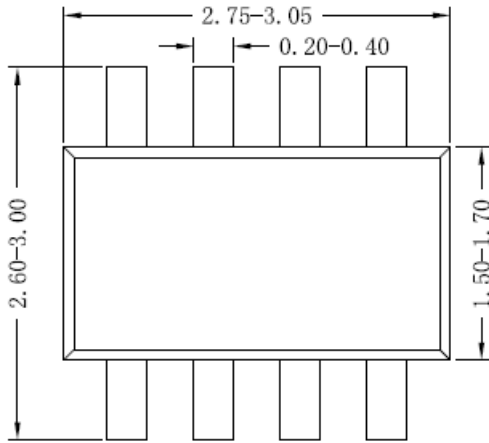
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V _{IN}		2.5		5.5	V
Shutdown Current	I _{SHDN}	EN1=EN2=0		0.1	1	μA
Quiescent Current	I _Q	EN1=1 or EN2=1, I _{OUT1} = I _{OUT2} =0, no switching		50		μA
		EN1=1 and EN2=1, I _{OUT1} = I _{OUT2} =0, no switching		60		μA
Input UVLO Threshold	V _{UVLO}				2.45	V
UVLO Hysteresis	V _{HYS1}			0.2		V
Oscillator Frequency	f _{OSC}	I _{OUT1} = 0.2A, I _{OUT2} = 0.2A		1.5		MHz
Thermal Shutdown Temperature	T _{SD}			150		°C
Thermal Shutdown Hysteresis	T _{HYS}			20		°C
Feedback Reference Voltage	V _{REF1} , V _{REF2}		0.588	0.600	0.612	V
PFET R _{ON}	R _{DS(ON),P1} R _{DS(ON),P2}			260		mΩ
NFET R _{ON}	R _{DS(ON),N1} R _{DS(ON),N2}			170		mΩ
PFET Current Limit	I _{LIM1} , I _{LIM1}		1.5			A
EN Rising Threshold	V _{ENH1} , V _{ENH1}		1.2			V
EN Falling Threshold	V _{ENL1} , V _{ENL1}				0.4	V
Output Discharge Switch On Resistance	R _{DISCH}			50		Ω
PFET Min On time				100		ns
Internal Soft Start Time	T _{SS1} , T _{SS2}			1		ms

Note 1: Stresses listed as the above “Absolute Maximum Ratings” may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability.

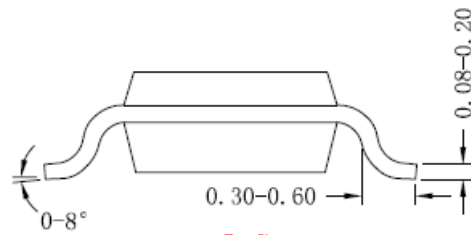
Note 2: θ_{JA} is measured in the natural convection at T_A = 25°C on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

Note 3. The device is not guaranteed to function outside its operating conditions

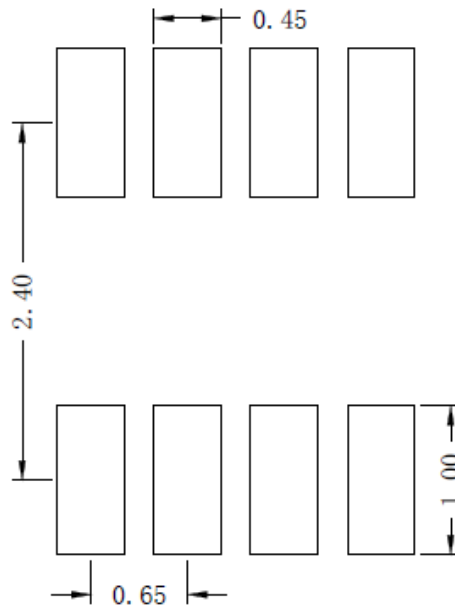
TSOT23-8 Package Outline Drawing



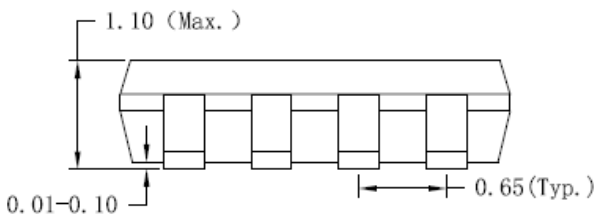
Top view



Side view A



**Recommended PCB layout
(Reference only)**



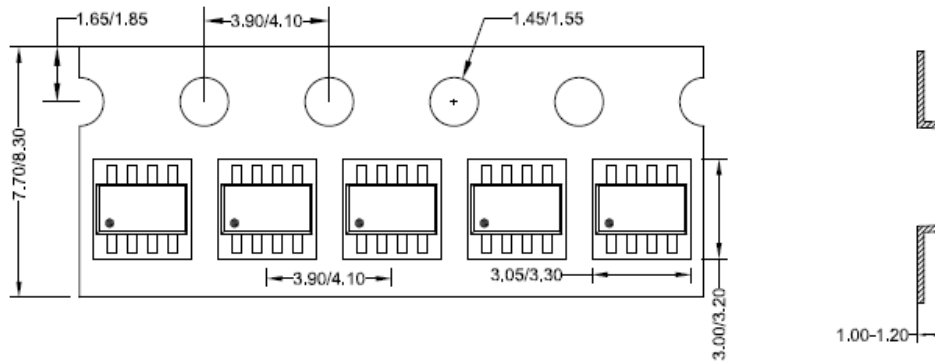
Side view B

Notes: All dimension in millimeter and exclude mold flash & metal burr

Taping & Reel Specification

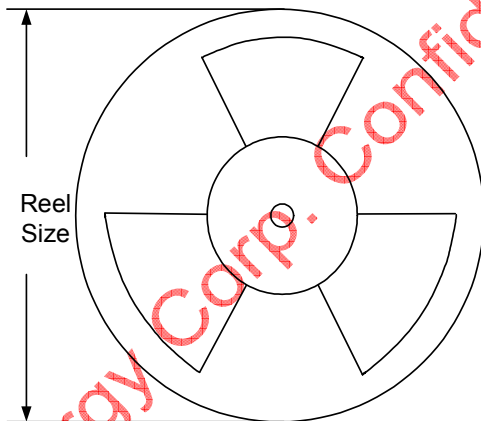
1. Taping orientation

TSOT23-8



Feeding direction →

2. Carrier Tape & Reel specification for packages



Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Trailer * length(mm)	Leader * length (mm)	Qty per reel (pcs)
TSOT23-8	8	4	7	400	160	3000

3. Others: NA

单击下面可查看定价，库存，交付和生命周期等信息

[>>SILERGY\(矽力杰\)](#)