Ordering number : ENA1660

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

Monolithic Linear IC

LV57331TT — 1ch Step-up Switching Regulator (Variable Type)

Overview

The LV57331TT is a one-channel step-up switching regulator.

Features

- Switch current limit : 1.8A
- Internal switch ON resistance : 0.16Ω
- The frequency can be switched.
- Overheat protection
- UVP
- Shutdown circuit incorporated
- Soft start circuit incorporated

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Power-supply voltage	V_{IN} max		6.5	V
SW pin voltage *1	SW		18	V
Input pin	V_{IN}	FB, VC, SHDNB, FSLCT, SS	6.5	V
Allowable power dissipation	Pd max	Mounted on a specified board *2	0.7	W
The maximum junction temperature	Tjmax		125	°C
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

*1: Please the coil is not connected and do not exceed the terminal SW even the overshoot inclusion when the switching is done and momentarily.

*2: Specified board: 60.0mm × 60.0mm × 1.6mm, glass epoxy board of 2-layer.

Recommended Operating Conditions at Ta = 25°C, GND=0V

Parameter	Symbol	Conditions	Ratings	Unit
Power-supply voltage	V_{IN}		2.6 to 5.5	V
Maximum output voltage	V_{OUT} max		15	V

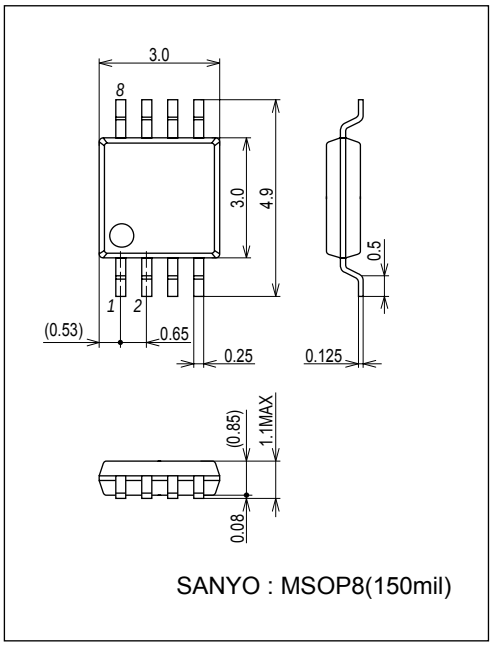
Electrical Characteristics at Ta = 25°C, V_{IN} = 2.6V, I_L = 0A

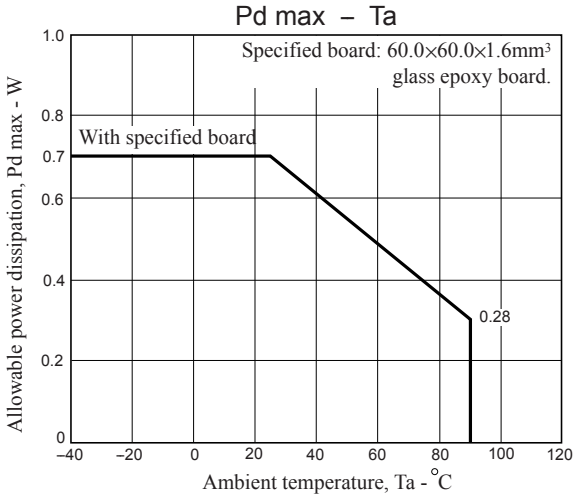
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Power supply current consumption	I_Q	FB = 1.6V(Not switching)		1.4	2.0	mA
		SHDNB = 0V		5	10	μA
Feedback voltage	V_{FB}		1.215	1.245	1.275	V
Switch current limit	I_{CL}	V_{IN} = 2.8V	1.0	1.8	3.0	A
Line regulation	$\%V_{OUT}/\Delta V_{IN}$	2.6V ≤ V_{IN} ≤ 5.5V, I_{OUT} = 0mA		0.05	0.2	%/V
Current of terminal FB bias	I_B		-100	0	+100	nA
Input voltage range	V_{IN}		2.6		5.5	V
Error amplifier transconductance	gm			300		μS
Error amplifier voltage gain	AV			300		V/V
MAX on duty	Dmax		80	85	98	%
Switching frequency	fS	FSLCT = 0V or open	448	560	672	kHz
		FSLCT = V_{IN}	0.96	1.2	1.44	MHz
SHDNB pin current	I_{SHDNB}	SHDNB = VIN		0.01	0.1	μA
		SHDNB = 0V		-0.4	-1	μA
SW pin leak current	I_L	V_{SW} = 18V		0.01	3	μA
SW pin ON resistance	R_{DSON}	V_{IN} = 2.8V, I_{SW} = 1A		0.16	0.4	Ω
SHDNB [L] input threshold	V_{IL}		0.3	0.6		V
SHDNB [H] input threshold	V_{IH}			0.6	0.9	V
Input voltage on threshold	UVP		1.8	1.94	2.0	V
Input voltage off threshold			1.7	1.86	1.9	V
Soft start pin charge current	I_{SOFT}	SS = 0V	6	15	24	μA

Package Dimensions

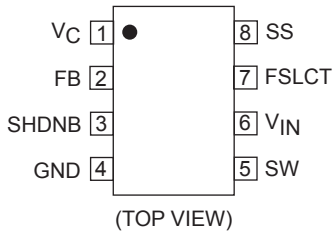
unit : mm (typ)

3245B





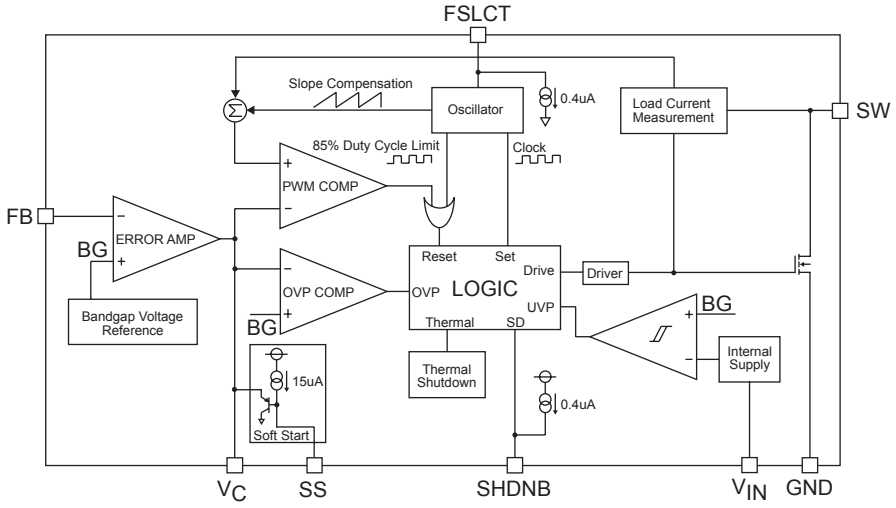
Package Dimensions



Pin function explanation

Symbol	function
V_C	Error amplifier output pin
FB	Error amplifier reversing input pin
SHDNB	Shutdown input pin (shutdown when [L] is input)
GND	GND pin
SW	Nch power FET open drain output
V_{IN}	Power input pin
FSLCT	Switching frequency switch pin (V_{IN} = 1.2MHz, GND or open =560kHz)
SS	Soft start control pin. Connect capacity on the outside. The constant current of 15μA flows from the pin. Open when unused.

Block Diagram



Application Circuit Example