

SANYO Semiconductors DATA SHEET

An ON Semiconductor Company

Bi-CMOS LSI

LV59033M — 3.3V Constant-Voltage Power Supply IC

Overview

The LV59033M is a constant-voltage power supply IC incorporating the output ON/OFF function, which offers advantages such as small current drain when output OFF and saves power dissipation of the equipment.

Features

- 3.3V output
- Output voltage ON/OFF function with the control pin (active, high)
- Output current of 1A obtainable ($V_{IN}1$, $V_{IN}2 \ge 4.3V$)
- Small current drain (1µA max) when output OFF and optimum for power saving
- MFP8 (200mil) package, ensuring easy mounting design
- Full compliment of protection circuits incorporated (including overcurrent protection, thermal protection)

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum power supply	V _{IN} 1	V _{IN} 1 pin	6.2	V
	V _{IN} 2	V _{IN} 2 pin	6.2	V
Allowable power dissipation	Pd max	Mounted on a specified board.*	1.45	W
Operating Temperature	Topr		-30 to +85	°C
Storage Temperature	Tstg		-40 to +125	°C

^{*} Specified board: $50\text{mm} \times 50\text{mm} \times 1.6\text{mm}$, glass epoxy both sides

Recommended Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
power supply	V _{IN} 1	V _{IN} 1 pin	3.4 to 6	V
	V _{IN} 2	V _{IN} 2 pin	3.4 to 6	V
Output current	I _O		0 to 1	Α

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LV59033M

Electrical Characteristics at Ta = 25°C, $V_{IN}1 = V_{IN}2 = 5V$

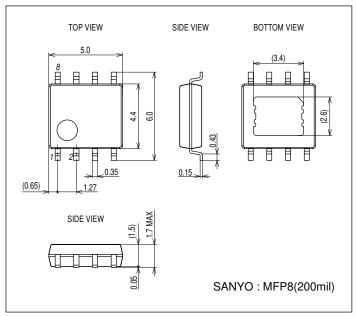
Davisantavi	O. wash as	Conditions		Ratings			1.1
Parameter	Symbol			min	typ	max	Unit
Current drain	I _{VIN}	LDO ON			110	160	μА
Standby current	ISTBY	CTL = Low				1	μА
Output							
Output voltage	VO	I _O = 10mA		3.234	3.3	3.366	V
Dropout voltage	Vdrop1_1	I _O = 1A				1.0	V
	Vdrop1_2	I _O = 0.3A				0.4	V
Load Regulation	V_{LD}	I _O = 5mA to 1A			10	50	mV
Line Regulation	V_{LN}	$V_{IN}1 = V_{IN}2 = 3.4V \text{ to 6V, } I_O = 10\text{mA}$			10	50	mV
Voltage temperature coefficient	ΔVΤ	Ta = -30 to +85°C, $I_O = 10$ mA	*		±100		ppm/°C
Ripple Rejection	V _{RL}	I _O = 10mA, VRpp=1V, f _{RR} = 1kHz	*		60		dB
Output Noise Voltage	V _{ON}	20Hz < f < 20kHz	*		150		μVrms
CTL pin							
High level voltage	V _{CTL} H			1.5		5	V
Low level voltage	V _{CTL} L			0		0.3	V
Input current	ICTL	V _{CTL} = 6V		_		8.5	μА

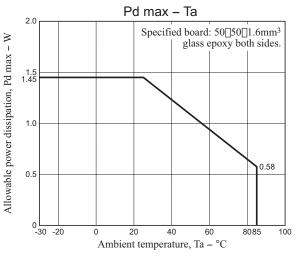
^{*} Design guarantee

Package Dimensions

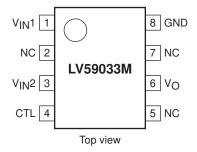
unit: mm (typ)

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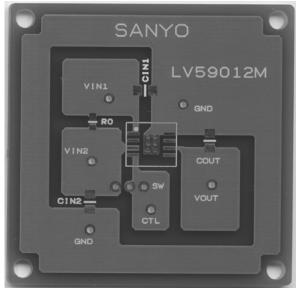




Pin Assignment



Specified Board (Top side)

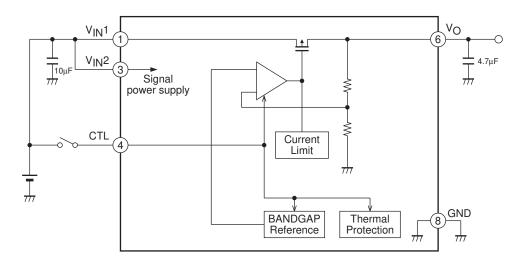


Specified Board (Bottom side)



Note: The substrate is common with LV59012M.

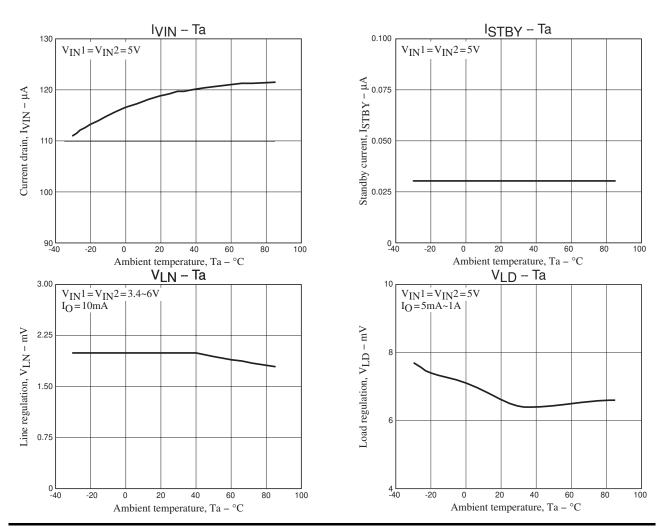
Block Diagram

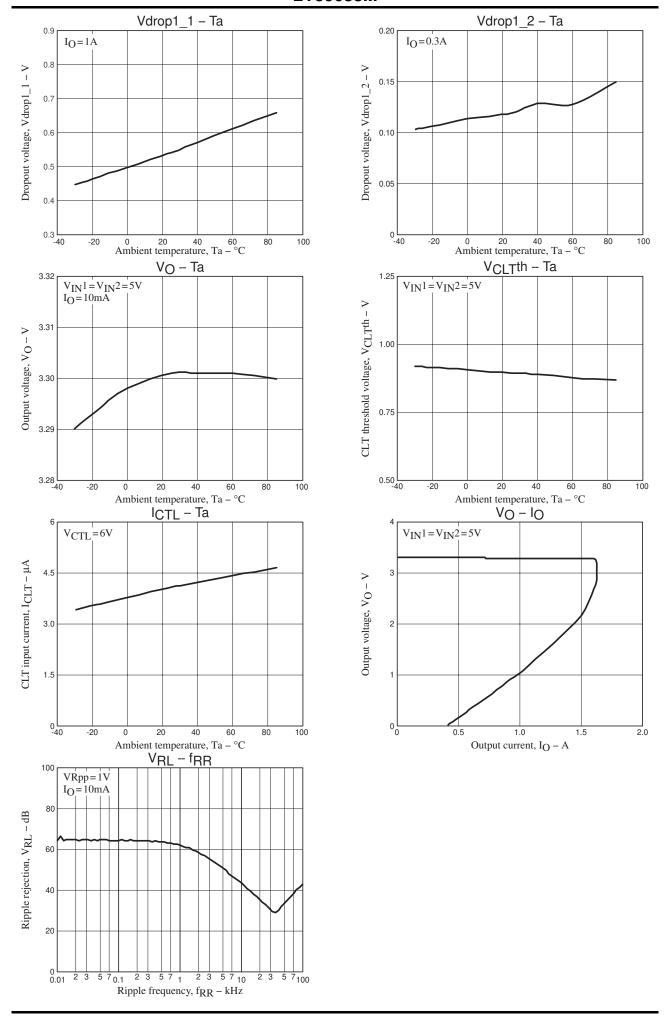


 $\begin{array}{c} Pins~2,5,7~NC\\ Connect~and~use~V_{\mbox{\footnotesize{IN}}}1~and~V_{\mbox{\footnotesize{IN}}}2. \end{array}$

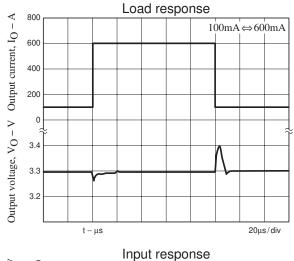
Pin Function

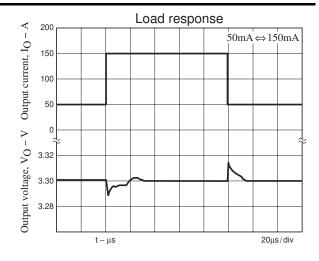
Pin No.	Pin name	Function	Equivalent circuit
1	V _{IN} 1	Power system supply pin.	1) V _{IN} 1
6	Vo	Output voltage pin.	
2	NC	No contact.	
3	V _{IN} 2	Signal system power supply pin.	V _{IN} 2 ③
4	CTL	ON/OFF control pin.	CTL 4 10kΩ W 1.5MΩ GND 8
5	NC	No contact.	
7	NC	No contact.	
8	GND	Ground pin.	

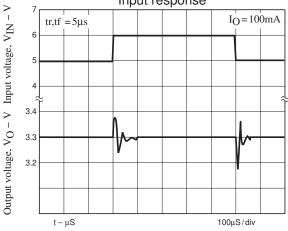


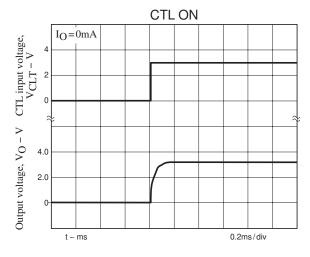


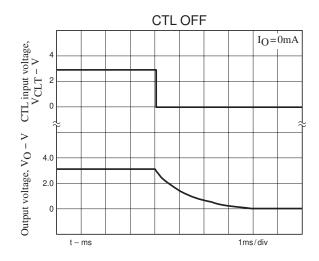
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Radiation Pad

- Radiation pad is high impedance and connected with a substrate of IC.
- Use radiation pad by GND or opening.

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