



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

LV59033M — Bi-CMOS LSI 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_{IN1} , $V_{IN2} \geq 4.3V$)
- Small current drain (1 μ A 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 $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum power supply	V_{IN1}	V_{IN1} pin	6.2	V
	V_{IN2}	V_{IN2} pin	6.2	V
Allowable power dissipation	P_d max	Mounted on a specified board.*	1.45	W
Operating Temperature	T_{opr}		-30 to +85	$^\circ C$
Storage Temperature	T_{stg}		-40 to +125	$^\circ C$

* Specified board: 50mm \times 50mm \times 1.6mm, glass epoxy both sides

Recommended Operating Ranges at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
power supply	V_{IN1}	V_{IN1} pin	3.4 to 6	V
	V_{IN2}	V_{IN2} pin	3.4 to 6	V
Output current	I_O		0 to 1	A

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Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{IN1} = V_{IN2} = 5\text{V}$

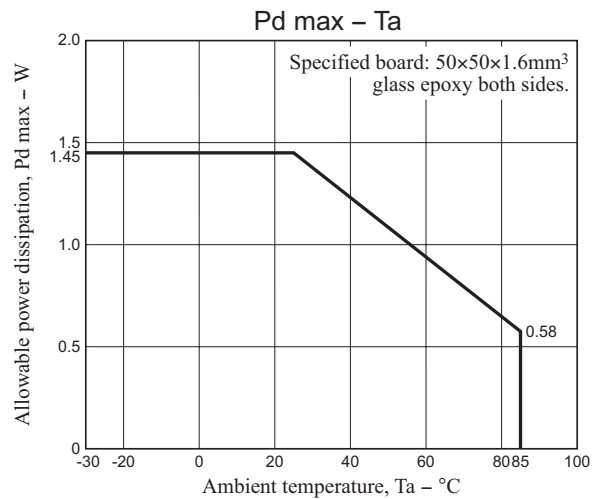
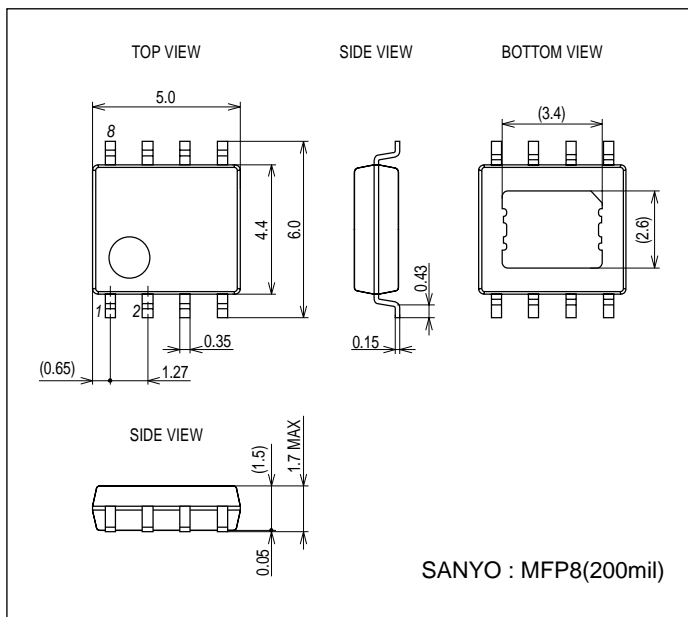
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{VIN}	LDO ON		110	160	μA
Standby current	I_{STBY}	CTL = Low			1	μA
Output						
Output voltage	V_O	$I_O = 10\text{mA}$	3.234	3.3	3.366	V
Dropout voltage	V_{drop1_1}	$I_O = 1\text{A}$			1.0	V
	V_{drop1_2}	$I_O = 0.3\text{A}$			0.4	V
Load Regulation	V_{LD}	$I_O = 5\text{mA to } 1\text{A}$		10	50	mV
Line Regulation	V_{LN}	$V_{IN1} = V_{IN2} = 3.4\text{V to } 6\text{V}$, $I_O = 10\text{mA}$		10	50	mV
Voltage temperature coefficient	ΔVT	$T_a = -30 \text{ to } +85^\circ\text{C}$, $I_O = 10\text{mA}$	*	± 100		ppm/ $^\circ\text{C}$
Ripple Rejection	V_{RL}	$I_O = 10\text{mA}$, $V_{Rpp}=1\text{V}$, $f_{RR} = 1\text{kHz}$	*	60		dB
Output Noise Voltage	V_{ON}	$20\text{Hz} < f < 20\text{kHz}$	*	150		μVrms
CTL pin						
High level voltage	V_{CTLH}		1.5		5	V
Low level voltage	V_{CTLL}		0		0.3	V
Input current	I_{CTL}	$V_{CTL} = 6\text{V}$			8.5	μA

* Design guarantee

Package Dimensions

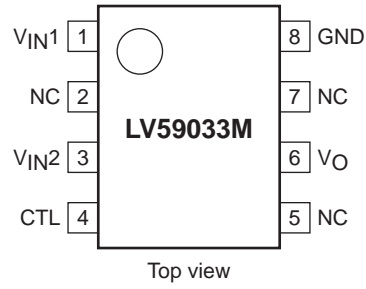
unit : mm (typ)

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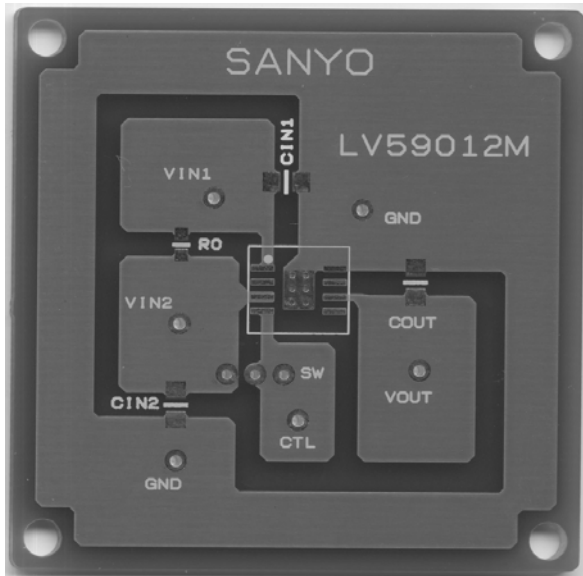


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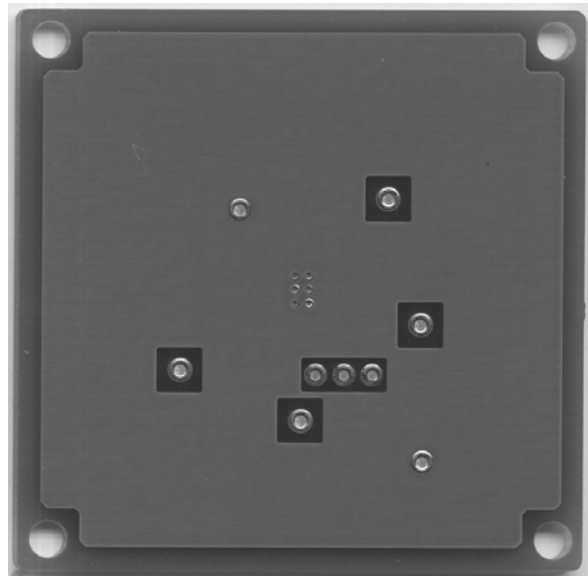
Pin Assignment



Specified Board (Top side)

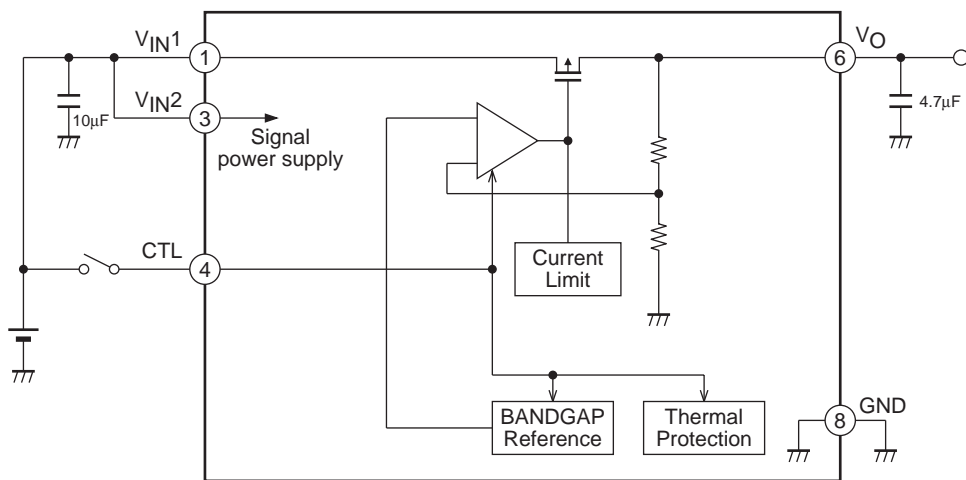


Specified Board (Bottom side)



Note: The substrate is common with LV59012M.

Block Diagram

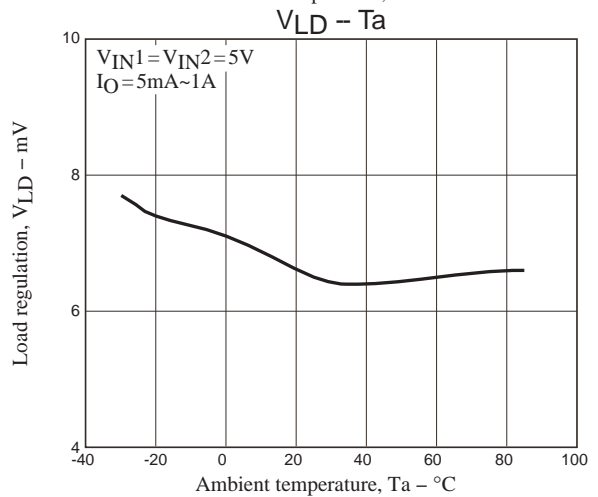
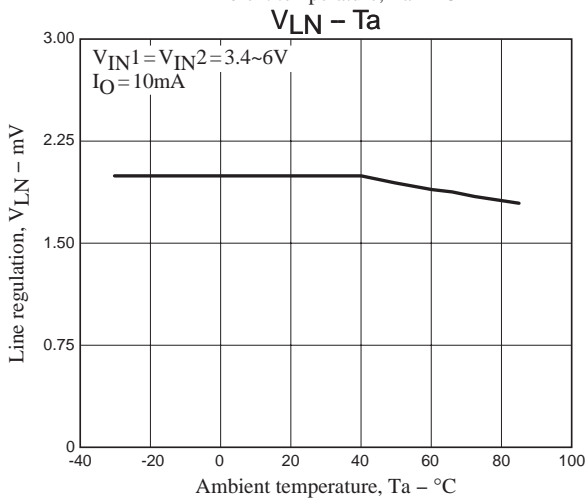
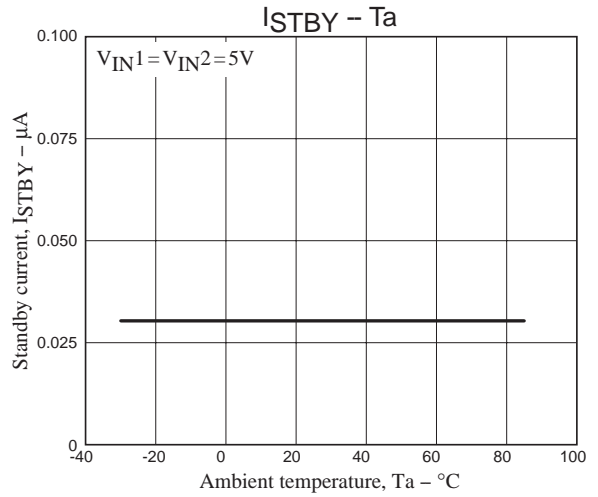
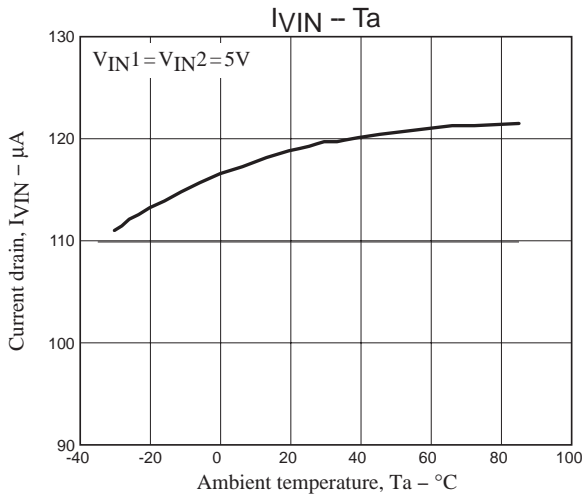


Pins 2,5,7 NC
Connect and use V_{IN1} and V_{IN2}.

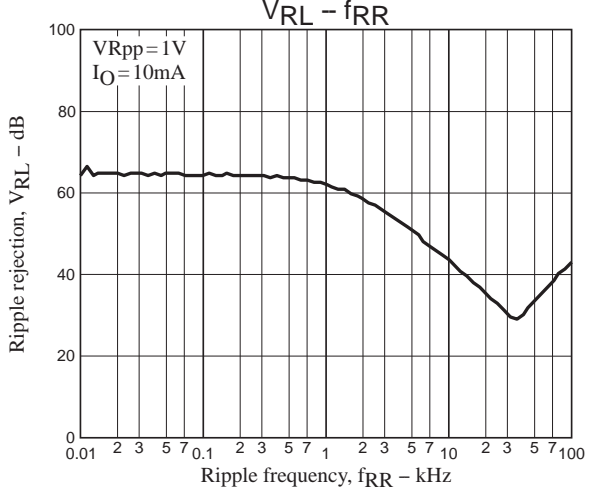
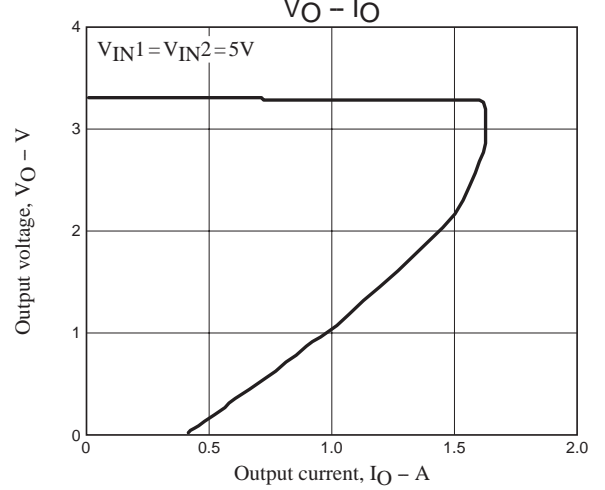
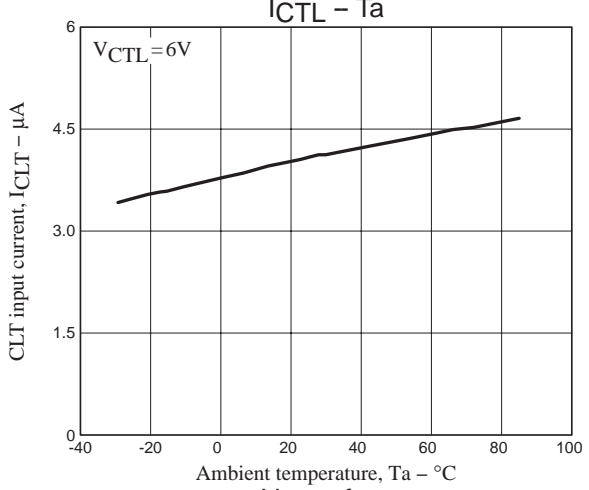
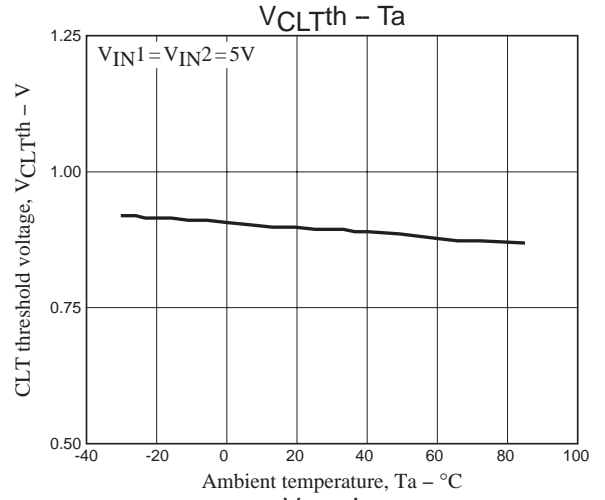
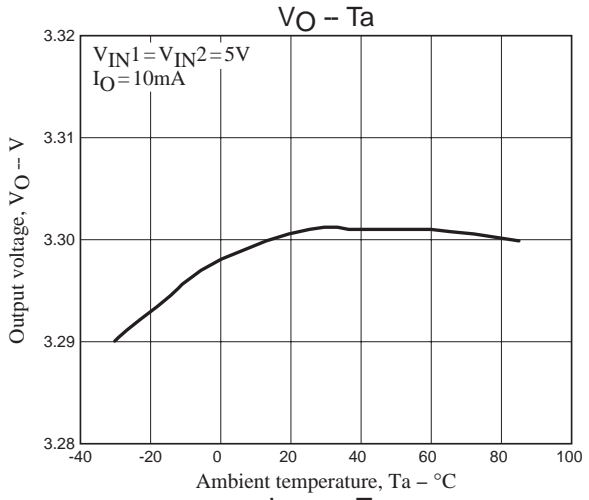
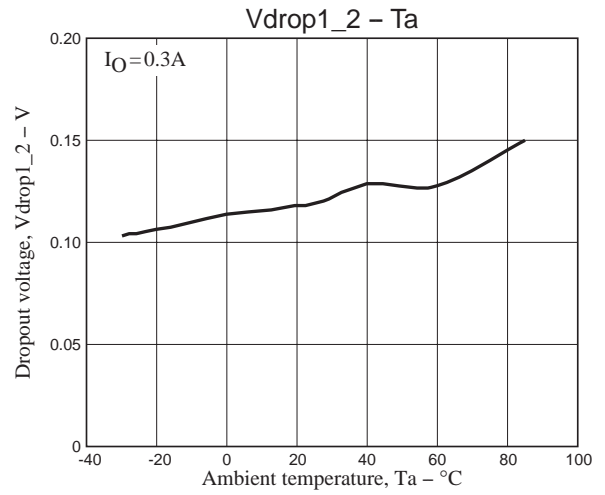
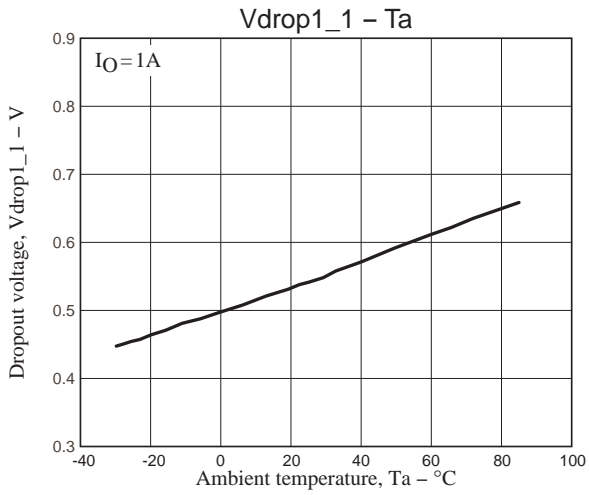
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Pin Function

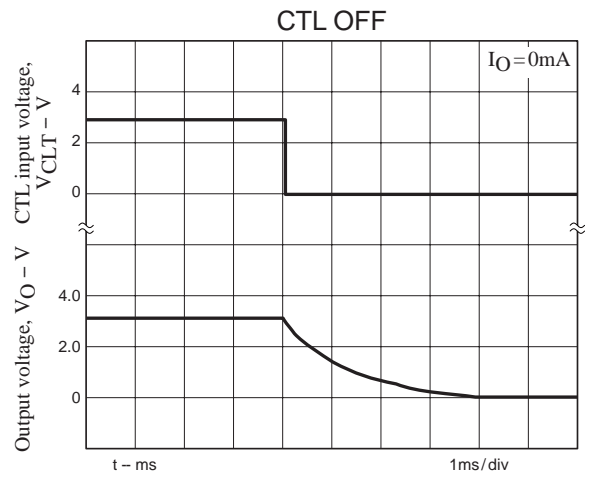
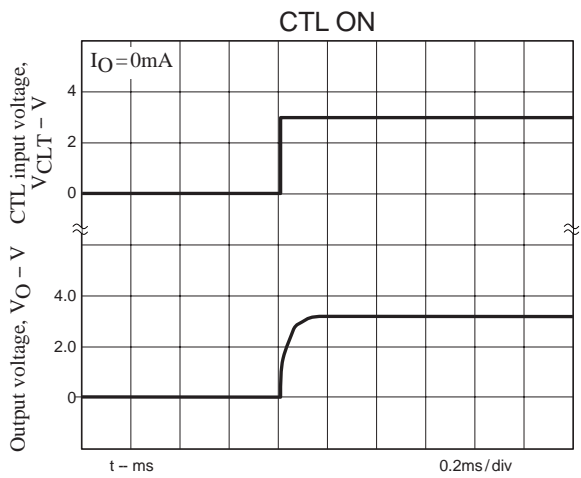
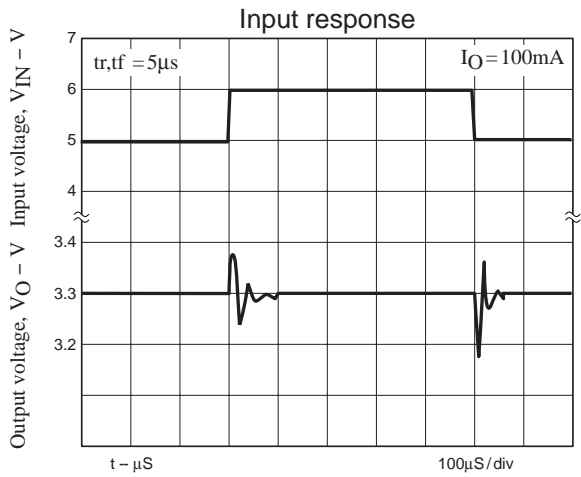
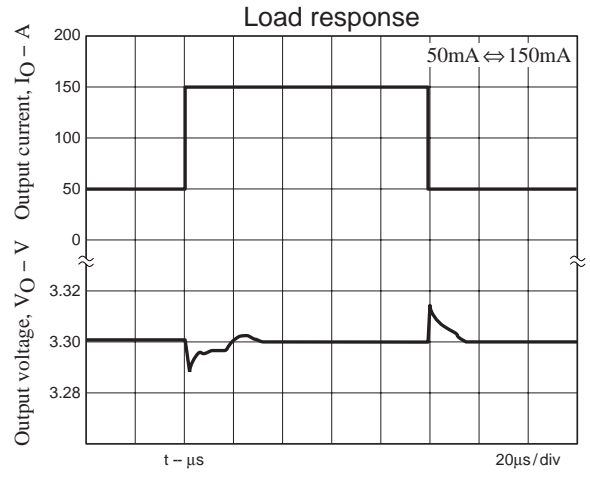
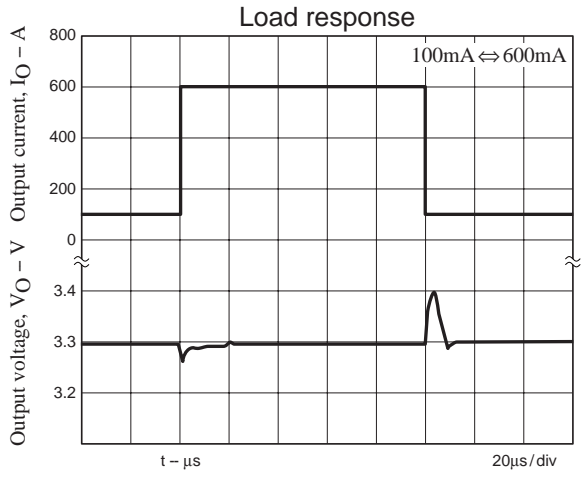
Pin No.	Pin name	Function	Equivalent circuit
1	V _{IN1}	Power system supply pin.	
6	V _O	Output voltage pin.	
2	NC	No contact.	
3	V _{IN2}	Signal system power supply pin.	
4	CTL	ON/OFF control pin.	
5	NC	No contact.	
7	NC	No contact.	
8	GND	Ground pin.	



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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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