



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## LV59025M — Bi-CMOS LSI 2.5V Constant-Voltage Power Supply IC

### Overview

The LV59025M is a constant-voltage power supply IC. It is the best for the constant-voltage power supply of the battery machine used.

### Features

- 2.5V output
- Output current of 1A obtainable ( $V_{IN1}$ ,  $V_{IN2} \geq 3.5V$ )
- Low current consumption
- MFP8 (200mil) package, ensuring easy mounting design
- With ON/OFF-switch

### 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 × 50mm × 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	2.6 to 6	V
	$V_{IN2}$	$V_{IN2}$ pin	2.6 to 6	V
Output current	$I_O$		0 to 1	A

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# LV59025M

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{IN1} = V_{IN2} = 4.3\text{V}$

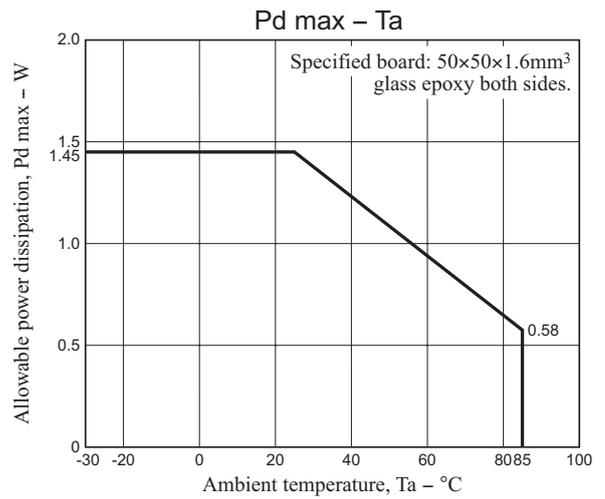
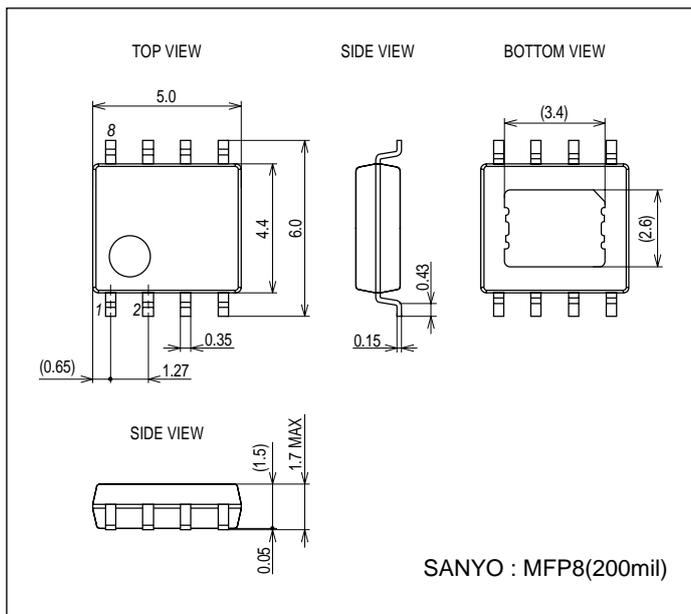
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{VIN}$	$CTL = 4.3\text{V}$ , $I_O = 0\text{mA}$		110	160	$\mu\text{A}$
Standby current	$I_{STBY}$	$CTL = \text{Low}$			1	$\mu\text{A}$
<b>Output</b>						
Output voltage	$V_O$	$I_O = 10\text{mA}$	2.45	2.50	2.55	V
Dropout voltage	$V_{\text{drop1\_1}}$	$I_O = 1\text{A}$			1.0	V
	$V_{\text{drop1\_2}}$	$I_O = 0.3\text{A}$			0.4	V
Load Regulation	$V_{LD}$	$I_O = 5\text{mA}$ to $1\text{A}$		10	50	mV
Line Regulation	$V_{LN}$	$V_{IN1} = V_{IN2} = 2.6\text{V}$ to $6\text{V}$ , $I_O = 10\text{mA}$		10	50	mV
Voltage temperature coefficient	$\Delta VT$	$T_a = -30$ to $+85^\circ\text{C}$ , $I_O = 10\text{mA}$	*	$\pm 100$		ppm/ $^\circ\text{C}$
Ripple Rejection	$V_{RL}$	$I_O = 10\text{mA}$ , $V_{Rpp}=1\text{V}$ , $f_{RR} = 1\text{kHz}$	*	65		dB
Output Noise Voltage	$V_{ON}$	$20\text{Hz} < f < 20\text{kHz}$	*	150		$\mu\text{Vrms}$
<b>CTL pin</b>						
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	$\mu\text{A}$

\* Design guarantee

## Package Dimensions

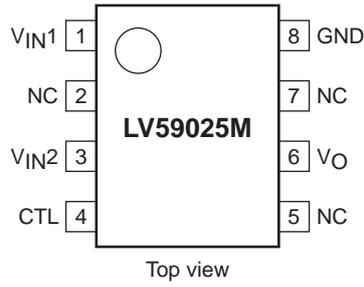
unit : mm (typ)

3372

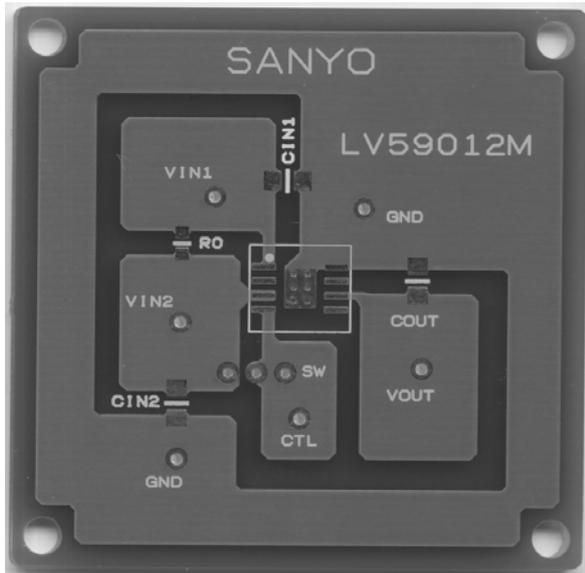


# LV59025M

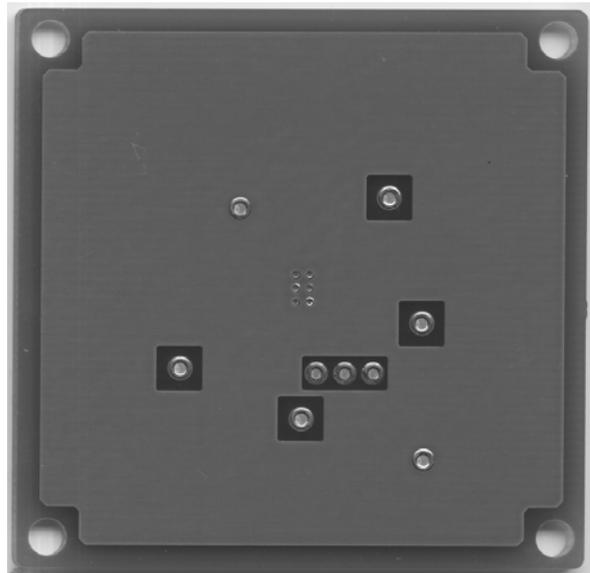
## Pin Assignment



Specified Board (Top side)

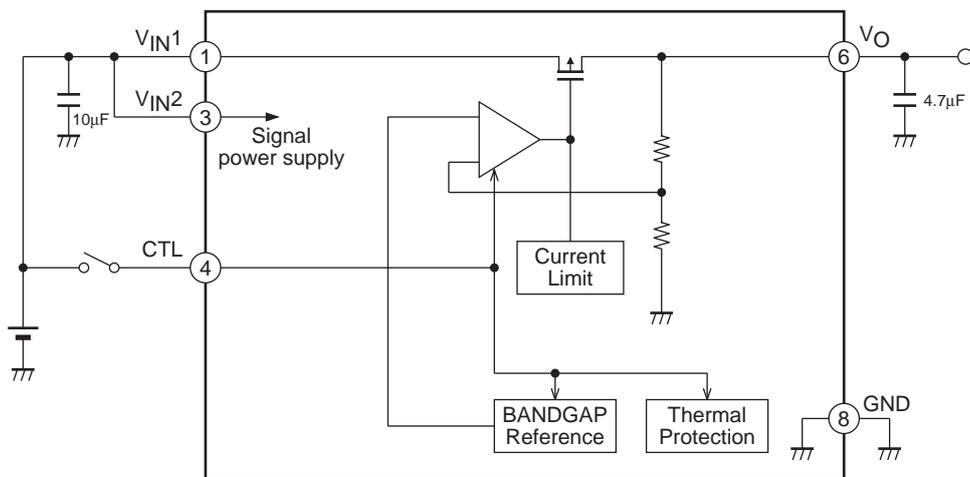


Specified Board (Bottom side)



Note: The substrate is common with LV59012M.

## Block Diagram

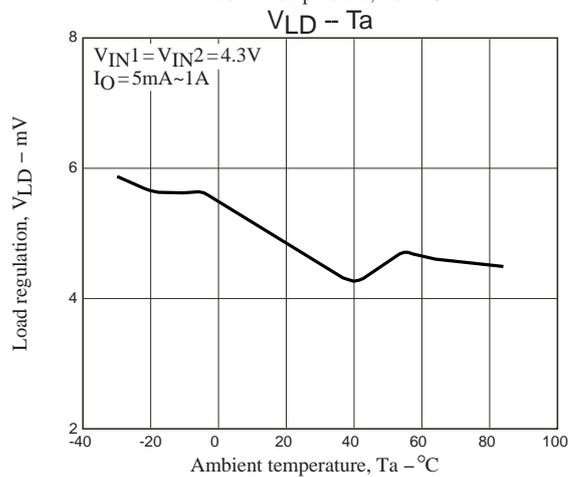
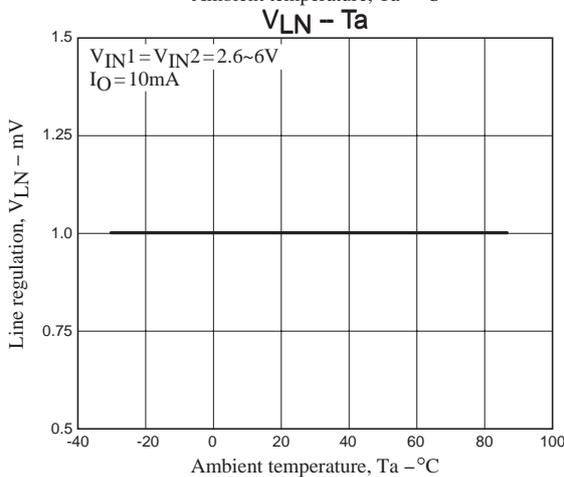
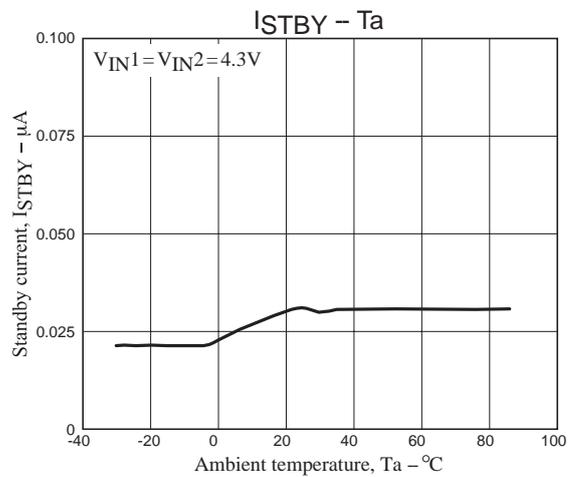
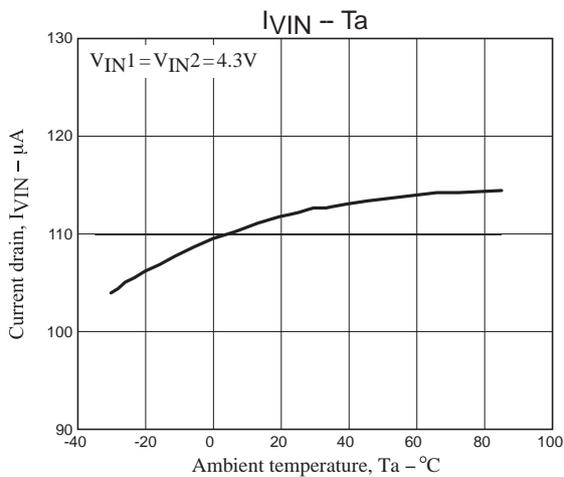


Pins 2,5,7 NC  
Connect and use VIN1 and VIN2.

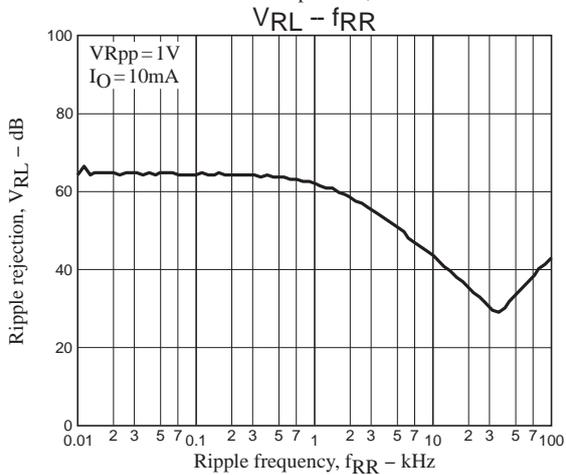
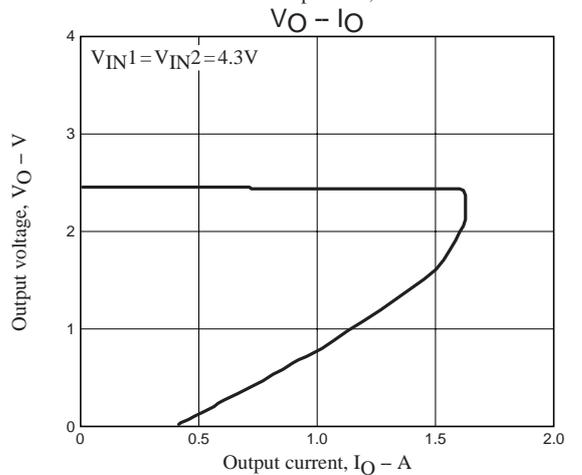
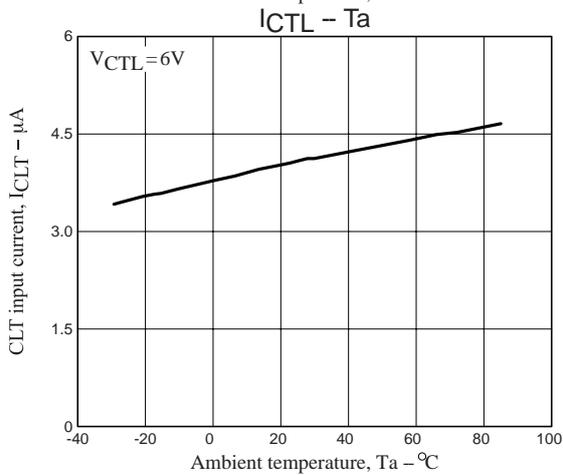
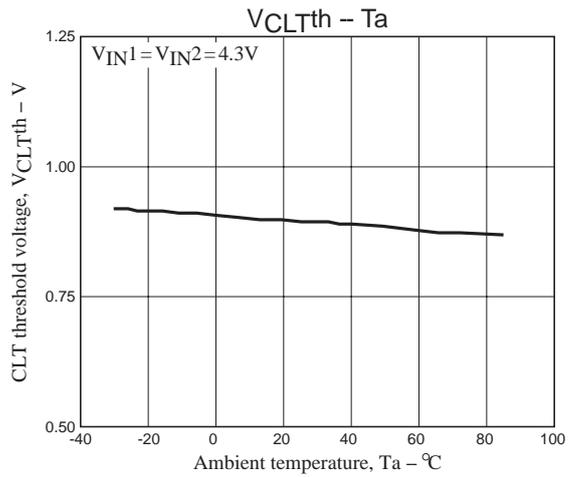
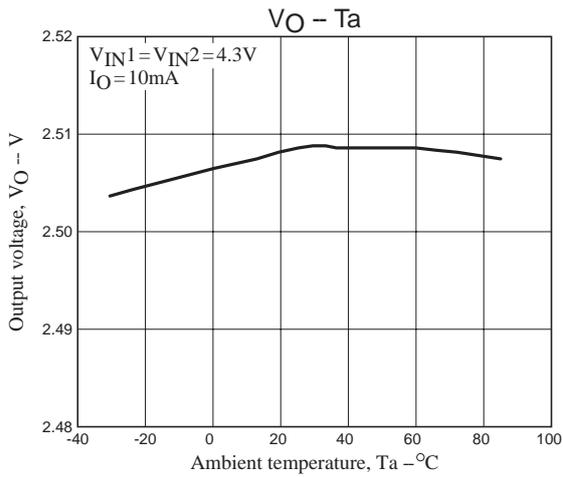
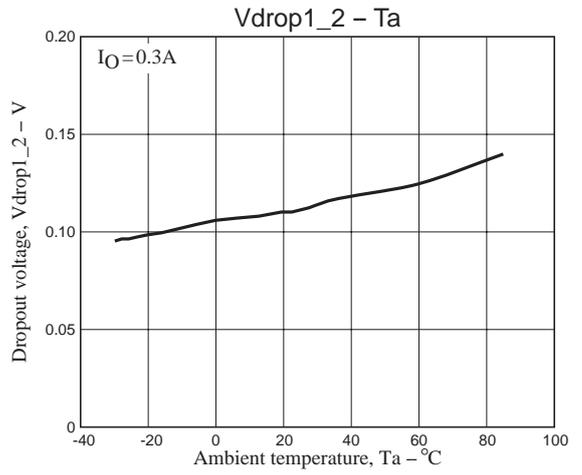
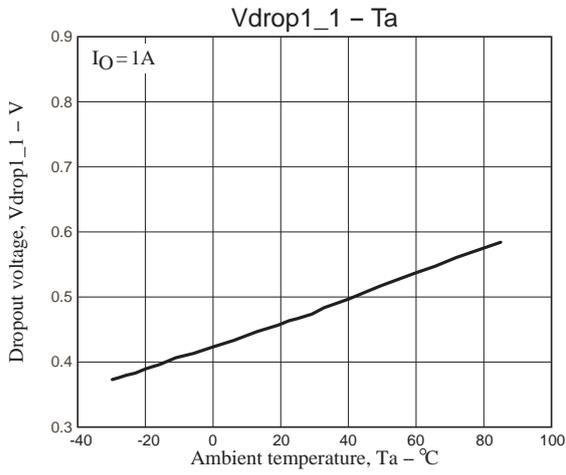
# LV59025M

## Pin Function

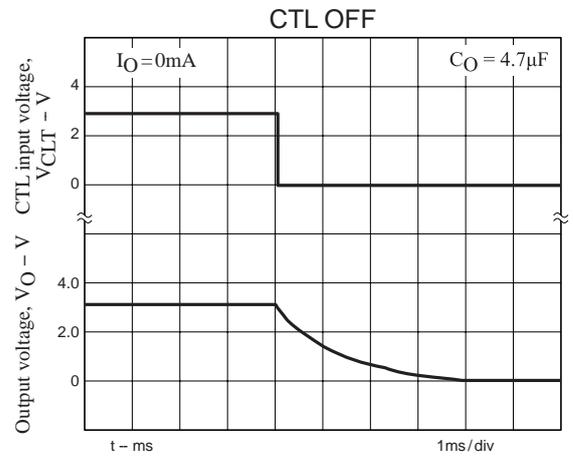
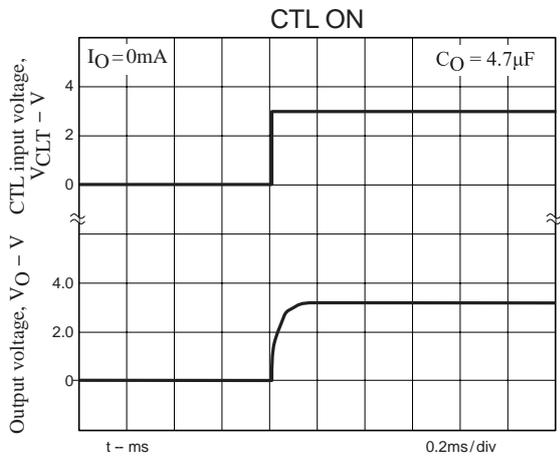
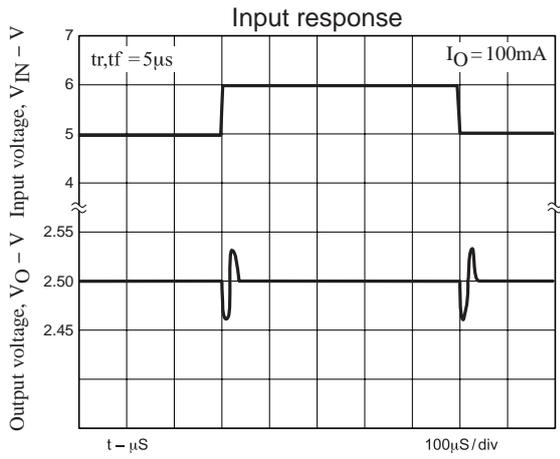
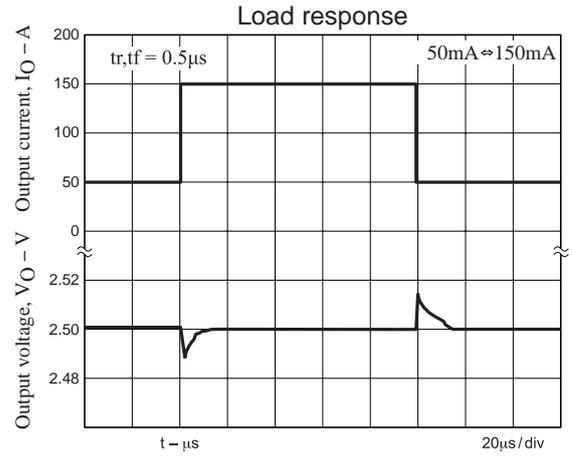
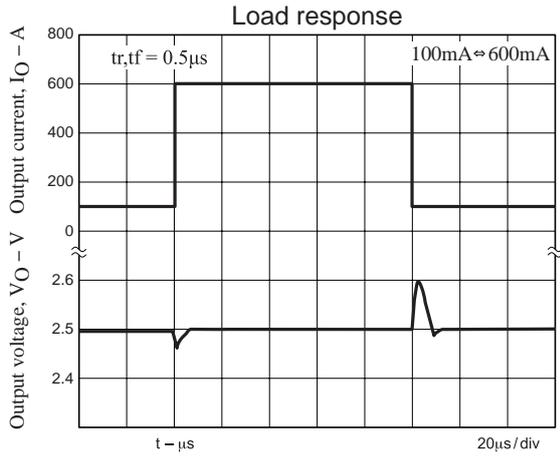
Pin No.	Pin name	Function	Equivalent circuit
1	V <sub>IN1</sub>	Power system supply pin.	
6	V <sub>O</sub>	Output voltage pin.	
2	NC	No contact.	
3	V <sub>IN2</sub>	Signal system power supply pin.	
4	CTL	ON/OFF control pin.	
5	NC	No contact.	
7	NC	No contact.	
8	GND	Ground pin.	



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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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