Ordering number : ENA1676A

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

Bi-CMOS LSI

LV59025M — 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 ($V_{IN}1$, $V_{IN}2 \geq 3.5V$)
- Low current consumption
- MFP8 (200mil) package, ensuring easy mounting design
- With ON/OFF-switch

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: 50mm × 50mm × 1.6mm, 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	2.6 to 6	V
	$V_{IN}2$	$V_{IN}2$ pin	2.6 to 6	V
Output current	I_O		0 to 1	A

Electrical Characteristics at Ta = 25°C, $V_{IN}1 = V_{IN}2 = 4.3V$

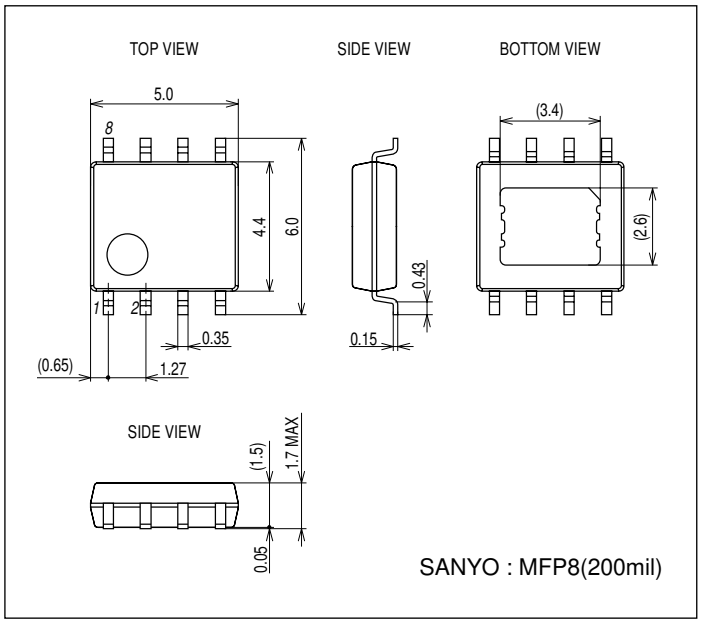
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{VIN}	CTL = 4.3V, I_O = 0mA		110	160	μA
Standby current	I_{STBY}	CTL = Low			1	μA
Output						
Output voltage	V_O	I_O = 10mA	2.45	2.50	2.55	V
Dropout voltage	Vdrop1_1	I_O = 1A			1.0	V
	Vdrop1_2	I_O = 0.3A			0.4	V
Load Regulation	V_{LD}	I_O = 5mA to 1A		10	50	mV
Line Regulation	V_{LN}	$V_{IN}1 = V_{IN}2$ = 2.6V to 6V, I_O = 10mA		10	50	mV
Voltage temperature coefficient	ΔVT	Ta = -30 to +85°C, I_O = 10mA *		±100		ppm/°C
Ripple Rejection	V_{RL}	I_O = 10mA, VRpp=1V, f_{RR} = 1kHz *		65		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	I_{CTL}	V_{CTL} = 6V			8.5	μA

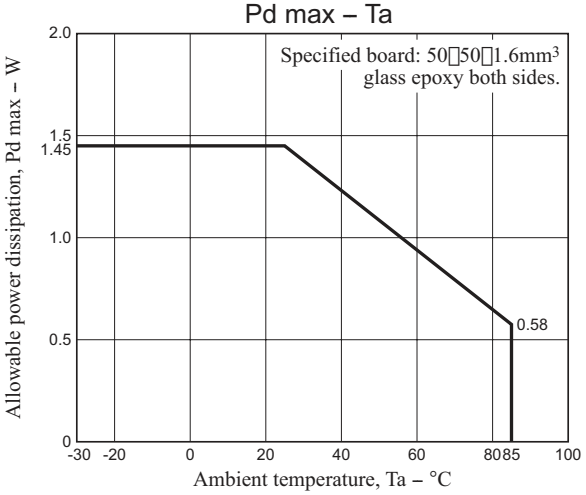
* Design guarantee

Package Dimensions

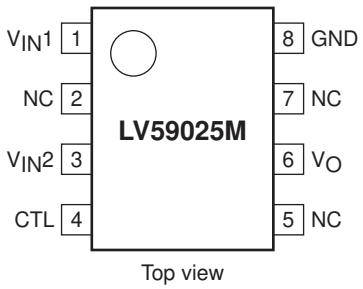
unit : mm (typ)

3372

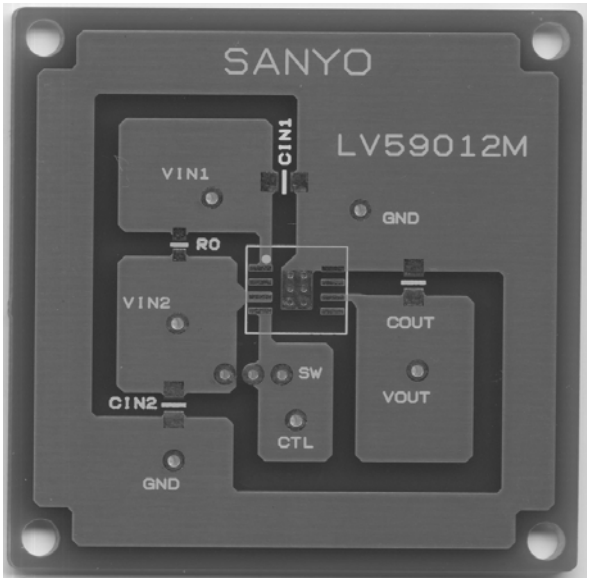




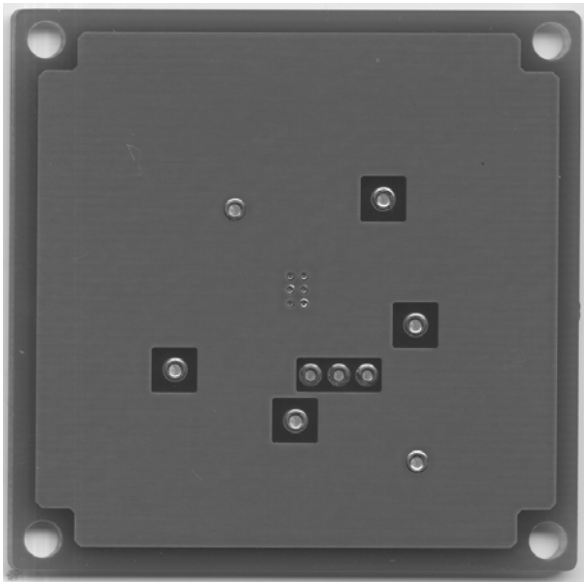
Pin Assignment



Specified Board (Top side)

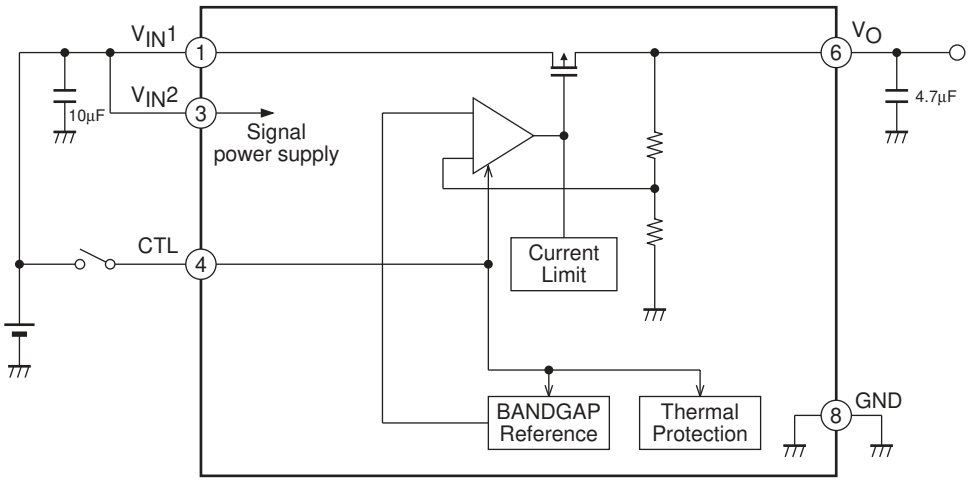


Specified Board (Bottom side)



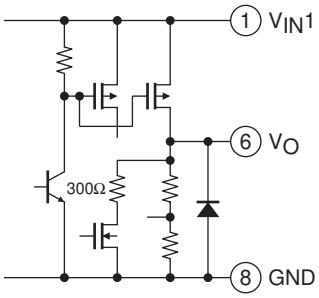
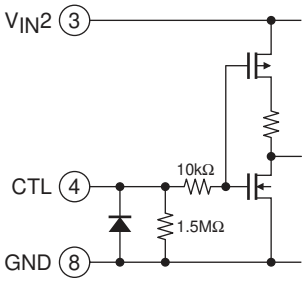
Note: The substrate is common with LV59012M.

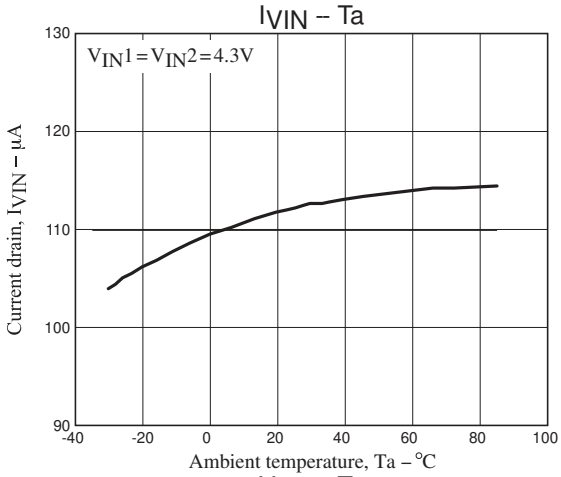
Block Diagram

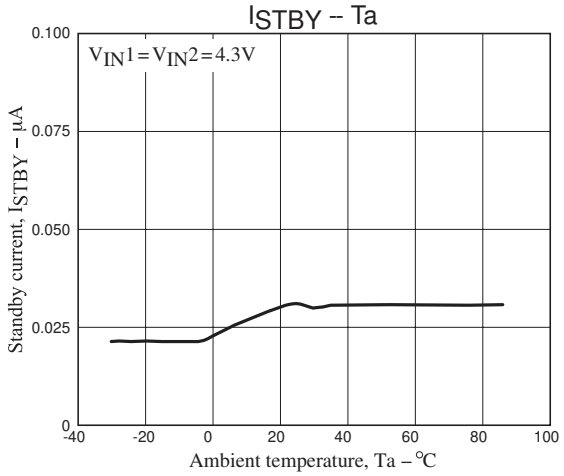


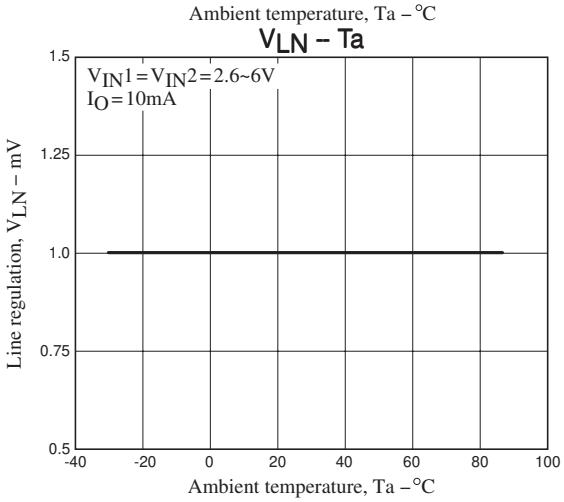
Pins 2,5,7 NC
Connect and use $V_{IN}1$ and $V_{IN}2$.

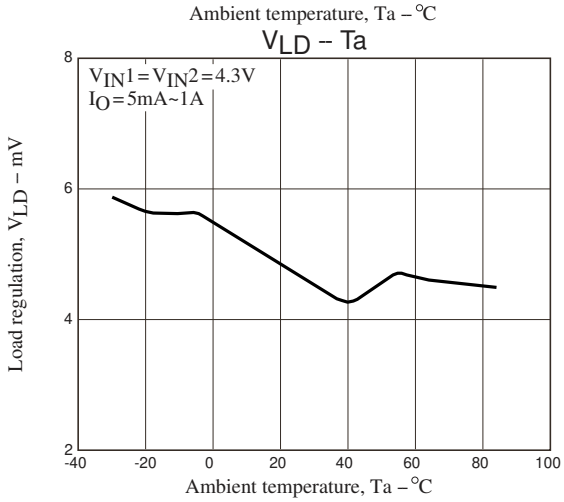
Pin Function

Pin No.	Pin name	Function	Equivalent circuit
1	$V_{IN}1$	Power system supply pin.	
6	V_O	Output voltage pin.	
2	NC	No contact.	
3	$V_{IN}2$	Signal system power supply pin.	
4	CTL	ON/OFF control pin.	
5	NC	No contact.	
7	NC	No contact.	
8	GND	Ground pin.	

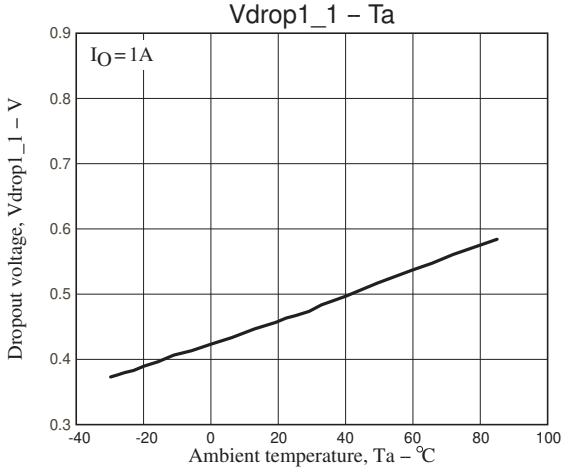




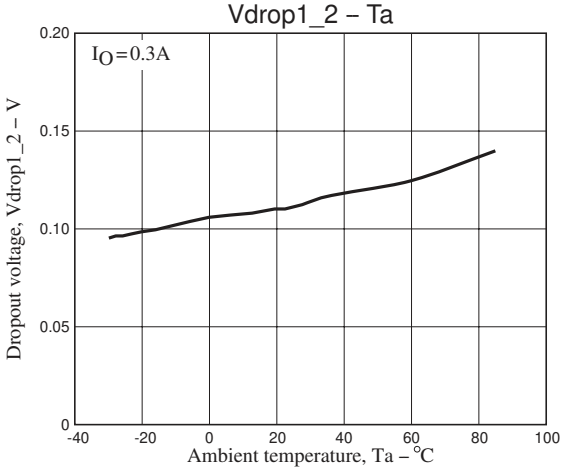




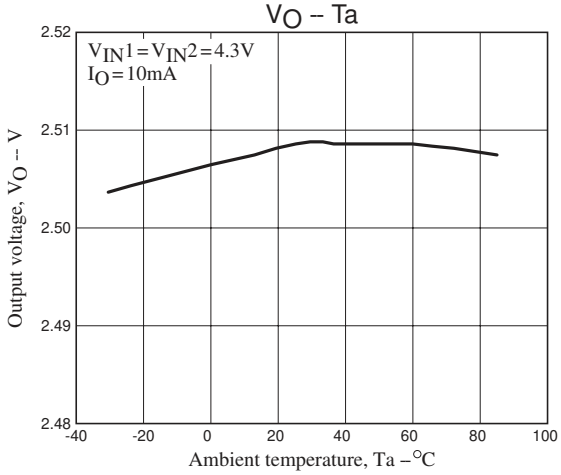
Vdrop1_1 – Ta



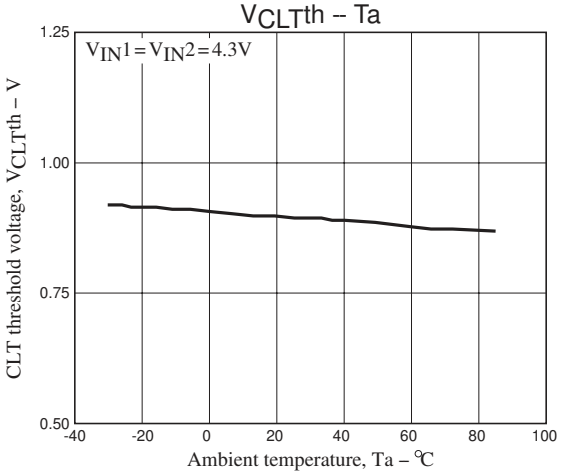
Vdrop1_2 – Ta



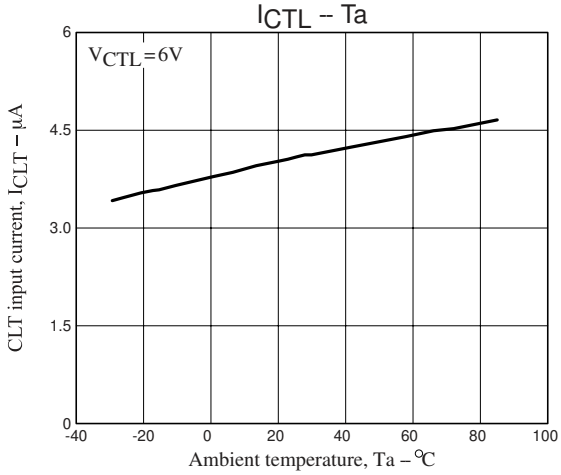
VO – Ta



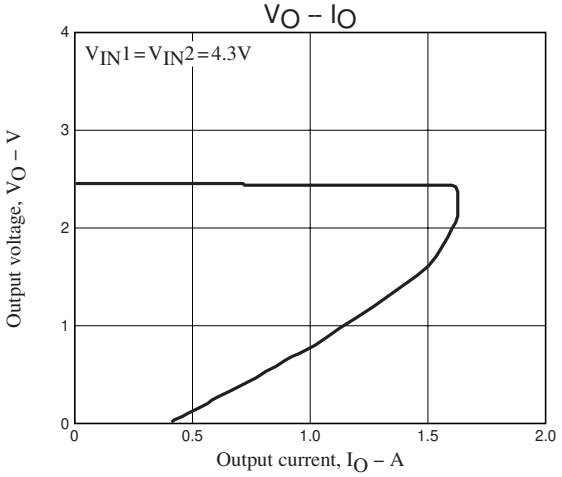
VCLTth – Ta



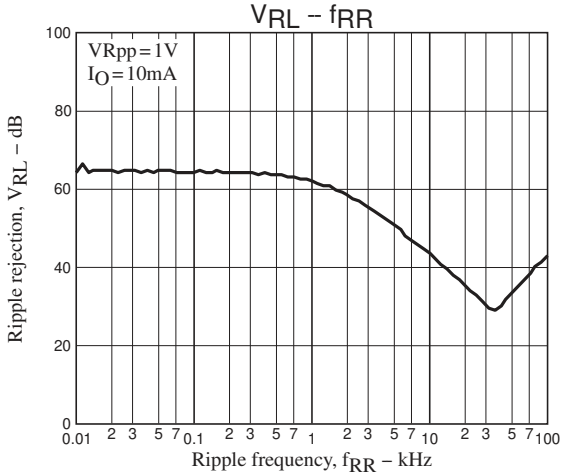
ICTL – Ta



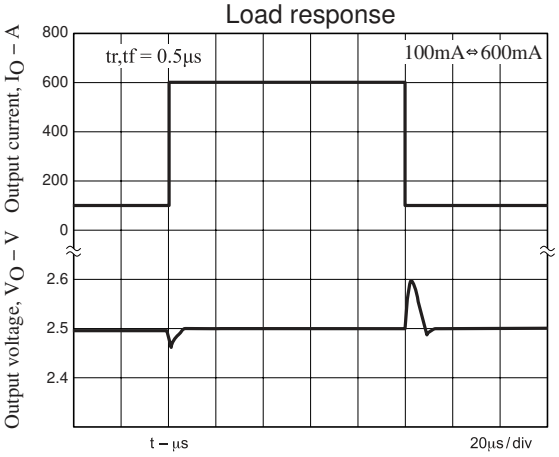
VO – IO



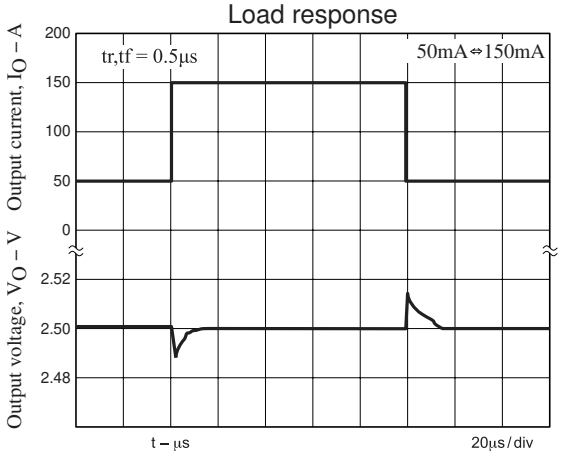
VRL – fRR



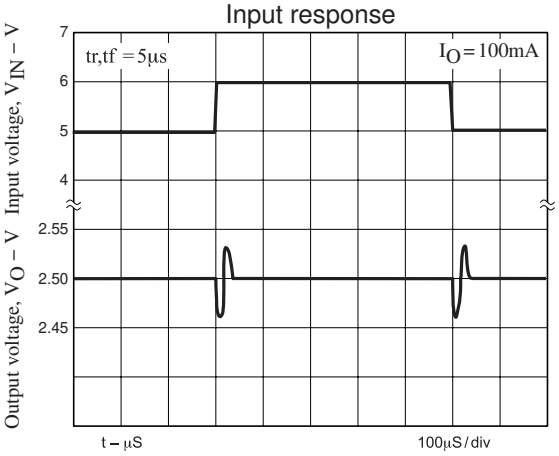
Load response



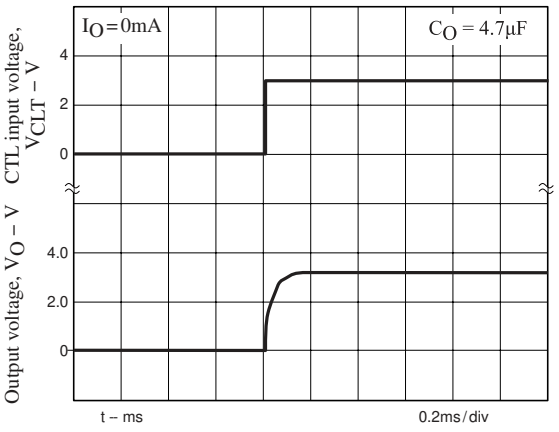
Load response



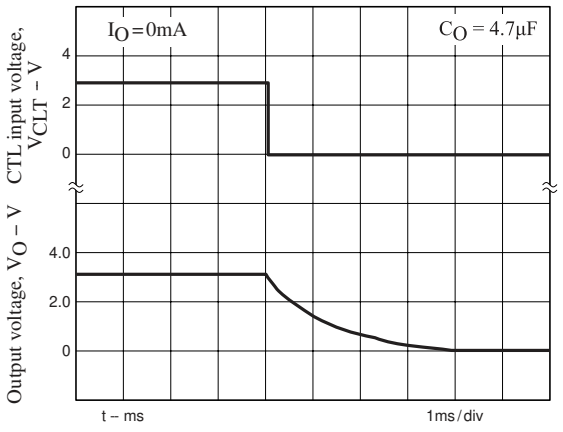
Input response



CTL ON



CTL OFF



Radiation Pad

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