

STRUCTURE                    Silicon Monolithic Integrated Circuit

TYPE                            **BD9251FV**

PRODUCT                    Preamp IC for Pyroelectricity Infrared Sensor

FEATURES                    1) Amplifier for sensor output  
2) Comparator for sensor output  
3) Built-in voltage regulator  
4) Built-in moving detector

● Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Units
Supply Voltage	V <sub>DD</sub>	-0.3~7.0	V
Power Dissipation	Pd	440 <sup>※1</sup>	mW
Operating Temperature	T <sub>opr</sub>	-30~75	°C
Storage Temperature	T <sub>stg</sub>	-55~125	°C

※1. It reduces 3.5mW/°C then Ta ≥ 25°C. (On glass epoxy board of 70mm × 70mm × 1.6mm)

● Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Remarks
Supply Voltage	V <sub>DD</sub>	2.97	5.0	6.0	V	
A1P_IN Offset Voltage	V <sub>A1P_IN_OFFSET</sub>	-	1.5	-	V	V <sub>DRAIN</sub> =2.3V

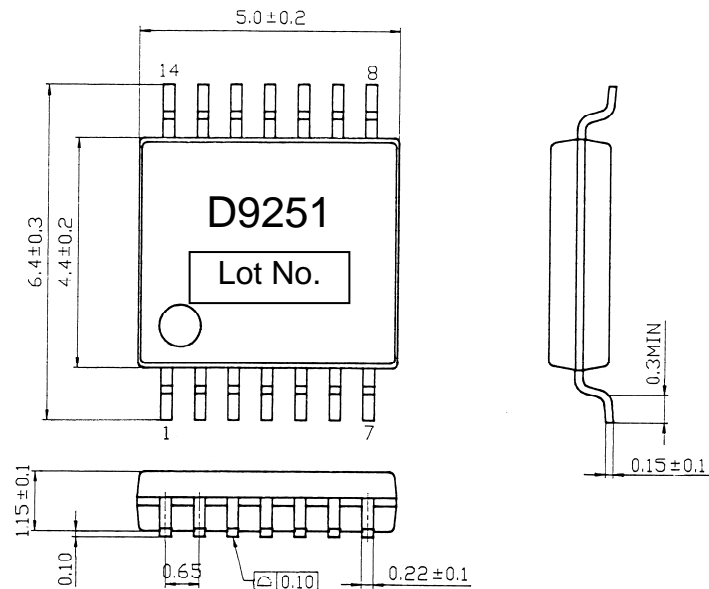
This product don't design for protection radioactive rays.

● Electric Characteristics (VDD=5.0V, Ta=25°C)

Parameter	Symbol	Spec			Units	Conditions
		Min.	Typ.	Max.		
Supply Current	I <sub>DD</sub>	-	300	400	uA	Output no load
DRAIN Output Voltage	V <sub>DRAIN</sub>	2.0	2.3	-	V	VDD ≥ 2.97V, I <sub>DRAIN</sub> ≤ 100μA
AMP1/AMP2 Input Voltage	V <sub>IN</sub>	0.1	-	V <sub>DD</sub> -0.8	V	
AMP1/AMP2 Gain	A <sub>G</sub>	-	-	46	dB	
AMP1/AMP2 Unity Gain	A <sub>UG</sub>	-	1	-	MHz	
AMP1 Input Offset Voltage	V <sub>A1OFF</sub>	-	-	10	mV	
AMP2 Output Offset Voltage	V <sub>A2OUT</sub>	-	1.5	-	V	
A2_OUT Output Current (source)	I <sub>A2OUT1</sub>	20	30	-	μA	
A2_OUT Output Current (sink)	I <sub>A2OUT2</sub>	20	200	-	μA	
D_OUT / T_OUT Output "H" Voltage	V <sub>OH</sub>	V <sub>DD</sub> -0.6	-	V <sub>DD</sub>	V	I <sub>OH</sub> =-1mA
D_OUT / T_OUT Output "L" Voltage	V <sub>OL</sub>	0	-	0.6	V	I <sub>OL</sub> =+1mA

● Package Outline

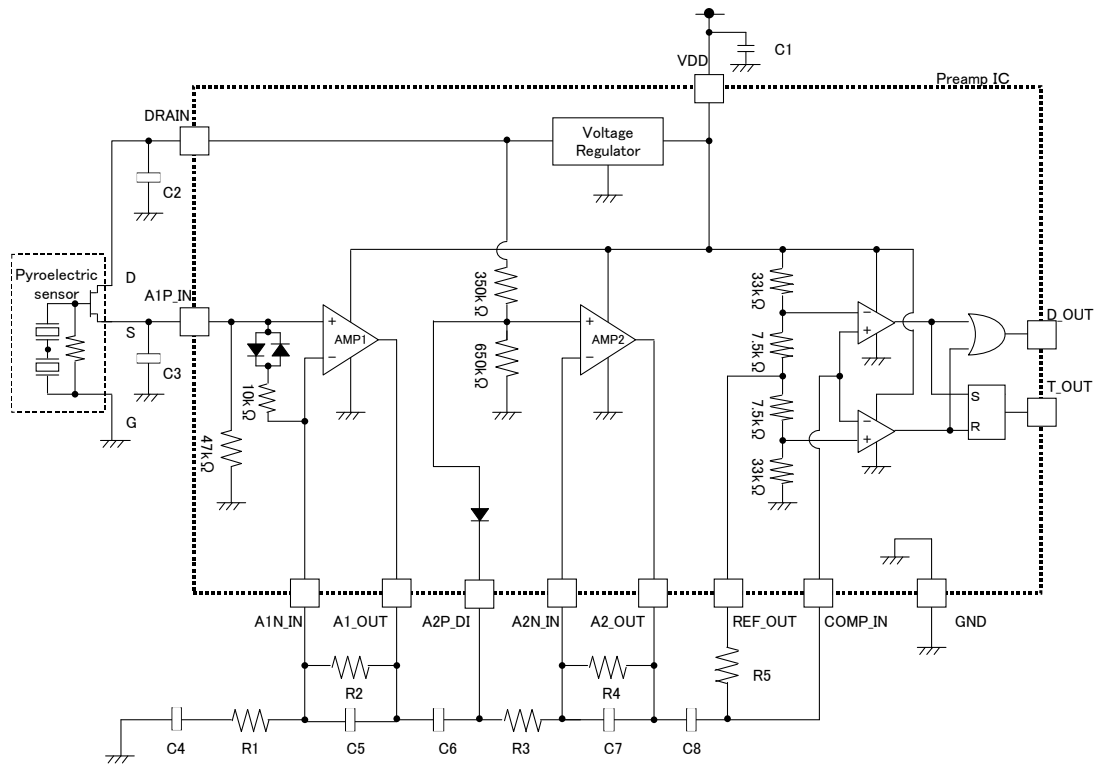
Fig.1 SSOP-B14 Package (Unit:mm)



●PIN Description

PIN No.	PIN Name	Function	Remarks
1	GND	Ground	
2	NC	NC	
3	DRAIN	Power supply for pyroelectric infrared sensor	
4	A1P_IN	Sensor input	
5	A1N_IN	Amp1 n-input	
6	A1_OUT	Amp1 output	
7	A2P_DI	Amp2 diode output	
8	A2N_IN	Amp2 n-input	
9	A2_OUT	Amp2 output, Analog output	
10	REF_OUT	Reference voltage (1/2VDD) output	
11	COMP_IN	Comparator input	
12	D_OUT	Comparator output	
13	T_OUT	Moving detection output	
14	VDD	Power supply	

●Block Diagram/Application



Please decide the constant after it confirms it enough examining the characteristic and the condition of the pyroelectric sensor.

●Cautions on use.

(1) Absolute maximum ratings

Use of the IC in excess of absolute maximum ratings such as the applied voltage or operating temperature range may result in IC damage. Assumptions should not be made regarding the state of the IC (short mode or open mode) when such damage is suffered. A physical safety measure such as a fuse should be implemented when use of the IC in aspecial mode where the absolute maximum ratings may be exceeded is anticipated.

(2) GND potential

Ensure a minimum GND pin potential in all operating conditions.

(3) Short circuit mode between terminals and wrong mounting

In order to mount the IC on a set PCB, pay thorough attention to the direction and offset of the ICs. Erroneous mounting can destroy the IC. Furthermore, if a short circuit occurs due to foreign matters entering between terminals or between the terminal and the power supply or the GND terminal, the IC can destroy.

(4) Actions in strong magnetic field

Use caution when using the IC in the presence of a strong magnetic field as doing so may cause the IC to malfunction.

(5) Mutual impedance

Use short and wide wiring tracks for the power supply and ground to keep the mutual impedance as small as possible .Use a capacitor to keep ripple to a minimum.

(6) About warm-up time

Operation depends on a power-supply voltage and an external constant for time until stabilizing. Please confirm warm-up time enough when you use it.

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