STRUCTURE	Silicon Monolithic Integrated Circuit

TYPE **BDE1250G**

PRODUCT	Thermostat Temperature Sensor

FEATURES
1) Highly accurate thermostat ($\pm 4.0°C$)
2) Thermostat sensing temperature 125°C
3) Open drain output
4) Hysteresis temperature (TYP. 10°C)
5) Low supply current (TYP. 16.0uA)
6) Small package (TYP. 2.90mm × 2.80mm × 1.25mm)

● ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETERS	SYMBOL	LIMIT	UNIT
Power Supply Voltage	V_{DD}	−0.3 to 7.0[*1]	V
Input Voltage (CTRL)	V_{IN}	−0.3 to V_{DD}+0.3	V
Input Current (CTRL)	I_{IN}	−1.0, +0.1	mA
OS terminal Voltage	V_{OS}	−0.3 to 7.0	V
OS terminal Current	I_{OS}	5.0	mA
Power dissipation	Pd	540[*2]	mW
Storage Temperature Range	T_{stg}	−55 to 150	°C

*1. Not to exceed Pd
*2. Reduced by 5.40mW for each increase in Ta of 1°C over 25°C
(mounted on 70mm × 70mm × 1.6mm Glass−epoxy PCB)

● RECOMMENDED OPERATING CONDITION
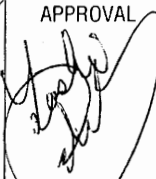
| PARAMETERS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Supply Voltage	VDD	2.9	3.0	5.5	V
Operating Temperature Range	Topr	−30	−	130	°C

・Status of this document
The Japanese version of this document is the formal specification. A customer may use this translation version only for a reference to help reading the formal version. If there are any difference in translation version of this document, formal version takes priority.

DESIGN T. Tamagawa	CHECK	APPROVAL	DATE : Apr/7/2008	SPECIFICATION No. : TSZ02201-BDE1250G-1-2
			REV. A	**ROHM CO., LTD.**

● BLOCK DIAGRAM
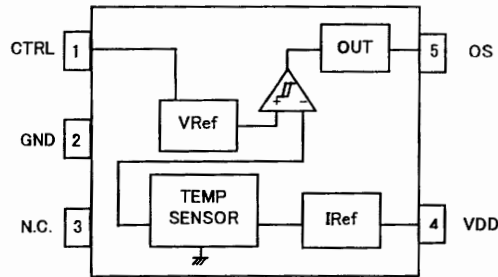
● PIN DESCRIPTION

PIN NO.	PIN NAME	FUNCTION	COMMENT
1	CTRL	Sensing temperature setting	Refer to page 3/4 (TEMPERATURE / OUTPUT FORMAT TABLE) for the sensing temperature setting.
2	GND	GROUND	
3	N.C.	N.C.	
4	VDD	POWER SUPPLY	
5	OS	Digital thermostat output	Open Drain type (Active L) Use the pull-up resistor more than 10kΩ.

● TEMPERATURE ACCURACY (unless otherwise specified, V_{DD} = 3.0V)

| PARAMETER | SYMBOL | LIMIT | | | UNIT | CONDITIONS |
		MIN.	TYP.	MAX.		
Thermostat						
Sensing Temperature Accuracy	T_{acc}	–	0	±4.0	°C	Ta = 125°C
Sensing Temperature Hysteresis	Thys	7.5	10.0	12.5	°C	

● ELECTRICAL CHARACTERISTICS (unless otherwise specified, V_{DD} = 3.0V, Ta = 25°C)

| PARAMETER | SYMBOL | LIMIT | | | UNIT | CONDITIONS |
		MIN.	TYP.	MAX.		
Supply Current	I_{DD}	–	16.0	20.0	uA	CTRL = L
OS Output Open Drain						
OS Leakage Current	I_L	–	–	1.0	uA	OS : 5.0V
OS Output Voltage	V_{OL}	–	–	0.4	V	Iinos = 1.2mA
CTRL						
Input L Voltage	V_{IL}	GND	–	0.6	V	
Input H Voltage	V_{IH}	2.4	–	V_{DD}	V	

Radiation hardiness is not designed.

● BDE1250G TEMPERATURE / OUTPUT FORMAT TABLE

CTRL INPUT   L : Low, O : Open, H : High

TYPE	SENSING TEMPERATURE (℃)			OS Output FORMAT		MARKING
	CTRL					
	L	H	O			
BDE1250G	125	–*3	–*3	Open Drain	Active L	mA

*3. Please use CTRL = "L" only. CTRL="H" and "O" are used in manufacturing test mode.

● PACKAGE OUTLINES (SSOP5)

(UNIT : mm)
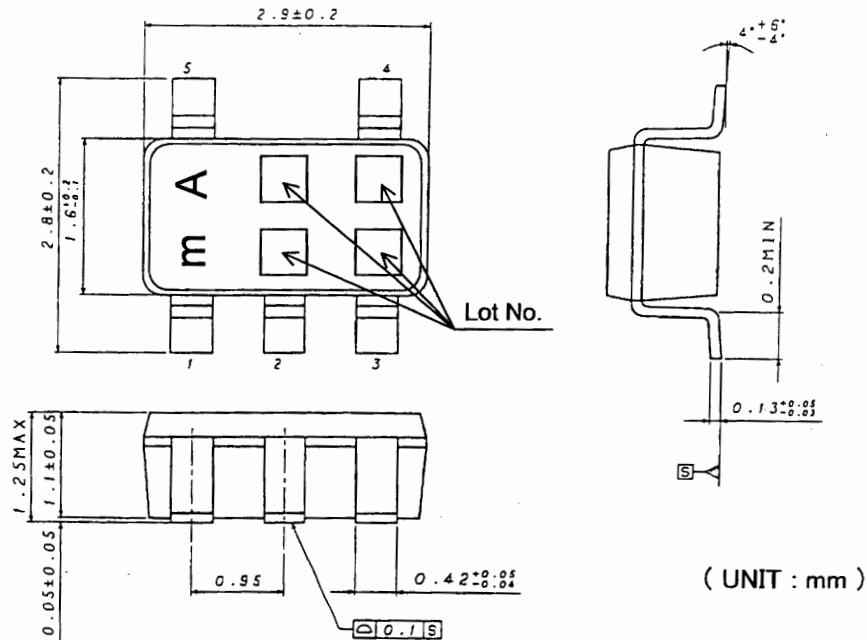
● CAUTIONS ON USE

1) Absolute Maximum Ratings

An excess in the absolute maximum ratings, such as supply voltage, temperature range of operating conditions, etc., can break down devices, thus making impossible to identify breaking mode such as a short circuit or an open circuit. If any special mode exceeding the absolute maximum ratings is assumed, consideration should be given to take physical safety measures including the use of fuses, etc.

2) GND voltage

Make setting of the potential of the GND terminal so that it will be maintained at the minimum in any operating state.

3) Pin short and mistake fitting

When mounting the IC on the PCB, pay attention to the orientation of the IC. If there is a placement mistake, the IC may be burned up.

4) Operation in strong electric field

Be noted that using ICs in the strong electric field can malfunction them.

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.