

# **SPECIFICATION**

**Model : SH-34C**

**P/N : HE34C\*1B12 (\*:Rank)**

**Halogen Free**

## **HALL ELEMENT**

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## 1. Application

This specification Sheet is applied to Hall sensor that NANOS supplies.

## 2. Electrical Characteristics

### 2.1 Maximum Ratings

(Ta : 25°C)

Parameter	Symbol	Rating	Unit
Maximum Input Current	I <sub>max</sub>	20 (at 25°C)	mA
Maximum Power Dissipation	P <sub>max</sub>	150 (at 25°C)	mW
Operating Temperature Range	T <sub>op</sub>	-40 ~ +120	°C
Storage Temperature Range	T <sub>st</sub>	-40 ~ +150	°C

### 2.2 Electrical Characteristics (Measured at 25°C)

Parameter	Symbol	Measurement Conditions	Min	Max	Unit
Output Hall Voltage	V <sub>H</sub>	V <sub>in</sub> =1V, B=500G	168	274	mV
Input Resistance	R <sub>in</sub>	I=0.1mA	240	550	Ω
Output Resistance	R <sub>out</sub>	I=0.1mA	240	550	Ω
Offset Voltage	V <sub>O</sub>	V <sub>in</sub> =1V, B=0G	-7	+7	mV
Temp. Coeff. of V <sub>H</sub>	α	Ta=0 ~ +40°C	—	-1.8	% /°C
Temp. Coeff. of R <sub>in</sub> , R <sub>out</sub>	β	Ta=0 ~ +40°C	—	-1.8	% /°C

※ V<sub>H</sub>=V<sub>HM</sub>-V<sub>O</sub> ( V<sub>HM</sub> : The output voltage measured at 500G.)

### 2.3 Rank Classification and Mark on Output Hall Voltage

Output Hall Voltage, V <sub>H</sub> (mV)	Rank	Mark	Measurement Conditions
168 ~ 204	C	▪ C	V <sub>in</sub> =1V, B=500G (Constant Voltage)
196 ~ 236	D	▪ D	
228 ~ 274	E	▪ E	
266 ~ 320	F	▪ F	

### 3. Method for Mounting

#### 3.1 Lead Frame

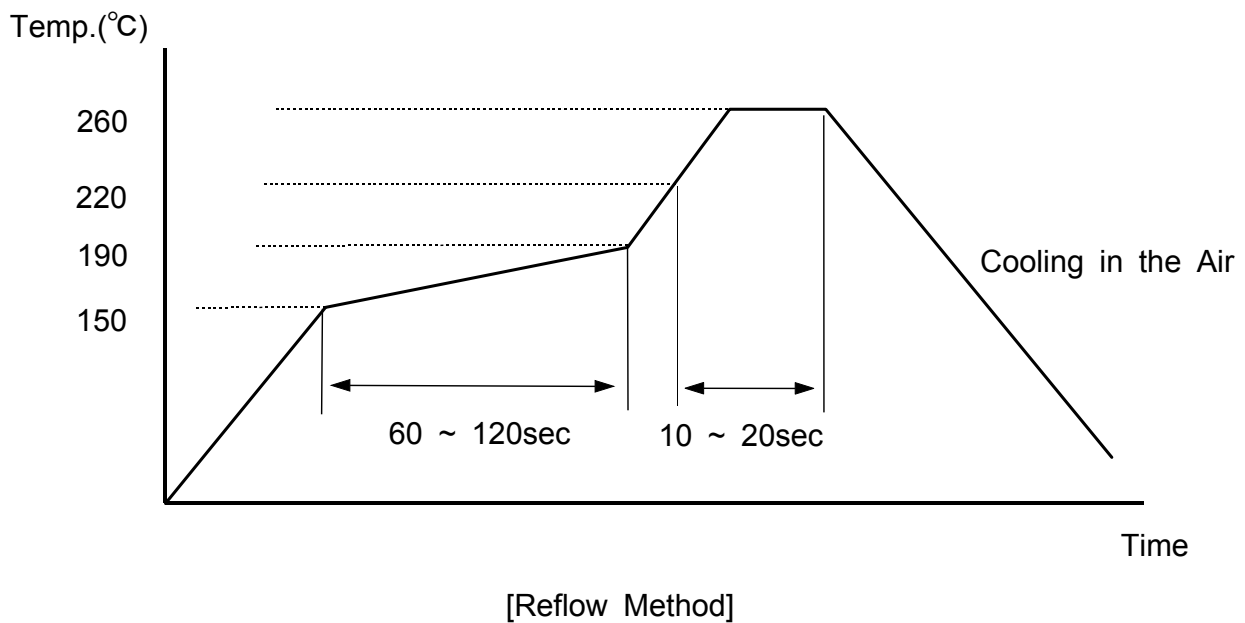
- 1) The material of lead frame is phosphor bronze alloy and the die bonded surface is plated by silver. The minimum thickness of plating is  $3.0\mu\text{m}$ .
- 2) Lead Frame is plated by pure Sn and the thickness is controlled by  $4\sim 12\mu\text{m}$ .

#### 3.2 Soldering Conditions on PCB

- 1) No rapid heating and cooling is desired.
- 2) Preheating is recommended for  $1\sim 2$ minutes at  $150\sim 190^\circ\text{C}$ .
- 3) Reflowing is recommended for  $10\sim 20$ seconds at  $220\sim 260^\circ\text{C}$ .

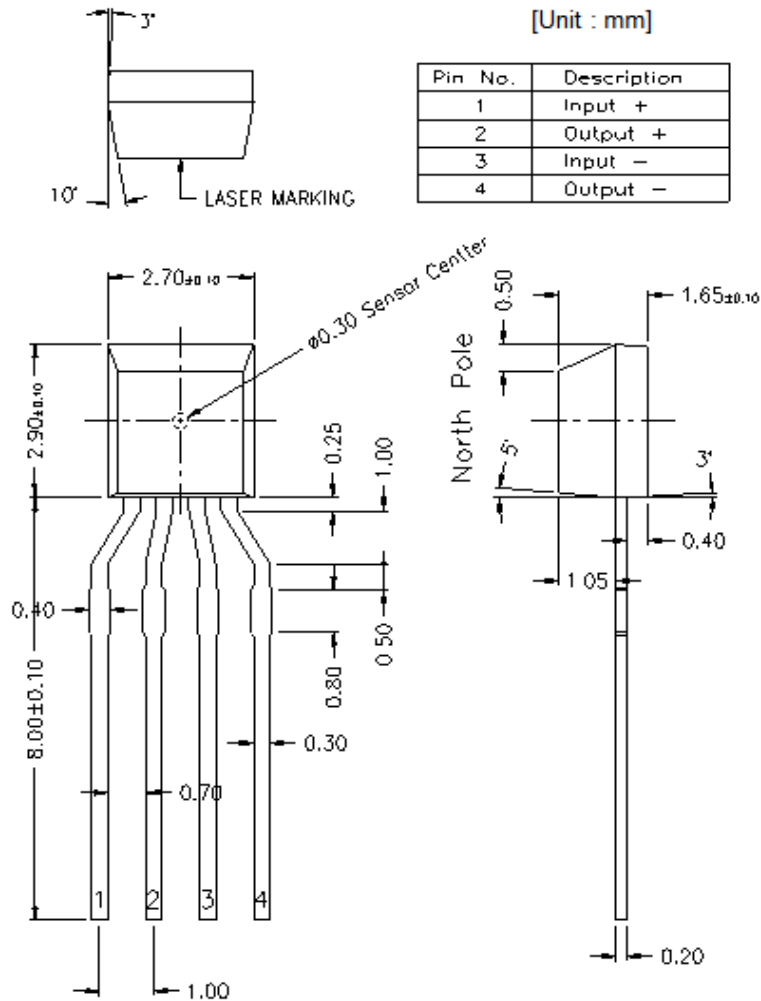
#### 3.3 Soldering Method and Temperature

Items	Methods	Temperature
Reflow	Soldering by passing the heated zone	Max $260^\circ\text{C}$ in 10sec
Solder Iron	Soldering by solder-iron	Max $350^\circ\text{C}$ in 3sec



#### 4. External Dimensions and Appearance

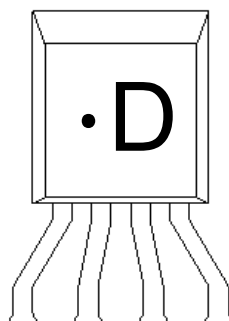
##### 4.1 External Dimensions (Unit:mm)



[Package Dimensions]

##### 4.2 Marking Method

Devices should be marked by LASER beam in the form of '• + 'Rank''



##### 5. Packaging : Bulk packaging (500pcs per pack)

**6. RELIABILITY**
**6.1 TEST Item and Condition**

No	TEST Item	TEST Condition
1	HIGH TEMP. STORAGE	Ta=150°C,t=1000HR
2	HIGH TEMP. OPERATION	Ta=120°C,Iopr=10mA,t=1000HR
3	LOW TEMP. OPERATION	Ta=-40°C,Iopr=6mA,t=1000HR
4	HIGH TEMP. HIGH HUMIDITY OPERATION	Ta=85°C,HR=85%,Iopr=9mA,t=1000HR
5	PCT	Ta=121°C,HR=100%,Pv=2atm,t=24HR
6	THERMAL SHOCK	T(L)=-55°C,T(H)=150°C,t=(L,H)=30min,M=30CYCLE
7	HIGH HUMIDITY TEMPERATURE CYCLE	T(L)=-20°C,T(H)=85°C,t(L,H)=30min,HR=95%,M=40CYCLE
8	SOLDERING HEAT RESISTANCE	Peak Temp=260°C,t=10sec,REFLOW
9	ESD(MM)	V=500V,C=200pF,R=0Ω(EIAJ TEST CONDITION)

**6.2 Criterion For Judging**

After each reliability test, samples should be during at least 24 hrs in room temp. & humidity, and then measure. The change rates should be in the values as below.

Item	OK Spec.	NG/OK
Rin	Under Initial±20%	OK (Spec. Satisfying)
Rout		
VH		
Vo	Max. ±15mV	

#### 7. Caution on treating

On surface mounting, please keep the statements written by mounting conditions.

Safekeeping Period is 6 month at room temperature in condition of being packed

#### 8. The Analysis of RoHS(Restriction of Hazardous Substances)

It is guaranteed that there are no RoHS materials in Hall Sensor by specific analysis results

- References : RoHs 6 Materials

- 1) Cadmium(Cd)
- 2) Lead(Pb)
- 3) Mercury(Hg)
- 4) Hexavalent Chromium(CrVI)
- 5) PBBs(Polybrominated Biphenyls)
- 6) PBDEs(Polybrominated Diphenyl Ethers)

#### 9. Halogen Free

NANOS Hall sensor guarantees that it contains no Halogenated materials. That is Halogen Free product and is confirmed by specific analysis results.

- References : Halogen materials

- 1) Fluorine(F)
- 2) Chlorine(Cl)
- 3) Bromine(Br)
- 4) Iodine (I)