TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

THS121

HIGH STABILITY MOTOR CONTROL.

DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

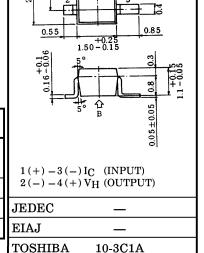
- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; −55~125°C)
- Excellent Output Voltage Linearity.
- High Specific Sensitivity. : $K^*=38\times10^{-2}/T$ (Typ.)

MAXIMUM RATINGS ($Ta = 25^{\circ}C$)

CHARACTERISTI	SYMBOL	RATING	UNIT		
Control Current	DC	Ia	10	mA	
Control Current	1s	$^{\mathrm{I}_{\mathrm{C}}}$	15		
Power Dissipation	$P_{\mathbf{D}}$	150	mW		
Operating Temperature Range		$T_{ m opr}$	-55~125	°C	
Storage Temperature Range		$\mathrm{T_{stg}}$	-55~150	°C	

Unit in mm

THS121



Weight: 0.013g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC SY		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Internal Resistance (Input) R _d		R_d	$I_{\text{C}} = 5\text{mA}$	450	_	900	Ω
Residual Voltage Ratio V		$v_{\mathrm{HO}}/v_{\mathrm{H}}$	$I_{C} = 5 \text{mA}, B = 0 / B = 0.1 \text{T}$	_	_	±10	%
Hall Voltage	(Note 1)	$ m v_H$	$I_{C} = 5mA, B = 0.1T$	80	_	190	mV
Temperature Coefficient (Note 2)		$ m V_{HT}$	I _C =5mA, B=0.1T T1=25°C, T2=125°C	_	_	-0.06	%/°C
Linearity	(Note 3)	ΔK _H	$I_{C} = 5 \text{mA}, B1 = 0.05 \text{T}, B2 = 0.1 \text{T}$	_	_	2	%
Specific Sensitivity	(Note 4)	K*	$I_{C} = 5 \text{mA}, B = 0.1 \text{T}$		38		$\times 10^{-2} / \mathrm{T}$
Internal Resistance	(Output)	$R_{ m OUT}$	$I_C = 1mA$	_	_	3200	Ω

Note 1 : $V_H = V_{HM} - V_{HO} (V_{HM})$ is meter indication)

Note 2:
$$V_{HT} = \frac{1}{V_{H,(TT)}} \cdot \frac{V_{H,(TT)} - V_{H,(TT)}}{T_{2} - T_{1}} \times 100 \, (\% \, ^{\circ}\text{C})$$
 V_{HO} : Residual Voltage

$$\begin{array}{l} \text{Note 2}: V_{HT} = \frac{1}{V_{H\;(T1)}} \cdot \frac{V_{H\;(T2)} - V_{H\;(T1)}}{T2 - T1} \times 100 \, (\%/^{\circ}\text{C}) & V_{HO}: \text{Residual Voltage} \\ \text{Note 3}: \Delta K_{H} = \frac{K_{H\;(B2)} - K_{H\;(B1)}}{1/2 \left\{ K_{H\;(B1)} + K_{H\;(B2)} \right\}} \times 100 \, (\%), \; K_{H} = \frac{V_{H}}{I_{C} \cdot B} \; K_{H}: \text{Product Sensitivity} \\ \end{array}$$

Note 4: $K^*=V_H/(R_d\times I_C\times B)=K_H/R_d$

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