

TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

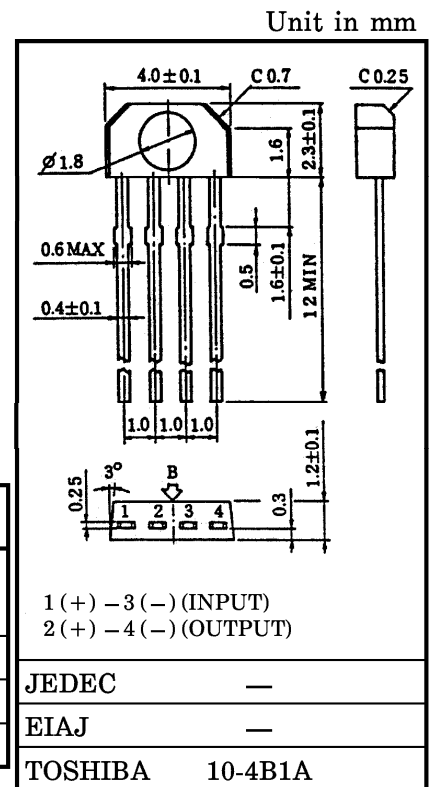
# THS123

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. :  $K^* = 38 \times 10^{-2} / T$  (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Control Current	DC	I <sub>C</sub>	10	mA
	1s		15	
Power Dissipation		P <sub>D</sub>	150	mW
Operating Temperature Range		T <sub>opr</sub>	-55~125	°C
Storage Temperature Range		T <sub>stg</sub>	-55~150	°C



Weight : 0.06g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

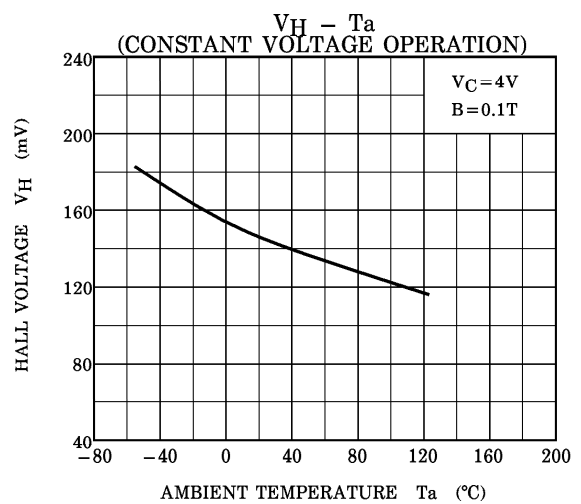
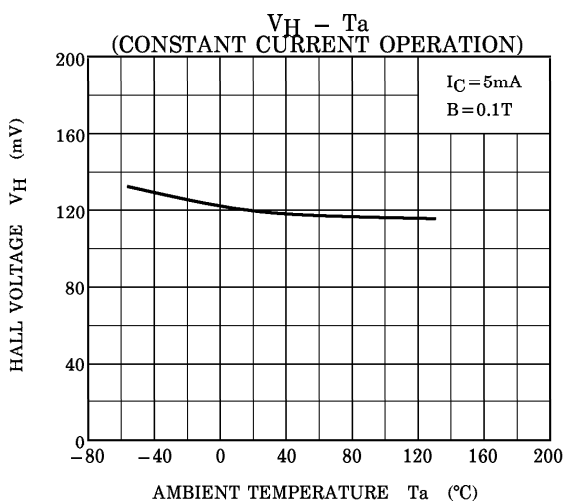
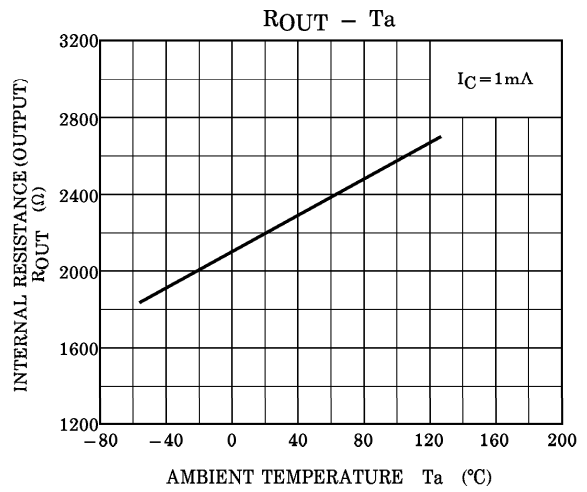
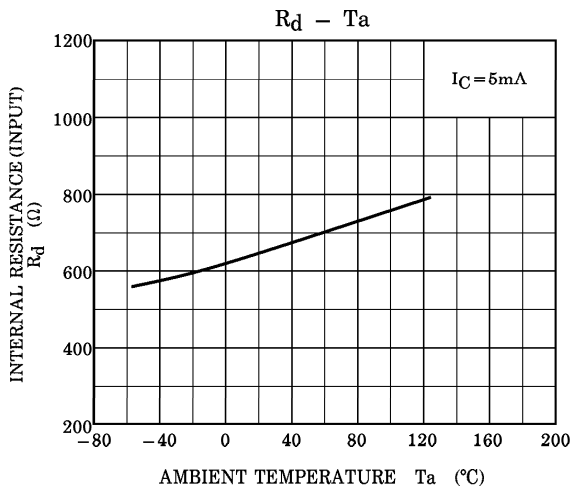
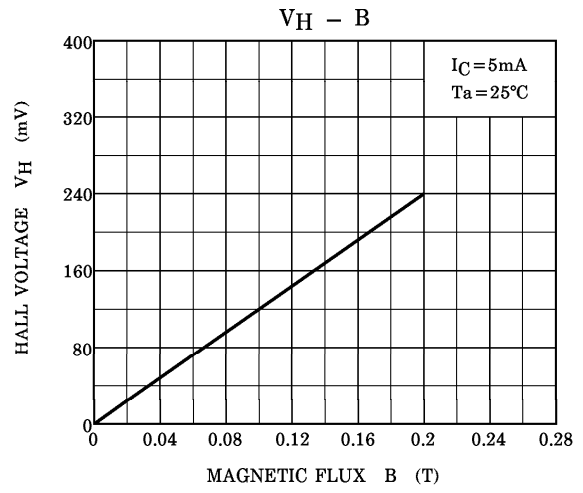
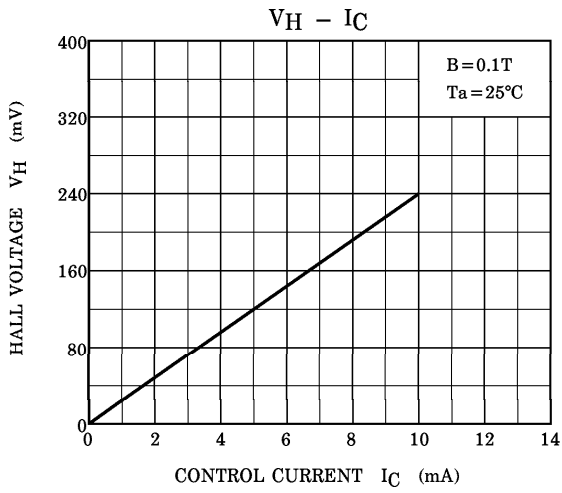
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Internal Resistance (Input)	R <sub>d</sub>	I <sub>C</sub> = 5mA	450	—	900	Ω
Residual Voltage Ratio	V <sub>HO</sub> / V <sub>H</sub>	I <sub>C</sub> = 5mA, B = 0 / B = 0.1T	—	—	± 10	%
Hall Voltage (Note 1)	V <sub>H</sub>	I <sub>C</sub> = 5mA, B = 0.1T	80	—	190	mV
Temperature Coefficient (Note 2)	V <sub>HT</sub>	I <sub>C</sub> = 5mA, B = 0.1T T <sub>1</sub> = 25°C, T <sub>2</sub> = 125°C	—	—	-0.06	% / °C
Linearity (Note 3)	ΔK <sub>H</sub>	I <sub>C</sub> = 5mA, B <sub>1</sub> = 0.05T, B <sub>2</sub> = 0.1T	—	—	2	%
Specific Sensitivity (Note 4)	K*	I <sub>C</sub> = 5mA, B = 0.1T	—	38	—	× 10 <sup>-2</sup> / T
Internal Resistance (Output)	R <sub>OUT</sub>	I <sub>C</sub> = 1mA	—	—	3200	Ω

Note 1 : V<sub>H</sub> = V<sub>HM</sub> - V<sub>HO</sub> (V<sub>HM</sub> is meter indication)

Note 2 :  $V_{HT} = \frac{1}{V_H(T_1)} \cdot \frac{V_H(T_2) - V_H(T_1)}{T_2 - T_1} \times 100 (\% / ^\circ C)$       V<sub>HO</sub> : Residual Voltage

Note 3 :  $\Delta K_H = \frac{K_H(B_2) - K_H(B_1)}{1/2 \{ K_H(B_1) + K_H(B_2) \}} \times 100 (\%)$ ,  $K_H = \frac{V_H}{I_C \cdot B}$       K<sub>H</sub> : Product Sensitivity

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



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