TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

THS121

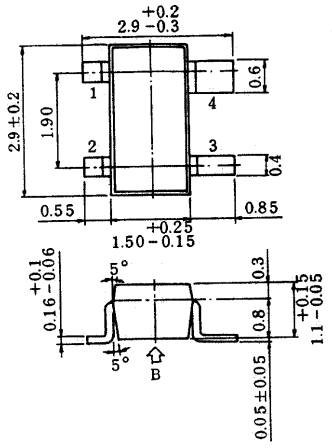
HIGH STABILITY MOTOR CONTROL.

DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; −55~125°C)
- Excellent Output Voltage Linearity.
- High Specific Sensitivity. : $K^* = 38 \times 10^{-2}/T$ (Typ.)

Unit in mm



1 (+) − 3 (−) I_C (INPUT)
2 (−) − 4 (+) V_H (OUTPUT)

JEDEC	—
EIAJ	—
TOSHIBA	10-3C1A

Weight : 0.013g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Control Current	DC	I_C	10	mA
	1s		15	
Power Dissipation		P_D	150	mW
Operating Temperature Range		T_{opr}	−55~125	°C
Storage Temperature Range		T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Internal Resistance (Input)	R_d	I_C = 5mA	450	—	900	Ω
Residual Voltage Ratio	V_{HO}/V_H	I_C = 5mA, B = 0 / B = 0.1T	—	—	±10	%
Hall Voltage (Note 1)	V_H	I_C = 5mA, B = 0.1T	80	—	190	mV
Temperature Coefficient (Note 2)	V_{HT}	I_C = 5mA, B = 0.1T T1 = 25°C, T2 = 125°C	—	—	−0.06	%/°C
Linearity (Note 3)	ΔK_H	I_C = 5mA, B1 = 0.05T, B2 = 0.1T	—	—	2	%
Specific Sensitivity (Note 4)	K^*	I_C = 5mA, B = 0.1T	—	38	—	$\times 10^{-2}/T$
Internal Resistance (Output)	R_{OUT}	I_C = 1mA	—	—	3200	Ω

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

Note 2 : $V_{HT} = \frac{1}{V_{H(T1)}} \cdot \frac{V_{H(T2)} - V_{H(T1)}}{T2 - T1} \times 100\ (\%/°C)$ V_{HO} : Residual Voltage

Note 3 : $\Delta K_H = \frac{K_{H(B2)} - K_{H(B1)}}{1/2\{K_{H(B1)} + K_{H(B2)}\}} \times 100\ (\%)$, $K_H = \frac{V_H}{I_C \cdot B}$ K_H : Product Sensitivity

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

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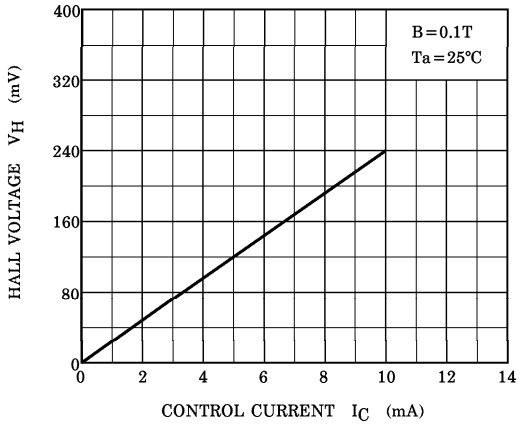
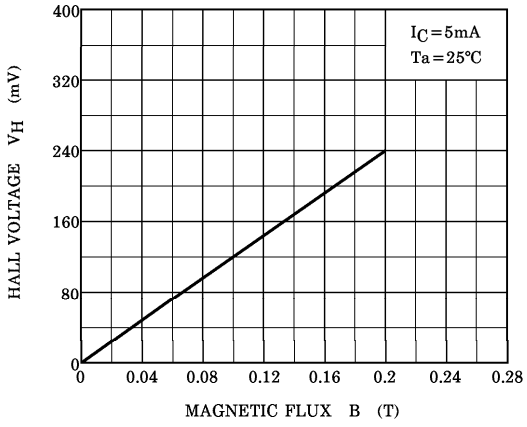
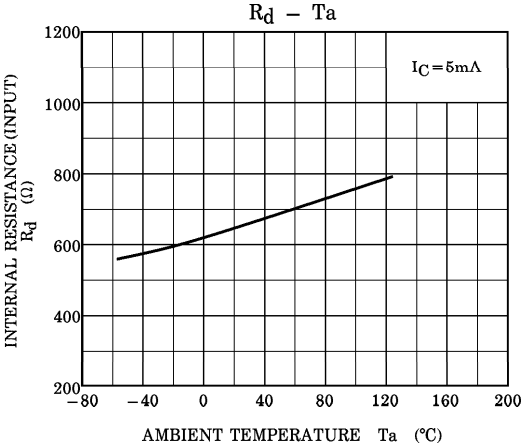
V_H – I_C



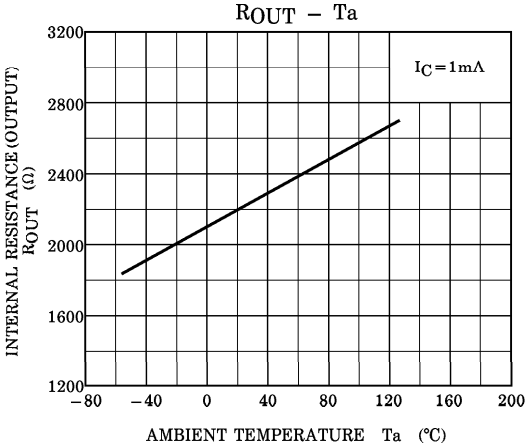
V_H – B



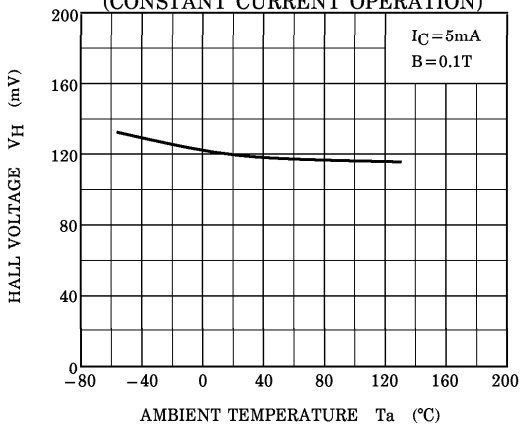
R_d – Ta



R_{OUT} – Ta



V_H – Ta
(CONSTANT CURRENT OPERATION)



V_H – Ta
(CONSTANT VOLTAGE OPERATION)