

CYSJ124 GaAs HALL-EFFECT ELEMENTS

CYSJ series Hall-effect element is a ion-implanted magnetic field sensor made of mono-crystal gallium arsenide (GaAs) semiconductor material group III-V using ion-implanted technology. It can convert a magnetic flux density signal linearly into voltage output.

HIGH STABILITY MOTOR CONTROL.

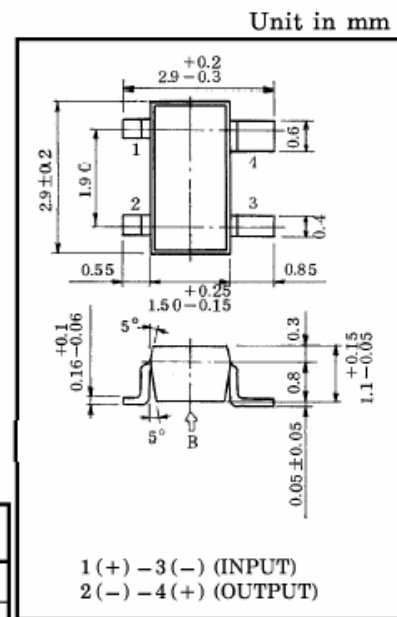
DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; $-55\sim 125^{\circ}\text{C}$)
- Excellent Output Voltage Linearity.
- High Internal Resistance. : $R_d=1000\Omega$ (Min.)
- Low Residual Voltage Ratio. : $V_{HO}/V_H=\pm 5\%$ (Max.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Control Voltage	V_C	12	V
Power Dissipation	P_D	150	mW
Operating Temperature Range	T_{opr}	$-55\sim 125$	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 150$	$^{\circ}\text{C}$



Unit weight: 0.013g

ELECTRICAL CHARACTERISTICS ($T_a = 25^{\circ}\text{C}$)

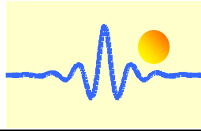
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Internal Resistance (Input)	R_d	$I_C=1\text{mA}$	1000	1250	1500	Ω
Residual Voltage Ratio	V_{HO}/V_H	$V_C=5\text{V}, B=0/B=0.1\text{T}$	—	—	± 5	%
Hall Voltage (Note 1)	V_H	$V_C=5\text{V}, B=0.1\text{T}$	130	150	170	mV
Temperature Coefficient (Note 2)	V_{HT}	$I_C=5\text{mA}, B=0.1\text{T}$ $T_1=25^{\circ}\text{C}, T_2=125^{\circ}\text{C}$	—	—	-0.06	$\%/^{\circ}\text{C}$
Linearity (Note 3)	ΔK_H	$V_C=5\text{V}, B_1=0.05\text{T}, B_2=0.1\text{T}$	—	—	2	%
Specific Sensitivity (Note 4)	K^*	$V_C=5\text{V}, B=0.1\text{T}$	—	30	—	$\times 10^{-2}/\text{T}$
Internal Resistance (Output)	R_{OUT}	$I_C=1\text{mA}$	1800	2375	3000	Ω

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

Note 2 : $V_{HT} = \frac{1}{V_H(T_1)} \cdot \frac{V_H(T_2) - V_H(T_1)}{T_2 - T_1} \times 100 (\%/^{\circ}\text{C})$ V_{HO} : 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_H : Product Sensitivity

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



Characteristics Curves

