SONY

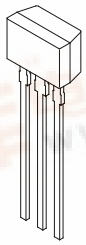
DM-106B

Magnetoresistance Element

Description

The DM-106B is a highly sensitive magneto-resistance element composed of an evaporated ferromagnetic alloy on a silicon substrate. (The element can be used for automatic shut off of tape recorders, as a contactless switch, and as a general detector of rotational motion.)

M-110 (Plastic)



Features

- Low power consumption 11 mW (Typ.)
  V_{CC}=5 V
- Low magnetic field and high sensitivity
  80 mVp-p (Typ.)
  V_{CC}=5 V
  H=8000 A/m
- High reliability
  Ensured through silicon
  Nitride protective filming

Structure

Thin-film nickel-cobalt magnetic alloy on silicon substrate

Absolute Maximum Ratings (Ta=25 °C)

• Supply voltage	V_{CC}	10	V
• Operating temperature	Topr	–40 to +100	°C
• Storage temperature	Tstg	–50 to +125	°C

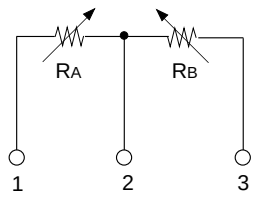
Recommended Operating Supply voltage 5 V

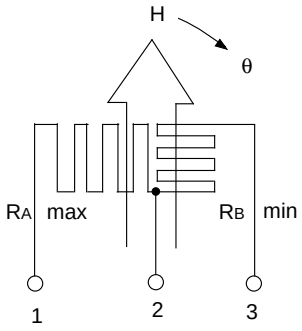
Electrical Characteristics

(Ta=25 °C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Total resistance	R_T	VCC=5 V , H=8000 A/m Revoiving magnetic field	1.4	2.3	3.7	kΩ
Midpoint potential	V_C	VCC=5 V , H=8000 A/m Revoiving magnetic field	2.45	2.50	2.55	V
Output voltage	V_O	VCC=5 V , H=8000 A/m Revoiving magnetic field	60	80		mVp-p

Equivalent Circuit

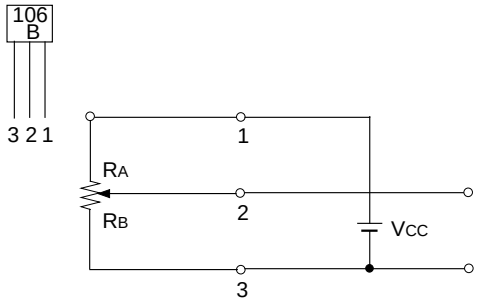




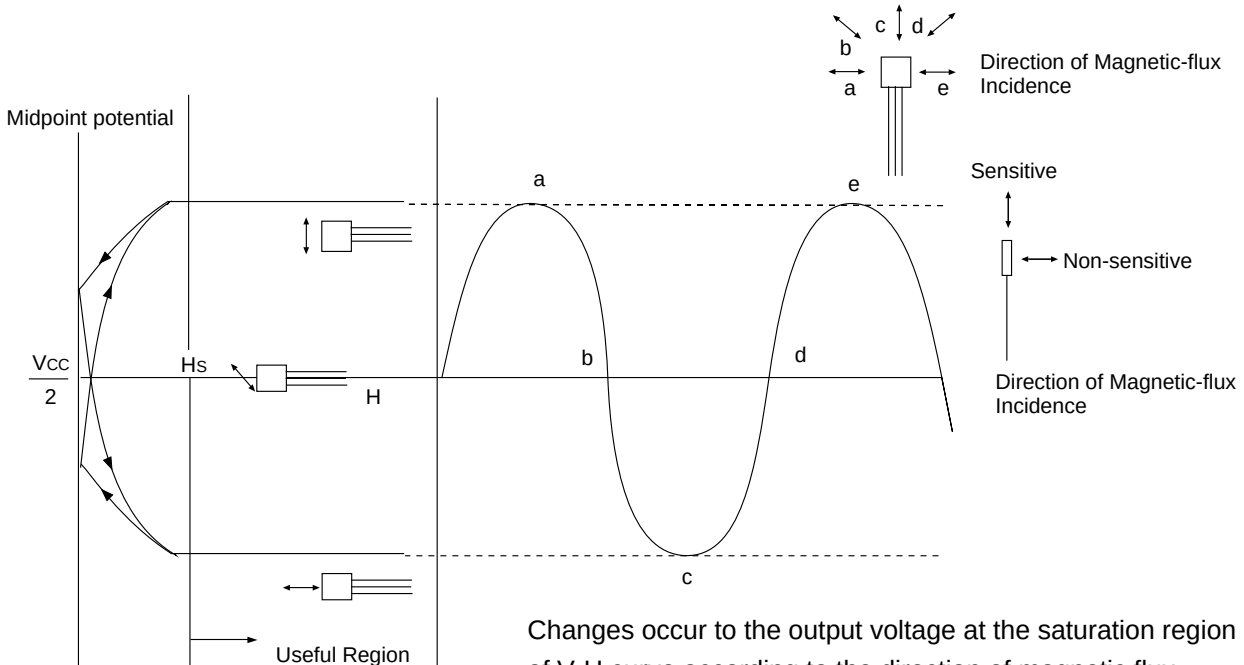
R_A : Resistance reduces as the magnetic field revolves.
R_B : Resistance increases as the magnetic field revolves.

Introduction

1. Power supplying pin output pin



2. Sensitive direction vs. Midpoint potential

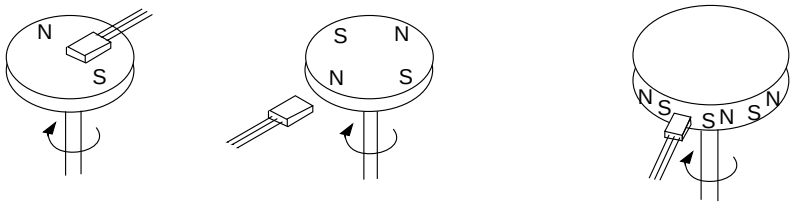


Changes occur to the output voltage at the saturation region of V-H curve according to the direction of magnetic flux. These changes provide for the operation.

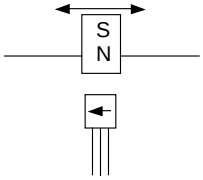
- With one rotation of magnetic flux, signals for 2 periods are obtained.

Applications

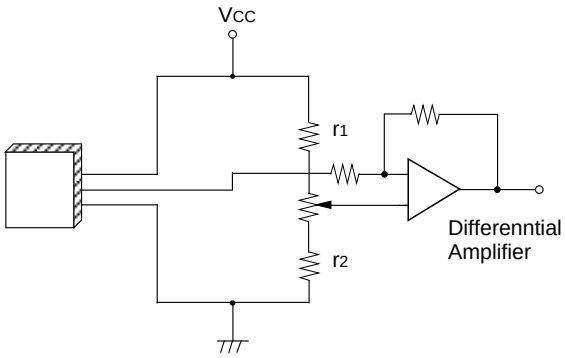
1. Detection of revolution



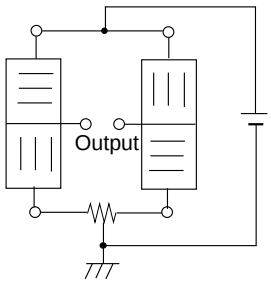
2. Position detecting

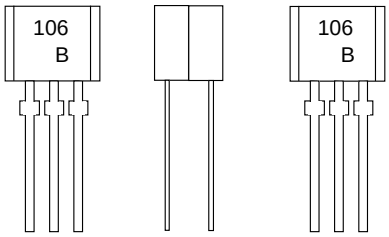


Circuits



3. Bridge Circuits





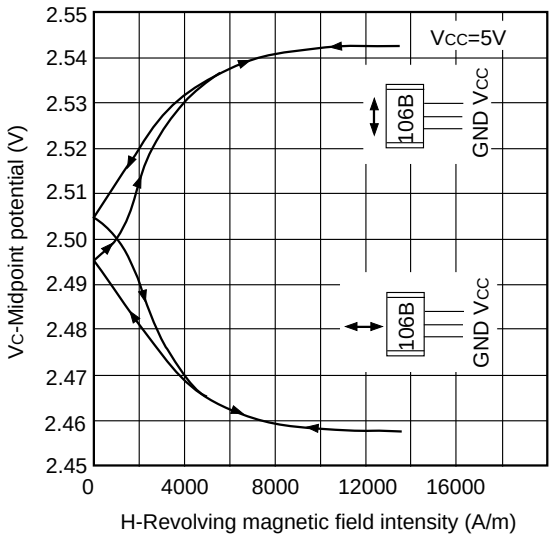
By coupling 2 pieces back to back and sticking them together in a gridge, the output voltage is doubled.

Notes on Application

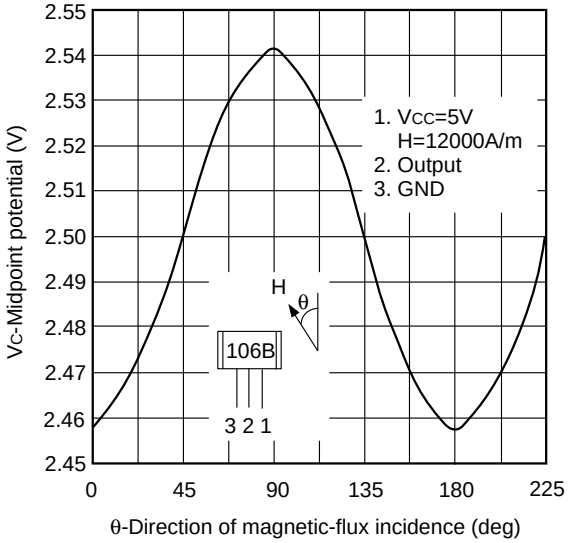
• Execute the solder to the lead line within 10 seconds at a temperature below 260 °

• To Fix the ELEMENTS : When glue is used, DO NOT apply mechanical stress to the elements.

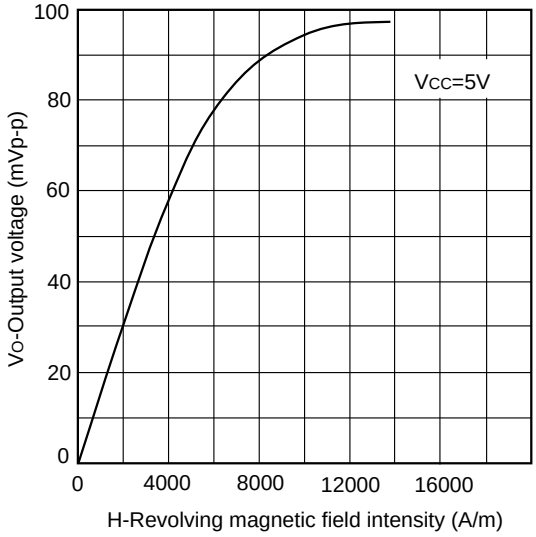
Midpoint potential vs. Magnetic field intensity



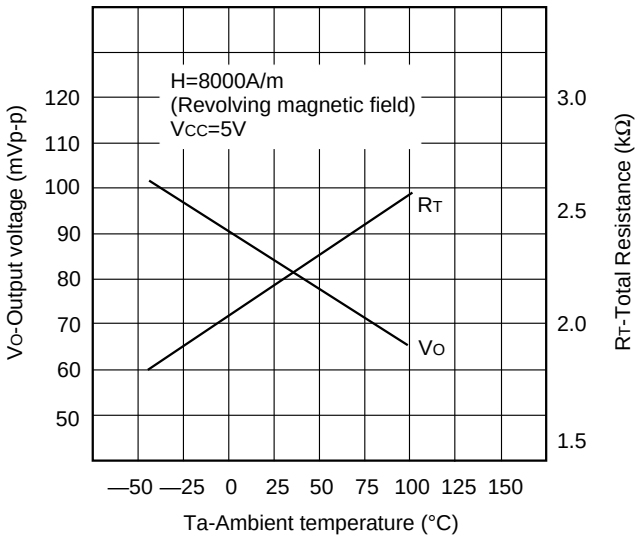
Midpoint potential vs. Direction of magnetic-flux incidence



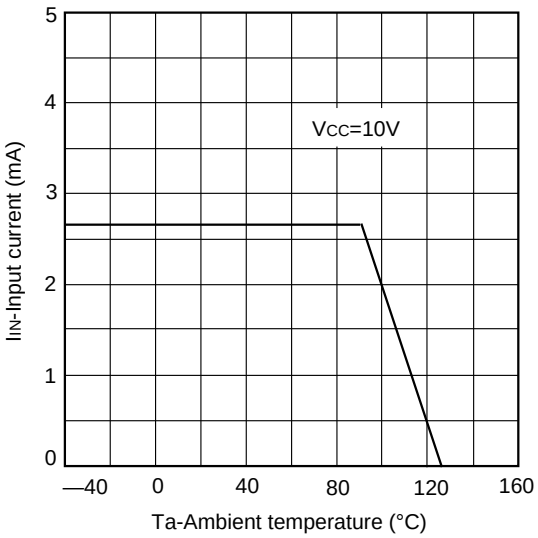
Output voltage vs. Magnetic field intensity



Total resistance, output voltage vs. Temperature

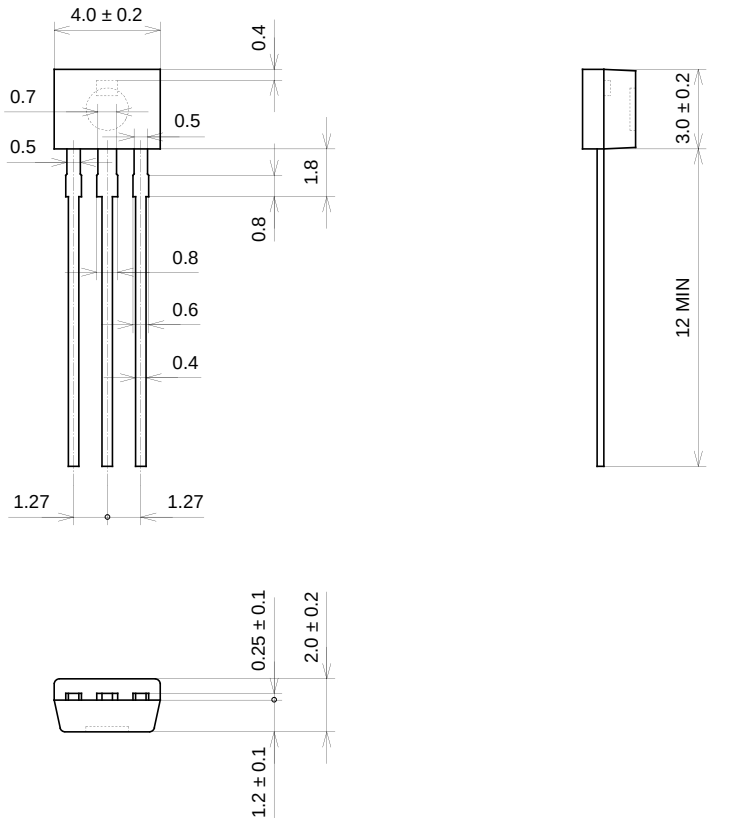


Derating Curve



Package Outline Unit : mm

M-110



SONY CODE	M-110
EIAJ CODE	————
JEDEC CODE	————

PACKAGE WEIGHT	0.09g