

Magnetic Sensor ICs

## Unipolar Detection High Performance Hall-Effect Sensor IC



### AS1780

#### ● General Description

Using BCD process, the AS1780 is designed for high performance unipolar detection hall-effect application, such as home appliances, rotor position sensing, brushless DC motor etc. The hall IC integrated an on-chip hall voltage generator for magnetic sensing, a comparator that amplifies the hall voltage, hall sensor with dynamic offset cancellation system, an pull-up resistance, and a Schmitt trigger to provide switching hysteresis for noise rejection, and a voltage regulator for operation with supply voltage of 2.8V to 28V.

AS1780 is designed to respond to **South poles**. While the magnetic flux density (B) is larger than operate point ( $B_{OP}$ ), the output will be turned on (low), the output is held until the magnetic flux density (B) is lower than release point ( $B_{RP}$ ), then turn off (high).

The device is available in SIP-3L and SOT23-3L Package and is rated over the -40°C to 150°C. the package is RoHS compliant.

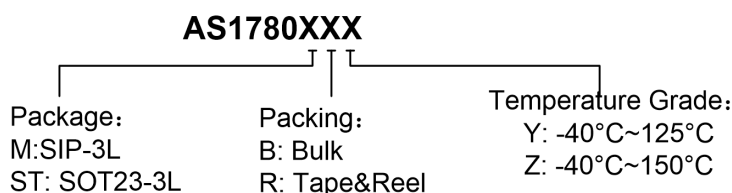
#### ● Features

- High Performance BCD Process Tech.
- Input Voltage Range : 2.8V to 28V
- Resistant to physical stress
- Unipolar Latch Operation
- High Sensitivity Hall Sensor
- High Chopping Frequency
- Magnetic Sensitivity (typical)  
 $B_{OP}=35\text{Gauss}$ ,  $B_{RP}=20\text{Gauss}$
- **Need Pull-up Resistance**
- Reverse Voltage Protection: -24V
- Small Solution Size
- RoHS Compliant
- SIP-3L and SOT23-3L Packages
- -40°C to +150 °C Temperature Range

#### ● Applications

- Electric Tools
- Automotive, Home appliances, Industrial
- Rotor Position Sensing and Flow Meters
- Brushless DC Motor/Fan
- Speed Measurement
- Revolution Counting
- Valve and Solenoid Status
- Proximity Sensing
- Tachometers
- Magnetic Encoder

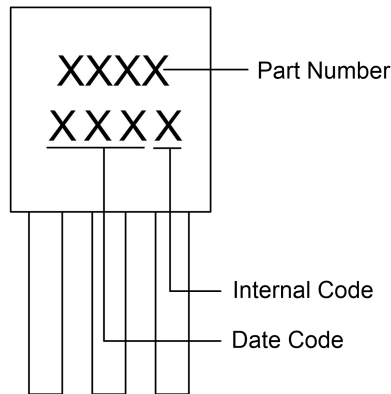
#### ■ Ordering Information



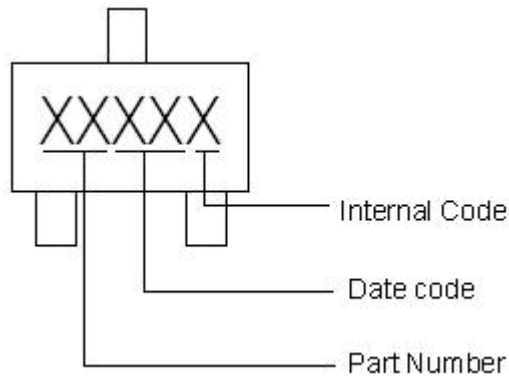
| Part Number | $B_{OP}/B_{RP}$ (Gauss) | Package Type | Package Qty            | Temperature | Eco Plan |
|-------------|-------------------------|--------------|------------------------|-------------|----------|
| AS1780MBY   | 35/20                   | SIP-3L       | 1K/Package             | -40~125°C   | RoHS     |
| AS1780STRY  | 35/20                   | SOT23-3L     | 7-in reel 3000pcs/reel | -40~125°C   | RoHS     |
| AS1780MBZ   | 35/20                   | SIP-3L       | 1K/Package             | -40~150°C   | RoHS     |
| AS1780STRZ  | 35/20                   | SOT23-3L     | 7-in reel 3000pcs/reel | -40~150°C   | RoHS     |

■ **Marking Information**

SIP-3L



SOT23-3L



■ **Typical Application Circuit**

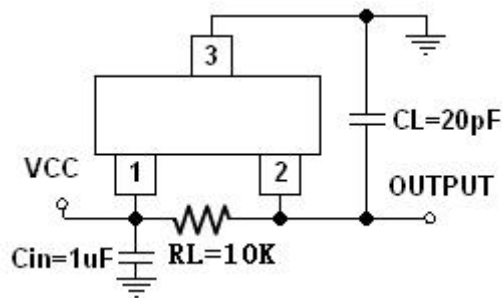
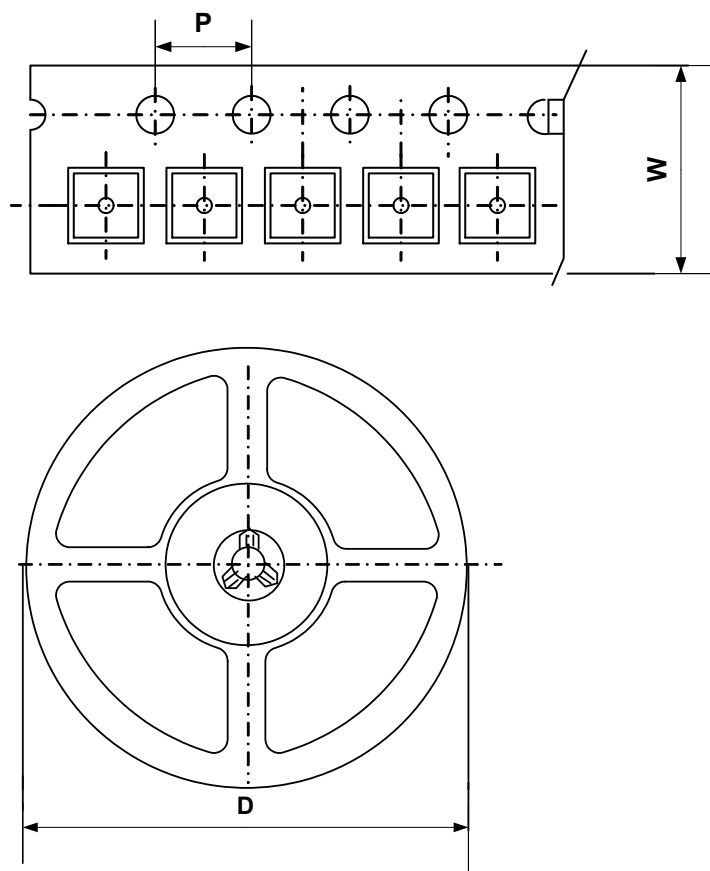


Figure 1, Typical Application Circuit of AS1780

■ **Packing Information**

SOT23-3L



| Package Type | Carrier Width (W) | Pitch (P)  | Reel Size(D) | Packing Minimum |
|--------------|-------------------|------------|--------------|-----------------|
| SOT23-3L     | 8.0±0.1 mm        | 4.0±0.1 mm | 180±1 mm     | 3000pcs         |

Note: Carrier Tape Dimension, Reel Size and Packing Minimum

■ **Packing Information**

1. Packing type: Bulk
2. Packing minimum: 1000pcs