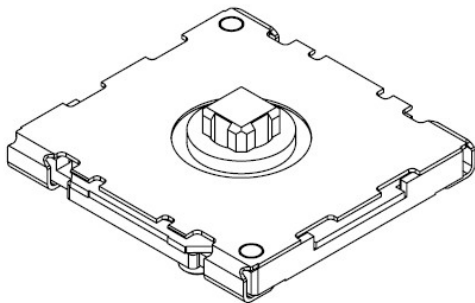


# EasyPoint™ N35P102 Navigation Module

## 1 General Description

EasyPoint™ N35P102 is a miniature joystick module concept based on contact-less, magnetic movement detection. The two-dimensional linear encoder IC AS501x (e.g. AS5011, AS5013, ...) is mounted on the bottom side of the application's PCB, and monitors the movement of the magnet incorporated in the knob and provides directly the x and y coordinates via I<sup>2</sup>C output. A mechanical push button (dome switch) can be added to provide a "select" function.

Figure 1. N35P102-xxxxx-H



## 2 Key Features

- Lateral magnet movement radius up to 0.5mm
- Low profile
- Push button feature
- SMD mounting

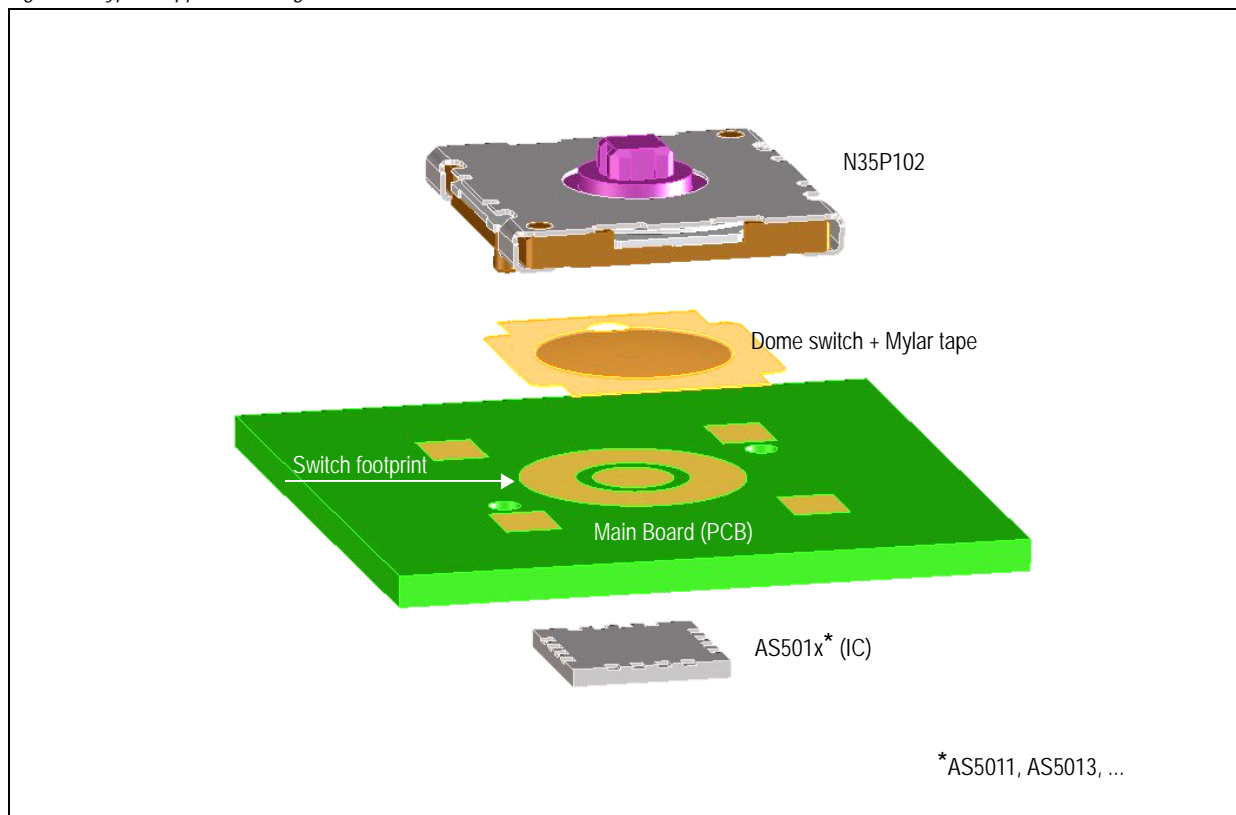
## 3 Applications

The EasyPoint™ N35P102 in combination with the AS501x is ideal for small factory manual input devices in battery operated equipment, such as Mobile phones, MP3 players, PDAs, GPS receivers, Gaming consoles and Analog joystick replacement.

## 4 Benefits

- High reliability due to magnetic non-contact sensing
- Thin size

Figure 2. Typical Application Diagram



## 5 Electrical Characteristics

### 5.1 Mechanical Specifications

Table 1. Mechanical Specifications

Parameter	Note
Number of operating shafts	Single shaft
Shaft material	PA46
Housing material	PA46
Shell material	Stainless Steel or Copper alloy
Travel (XY operation)	$\pm 0.50\text{mm}$ ( $\pm 10\%$ )
Directional operating force (XY direction)	0.45N ( $\pm 0.10\text{N}$ )
Vibration	10-500-10Hz 15 minutes, 12 cycles, 3 axes (total 36 cycles)
Operating life – XY direction	Each direction > 1 million cycles
Operating life – Push Z direction	> 1 million cycles
Shaft strength (XYZ direction)	> 3.0 kgf
Over force	1.5kgf, > 100k cycles

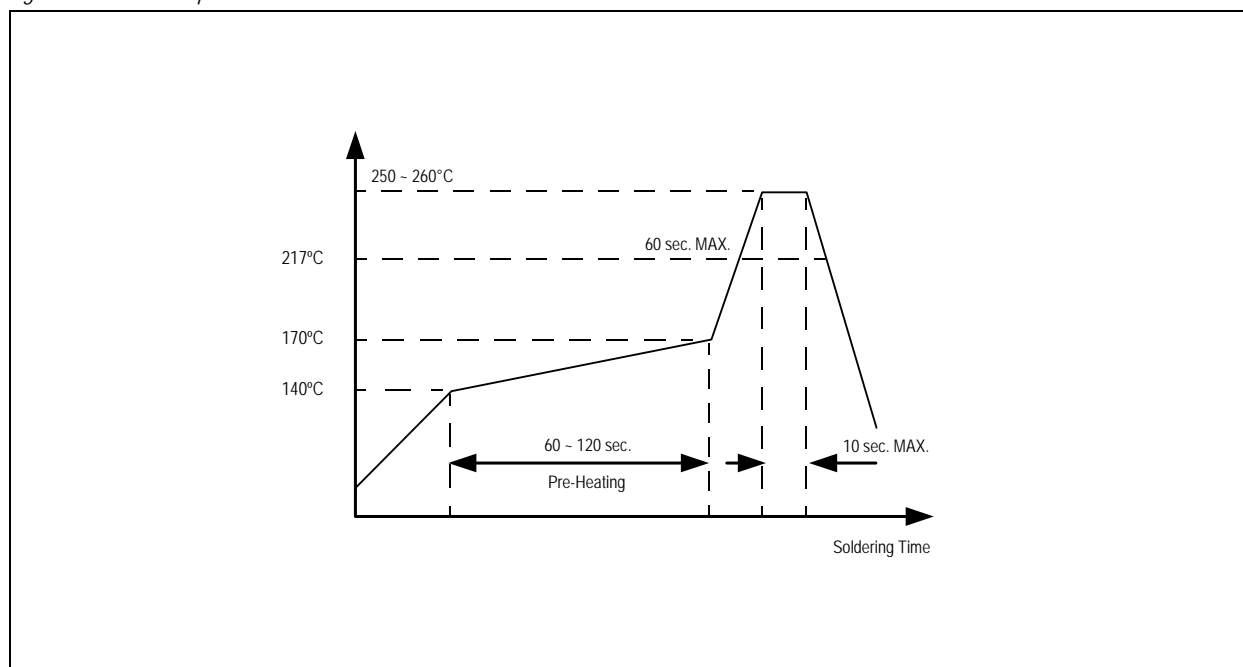
### 5.2 Environmental Specifications

Table 2. Environmental Specifications

Parameter	Note
Operating temperature range	-20 ~ +70°C
Storage temperature range	-40 ~ +85°C
Degrees of protection	IP 5X

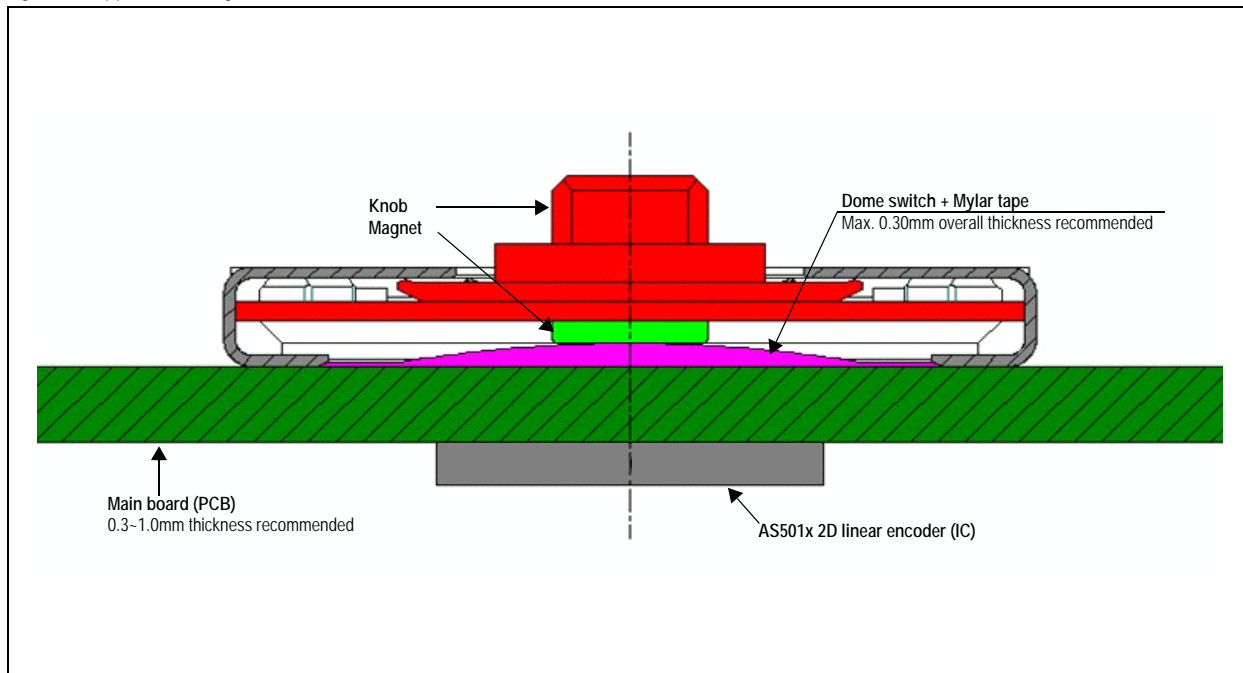
### 5.3 Recommended Reflow Temperature Profile

Figure 3. Reflow Temperature Profile



## 6 Application Using the AS501x 2D Linear Encoder

Figure 4. Application Diagram



For further information, please refer to the N35P112 module datasheet:

<http://www.austriamicrosystems.com/eng/Products/Magnetic-Encoders/EasyPoint-Joystick-Encoder/EasyPoint-Joystick-Modules>

For firmware programming support, please download the austriamicrosystems AS5013 encoder application note AN5013-20:

<http://www.austriamicrosystems.com/eng/Products/Magnetic-Encoders/EasyPoint-Joystick-Encoder/AS5013/EasyPoint-AS5013-Downloads/EasyPoint-AS5013-Downloads>

## 7 Package Drawings and Markings

Figure 5. N35P102 Dimensions (mm ±0.15)

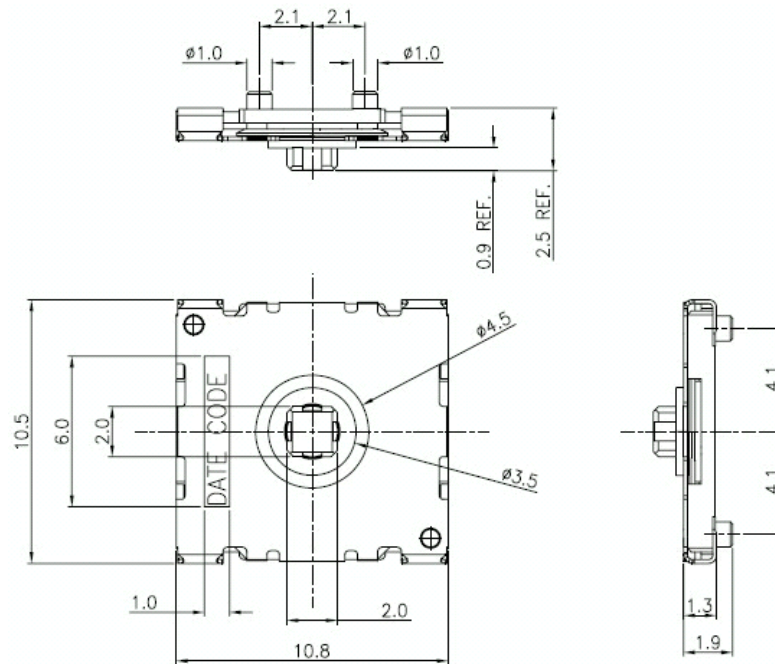


Figure 6. Recommended PCB Layout (Dimensions in mm ±0.05)

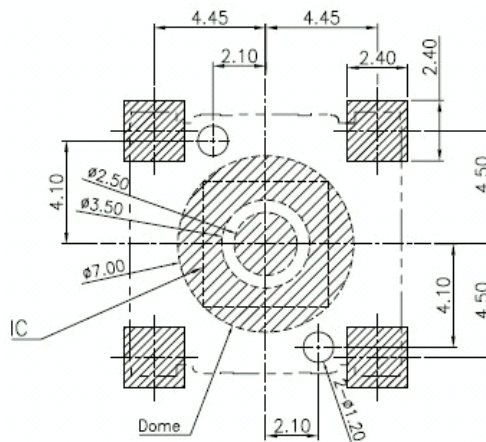
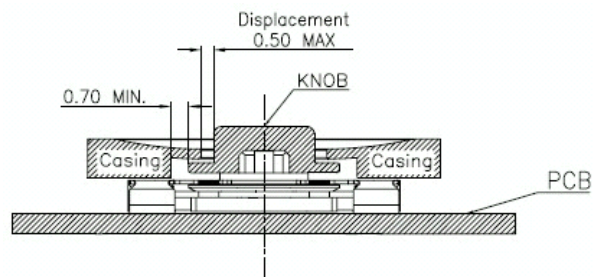


Figure 7. Recommended on Casing Design



## Revision History

Revision	Date	Owner	Description
1.0	30 Apr, 2010		Initial release

**Note:** Typos may not be explicitly mentioned under revision history.

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