

## Data Sheet



### Description

The AMRS-2325 is a navigation pad module for use with the AMRI-1000 navigation sense and interface IC. Together they provide a mouse-like pointing solution.

The spring loaded center button has large enough displacement to allow mouse-like cursor control on a variety of screen sizes. In addition, the center button provides a click function anywhere in the field of motion with tactile feedback.

The AMRS-2325 navigation pad module and AMRI-1000 navigation sense and interface IC form a unique navigation solution for mobile devices by providing superior tactile feedback as well as multiple cursor control operating modes in a small package.

### Theory of Operation

The AMRS-2325 is a capacitance based sensor module. A sliding disk is held at a center position by a patented spring system when the pointer is not being used. Cursor navigation is activated when slider senses the button touch.

The sliding disk may be moved in any direction with excellent tactile feedback provided by the retention spring system. The navigation sense and interface IC tracks the movement of the sliding disk on an electrode array providing a mobile navigation experience similar to that provided by a PC mouse or analog joystick.

A selection or clicking operation can be performed by fully pressing the sliding disk. A dome switch provides tactile feedback for this operation.

### Features

- 360 degree navigation
- Integrated select button
- Superior tactile response
- Intuitive to use
- Single handed operation
- 2.5 mm horizontal travel in all directions
- Vertical travel for touch sense detection
- Small form factor: 23 mm x 4 mm (diameter x height)
- No electrical connection to Pad Module required
- 3 million button strokes
- 1 million button click

### Applications

- Computer Peripherals
- Remote Controls
- PDAs and Tablet PCs
- Sub-Notebook and Laptop PCs
- Mobile Multi Media Players
- Video Game Controllers
- Joystick applications

## Dimensions

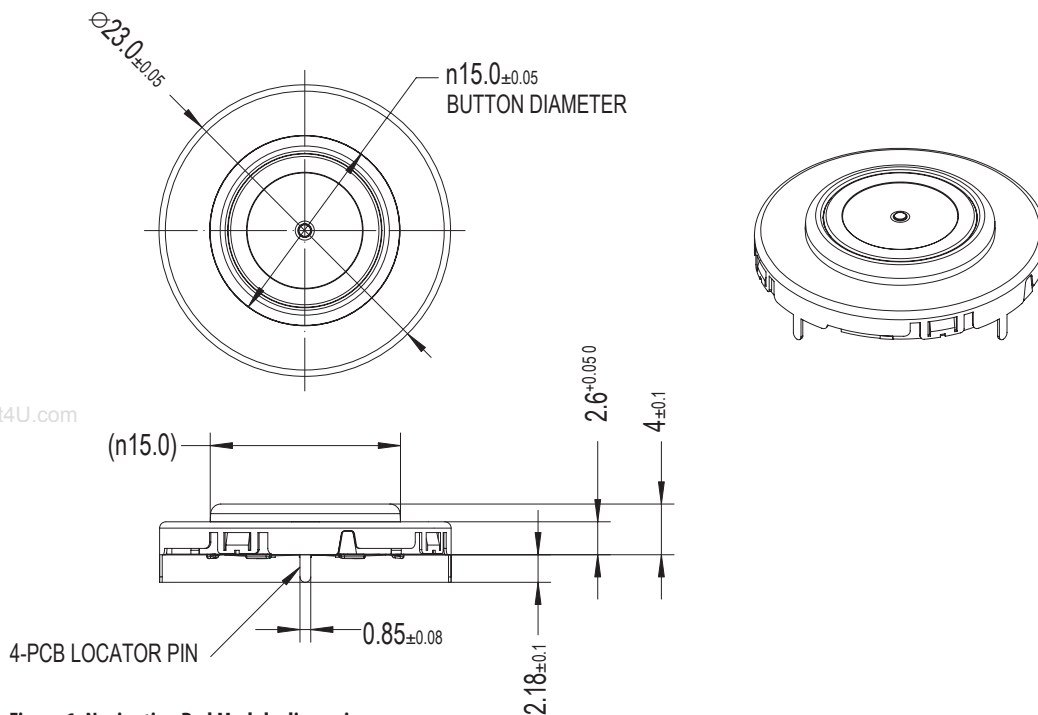
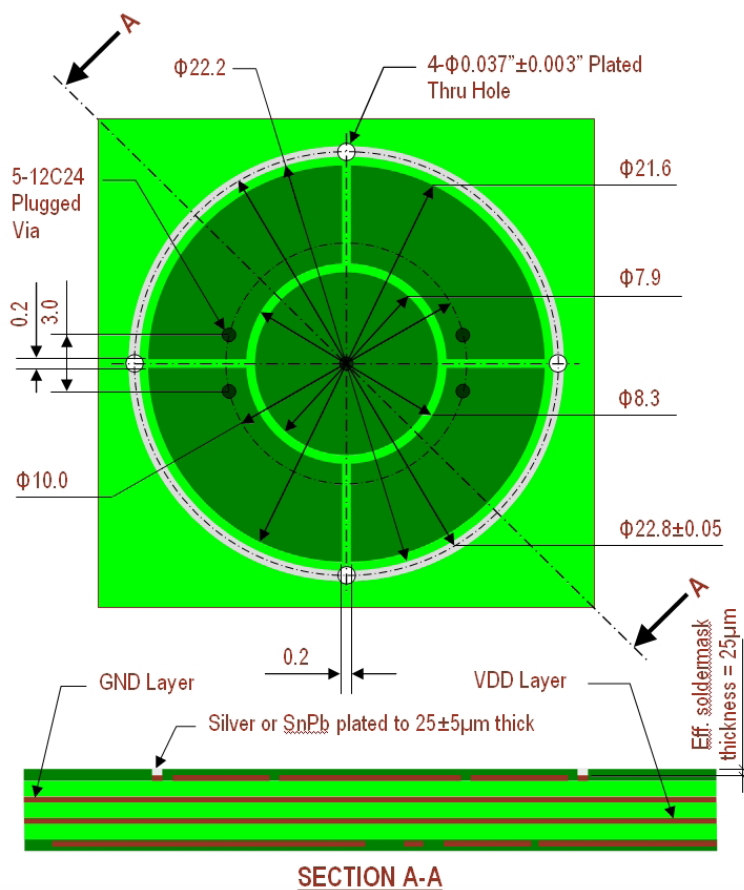


Figure 1. Navigation Pad Module dimensions

## Reference Electrode Design



- All units are in mm unless specified  
 All tolerances are  $\pm 0.05$  unless specified  
 PCB configurations:-
- 4 Layers FR4, thickness = 1.6mm
  - 1oz copper
  - Prepreg thickness = 0.014" (2-7628)
  - Effective soldermask thickness = 25 $\mu$ m

Figure 2. Electrodes Layout

## Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units	Notes
Storage Temperature	T <sub>S</sub>	-40	85	°C	

## Recommended Operating Conditions

Parameter	Symbol	Minimum	Typical	Maximum	Units	Notes
Operating Temperature	T <sub>A</sub>	-25		70	°C	Non-condensed

## Mechanical System Specifications

Parameter	Symbol	Minimum	Typical	Maximum	Units	Notes
Touch sense force	F <sub>ts</sub>	40	95	145	g	
Button click force	F <sub>bc</sub>	220	290	360	g	
Centering pre-load force	F <sub>cp</sub>	15	40	60	g	Initial displacement force from center position
Max travel force	F <sub>ms</sub>	50	100	135	g	
Travel <sup>[1]</sup>		2.63	2.85	3.06	mm	From center in all directions
Re-centering offset			340		um	Radial from ideal center position

Notes:

[1] Includes re-centering offset

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