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Revision History

Revision	Date	Owner	Description
0.2	8 Sept 2014	ekno	New design layout

1 General

This specification defines the dimensional and magnetic properties of a multi pole magnetic strip for use with the AS5306 magnetic linear motion and off-axis rotary angle encoder.

Material: rubber bonded Strontium Ferrite SrFe.

2 Dimensional Specification

Magnet Order # MS12-15 on ams web shop, refer to Figure 1

Parameter	Symbol	Min	Typ	Max	Unit	Note
Strip Width	W	18,44	19,2	19,96	mm	0.567” +/- 0.030”
Strip Cut Length	S	2,12	2,5	2,88	mm	0.098” +/- 0.015”
Strip Thickness	T	0,33	0,38	0,38	mm	0.015” +0.00” / – 0.002”
Thermal expansion			49		$x10^{-6}/K$	Mechanical length expansion
Density			3,4		g/cm^3	estimated
Delivery	7,09” x 0.015” x 200’ Outdoor adhesive, cut thru 0.098”. Minimum 1 rolls (~ 24.500 pieces).					

3 Magnetic Input Specification

Magnet Order # MS12-15 on ams web shop, refer to Figure 1

Parameter	Symbol	Min	Typ	Max	Unit	Note
Pole length	L_p		1,20		mm	results in pole pair length of 2,4mm (15 poles @ 1,2mm, 2 border poles ~0,6mm)
Pole length deviation				+/- 50	µm	Measured at Bz=0, all poles (Lp) within active region
Number of poles			15		poles	Excluding poles with $L<L_P$ at the ends of the strip
Resolution	Res		15		µm	With AS5306
Magnetic field amplitude @ **0.5mm** distance	B_{pk}		9		mT	Vertical component of the magnetic field strength in the center of the strip at 25°C
Amplitude variation				+/-0,9	mT	All poles within active region
Active Region to strip edge	A			0,5	mm	estimated

Parameter	Symbol	Min	Typ	Max	Unit	Note
First Bz=0 position to strip edge	D1	TBD	0,6	TBD	mm	Tolerance estimated +/-0,25µm
Last Bz=0 position to strip edge	D2	TBD	0,6	TBD	mm	Tolerance estimated +/-0,25µm
Temperature range	Tamb	-18	25	80	°C	
Temperature drift	Tk_{Br}		+0,2		%/K	Magnetic field temp. drift

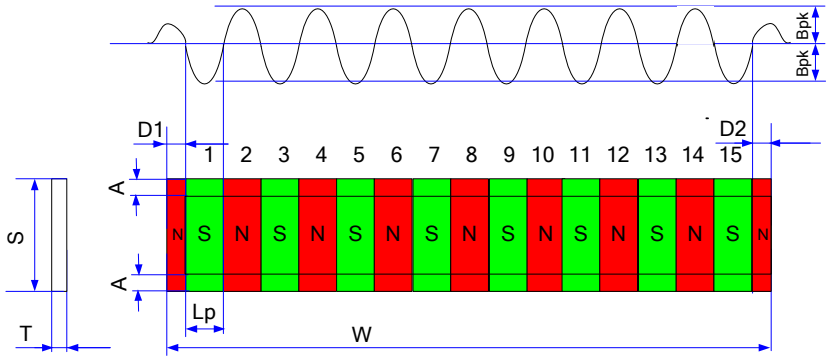

Figure 1

4 Magnet Supplier Information

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http://www.arnoldmagnetics.com/sales/index.htm

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