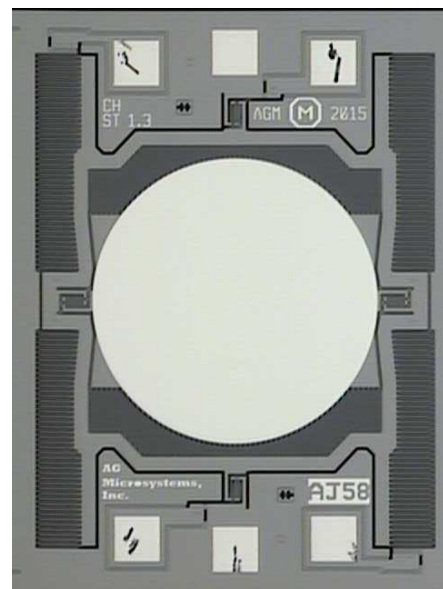




## Two Axis MEMS Mirror for 1xN Switching and Other Applications

The AGM two axis MEMS mirror product was developed to enable 1xN optical switches, and is successfully deployed in 1x4, 1x8, 1x16, and 1x32 optical switches. At the same time, these devices have also been successfully utilized for applications related to Tunable Filter and Optical Channel Monitor (OCM). In addition, customers are welcome to explore other applications of this technology in emerging areas such as 3D imaging, LIDAR and free space optical communication.

The AGM Two Axis MEMS Mirror technology is established on the use of comb drive actuation for robust and reliable actuation at lower voltages. These devices can be packaged in TO46 or TO39 headers, or in surface mount ceramic packages, allowing for smaller package size and lower production costs. The MEMS chip offers superior optical performance, with Mirror angle very stable and repeatable over time. Other features of this product include low susceptibility to shock, vibration, and temperature. The chips are shipped to customers in industry standard Gelpak trays. Performance specifications for the AGM Two-Axis MEMS 1xN chips are given in the table below.



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### Key Specifications:

Item	Parameter	Conditions	Value			Unit
			Min	Typ	Max	
1.	Excess Insertion Loss	Excess Insertion Loss of chip relative to perfect mirror			0.25	dB
2.	Chip Dimension	Length			2.1	mm
		Width			1.8	mm
3.	Operating temperature		-5		70	deg C
4.	Reflectivity	S, C, L band	95			%
5.	Radius of curvature			1		m <sup>-1</sup>



6.	Mirror Dimension	Diameter	1.0			mm
7.	Max tilt angle	X-dir (mech.)	3.1			deg
		Y-dir (mech.)	2.4			deg
8.	Resistance	Between Drive & Ground bondpads	5			MΩ
9.	Bondpad size	Square shape	150	160		um
10.	Mirror roughness				10	nm
11.	Drive Voltage			50	60	V
12.	Snap Voltage Margin	Additional Voltage above Drive at which mirror snaps	15			V
13.	Resonant Frequency		800	1000		Hz
14.	Time response			5	10	ms
15.	Max Optical Power handling	CW in C or L band			500	mW
16.	Repeatability	Angle difference between voltage ramping up and down			10	mdeg
17.	Stability	Long term drift			30	mdeg
18.	Angular Cross Talk				3	%
19.	ESD	Standard electrostatic discharge testing			500	V