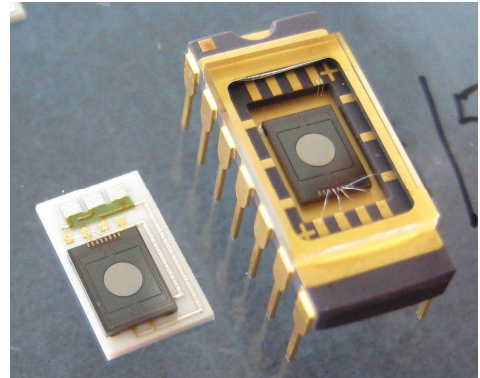


- The exceptional Fraunhofer-technology of IPMS Dresden
- Semi-Custom Design for low setup cost
- Get an optimized scanner for your application
  - 100 Hz .. 40 kHz
  - large deflection: 16..120° optical scan range
  - 0.5..3 mm mirror diameter
- Low power consumption, digital drive signal  $\leq 100$  V
- Broadband reflector  $>80\%$  in 300..2500 nm



### Description

A Scanning Micromirror is an optical MEMS device with a deflectable mirror that scans a laser beam along a line or an area. Every scanner application requires different mirror size, deflection angles and speeds. Our Semi-Custom Design Service addresses all customers that need a resonant Scanning Micromirror optimized for their application. If we can meet your requirements with our standard methods, the Semi-Custom Design Service will provide you with MEMS devices at reduced setup cost.

The table on the right lists typical parameters and limits. Some limits can be extended a bit. On the other hand not all combinations will work. E.g. large high-frequency scanners will not remain perfectly flat at large deflections.

Choose 1D or 2D type, mirror diameter and the oscillation frequencies. Then the table below will tell you which optical scan range you can expect.

Parameter	Min	typ.	max	Unit	Comment
Mirror diameter	0.5 0.5		3 2	mm	1D 2D
Max. optical scan range	20	40..80	120	°	(40° → ±10° tilt)
Oscillation frequency	0.1 0.1		40 12	kHz	fast axis slow axis
Bandwidth (above resonant frequency)	-0 -0		+300 +20	Hz	any oscillation 67% scan range
Optical resolution (diffraction limited spots)		2000 640		pixels	@ 400 Hz @ 20 kHz
Drive voltage (digital pulses)	5	30	100	V	
Reflectance		88 84 95		%	$\lambda = 300..660$ nm $\lambda = 660..1050$ nm $\lambda = 1050..>2500$ nm
Max. Reflected power cw		250		mW	@ $\lambda > 1050$ nm
Spherical curvature		0,2		1/m	= 1/radius
Non-spherical deformation		32		nm	rms

You want more deflection? Contact us! The limits are not unalterable. Less stringent flatness requirements (e.g. in the infrared) may permit 2- or 3-times the deflection in some cases. For even more performance and flexibility the Full-Custom Design Service will give you most sophisticated designs, minimum chips size, multiple variants will lead to unequalled performance for your success with your compelling system.

### The Service includes

- Specification & design
- Full model FEM-simulation
- Layout & fabrication, unified chip size 5 x 4.12 mm<sup>2</sup>
- 20 packaged devices included (e.g. DIP14), more on request

### Contact Information

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	0.5mm	1 mm	1.5mm	2 mm	2.5mm	3 mm
<0.1 kHz					29,2°	50,4°
0,1 kHz			9,2°	20°	42,8°	59,6°
0,2 kHz		10,8°	25,6°	82,8°	100,4°	73,6°
0,5 kHz		39,2°	110,0°	71,6°	72,4°	47,6°
1 kHz	16,8°	120,8°	86,0°	72,0°	29,6°	12,0°
5 kHz	109,2°	82,4°	44,0°	3,6°	1,2°	0,4°
10 kHz	102,4°	46,0°	19,2°	0,8°	0,4°	2,4°
15 kHz	84,8°	34,0°	8,4°	0,4°	0,4°	
20 kHz	67,6°	27,6°	4,8°	0,4°		
25 kHz	56,4°	23,2°	3,2°			
30 kHz	49,2°	16,0°	0,4°			
35 kHz	44,4°	12,0°				
40 kHz	40,4°	9,2°				