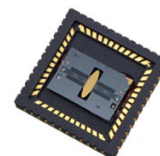


(Preliminary)

Large Scan Angle Optical Scanner On a Chip

The E025LB is a single-axis MEMS micro scanning mirror designed to replace polygon scanners in laser scanning applications. The E025LB is operated in resonance mode for low scan jitter and low power consumption.



E025LB
Single-axis
optical scanner
on a chip

Features

- Single axis MEMS micro scanning mirror
- 4x1 mm elliptical mirror
- Au coated mirror for high reflectivity
- Single-crystal silicon structure operated without mechanical wear
- Low power consumption
- Resonant operation for low scan jitter
- Compact and lightweight

Applications

- Laser printing
- Laser sensing
- Non contact measurement and sensing

Contact

info@egismos.com

EGISMOS TECHNOLOGY CORP.

7278 Jubilee Ave.
Burnaby BC V5J 4B6
Canada

Tel: +1-888-348-1454
Fax: +1-604-433-9864
www.egismos.com

*MEMS: Micro-Electro-Mechanical Systems, device fabricated by silicon micromachining processes

E025LB Specifications (Preliminary)

Scanning Performance

Resonant frequency ¹	2,500Hz +/-3%
Optical scan angle ²	+/-40 degree max
Scan pattern	Bi-direction in sinusoidal motion
Scan jitter ³	< 0.02% (600 cycles)

Optical

Mirror dimension	4.0x1.0 mm ²
Mirror shape	Elliptical
Reflectivity	> 90% (635 nm @45°)
Dynamic mirror flatness ⁴	< λ/4

Electrical

Max drive voltage	150 VAC p-p unipolar
-------------------	----------------------

Operating environment

Operating temperature	0°-60°C
Storage temperature	-40°C-80°C
Operating humidity	10%-85%

Mechanical

Package footprint	14x14 mm ²
Package	CLCC

1. Equivalent to 6-facet polygon mirror at 50,000RPM.
2. Scan angle adjustable by controlling drive signal voltage or duty ratio.
3. Measured max and min scan time with sensors at +/-20° span under open loop driving. Closed loop jitter value depends on drive circuit design.
4. Verified by numerical simulation for peak to valley variation of mirror under resonance.

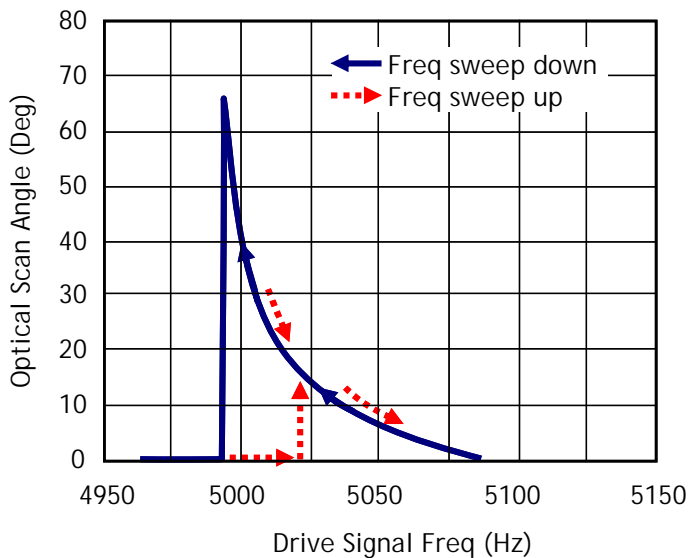


Figure 1. Optical Scan Angle vs. Drive Frequency (typical example)

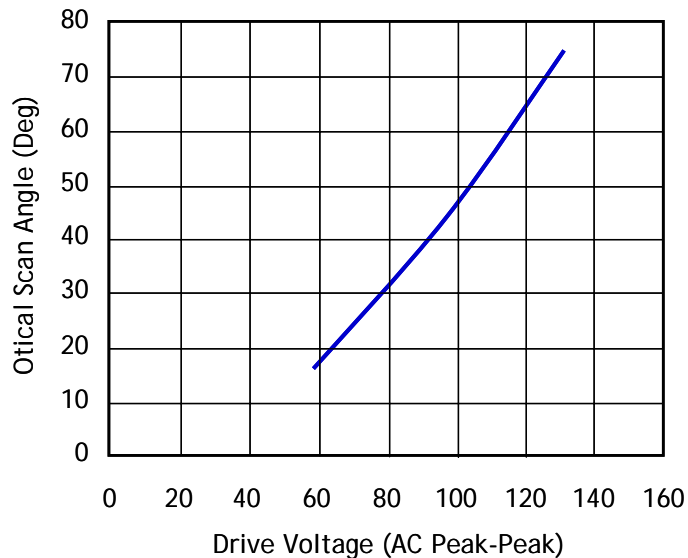


Figure 2. Scan Angle vs. Drive Voltage (typical example)

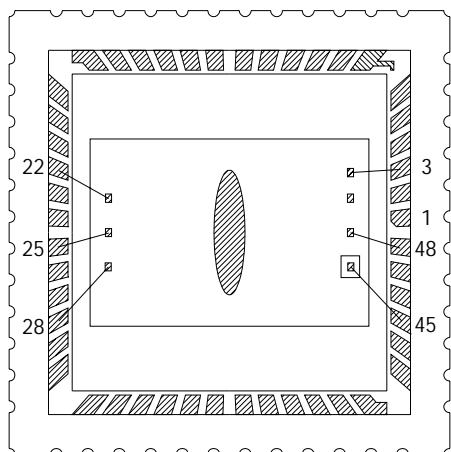


Figure 3. CLCC48 Package Top View

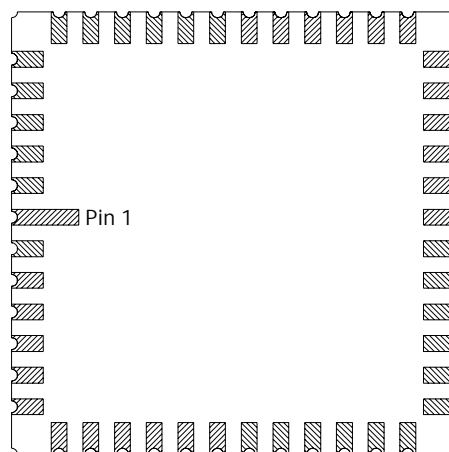


Figure 4. CLCC48 Package Bottom View

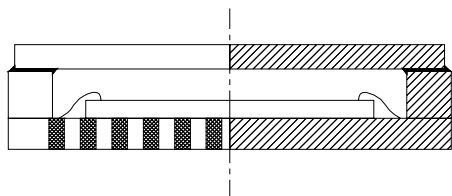


Figure 5. CLCC48 Package Side View

Pin 25 and/or 48	Drive Signal
Pin 3	Gnd
Pin 22	Gnd
Pin 28	Gnd
Pin 45	Gnd
All other pins	Not Connected

Table 1. Pin Assignment