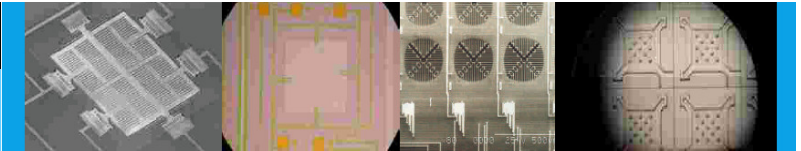


MTX1-50G

Single Axis Accelerometer – 50 g



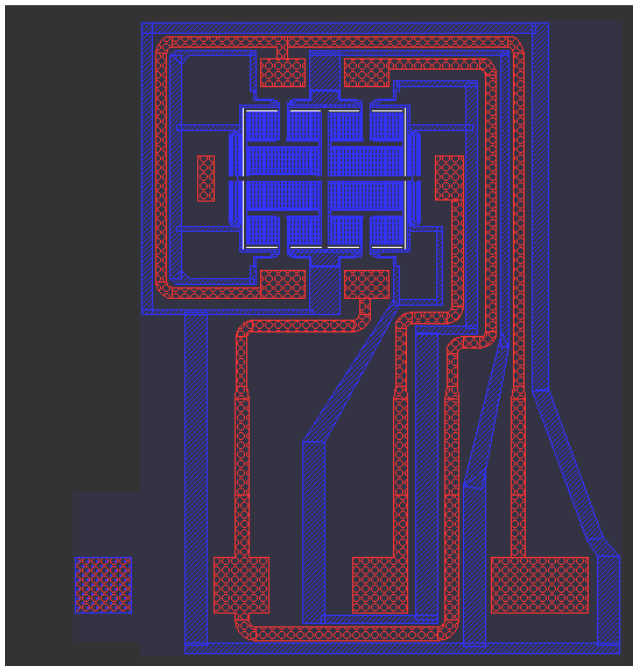
Single Axis Silicon Accelerometer Die

The MTX1-50G series capacitive silicon accelerometer sensors are manufactured in class 10 clean room using state of the art CMOS and bulk micro-machining capabilities. They are manufactured in six inched wafers, utilizing DRIE techniques and patented processes.

An applied force or acceleration (including gravity) causes a capacitance shift in a differential capacitor, which is converted to a pulse density modulation by an integrated ASIC. The sensing element is a differential capacitor fabricated in single crystal silicon with a high aspect ratio thereby offering excellent performance in sensitivity and linearity.

The sensing element is enclosed in a hermetic wafer-level package using wafer to wafer bonding. This allows it to be assembled in different types of packaging including low cost over-molded plastic packages.

Dies are fully probed and inspected and can be shipped in waffle pack.



FEATURES

- Excellent accuracy over 50g range
- Good temperature performance
- Low cost design
- Capacitive, high performance
- 100% factory tested
- High volume manufacturing
- Patented process

THE MAIN FIELD OF APPLICATIONS

- ✓ Acceleration Measurement
- ✓ Vibration measurement
- ✓ Inclination Measurement

MTX1-50G**Single Axis Accelerometer – 50 g****TECHNICAL DATA****Maximum ratings**

Specification	Min.	Typ.	Max.	Unit
Operating Temperature	-40	-	+85	°C
Storage Temperature	-40	-	125	°C

DataTemperature= 22 ± 2 °C, Relative humidity= 45 ± 5 %

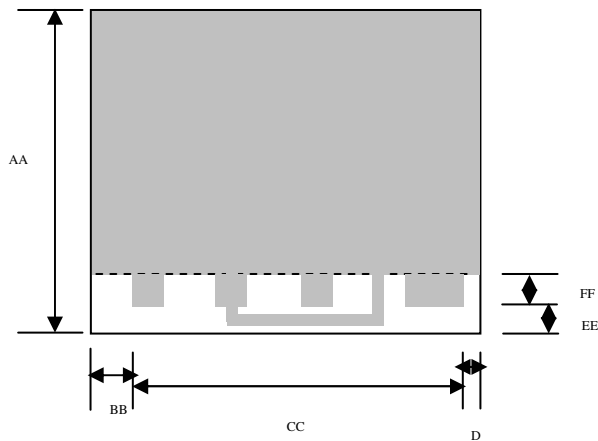
Specification	Min.	Typ.	Max.	Unit
Measuring Range	-50	-	+50	g
Probe voltage	-	3	5	V
Leakage current	-	-	5	nA
Shock survival range	-	2000	-	g
Nominal Capacitance @ 0V	0.5	1	1.5	pF
Delta Capacitance	0	200	400	fF
Capacitance change @3V	20	50	80	fF
Sensitivity	0.7	1	1.3	fF/g

MTX1-50G

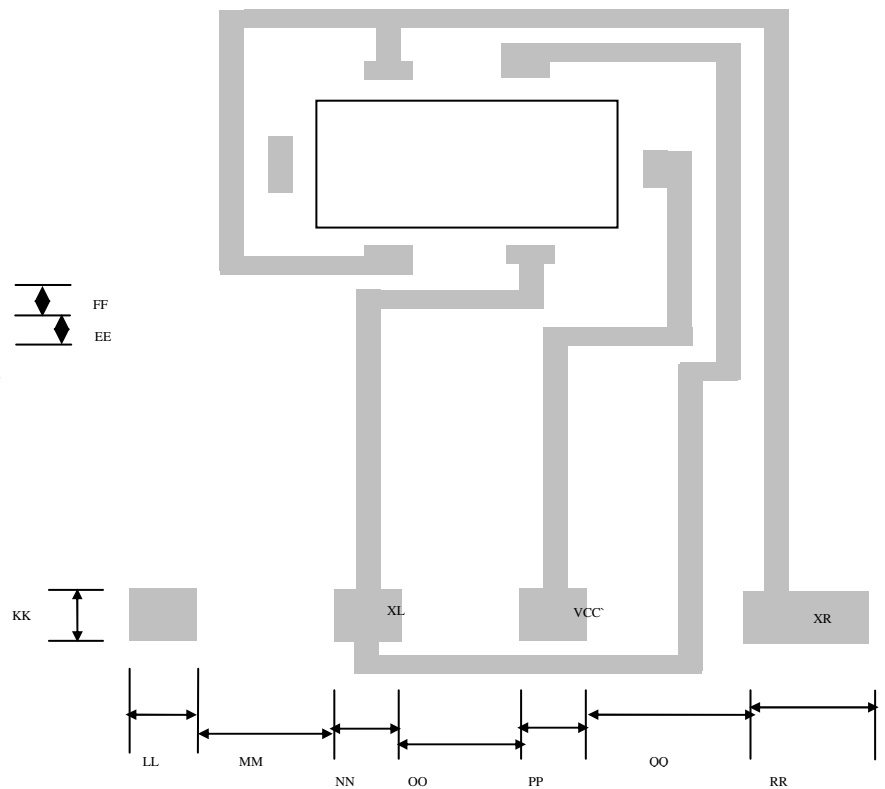
Single Axis Accelerometer – 50 g

DIMENSIONS

Plan View (w silicon cap)



Plan View (w/o silicon cap)



Dim	Typical
AA	3020
BB	275
CC	1850
DD	225
EE	220
FF	200
KK	200
LL	200
MM	300
NN	200
OO	300
PP	200
QQ	300
RR	350

Side view



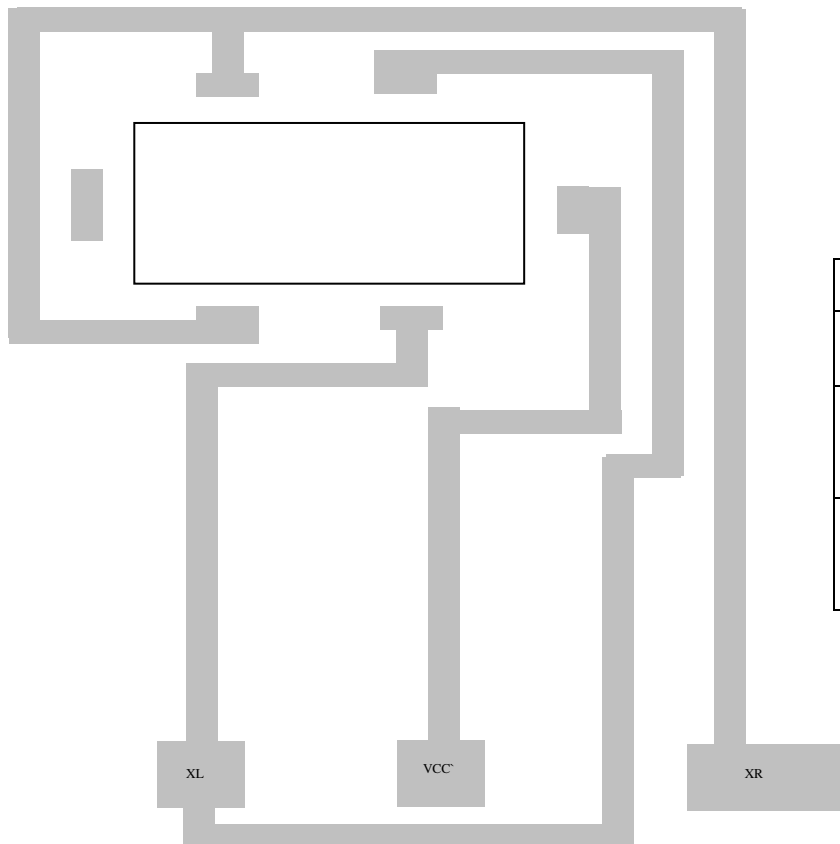
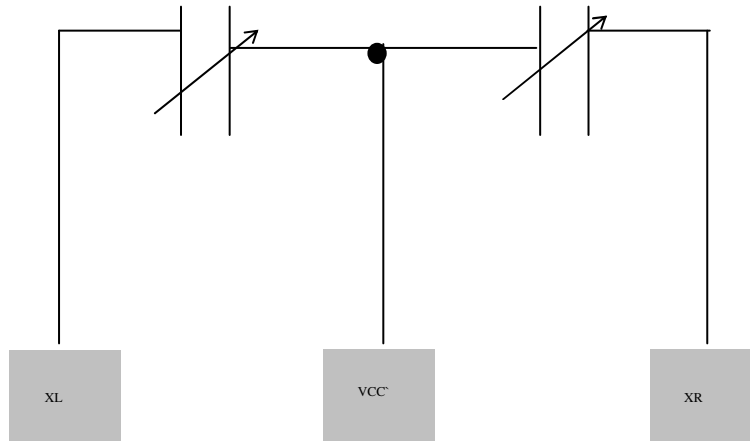
All units in um.

Dim	Typical
GG	2350
HH (glass substrate)	550
II (silicon device wafer)	25
JJ (silicon cap wafer)	450

MTX1-50G

Single Axis Accelerometer – 50 g

ELECTRICAL AND DIE LAYOUT



Pad	Description
XL	X axis left capacitance (fixed electrode)
XR	X axis right capacitance (fixed electrode)
VCC	Common electrode for applying voltage bias (moving electrode)