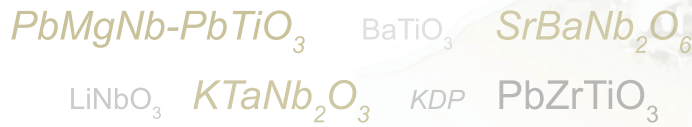


Crystal Device uses an innovative process to exhibit high coefficients ferroelectric single crystals which is particularly efficient for micro and nanotechnologies devices. We offer a new range of micro components in optic and piezoelectric fields, and respond to your specific R&D requirements for the development of tailored components.

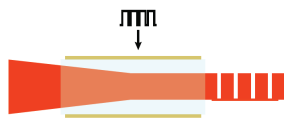


OPTIC APPLICATIONS :

Due to the high r_{33} coefficients of new EO materials, we can reduce by a factor of 40 the size of active micro chip.

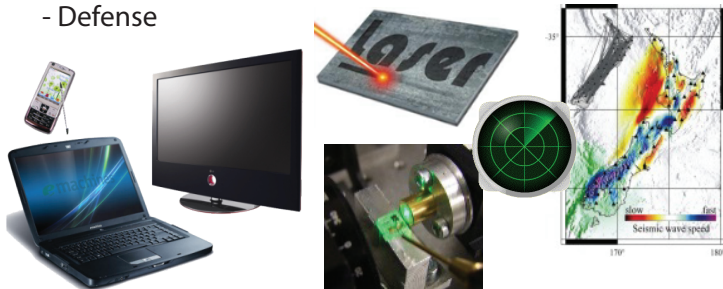
For example :

$V = 5V$ with 10cm-long LN crystal
 $V = 5V$ with 2mm-long SBN crystal



This size improvement is very interesting for applications such as :

- Embedded system : mobile, switch optic
- LASER : pockels cells
- Defense



CLEAN ROOM FACILITIES :

Crystal Device responds to your specific R&D requirements for the development of your prototypes.

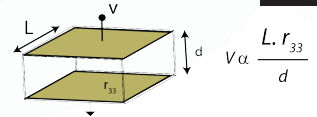
In particular we are able to take in charge several steps of cleanroom processes:

- Mask creation
- Photolithography
- Cutting (saw)
- Surface treatment
- Polishing
- Metal deposition (PVD)



According to the particularly interesting intrinsic properties of new ferroelectric materials* and the structure used, Crystal Device have developed micro components:

- 1 - Smaller,
 - 2 - Cheaper,
 - 3 - More energy efficient...
- ...than the state of the art.



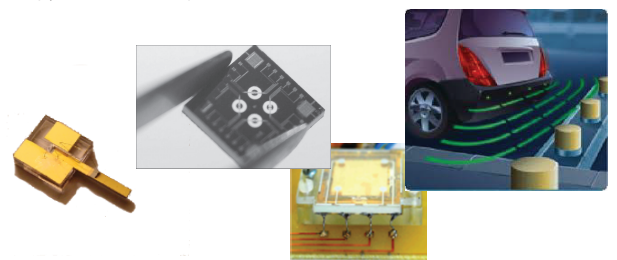
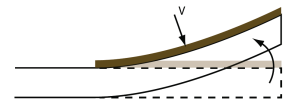
The patented technology developed by Crystal Device offers the possibility of massive production of high miniaturized components.

PIEZO APPLICATIONS :

Due to the high coupling of new piezoelectric materials, it's possible to get more efficiency of piezoelectric behaviour.

We can reduce the command voltage by a factor of 10 for the following applications :

- Actuators
- Sensors
- Energy harvesting



* Materials comparison table:

	LN	PZT	SBN	KTN	PMN-PT/PZN-PT	PLZT
T°C	1415°C	<350°C	80°C	25°C	130°C/170°C	280°C
r_{33} (pm/V)	30,8	/	400/1400	Quadra	Quadra	Quadra
d_{33} (pC/N)	1,33	223	130	/	500/1890	760
d_{31} (pC/N)	0,23	-95,5	40	/	0,120274914	39
ϵ_r	85	730	900	2000	1800/7700	678
	USUAL MATERIALS		NEW CRYSTAL DEVICE MATERIALS			

www.crystaldevice.com