

CHEMISTRY THAT MATTERS™



THERMOPLASTIC INNOVATIONS FOR OPTICAL ELEMENTS

SABIC'S INNOVATIVE THERMOPLASTIC RESIN

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EPIC Meeting on Polymer Optics



MINIATURIZATION OF IR TOF SENSORS

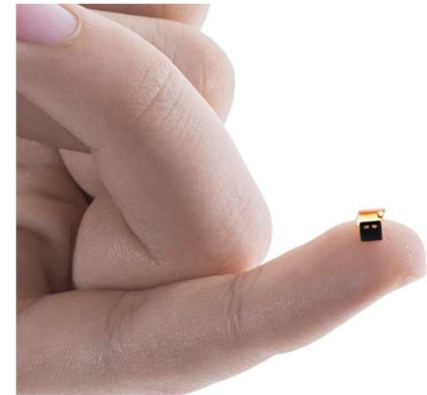
Optical sensors in consumer electronics use infrared (IR) wavelengths to sense or control movement, surroundings, shape of things, proximity, speed and direction. Measurement is done by ToF (Time of Flight).

POTENTIAL APPLICATIONS:

- Mobile phones
- PCs, desktops, laptops
- Robot cleaners
- Gaming
- Toys
- Drones
- Security equipment
- Vending machines

Emerging applications:

- LIDAR
- 3D gesture control
- Various IoT devices



IR emitter and
sensor lens *



* Source: Soprod SA, Sion, CH

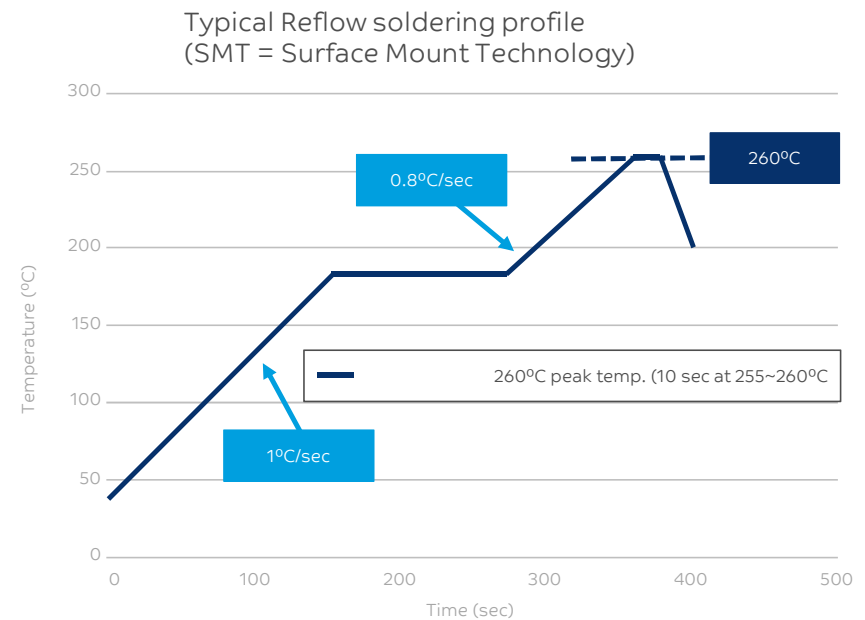
TREND: MINIATURIZATION AND MASS PRODUCTION OF SENSOR LENSES

Driving performance for our customers

EXTEM™ resin offers the possibility to mass-produce sensor lenses using micro molding with a multi-cavity tool.

How does EXTEM resin enable efficient high volume molding:

- Avoiding secondary operations, such as
 - Grinding and polishing of quartz glass
 - Curing of epoxy resin
- Consistent high quality and speed
- Optical quality
- Enhanced design freedom (free form optics)
- Reflow soldering capable, withstanding reflow temperatures (JEDEC J-STD-020D)*



* Depending on location on PCB, design of lens, potential heat shielding etc

PORTFOLIO OF THERMOPLASTIC RESINS

SABIC offers a wide range of solutions for applications that use soldering for mounting of parts and modules onto PCB's. Crystal clear LEXAN™ CXT resins for low temperature soldering, and IR transparent ULTEM™ and EXTEM™ resins for more demanding solder processes, incl. lead-free-reflow-soldering



FLASH LENS

Cold reflow and heat ageing
High flow for complex tooling
Low color after high T processing



AUTO CAMERA LENS

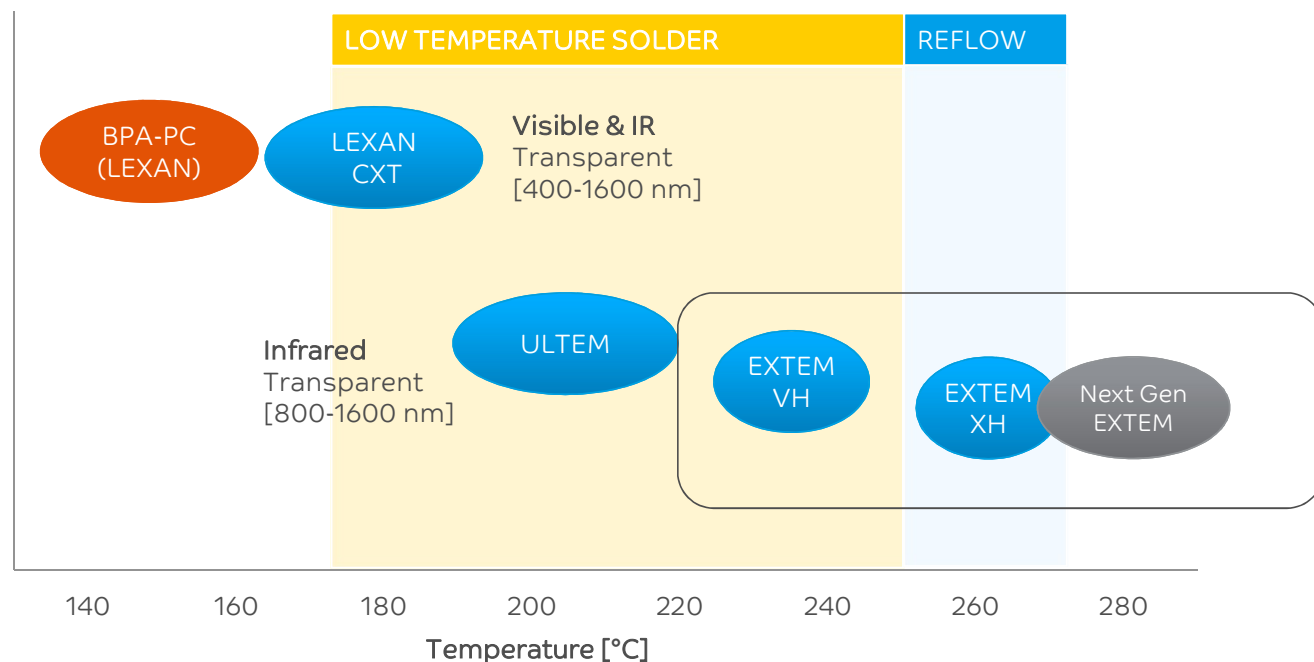
Low color shift after high T ageing
High VIS and IR transmission
High refractive index



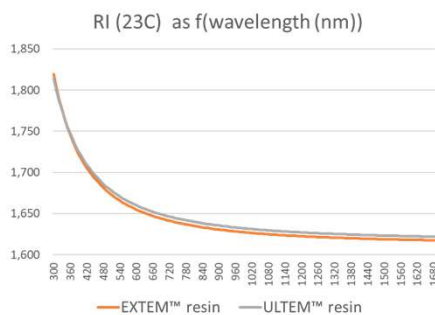
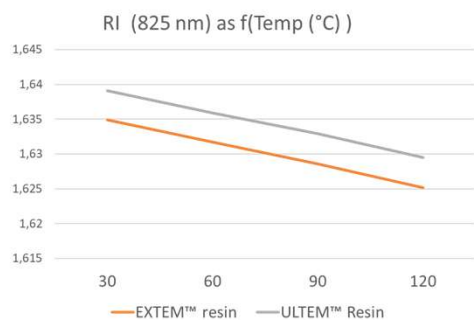
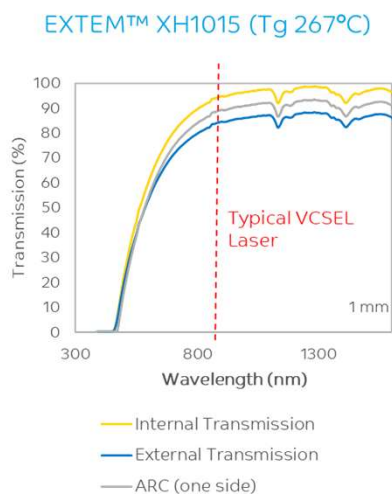
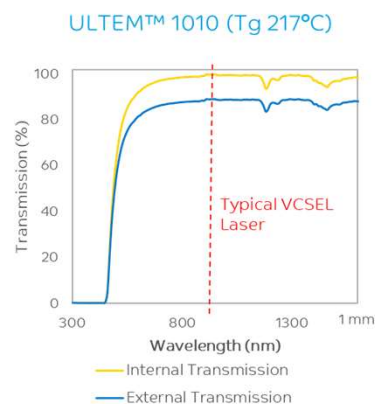
SENSOR LENS

Led free reflow soldering

Transmission

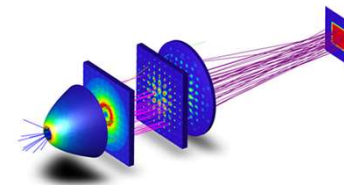


OPTICAL DATA OF OUR THERMO-OPTICAL RESINS



Zemax OpticStudio®

Aiding designers in selecting the right material for their application, SABIC has added the thermo-optical resins in the materials database of the [Zemax OpticStudio®](#), the industry-standard in software for designing optical systems.



SABIC AT-A-GLANCE



1976

Company
established



34,000

Employees
around the world



50

Countries
of operations



3rd

Largest global
chemical company*



120th

Largest public
company in the world*

3.7

US\$ bn

Estimated
Brand Value**

86

US\$ bn

Total
assets

4.9

US\$ bn

Net
income

39.9

US\$ bn

Annual
revenue



≈ 150

New products
each year



11,534

Global patent
filings



64

World-class
plants worldwide



THANK YOU

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