



We are the link
between the real and
the digital world.

REAL3™ sensor IRS1125A

3D Time-of-Flight for Automotive

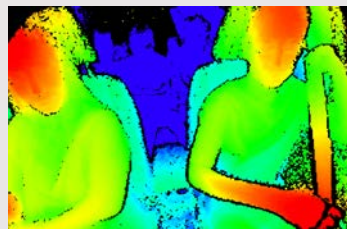
Infiniteon's virtual show 2020



Time-of-Flight (ToF): Sense your environment in 3D

3D Time-of-Flight provides
simultaneously
a **high resolution depth** map
and a **2D grey scale** picture
to understand your surrounding

- › In darkness
- › In strong sunlight
- › From -40°C to 105°C
- › Automotive qualified



Depths in every pixel
(red = close, blue = far)



+ Grey Scale



= ToF Data

Close collaboration between Infineon and pmd technologies: 5th generation of ToF imagers with more than 17 years of experience



2002

- › pmdtechnologies founded

2012

- › More than 500,000 ToF sensors sold

2015

- › **1st generation** ToF imager, volume ramp up for industrial products, AR-HMD

2018

- › **3rd gen** ToF imager

2020

- › **5th gen** ToF VGA imager in development
- › SOP in Q3/2020



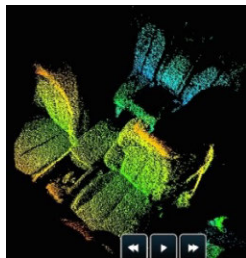
Enabling 3D depth for consumer, industrial and automotive applications

3D Time-of-Flight for automotive



In-Cabin Sensing

- › Gesture control
- › Occupant detection & classification
- › Adaptive passive safety systems
- › Driver Monitoring
- › Face Authentication



Ultra-short Range Exterior

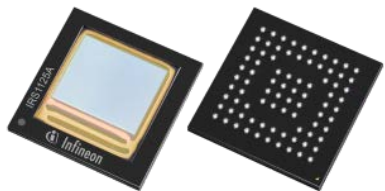
- › ~10m range
- › Cover close range blind spots
- › Automated Valet Parking & enhanced parking assist
- › Collision avoidance for automated doors



REAL3™ image sensor IRS1125A – Dedicated 3D-imager for automotive applications



Infineon
USP's



IRS1125A

- › LFBGA-84 package
- › AEC-Q100, grade 2
- › T_{amb} : -40°C to +105°C
- › in production



pmd
intelligence

- › **Small form factor** and lowest BoM count:
 - ToF **single-chip** including illumination control and digital data output
- › **100k pixel resolution** (CIF, 352x288 pxl) with SBI in every pixel
- › Patented Suppression of Background Illumination (SBI) circuitry for **excellent sunlight robustness** and **best active depth resolution**
- › **No camera interference and improved EMC** because of Spread Spectrum Clock (SSC)
- › **Mass production proven:**
 - Robust package with **standard soldering**
 - **Fast once-in-a-lifetime calibration**

Next gen automotive imager in development: 5th gen pixel technology, massive miniaturization, up to **VGA resolution**, **functional safety**

Evaluate REAL3™ – Consumer reference cameras from pmd technologies



CamBoard pico family

PARAMETER	FLEXX	MONSTAR
Dimensions	68mm x 17mm x 7.35mm	62mm x 66mm x 29mm
Weight	8g	142g
Field of View (H x V)	62° x 45°	100° x 85°
Resolution	224 x 171 (38k) px	352 x 288 (100k) px
Measurement range	0.1 – 4m	0.5 – 6m
Framerate	Up to 45fps	Up to 60fps
Interface	USB2.0 / USB3.0 (data & power)	USB3.0 (data & power)



<http://pmdtec.com/picofamily/>



Using IRS1125 (100k)
which is available as
AUTOMOTIVE variant



Part of your life. Part of tomorrow.