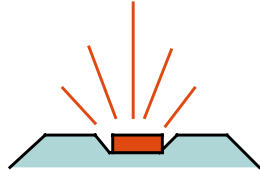


---

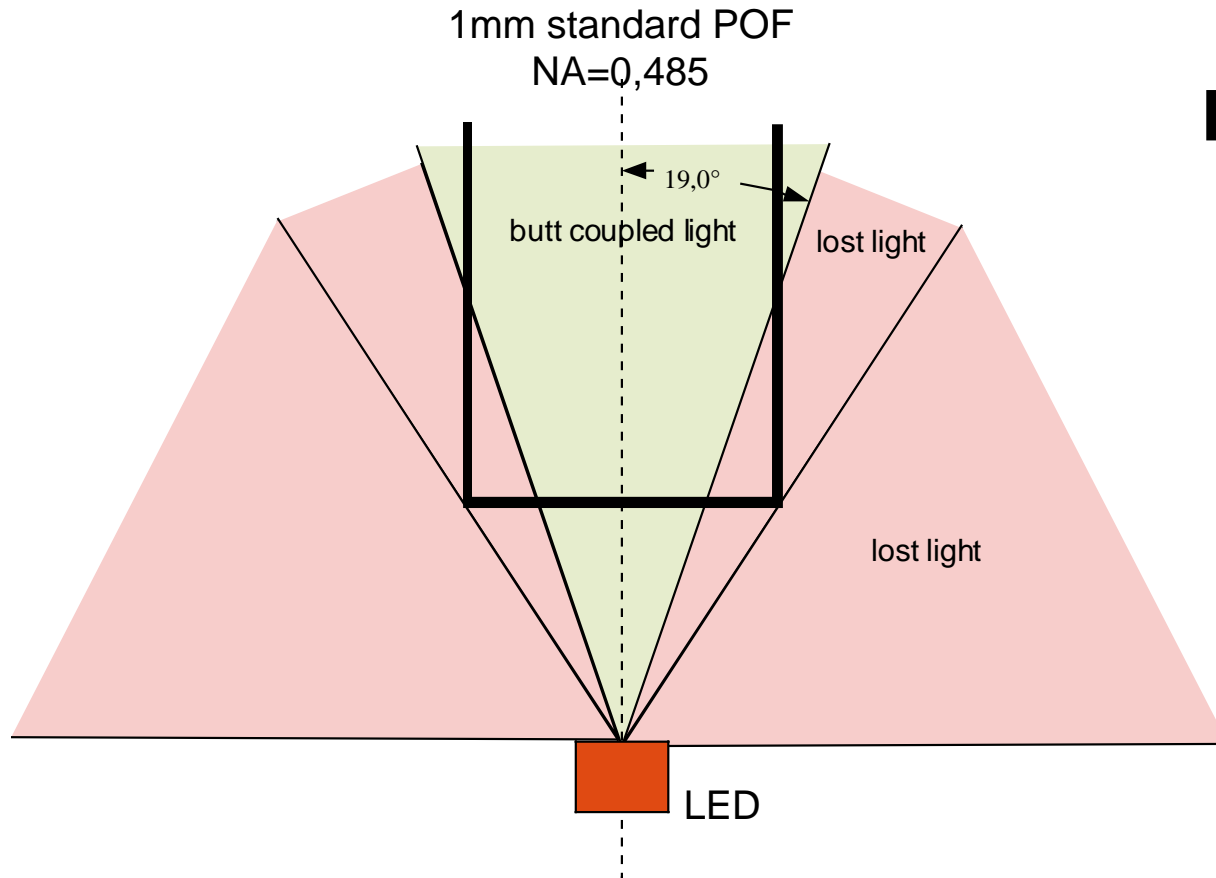
**DieMount GmbH**

**Ilmenau/Thüringen**

Pigtailed transmitter LEDs



## Starting Point: Butt coupling



**Butt coupling efficiency:**

**11%**

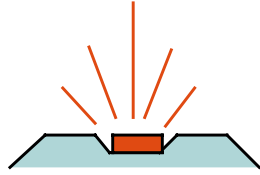
**(9,5dB)**

**Light loss:**

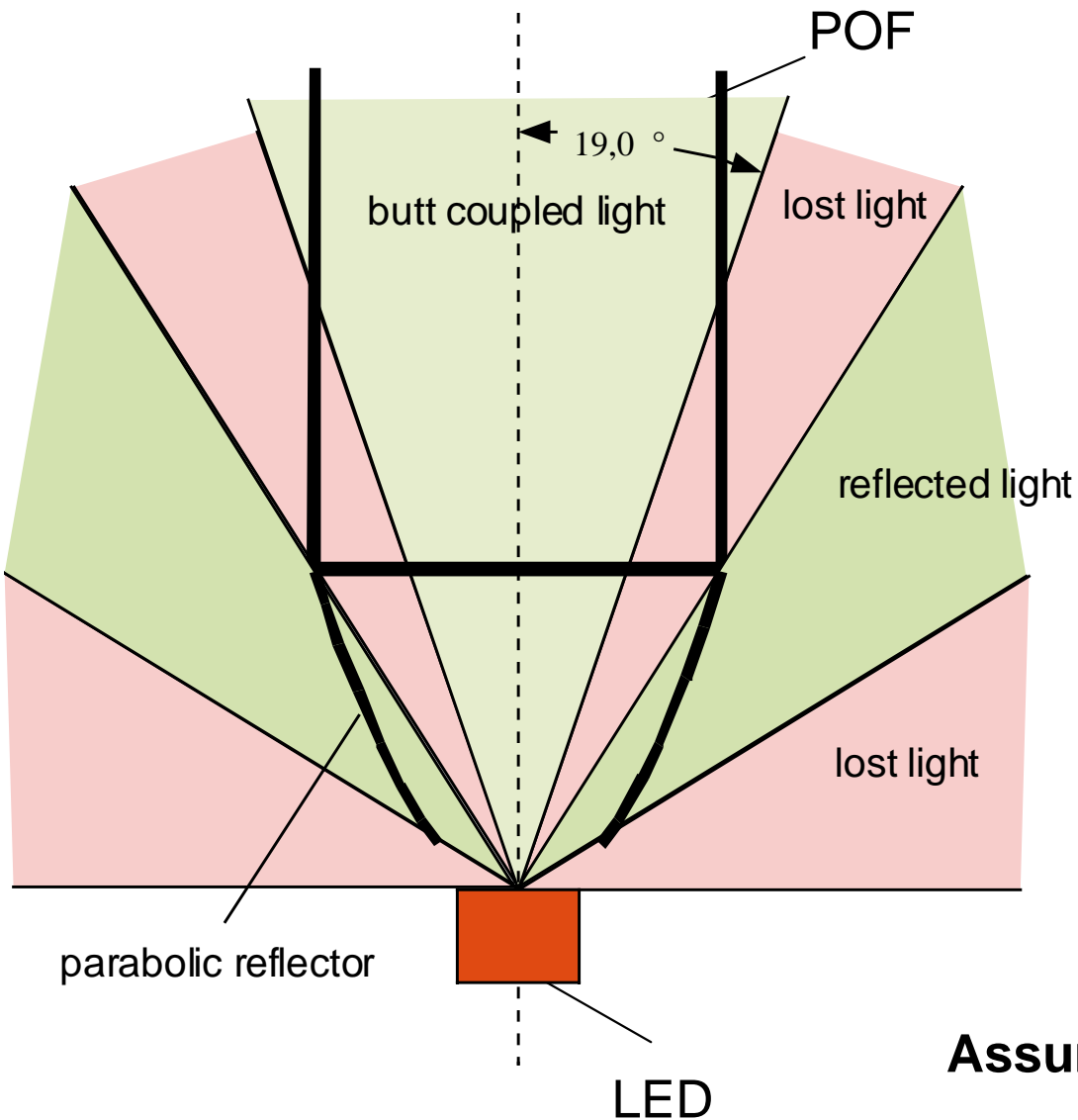
**89%**

### Assumptions:

- Index matching medium ( $n=1.5$ ) between POF and LED (no Fresnell losses)
- POF NA=0.485
- LED with Lambert characteristics



## Microreflector coupling



### Micro reflector coupling

efficiency:

**58% (2,4dB)**

Light loss:

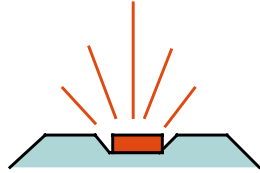
**42%**

Gain to butt coupling:

**7,1 dB**

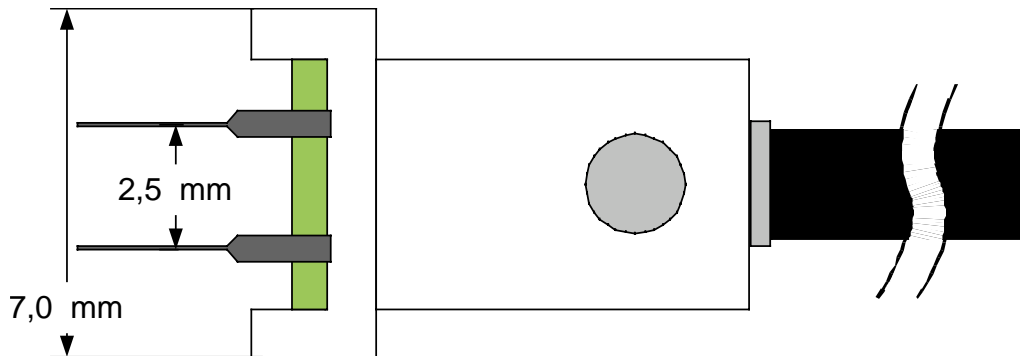
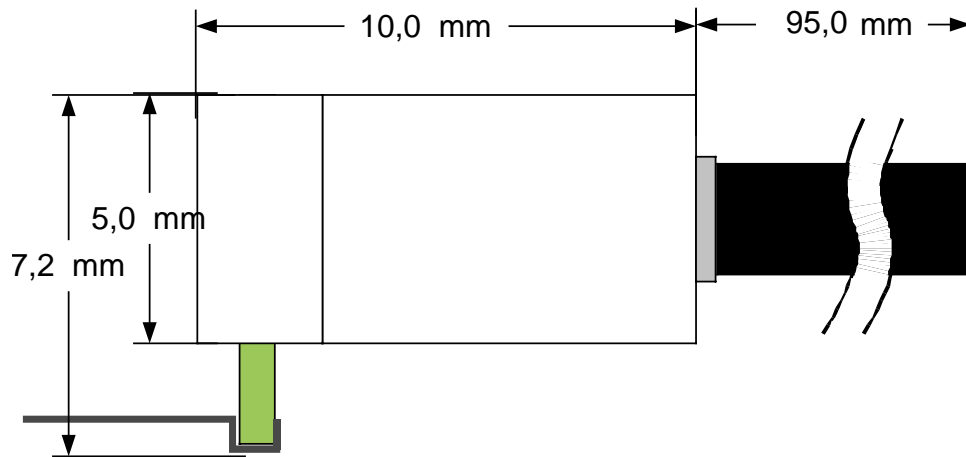
**Assumption:**

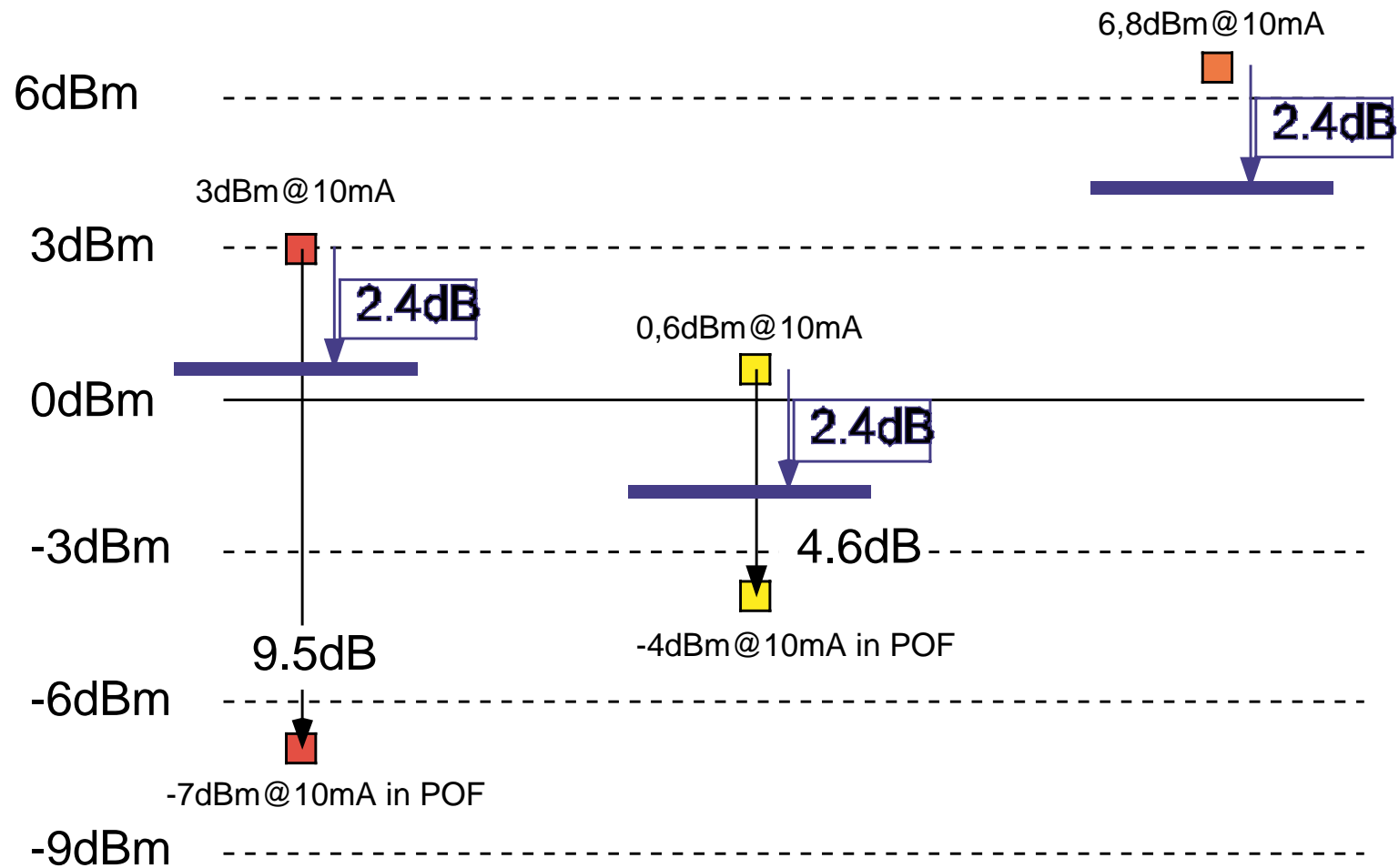
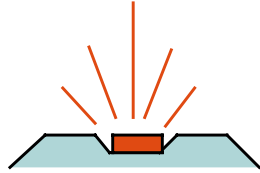
- 280 $\mu$ m x 280 $\mu$ m LED size



### Features:

- -4dBm @ 10mA
- Small signal modulation bandwidth: 42MHz (100MB/s)
- Spectral width: 15nm
- POF-pigtail for arbitrary connector system

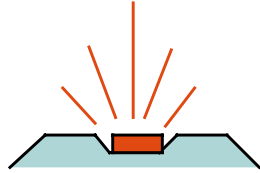




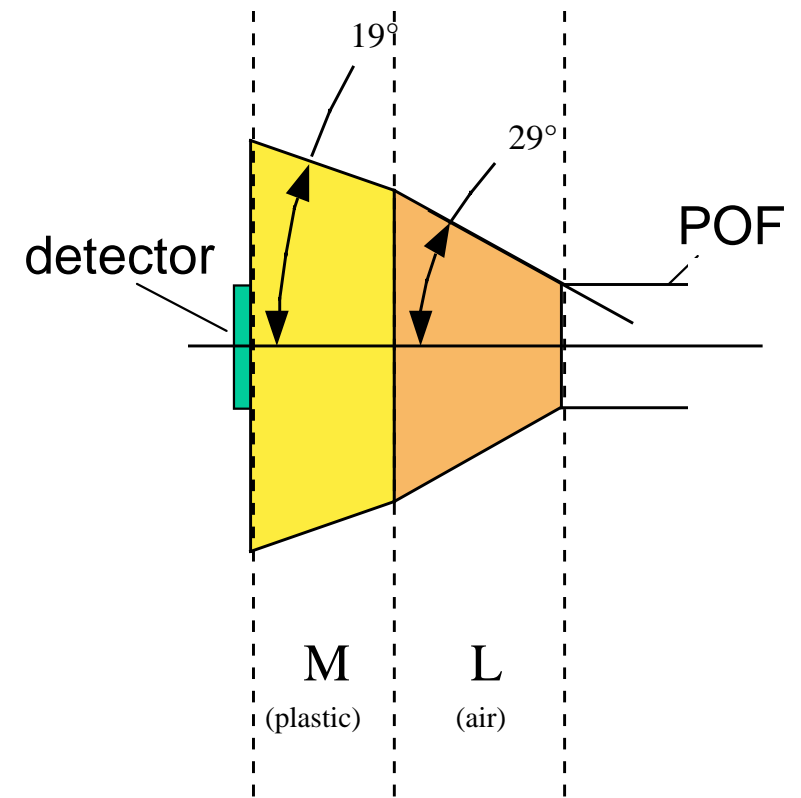
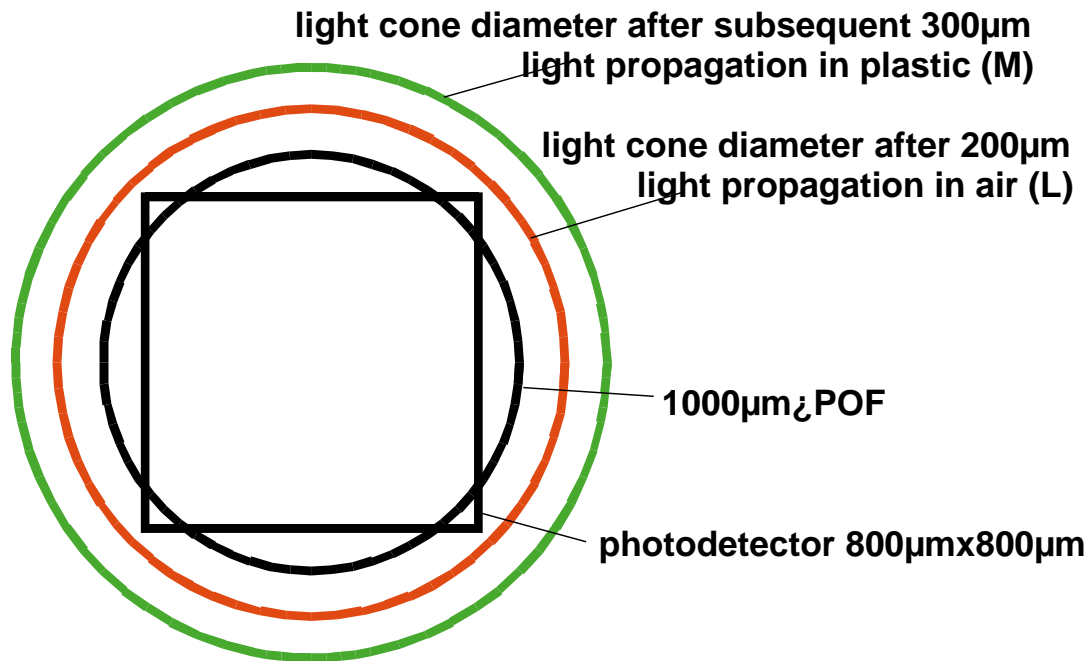
other transmitter diodes

actual DieMount diode:  
Epigap ELC-640-13

actual world record red diode  
with respect to brightness



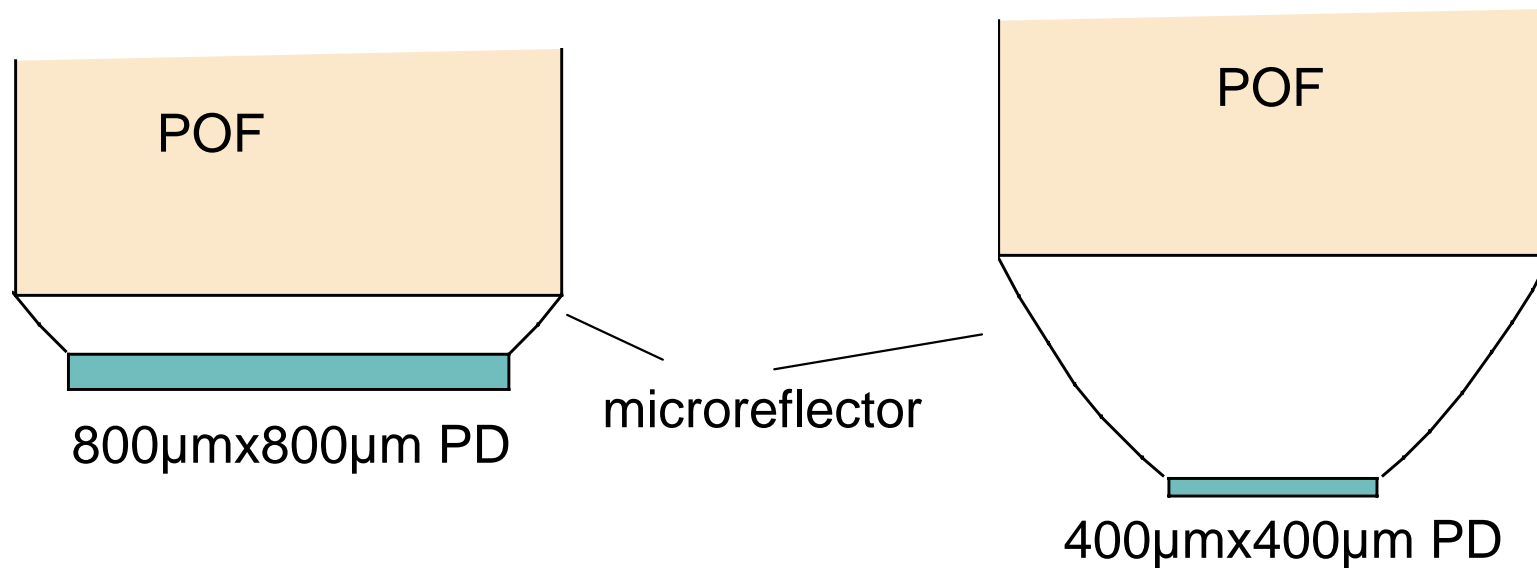
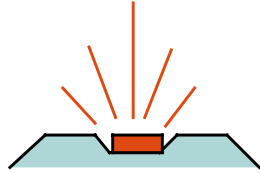
## Receiver efficiency



(L, M not correct in scale)

### Light loss POF to detector diode:

Depending on mode distribution **up to >3dB** in the example given above.

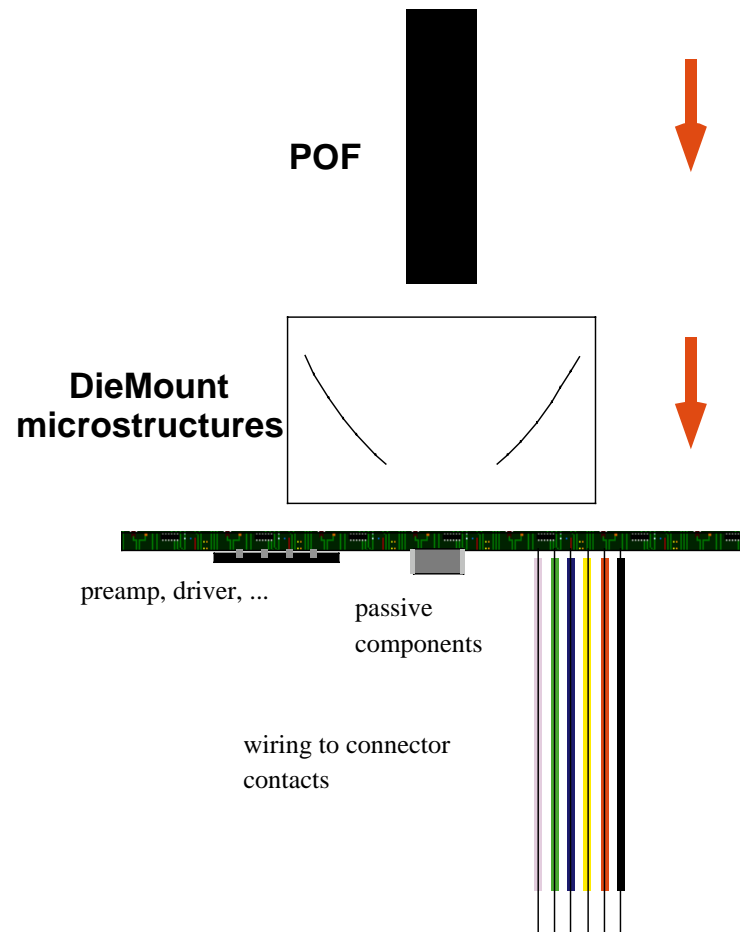
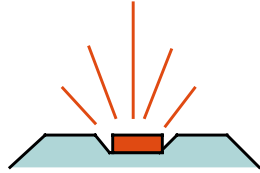


**Feasible receiver gain to butt coupling:**

**2-3 dB**

**(depending on mode distribution and detector size)**

**Small, high speed (i.e. low capacity) photodetectors can be used  
with low optical losses.**



3. Pigtailling

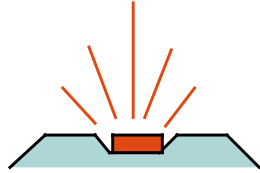
2. Assembly of microstructures by standard fabrication processes

1. Standard PCB comprising all electronic circuitry



**DieMount will focus on low volume, customer specific transceiver products**





**Dr.-Ing. Hans Kragl**

Managing director

Mobil: 0049 (0)175 591 4864

[Kragl.helar@t-online.de](mailto:Kragl.helar@t-online.de)