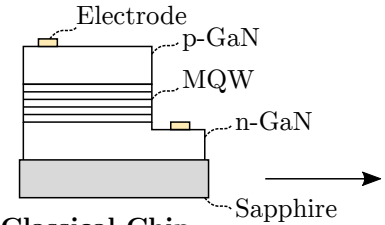
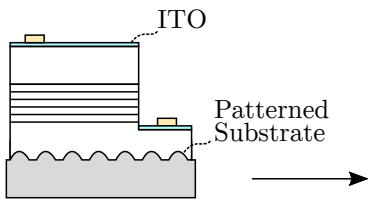
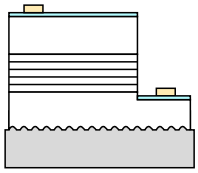


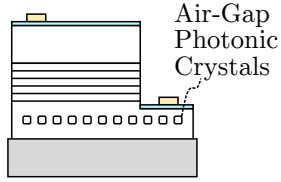
Classical Chip
Lateral Current Spreading
No Substrate Manipulation
No Surface Manipulation
Shown: Nichia, 1997



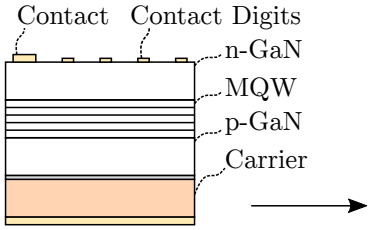
Classical Chip
Lateral Current Spreading
Patterned Sapphire Substrate
No Surface Manipulation
Shown: Nichia, 2012



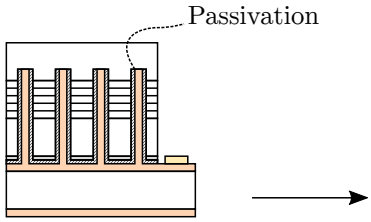
Classical Chip
Lateral Current Spreading
Patterned Sapphire Substrate
No Surface Manipulation
Shown: Generic, 2015



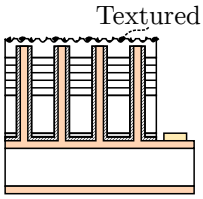
Classical Chip
Lateral Current Spreading
No Substrate Manipulation
No Surface Manipulation
Shown: Lumileds Lab, 2002



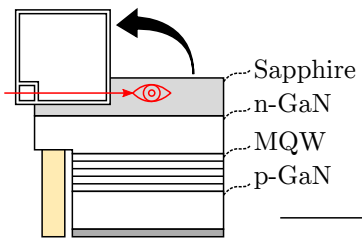
Vertical Chip
Osram Pre-UX:3 Technology
No Substrate Manipulation
No Surface Manipulation
Shown: Osram, 2000



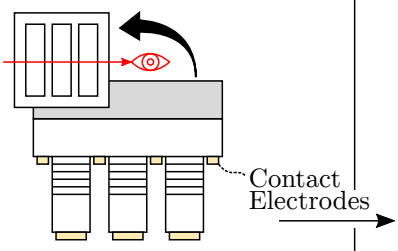
Vertical Chip
Osram UX:3 Technology
No Substrate Manipulation
(Likely) Textured Surface
Shown: Osram, 2007



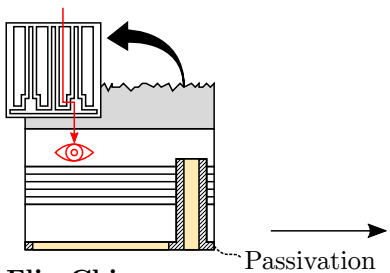
Vertical Chip
Osram UX:3 Technology
Patterned Substrate
Textured Surface
Shown: Osram, 2014



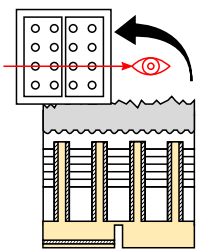
Flip-Chip
Early Technology
No Substrate Manipulation
No Surface Manipulation
Shown: Lumileds, 1997



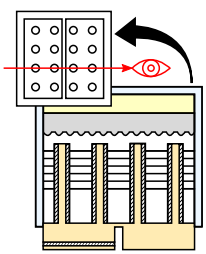
Flip-Chip
Current-Spreding Areas
No Substrate Manipulation
No Surface Manipulation
Shown: Lumileds, 1997



Flip-Chip
Current-Spreading Fingers
No Substrate Manipulation
Surface Texture
Shown: Lumileds, 1997



Flip-Chip
Current-Spreading Vias
Patterned Substrate
Surface Texture
Shown: Lumileds, 2014



Chip-Scale Flip-Chip
Current-Spreading Vias
Patterned Substrate
(Sometimes) Surface Texture
Shown: Osram, 2014

Legend: