

Sense the power of light

ams OSRAM

ams OSRAM Product Portfolio

Detailed Product Family Overviews

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








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LED / Laser Driver IC's

Highlevel Portfolio Overview



Product	Function Purpose	Driver Channels	Supply [V]	Interface	Package [mm ³]	Features & Benefits	Application
AS1115 	Dot-Matrix / 7-Segm. 	1x 8x8 LED Matrix - or - 8x 7-Segm. LED	2.7 - 5.5	I2C	TQFN(4x4)-24 4 x 4 x 0.55 QSOP-24	<ul style="list-style-type: none"> • Dot-matrix LED driver for up to 8x8 matrix or 8x 7-segment, 64 LEDs max. • LED current trim via 4-bit PWM per line/digit & optional ext. resistors up to 5mA • Readback capability for 16 keys • Detailed short/open LED error diagnostic 	<ul style="list-style-type: none"> • Appliances & Tools • Home&Bldg / Factory Automation • Vending Machines / PoS • Access & security • Medical equipment
AS1130 	Dot-Matrix 	up to 132 LEDs in 12x11 Matrix	2.7 - 5.5	I2C	WLCSP-28 2.2 x 2.48 x 0.6 TSSOP-28 SSOP-28	<ul style="list-style-type: none"> • 132-LED cross-plexing driver with scrolling function, enabling drive line reduction on PCB from 132 down to only 12 (space saving) • Inbuilt dimming options: analog in range 0-30mA 256-step (8 bit) for full matrix plus digital 256-step for individual LED • 16.7M full color matrix with white balance • Error detection and correction for defect LED identification 	<ul style="list-style-type: none"> • Appliances & Tools, Beauty / Grooming • Home&Bldg / Factory Automation • Robotics • AIDC (Hand Scanners) • Access & security • Medical equipment
AS1163 	RGB Strip / Panel Illum, 	3 x RGB ¹⁾ , customizable I2C gateway	4.3 - 5.5	OSP ³⁾ 2-wire SPI ⁴⁾ to MCU (I2C)	Slim QFN-16 3 x 3 x 0.85	<ul style="list-style-type: none"> • Native OSP support, compatible w/ smart RGB LED OSIRE E3731i in daisy chain • Simplifies complex multi-LED config's & enables slim/single layer PCB • Adjustable output current for brightness adjustment • Reduced flickering • Supporting display-like applications thanks to sync • Sensor integration via I²C gateway interface • Embedded fault detection: open/short on daisy-chain, over-voltage / -temp. • Multicast with up to 15 groups 	<ul style="list-style-type: none"> • Automotive (interior lighting) • Home&Bldg Automation • Robotics • Decorative lighting
AS1163B 	(scalable total LED count)	2 x RGB ²⁾ , customizable I2C gateway					
AS1170 	High Power Scene Illum. 	2 @ 1A or 1 @ 2A	2.7 - 4.4	I2C	WLCSP-13 2.25 x 1.5 x 0.6	<ul style="list-style-type: none"> • High output current up to 2A in combined channel mode • Advanced low-power modes w/ automatic shut-down or flash timer • Embedded fault protection for over-/under-voltage, temperature, & short circuit • Integrated high efficiency DCDC booster w/ soft startup in RF-sensitive systems 	<ul style="list-style-type: none"> • Illumination for 2D/3D machine vision systems • Flash, torch video lighting in consumer applications • Handheld scanners & safety signage
AS1181 	Multi-Channel, Eye safety 	8	2.6 - 5.5	I2C / I3C	WLCSP-28 2.85 x 1.7 x 0.47	<ul style="list-style-type: none"> • 8 programmable channels with max. 65mA each (max. 520mA total current), adjustable in 256 steps of 244µA (8bit) • Ultra-short PWM pulses down to 10µs ON time • 2 PWM inputs to start/synchronize with 2 separate eye tracking cameras in binocular eye tracking systems • Fully featured protection & eye safety functions⁴⁾ 	<ul style="list-style-type: none"> • AR/VR headsets • Access / Security (iris scan)

¹⁾ 9 drivers: 3 x 48mA / 6 x 24mA with output clustering options up to 288mA

²⁾ 6 drivers: 6 x 48mA with output clustering options up to 288mA

³⁾ Open System Protocol: up to 1000 nodes w/ 2-wire daisy chain protocol, auto-addressing, 2.4 Mbit/s, various topologies (star, double-ring, ...), CRC protection

⁴⁾ all relevant circuits are handled within the device, no external circuit or microcontroller is needed to stop illumination

EEL Color Portfolio





Overview

Product Family	Spectrum (λ_{peak} nm)	Type	Output Power	Package	Beam Divergence	Thermal Resistance	Voltage	Integrated Photo Diode	Features & Benefits	Application Focus	
PLT3 450GB	450 $\Delta\lambda: 1$	DEEP BLUE	100 mW	TO38	\angle : 8° x 20°	38 K/W	5.2 V	No	<ul style="list-style-type: none"> Hermetically sealed packages for best-in-class reliability. Options with integrated monitor Diode. TO56 ideal for robust industrial applications. TO38 for applications where size matters. Narrow wavelength binning options available 	<ul style="list-style-type: none"> Industrial applications e.g. pointing, alignment, aiming Life science applications Laser projection e.g. Laser beam Scanning, pico projection 	
PLT5 450GB				TO56		55 K/W					
PLT5 488xx	488 $\Delta\lambda: 1$	CYAN	60 / 300 mW	TO56	Note: full width @ half max	45 K/W	5.2 - 6.2 V	Yes			
PLT3 520xx	520 $\Delta\lambda: 1$	TRUE GREEN	50 / 110 mW	TO38	Note: full width @ half max	38 K/W	5.0 - 6.1 V	No			
PLT5 5xxxx			10 - 130 mW	TO56		27 / 45 / 55 K/W		Yes			
PLPT5 447 KA	447	DEEP BLUE	2000 mW	TO56	\angle : ~10° x 45° *)	13 K/W	4.3 - 4.6 V	No			<ul style="list-style-type: none"> Hermetically sealed packages for best-in-class reliability. Cost optimized Industrial standard housings TO56 and TO90 ESD protection included Automotive qualified version
PLPT9 450xx Exx			3500 / 5500 mW	TO90	Note: full width @ 1/e ²	8 K/W			<ul style="list-style-type: none"> Highest optical power Best thermal resistance 	<ul style="list-style-type: none"> Speciality lighting: e.g. Stage lighting Pumping of Pr:YLF lasers 	

*) PLPT9 450LC_E: Beam Divergence ~10° x 49°

EEL IR Portfolio

Overview

Product Family	Product Variant	Spectrum (λ_{peak})	Output Power	Forward Current	Package	Beam Divergence	Aperture Width	Voltage	# of Emitters	Features & Benefits	Application Focus	
SPL PL90AT03 		905 nm	25 W	8 A	Plastic	\angle : 12° x 25°	110 μ m	6 V	1	<ul style="list-style-type: none"> • Suited for short laser pulses from 1 to 100 ns • Cost effective plastic package 	<ul style="list-style-type: none"> • 3D Sensing • Access Control • Gesture Recognition • Industrial Automation • LIDAR • Robotics 	
			50 W	16 A								
			75 W	25 A								
SPL TL90.. SPL UL90.. 	..AT03		65 W	20 A	TO-56			220 μ m		9.5 V		<ul style="list-style-type: none"> • Suited for short laser pulses from 1 to 100 ns • Nanostack technology including 3 epitaxially stacked emitters • Robust TO-can package
	..AT08		125 W	40 A								
SPL S1L90H_3 			65 W	20 A	QFN	\angle : 10° x 25°		110 μ m		11 V		<ul style="list-style-type: none"> • SMT device • Corrosion Robustness Class: 3B
SPL SxL9xA_3 	S1L90A_3		125 W	40 A								
	S4L90A_3		500 W	160 A								
	S8L91A_3*		915 nm	>1000 W			220 μ m		<ul style="list-style-type: none"> • Automotive AEC Q102 Qualified • Suited for short laser pulses from 1 to 100 ns • SMT device 	<ul style="list-style-type: none"> • Automotive LiDAR Application • Industrial Automation 		

* In Development

EEL Bars & Single Emitter Portfolio (Bare Dies and Chip on Submount)

Overview

Product Family	Spectrum (λ_{peak} nm)	Type	Output Power ¹⁾	Package	Current	Beam Divergence	Threshold Current	Voltage	Emitter Size	Features & Benefits	Application Focus	
SPL BD45-12	450 BLUE	Laser Bars 	75 W (CW)	10 × 1.2 × 0.1 mm ³	47 A	\sphericalangle : 10° × 52°	4.5 A	4 V	20 μ m	<ul style="list-style-type: none"> High power, Continuous Wave (CW) operation 46 emitters with 10% fill factor 	<ul style="list-style-type: none"> Welding of copper for battery stacks Cladding, surface treatment e.g. cleaning 	
SPL BK81	808		60 -100 W (CW)	10 × 1.2 × 0.115 mm ³	95 - 410 A	\sphericalangle : 10° × 67°	18 - 25 A	1.8 / 2.1 V	220 / 200 μ m	<ul style="list-style-type: none"> High power, Continuous Wave (CW) and long pulse operation 25 emitters with 50% fill factor 	<ul style="list-style-type: none"> Pumping of Solid-State Laser (SSL) Hair Removal 	
SPL BY81			250 – 500 W (QCW)	10 × 1.5 × 0.115 mm ³						<ul style="list-style-type: none"> High power, Quasi-Continuous Wave (QCW) operation 34 emitters with 80% fill factor 		
SPL BM88	880 IR			90 W (CW)	10 × 2 × 0.115 mm ³					150 μ m	<ul style="list-style-type: none"> High power, Continuous Wave (CW) and long pulse operation 19 emitters with 30% fill factor 	19 emitter design ideal for fast- and slow axis collimation and fiber coupling
SPL BK94	940										<ul style="list-style-type: none"> High power, Continuous Wave (CW) operation 25 emitters with 50% fill factor Several wavelength to support wavelength multiplexing 	<ul style="list-style-type: none"> High-Power lasers for Direct Diode Lasers using wavelength multiplexing Fiber- or solid-state laser pumping
SPL BK98	980			250 W CW	11.4 × 4.0 × 0.115 mm ³	250 A	\sphericalangle : ~ 7.5° × 40°	~23 A	1.5 V	200 μ m		
SPL BK102	1020											
PLPCOS 450D PLPCOS 450E	450 BLUE	Single Emitter 	5 – 6 W (CW)	1 × 1.3 × 0.3 / 4 × 3 × 0.42 mm ³ <i>Note: Chip on Submount (CoS)</i>	3 A	\sphericalangle : 10° × 52°	0.3 A	4.3 V	45 μ m	<ul style="list-style-type: none"> High power, Continuous Wave (CW) operation Single Emitters Chip on Submount (CoS) with two submount options 	<ul style="list-style-type: none"> Marking and Engraving 	
SPL Ex98-45-25	980 IR	Single Emitter 	18 – 35 W (CW)	11.2 × 4.5 × 0.115 mm ³	19 - 37 A	\sphericalangle : 11° × 58	0.5 - 1.5 A	1.65 V	100 / 230 / 305 μ m	<ul style="list-style-type: none"> Laser bar designed for singulation into single emitters @ 976 nm the absorption efficiency of Yb is much higher => pumping with 976 nm requires much less power! 	<ul style="list-style-type: none"> Fiber pumps 	

¹⁾ CW = Continuous Wave; QCW = Quasi-CW


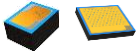





VCSEL Modules Portfolio

Overview

Product Family	Product Variant	Type	Spectrum (λ_{peak})	Package	Output Power	Field of Illumination	# Dots & Type	PCE (Efficiency)	V (max)	Eye Safety	Features & Benefits	Application Focus
BELICE		Dot Projector 	850 nm	3.4 x 3.5 x 3.56 mm ³	0.3 W	\angle : 70° x 60°	5K Periodic	-	3 V	No	<ul style="list-style-type: none"> • Compact dot-projector for stereoscopic imaging • Produces a very high-contrast dot pattern that mitigates the problem of lack of texture, for a high-accuracy depth map • Eye safety with ITO interlock 	<ul style="list-style-type: none"> • Active Stereo Vision (ASV) • Structure Light (SL)
BELAGO	1.1		940 nm	4.2 x 3.6 x 3.325 mm ³			5K Pseudo-Random		2.2 V	ITO-R interlock		
	1.2						15K Pseudo-Random					
BIDOS P2433 Q	V105Q1xxx	Flood Illuminator 	850 nm	QFN 2.4 x 3.3 x 1.2 mm ³	3 W	\angle : 65°x50° 75°x65°	N.A.	36%	2.2 V	Photo-diode	<ul style="list-style-type: none"> • Compact • Small footprint • High Power option • High Efficiency 	<ul style="list-style-type: none"> • 2D & 3D sensing for robots & AGVs • IR vision • Face ID • Illumination for time-of-flight cameras
	V205Q1xx		940 nm		6.5 W							
			940 nm		6.5 W							
EGA 2000			850 nm	QFN 4.1 x 4.1 x 1.38 mm ³	4.2 W	\angle : 60°x40° 80°x55° 100°x85°		36%	2.3 V	No	<ul style="list-style-type: none"> • Highly uniform illumination of rectangular field of view • Three Fields Of Illumination (FOI) options • Compact design • Good thermal resistance • TARA2000-AUT: AEC_Q102 grade 2 	<ul style="list-style-type: none"> • Navigation for warehouse robots • Illumination for light curtains • Illumination for time-of-flight cameras
TARA2000-AUT			940 nm		3.7 W							
TARA2000-AUT-SAFE			940 nm	Ceramic 4.0 x 4.0 x 1.21 mm ³	4W	\angle : 116° x 87°						





VCSEL Chip Portfolio

Overview













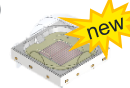








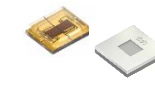




















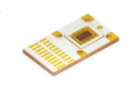








Product Family	Product Variant	Spectrum (λ_{peak})	Footprint	Output Power	Beam Divergence	Current	PCE (Efficiency)	V	Features & Benefits	Application Focus
BIDOS Core	OLH0909V.A1-680-A 	680 nm	0.22 x 0.22 mm ²	0.3 W	∠: 21° x 21°	0.011 A	20%	2.5 V	<ul style="list-style-type: none"> Pulsed or CW driving conditions Optical integration options Custom chip design 	• Vision
	OLlxxxV.A1-850-x 		0.52 x 0.52 mm ² to 1.99 x 1.99 mm ²	0.5 W to 10 W	∠: 15° x 15° to 23° x 23°	0.6 A to 12 A	~40%	2.1 V		• Various power, beam divergence & footprint options
	OLI3539V.A1-850-A 	850 nm	0.98 x 0.88 mm ²	3.3 W	∠: 15° x 15°	4 A	39%	3.3 V		• Direct Time of Flight (dToF) • Indirect Time of Flight (iToF) • Infrared Vision
	PCW-BC-2-W850 		1.41 x 1.24 mm ²	3.5 W	∠: 19° x 19°	4 A	42%	2.1V		• High efficiency
	PCW-BC-2-W0940 	∠: 17° x 17°		45%	1.9 V					
	OLlvxxxV.A3-940xx 	940 nm	0.18 x 0.22 mm ² to 1.99 x 1.99 mm ²	0.12 W to 10 W	∠: 18° x 18° to 21° x 21°	0.025 A to 12 A	~40%	1.9V, 2.1V		• Various power, beam divergence & footprint options
	OLI3539V.Sx-940-A 		0.98 x 0.88 mm ²	7.4 W, 10.8 W	∠: 25° x 25°, 28° x 28°	4 A	50%	3.9 V, 5.4 V		• Double and Triple Junction • High Efficiency

ULTRA HIGH Power COLOR LED Portfolio




Overview of the most important product families in power range ≥ 3 W

-  Package Type
-  Emission Angle
-  Dimension (l x w x h)
-  Lens Option















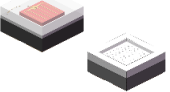



Product Family	Spectrum (λ_{peak} nm)		Power	Package		Features & Benefits	Application Focus	
LED ENGIN LuxiGen 		367	UV-A	6 W	 Ceramic	 integr. glass lens	<ul style="list-style-type: none"> Most robust high power ceramic package with glass lens for high performance over life. 	<ul style="list-style-type: none"> Agriculture & Horticulture Appliances Tools Entertainment Medical Lighting
		395/460	VIOLET / BLUE	to	 70°-115°			
		457	BLUE	11 W	 7 x 7 x 3.7 mm ³			
		523	TRUE GREEN					
		590	YELLOW					
		623	RED					
		720/740	FAR RED					
OSCONIQ P3737 (Gen2) 		446	DEEP BLUE	5 W	 EMC	 Silicone lens	<ul style="list-style-type: none"> New w/ 1.85mm lens radius w/ enh. fwd. radiation Market leading radiant flux & WPE (82.4%) Improved max. current rating up to 2.8A Pin compatible 'horti white' variant available 	<ul style="list-style-type: none"> Agriculture & Horticulture
		653	SUPER RED		 120°			
		677	HYPHER RED		 3.7 x 3.7 x 2.15mm ³ (P 3737)			
		743	FAR RED					
OSTAR Projection Compact 		459	BLUE	3 W	 Ceramic	 No lens	<ul style="list-style-type: none"> Compact & high luminance LED light source in SMT technology Glass window on top Highly reliable ceramic package dedicated for RGB projection systems especially in harsh environments 	<ul style="list-style-type: none"> Projection (incl. static Gobo) Machine Vision Effect / Entertainment / Stage spotlights High-end general lighting
		520	GREEN	to	 110°-130°			
		530	TRUE GREEN	5 W	 3.0 x 3.0 x 2.21 mm ³			
		PC	PURE GREEN					
		PC	YELLOW					
		617	AMBER					
		617	RED					
OSTAR Projection Power 		440	DEEP BLUE	17 W	 EMC	 No lens	<ul style="list-style-type: none"> High-current isolated & non-isolated LEDs R_{th} optimized SMT & MCB packages Automotive grade robustness & reliability 	<ul style="list-style-type: none"> Home & Professional projection
		456	BLUE	to	 80°, 120°, 150°			
		PC	GREEN	99 W	 7.6 x 6.8 x 1.4 mm ³ to 27 x 15.5 x 1.5 mm ³			
		614	AMBER					
OSTAR Projection Power 		440	PURPLE	100 W	 EMC	 No lens	<ul style="list-style-type: none"> Home & Professional projection 	
		456	DEEP BLUE	to	 120°			
		520	GREEN	160 W	 3.0 x 3.0 1.63 mm ³			
		613	AMBER					

HIGH Power COLOR LED Portfolio

 Package Type
 Radiation Angle
 Dimension (l x w x h)






Overview of the most important product families in power range 1 - 3 W

Product Family	Spectrum (λ_{peak} nm)	Power	Package	Features & Benefits	Application Focus
OSLON SSL 	465 BLUE	1 W	 Ceramic  80°, 120°, 150°  3.0 x 3.0 x 2.21 mm ³	<ul style="list-style-type: none"> Offering long lifetime, high reliability and robustness Full color range with direct emitting LEDs for high light output, best lm/W performance and energy efficiency Extreme color stability 	<ul style="list-style-type: none"> Creating intense and uniformly colored lighting effects over large areas Package option mainly for external or harsh environments
	451 DEEP BLUE				
	530 TRUE GREEN				
	590 YELLOW				
	615 AMBER				
	630 RED				
	660 HYPER RED				
	730 FAR RED				
OSLON Signal 	472 BLUE	1 W	 Ceramic  120°  3.0 x 3.0 x 2.21 mm ³	<ul style="list-style-type: none"> Support for many application specific lighting standards, e.g. traffic signs & controls [EN 12368 / GB 14887(CN), US ITE 2005, EN 12352] emergency vehicle [ECE R65 / GB 13954(CN) / SAE J578] marine [IALA R0201] or aero. ground / obstacle signal [ICAO - Annex14] ... more ...¹⁾ 	<ul style="list-style-type: none"> Signal, alarm / warning lighting according to dedicated standards
	PC BLUE				
	505 VERDE				
	528 TRUE GREEN				
	PC YELLOW				
	625 RED				
OSCONIQ P 3030 	470 BLUE	1 W	 EMC  120°  3.0 x 3.0 x 1.63 mm ³	<ul style="list-style-type: none"> Cost optimized option Extended spectral offering due to combination of direct and phosphor converted colors 	<ul style="list-style-type: none"> Cost optimized option for uniformly color lighting, work light that required spectral mixing.
	451 DEEP BLUE				
	492 VERDE				
	530 TRUE GREEN				
	PC MINT WHITE				
	PC YELLOW				
	615 AMBER				
	630 RED				
	660 HYPER RED				
PURE 1414 	470 BLUE	1 W to 2 W	 CSP-like  120° (for RED 150°)  1.4 x 1.4 x 0.75 mm ³	<ul style="list-style-type: none"> Customized color spectrum mixing before secondary optics w/o backside blue-light escape Scalable high-density clustering with minimized optical cross-talk reduces secondary optics size & system costs Lambertian radiation pattern (120° FWHM) with uniform color over angle Package optimized for handling and thermal dissipation Broadest color portfolio 	<ul style="list-style-type: none"> Main product for applications requiring high luminance, and small form-factor for tightest LED clustering (e.g. compact and spectrally mixed machine vision solutions)
	PC BLUE				
	451 DEEP BLUE				
	493 CYAN				
	PC VERDE				
	526 TRUE GREEN				
	PC LIME				
	PC YELLOW				
	PC RED				
630 RED					

























¹⁾ check [ams-osram.com](https://www.ams-osram.com) for additional applications and their required standards

MID Power COLOR LED Portfolio

Overview of the most important product families in power range 0.2 - 1 W




 Package Type
 Emission Angle
 Dimension (l x w x h)

















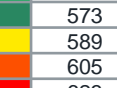










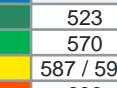





Product Family	Spectrum (λ_{peak} nm)	Power	Package	Features & Benefits	Application Focus				
SYNIOS S2222 	468 BLUE	0.2 W	 Ceramic  80°, 120°, 150°  3.0 x 3.0 x 2.21 mm ³	<ul style="list-style-type: none"> Smallest mid-power package at ams OSRAM from the industrial portfolio, now available in the second generation Central chip position to simplify optics design 	<ul style="list-style-type: none"> Ambient / Indoor Light., HaBA Entertainment, Projection, Disp. Factory Automation, Material Process., Robotics, Transp. 				
	530 TRUE GREEN	to							
	PC YELLOW								
	595 YELLOW	0.5 W							
	615 AMBER RED?								
	632 SUPER-RED								
OSCONIQ P2226 	451 DEEP BLUE	0.2 W	 EMC  120°  2.2 x 2.6 x 1.25 mm ³	<ul style="list-style-type: none"> Only lensed mid-power package at ams OSRAM from the IL portfolio Superior corrosion stability because of gold lead-frame 	<ul style="list-style-type: none"> Linear lighting , ambient indoor light 				
	470 BLUE	to							
	530 TRUE GREEN								
	590 YELLOW	0.3 W							
	630 RED								
DURIS S 5 	455 DEEP BLUE	0.2 W	 EMC  120°,  3.0 x 3.0 x 0.6 mm ³	<ul style="list-style-type: none"> Standard mid-power package at ams OSRAM Huge variety of colors, both direct emitting or phosphor converted 	<ul style="list-style-type: none"> Linear lighting , ambient indoor light 				
	470 BLUE	to							
	528 TRUE GREEN								
	617 AMBER	0.9 W							
	623 RED								
	PC PURPLE								
	PC DEEP BLUE								
	PC TRUE GREEN								
	PC LIME								
	PC MINT								
	PC YELLOW								
	PC AMBER								
	PC RED								
	DURIS E 2835 	PC PURPLE				0.3 W	 PCT  120°  2.8 x 3.5 x 0.7 mm ³	<ul style="list-style-type: none"> Latest addition to the ams OSRAM mid-power offer, targeting cost-driven applications Huge variety of colors, both direct emitting or phosphor converted 	<ul style="list-style-type: none"> Linear lighting , ambient indoor light
		455 DEEP BLUE				to			
465 BLUE									
525 TRUE GREEN		0.5 W							
PC PURE GREEN									
PC LIME									
PC MINT									
614/618 AMBER									
PC AMBER									
620 RED									
657 HYPER RED									
730 FAR RED									
Advanced Power TOPLED 		470 BLUE	0.3 W	 Ceramic  120° (30°/55° f. Black)  3.3 x 3.4 x 1.9mm ³	<ul style="list-style-type: none"> compact package wide brightness range, high luminous efficiency improved thermal management Corrosion robustness class 3B & AEC-Q102 qualified 	<ul style="list-style-type: none"> Automotive (e.g. Interior Illumination) Signalling Display backlighting 			
	PC BLUE	to							
	590 YELLOW	0.5 W							
	PC YELLOW								
	617 AMBER								
Power SIDELED 	623 RED	0.3 W	 white PLCC-2, clear silicone resin  120°  4.8 x 4.8 x 3.8 mm ³	<ul style="list-style-type: none"> Corrosion Robustness Class: 3B AEC-Q102 Qualified 	<ul style="list-style-type: none"> Automotive Signalling, button backlighting 				
	633 SUPER RED								
	617 AMBER								

LOW Power COLOR LED Portfolio

Overview of the most important product families in power range ≤ 0.1 W



 Package Type
 Radiation Angle
 Dimension (l x w x h)
















Product Family	Spectrum (λ_{peak} nm)	Power	Package	Features & Benefits	Application Focus
TOPLED  E1608  Mini  Power  Black Surf.  Black Power (Lense)	460 DEEP BLUE	0.04 to 0.1	 Ceramic  120° (30°/55° f. Black)  1.6 x 0.6 x 0.6 mm ³ [E1608] 2.2 x 1.4 x 1.3 mm ³ [Mini] 3.2 x 2.8 x 1.9 mm ³ 3.2 x 2.8 x 3.65 mm ³ [Black] 3.2 x 2.8 x 3.8 mm ³ [Power (Lense)]	<ul style="list-style-type: none"> Very robust design for easy assembly and deployment in harsh under harsh environmental conditions (Corrosion Robustness Class 3B, AEC-Q102 Qualified) Premold top looker with integrated reflector (and lensed option available) offers improved light extraction off package and leads to higher brightness Advantage for thermal design as chip directly mounted to leadframe (better R_{th}) 	<ul style="list-style-type: none"> Signaling & indicators in Automotive or Industrial segment (lensed options mainly for traffic lights)
	466 BLUE				
	PC BLUE				
	505 VERDE				
	534 TRUE GREEN				
	560 PURE GREEN				
	PC PURE GREEN				
	570 GREEN				
	587 YELLOW				
	606 ORANGE				
	615 AMBER				
	625 RED				
	633 SUPER RED				
SMARTLED 0603 	474 BLUE	0.04	 SMT package 0603, colorless diffused resin  130° - 160° (incl. rectangular)  3.0mm x 3.0mm x 2.21mm	<ul style="list-style-type: none"> Power saving due to high intensity and low forward voltage 	<ul style="list-style-type: none"> Small size for applications with limited space such as backlighting keypads, buttons or switches
	527 TRUE GREEN				
	572 GREEN				
	589 YELLOW				
	605 ORANGE				
	624 RED				
	631 SUPER RED				
Chip LED  0402  0805  0603	470 BLUE	0.01 to 0.04	 SMT 0603, clear epoxy  1.0 x 0.5 x 0.35 mm ³ [0402]  1.6 x 0.8 x 0.7 mm ³ [0603]  2.0 x 1.3 x 0.8 mm ³ [0805]	<ul style="list-style-type: none"> Standard market 0603 and 0402 size and footprint Broad chip LED Portfolio: all colors in many sizes available Improved corrosion robustness 	<ul style="list-style-type: none"> Switches, buttons, indicators and backlighting
	528 TRUE GREEN				
	573 GREEN				
	589 YELLOW				
	605 ORANGE				
	623 RED				
	633 SUPER RED				
Point LED 	470 BLUE	<0.01 to 0.07	 white SMT package, colorless clear silicone resin  120°  3.4 x 1.25 x 0.83 mm ³	<ul style="list-style-type: none"> Round reflector for top and reverse-mount, full color spectrum Qualification for harsh environments (Automotive AEC Q 101 & 102) 	<ul style="list-style-type: none"> Switches, buttons, indicators and backlighting
	528 TRUE GREEN				
	570 GREEN				
	590 YELLOW				
	606 ORANGE				
	617 AMBER				
	625 RED				
633 SUPER RED					
SIDELED  Micro 3010  Micro 2808  Power	470 BLUE	0.03 to 0.06	 white SMT / PLCC-2, colored diffused / clear silicone resin  120°  2.8 x 1.2 x 0.8 mm ³ [Micro 2808]  3 x 1.1 x 1.2 mm ³ [Micro 3010]  4 x 4 x 3.6 mm ³	<ul style="list-style-type: none"> Compact sidelooker LED with low profile height: optimized optical characteristics for incoupling into lightguides (e.g. monochrome backlighting) Full color portfolio incl. Pin-compatible white versions Qualification for harsh environments (Automotive AEC Q 101 & 102) 	<ul style="list-style-type: none"> Display backlighting Lightguide incoupling
	PC BLUE				
	523 GREEN				
	570 TRUE GREEN				
	587 / 590 YELLOW				
	606 ORANGE				
	617 AMBER				
623 RED					
633 SUPER RED					

High Power Integrated **Multi-Color LED** Portfolio

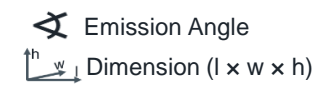
Overview of the most important product families in power range: 2 to 18 W

 Emission Angle
 Dimension (l x w x h)











Product Family	Spectrum (λ nm)						Power	Package	Features & Benefits	Application Focus
	R	G	B	W	Y	IR				
LED ENGIN LuxiGen 	612-630	513-545	450-480	X	-	-	11 to 18 W	 125°  12 x 12 x 6.13 mm ³	most robust high power ceramic package with glass lens for high performance over life, 4-color	<ul style="list-style-type: none"> • Agriculture & Horticulture • Appliances & Tools • Entertainment • Indoor Lighting • Medical Lighting • Projection & Display • Robotics • Machine Vision
				X	-	-	1.7 to 7.6 W	 95° / 110°  7 x 7 x 1.3 (/3.7) or 9 x 9 x 5.4 mm ³		
				-	580-595	-	1.7 to 3.0 W	 95° / 114°  12 x 12 x 6.13 mm ³		
OSTAR Stage 	612-630	513-545	439-461	-	580-595	-	1.5 to 4.2 W	 120°  5.75 x 4.68 x 1.1 or 6.38 x 5.75 x 1.26 mm ³	4-color compact lightsource in multi chip SMT technology, glass window on top	<ul style="list-style-type: none"> • Entertainment • Machine Vision
				X	-	-				
OSTAR Projection Compact 	612-630	-	450-480	-	-	-	2.0 to 2.4 W	 120°  3.9 x 3.65 x 1.1 mm ³	2-color compact light source in SMT technology, glass window on top, RoHS compliant	<ul style="list-style-type: none"> • Projection & Display • Visualization

Low Power Integrated Multi-Color LED Portfolio







Overview of the most important product families in power range: 3 to 570 mW

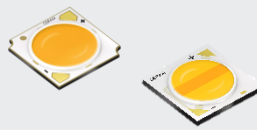
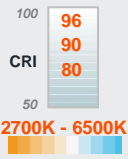




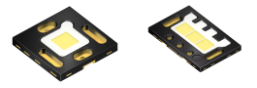
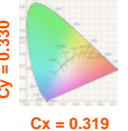




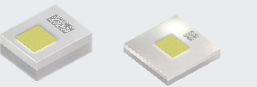
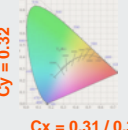





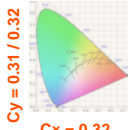




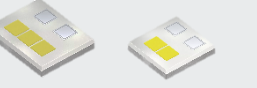
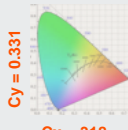




Product Family	Spectrum (λ nm)						Power	Package	Features & Benefits	Application Focus
	R	G	B	W	Y	IR				
DURIS E5050 	612-630	565-575	450-480	X	-	-	210 - 310 mW	120° 5.0 x 5.0 x 1.1 mm ³	individually controllable chips with tight wavelength & color binning f. excellent homogeneity	<ul style="list-style-type: none"> Ambient Lighting, Entertainment, Robotics, Home & Bldg. Autom. In-/Outdoor/Industrial Lighting
DISPLIX P2828 / P3333 	612-630	513-545	450-480	-	-	-	320 - 570 mW	120° 2.8 x 2.8 x 2.49 or 3.3 x 3.3 x 1.8 mm ³	designed for full color RGB applications, 6-lead technology allows for additive mixture of color stimuli by independent driving of each chip	<ul style="list-style-type: none"> Entertainment Indoor Lighting Projection & Display Video Walls
Multi Chip LED 	612-630	513-545	450-480	-	-	-	14 - 56 mW	100° / 120° 1.0 x 1.0 x 0.25 to 2.5 x 2.5 x 0.55 mm ³	4-pin common anode technology for independent chip driving, compact package size & low height supporting space constrained highly integrated applications; white binned device options available <i>Note:</i> <i>LRTB R98G & LTRB RASF are 6-lead devices</i>	<ul style="list-style-type: none"> Display Backlighting (Smartphone, Tablet) Appliances & Tools Digital Diagnostic Devices Vital Sign Monitoring (esp. IR capable variants) Entertainment Full Color Display
		565-575	-	-	-	>800				
		-	-	-	-	>800				
	635-666	513-545	-	-	-	>800				
		565-575	-	-	-	>800				
Multi TOPLED 	627-639	565-575	-	-	-	-	3.6 - 42 mW	120° 3.3 x 3.0 x 1.9 mm ³	2-chip PLCC-4 packages w/ various LED color combinations for indicators (red/yellow/green)	<ul style="list-style-type: none"> Industrial Automation (incl. Light Barriers) Appliances & Tools, HaBA Robotics Static Signalig
	627-639	-	-	-	580-595	-				
	-	565-575	-	-	580-595	-				
MULTILED 	635-666	513-545	-	-	-	>800	26 - 47 mW	120° 2.4 x 2.4 x 0.6 mm ³	highly reflective package f. best light output, 2-cavity design f. reduced interference of green & red/IR chips	<ul style="list-style-type: none"> Digital Diagnostic Devices Vital Sign Monitoring
Micro SIDELED 3806 / M4518 	612-630	513-545	450-480	-	-	-	22 - 64 mW	120° 3.8 x 1.0 x 0.6 or 4.5 x 1.1 x 1.8 mm ³	side emission, ideal f. limited space environments & lightguides coupling, high ESD levels	<ul style="list-style-type: none"> Access / Security, Appliances Factory Autom., Material Process Proj./Display, Robotics Home & Bldg. Autom.
OSIRE¹⁾ E3030 / E3323 / E3635 / E5515 	612-630	513-545	450-480	-	-	-	19 - 680 mW	120° 3.0 x 3.0 x 0.7 to 5.5 x 1.8 x 1.5 mm ³	individual driving of chips, medium power device w/ superior brightness, optimized f. lightguides & backlighting	<ul style="list-style-type: none"> Ambient Lighting, Automotive
OSIRE E3731i 	620-632	524-541	449-473				n/a (intr. driver)	120° 3.7 x 3.15 x 0.65 mm ³	intelligent OSP-ready RGB device: drivers & RGB chips w/ their color code & embedded. temp sensing f. advanced color tuning	<ul style="list-style-type: none"> Ambient Lighting, Automotive Decorative Lighting

ULTRA HIGH Power WHITE LED Portfolio

Overview of the most important product families in power range >3 W





-  Package Type
-  Emission Angle
-  Dimension (l x w x h)
-  Lens Option





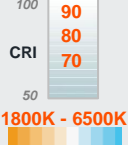






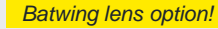


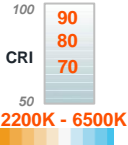







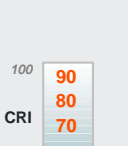












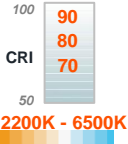








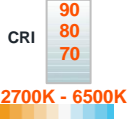




Product Family	CRI & Color	Power	Package & Optics	Features & Benefits	Application Focus
SOLERIQ S 	 CRI 96, 90, 80 2700K - 6500K	6 W to 49 W	 chip-on-board  no lens  120° (few 110° variants)  19.0 x 19.0 x 0.9mm ³ (S15) 19.0 x 19.0 x 1.4mm ³ (S13) 17.9 x 17.9 x 1.5mm ³ (S12/S14) 13.3 x 13.3 x 1.5mm ³ (S6) 13.5 x 13.5 x 0.9 to 15.8 x 15.8 x 1.65mm ³ (S9)	<ul style="list-style-type: none"> Variants with high efficacy, high CRI & tunable white Excellent color performance for commercial lighting Superior optics and color rendering quality 	<ul style="list-style-type: none"> Retail and hospitality lighting Museum lighting
OSLON Black Flat 	 Cy = 0.330 Cx = 0.319	3.2 W to 16 W	 SMD epoxy  no lens  120°  4.2 x 3.75 x 0.43 to 8.81 x 3.75 x 0.5mm ³	<ul style="list-style-type: none"> Leadframe-based black pkg. for highest contrast & excellent reliability Excellent brightness combined w/ high luminance Corrosion robustness class 3B Widely in-use in global automotive market for several years, AEC-Q102 qualified 	<ul style="list-style-type: none"> Automotive & mobility: static forward lighting
OSLON Boost 	 Cy = 0.32 Cx = 0.31 / 0.32	4.1 W (HM) to 20 W (HX)	 ceramic  no lens  120°  1.9 x 1.3 x 0.73mm ³ (HM) 4.0 x 4.0 x 0.73mm ³ (HX)	<ul style="list-style-type: none"> Special package for good thermal behaviour Luminance ≤275 cd/mm² & high luminous flux Corrosion robustness class 3A AEC-Q102 qualified 	<ul style="list-style-type: none"> Automotive & mobility: dynamic & static forward lighting
OSLON Compact PL 	 Cy = 0.31 / 0.32 Cx = 0.32	6.3 W to 13 W	 ceramic  no lens  120°  3.1 x 2.46 x 0.73 to 4.66 x 3.1 x 0.73mm ³	<ul style="list-style-type: none"> Compact light source with improved heat dissipation Small height tolerance (+/- 35 μm) Corrosion robustness class 3A AEC-Q102 qualified 	<ul style="list-style-type: none"> Automotive & mobility: dynamic & static forward lighting
OSLON Submount PL 	 Cy = 0.331 Cx = 0.318	6.3 W to 9.8 W	 multi chip-on-board  no lens  120°  3.75 x 3.5 x 0.67 to 4.6 x 3.75 x 0.67mm ³	<ul style="list-style-type: none"> Bright, uniform light pattern, Thermal stability Corrosion robustness class 3A AEC-Q102 qualified 	<ul style="list-style-type: none"> Automotive & mobility: dynamic & static forward lighting

HIGH Power WHITE LED Portfolio

Overview of the most important product families in power range 1 - 3W

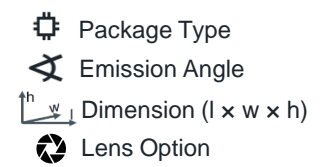
-  Package Type
-  Emission Angle
-  Dimension (l x w x h)
-  Lens Option


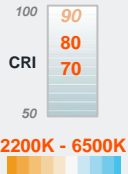






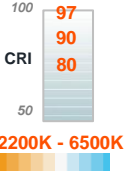













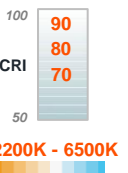






Product Family	CRI & Color	Power	Package & Optics	Features & Benefits	Application Focus
OSLON Square  OSLON SSL 	 CRI 90, 80, 70 1800K - 6500K	1 W to 2 W	 Ceramic  Silicone lens  120°(Square); 80°/150° (SSL)  3.0 x 3.0 x 2.02mm ³ (Square) 3.0 x 3.0 x 1.58/2.21mm ³ (SSL)	<ul style="list-style-type: none"> Best in class lifetime, reliability and robustness Widest Color Temperature Range Best in Class CoA (Color over Angle) Excellent power density (Upto 5W in 3030 form factor) Full spectrum of colors available to complement white. 	<ul style="list-style-type: none"> Creating intense & uniform lighting over large areas Demanding conditions e.g. Street, Tunnel etc.)
OSLON Square (Horti) 	 Horti-White	2 W	 Batwing lens option!	<ul style="list-style-type: none"> Customized phosphor with reduced red complements with direct-red horti LEDs to deliver superior efficacy 	<ul style="list-style-type: none"> Indoor farming, greenhouse
DURIS S8 5050  OSCONIQ S 5050 	 CRI 90, 80, 70 2200K - 6500K	1 W	 EMC  No lens  120°  5.0 x 5.0 x 0.7mm ³	<ul style="list-style-type: none"> Highest efficiency (sapphire flip-chip technology) Great performance/price Forward Voltages 5.5V & 22V Strongly improved reliability and corrosion stability Symmetrical Light Output 	<ul style="list-style-type: none"> Outdoor & industry light focusing on price/performance, where smallest form factor is not needed
OSCONIQ S 5050 (Horti) 	 Horti-White	1 W		<ul style="list-style-type: none"> Reduced red for optimum combo with direct-red LEDs for horti 	<ul style="list-style-type: none"> Indoor Farming
OSLON PURE 1414 	 CRI 90, 80, 70 2200K - 6500K	1 W	 CSP-Like  No lens  120°  1414: 1.4 x 1.4 x 0.75mm ³	<ul style="list-style-type: none"> Excellent lumen density: High luminous intensity in compact form factor. Wide Color Temperature Range Robust (Qualified for Outdoor) & Efficient Full spectrum of colors available to complement white. 	<ul style="list-style-type: none"> High-power & high-intensity applications requiring clustering, e.g. stadium floodlights, high mast lighting, architectural spotlights, entertainment, stage, machine vision
OSCONIQ C 3030 	 CRI 90, 80, 70 2200K - 6500K	3 W	 EMC  No lens  120°  3.0 x 3.0 x 0.57mm ³		
OSCONIQ P 3737  OSCONIQ P 3030 	 CRI 90, 80, 70 2200K - 6500K	1 W to 3 W	 EMC  Silicone lens  120° (P 3737) / 120°/130° (P 3030)  3.7 x 3.7 x 2.15mm ³ (P 3737) 3.0 x 3.0 x 0.75mm ³ (P 3030)	<ul style="list-style-type: none"> Cost optimized with great performance/price Robust and reliable High flux (upto 2W) and efficiency Low thermal resistance Power density of OSLON with the cost of EMC 	<ul style="list-style-type: none"> Outdoor & industry light where good lumen density & reliability are needed at attractive pricing
OSCONIQ P 3737 (Horti)  	 Horti-White	2 W to 3 W		<ul style="list-style-type: none"> Reduced red for optimum combo with direct-red LEDs for horti 	<ul style="list-style-type: none"> Indoor farming, greenhouse
OSCONIQ E 3030 6V 	 CRI 90, 80, 70 2700K - 6500K	1 W	 EMC  No lens  120°  3.0 x 3.0 x 0.6mm ³	<ul style="list-style-type: none"> Industry-grade 6V LED. High lumens/watt efficiency. Excellent corrosion resistance, reliability & lifetime 	<ul style="list-style-type: none"> Indoor & industrial-grade lighting fixtures High-flux retrofit bulbs High & low bay-lighting

MEDIUM Power WHITE LED Portfolio

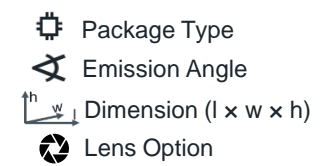
Overview of the most important product families in power range 0.2 - 1W

















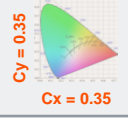








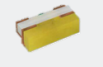
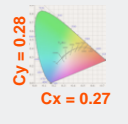





Product Family	CRI & Color	Power	Package & Optics	Features & Benefits	Application Focus
OSCONIQ S 3030 	 2200K - 6500K	0.2 W	 SMT  no lens  120°  3.0 x 3.0 x 2.21mm ³	<ul style="list-style-type: none"> • Best possible efficacy (sapphire flip-chip technology) • High reliability: 1000 cycles TC, superior H2S performance • Deep-Dimming capability down to 1mA • Narrow Forward Voltage • CRI 90 in preparation. 	<ul style="list-style-type: none"> • Big share in all industrial lighting applications (e.g. high bay, linear) where realibility, long lifetime and low maintenance @highest efficacy are key
DURIS E 2835 OSCONIQ E 2835  	 2200K - 6500K	0.2 W to 0.9 W	 SMT  w/ diffused silicon resin  120°  3.5 x 2.8 x 0.7mm ³	<ul style="list-style-type: none"> • Good mechanical strength & flexibility: ideal for flexible strip • Super high CRI 97 available • Wide beam angle in compact format • Good control of color consistency / uniform color • Special 2400K CCT for underwater lighting. • Various Forward Voltages available 	<ul style="list-style-type: none"> • Ideal for flexible strip based designs. • Professional Indoor Lighting (e.g. office, retail retrofit) where cost is key. • Ideal Option for Consumer Horti
SYNIOS S2222 SYNIOS P2720  	 2700K - 6500K	0.2 W to 1 W	 QFN  w/ silicon resin  120°  2.2 x 2.2 x 0.65mm ³ (2222) 2.75 x 2.0 x 0.6mm ³ (2720)	<ul style="list-style-type: none"> • Small Footprint • Outstanding brightness and current range (5 - 500mA PWM) • Complemented by availability in all main colors • Enhanced corrosion robustness tested for outdoor applications • ESD: 2 kV HBM on chip level. • Low thermal resistance and thermal stability • Components available for longer project lifetime 	<ul style="list-style-type: none"> • Small footprint applications (Access Control, Appliances & Tools, Factory Automation, HaBA, Transportation) • P2720 is especially suited for signaling
DURIS E 3 DURIS E 5  	 2200K - 6500K	0.2 W	 EMC  no lens  120°  3.03 x 1.35 x 0.7mm ³ (E3) 5.6 x 3.0 x 0.6mm ³ (E5)	<ul style="list-style-type: none"> • Backward compatible form factors • 3014 package mainly used for edge in-coupling for office luminaire. • 5630 package used to be the leading form factor earlier, hence. 	<ul style="list-style-type: none"> • Edge-lighting market, • Industrial and non-industrial applications using 3014 and 5630 form factors: Area Lights, Downlights/Spotlights, Lamp Retrofits, Mood Lighting, Table Lamp

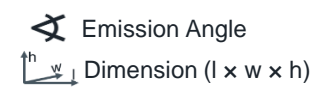
LOW Power WHITE LED Portfolio

Overview of the most important product families in power range <0.2W



Product Family	Color	Power	Package & Optics	Features & Benefits	Application Focus
Micro SIDELED 2808  Micro SIDELED 3806 	 Cy = 0.3 Cx = 0.3	22 mW 57 mW	 SMT pkg. w/ silicone resin diffuser  Emission angles: 120°  2.8 × 1.2 × 0.8mm ³ (2808) 3.8 × 1.0 × 0.6mm ³ (3806)	<ul style="list-style-type: none"> • Side emission with low package height • Design-in flexibility w/ different height options • Bright white 3090mcd @ 20mA • Power saving due to low forward voltage & high efficiency • 5kV ESD , T_j max 100°C 	<ul style="list-style-type: none"> • Backlighting & light guide coupling, • Status indicators in electronic systems, door-step- & seat-markings • Top Applications: Access Control, HaBA, Emergency lights
SMARTLED 0603  Chip LED 0603  Chip LED 0402 	 Cy = 0.29 Cx = 0.3	14 mW	 Small PCB pkg. w/ epoxy mold  130°, 150°,  1.6 × 0.8 × 0.4mm ³ (SmartLED) 1.6 × 0.8 × 0.7mm ³ (ChipLED 0603) 1.0 × 0.5 × 0.35mm ³ (ChipLED 0402)	<ul style="list-style-type: none"> • Very small package size for compact designs • Excellent cost balanced with performance, reliability, lifetime • Good corrosion resistance, operating temperature range and brightness. • Complemented by availability in all colors 	<ul style="list-style-type: none"> • Status indications & symbol backlighting in dashboards and switches. • Top Applications: Access Control, Appliances, Diagnostic Devices, Display Backlighting, HaBA
TOPLED E1608  TOPLED E3014 	 Cy = 0.33 Cx = 0.33  Cy = 0.35 Cx = 0.35	29 mW to 62 mW	 Pre-mold top-looker pkg. w/ reflector  120°  1.6 × 0.8 × 0.6mm ³ (E1608) 3.0 × 1.4 × 0.7mm ³ (E3014)	<ul style="list-style-type: none"> • Homogeneous light distribution w/ wide beam & High lumen output, • Robust & reliable (corrosion Class: 2B, ESD 2-8kV HBM) • Compact format, low profile • Broad colos & brightness coverage • E1608 is smallest package in its class & w/ full AECQ102 automotive qualification 	<ul style="list-style-type: none"> • Automotive interior • Industry applications w/ high reliability requirements • Perfect f. light guides coupling or homogeneous illumination setups • Space limited applications • button, switches, backlighting, bar graphs.
POINTLED 	 Cy = 0.33 Cx = 0.33	55 mW 64 mW	 Through-hole pkg. w/ resin diffuser   2mm Ø × 0.775mm	<ul style="list-style-type: none"> • Small and low profile with high luminous efficacy • High assembly flexibility (through hole, reverse, top mount). • Long-term availability 	<ul style="list-style-type: none"> • Industrial and automotive applications with low profile & size constraints
FIREFLY 	 Cy = 0.28 Cx = 0.27	14 mW	 SMT pkg. w/ resin diffuser   1 × 0.5 × 0.3mm ³	<ul style="list-style-type: none"> • Extremely compact • Color and Radiation pattern suited for backlighting 	<ul style="list-style-type: none"> • Keypad & display backlighting

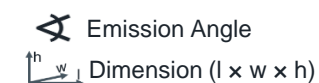
MID/HIGH Power IR-LED Portfolio



Overview of the most important product families in power¹⁾ range >0.5W

Product Family	Spectrum (λ_{peak})	Power ¹⁾	Current (typ.)	Package	Features & Benefits	Application Focus
OSLON Black 	950 nm	1280 - 1630 mW	1000 mA	50° - 150° 110°/135°, 130°/155° (x/y rect.) 3.75 x 3.75 x 1.49 (/ 2.83) mm ³	<ul style="list-style-type: none"> Highest efficiency / brightness (over 60% light conversion) Rich set of lens options, incl. rectang. field of illum. (Fol) High reliability w/ wide temp. range options (-40 - 125°C) Optimized for high current pulse operation 	<ul style="list-style-type: none"> Camera & machine vision (especially rectangular Fol options)
	860 nm	655 - 1530 mW				
OSLON P1616 	950 nm	1150 mW	1000 mA	130° 1.6 x 1.6 x 0.81 mm ³	<ul style="list-style-type: none"> High quality & robust package for demanding circumstances Smallest size w/ high performance for space restricted designs 750 μm double-stack thinfilm chip techn. f. highest brightness Market leading power/size ratio in the IR high power LED area Chip package scalability: w/ or w/o lens @ same footprint 	<ul style="list-style-type: none"> Access control, security, authentication Eye, face, hand & gesture tracking Factory automation Machine vision Home & building automation Medical lighting Robotics
	940 nm	1485 mW				
	860 nm	1250 mW				
OSLON P1616 Lens 	950 nm	1150 / 1320 mW	1000 mA	70°, 130° @940nm 90°/140° (x/y rect.) @950nm 1.6 x 1.6 x 1.38 mm ³ 1.6 x 1.6 x 1.72 mm ³	<ul style="list-style-type: none"> AEC-Q102 Qualified Smallest size w/ high performance for space restricted designs 750 μm double-stack thinfilm chip techn. for highest brightness Market leading power/size ratio in the IR high power LED area Chip package scalability: w/ or w/o lens @ same footprint 	<ul style="list-style-type: none"> Automotive (in-cabin sensing)
	940 nm	1550 / 1650 mW				
	850 nm	700 1150 mW				
OSLON Piccolo Flat 	950 nm	1150 mW	1000 mA	130° 1.6 x 1.6 x 0.81 mm ³	<ul style="list-style-type: none"> AEC-Q102 Qualified Smallest size w/ high performance for space restricted designs 750 μm double-stack thinfilm chip techn. for highest brightness Market leading power/size ratio in the IR high power LED area Chip package scalability: w/ or w/o lens @ same footprint 	<ul style="list-style-type: none"> Automotive (in-cabin sensing)
	860 nm					
OSLON Piccolo Lens 	950 nm	1150 mW	1000 mA	70° 1.6 x 1.6 x 1,72 mm ³	<ul style="list-style-type: none"> AEC-Q102 Qualified Smallest size w/ high performance for space restricted designs 750 μm double-stack thinfilm chip techn. for highest brightness Market leading power/size ratio in the IR high power LED area Chip package scalability: w/ or w/o lens @ same footprint 	<ul style="list-style-type: none"> Automotive (in-cabin sensing)
	860 nm					
SYNIOS P2720 	950 nm	1100 - 1560 mW	1000 mA	120° 2 x 2.75 x 0.6 mm ³ (2.1mm w/ lens)	<ul style="list-style-type: none"> Very flat high power emitter w/ only 0.6mm height 1mm² double stack thinfilm chip techn. for highest brightness High reliability w/ wide temperature range options (-40 - 125°C) Centroid wavelength @ 920nm & 940nm for reduced red glow 	<ul style="list-style-type: none"> Access ctrl., security, authentication Eye, face, hand & gesture tracking Factory, home & building automation Robotics, machine vision Medical lighting
	940 nm					
	920 nm					
	860 nm					
LED ENGIN LuxiGen 	1050 nm	750 mW	1000 mA	90° @940nm , 100° 4.4 x 4.4 x 2.4 mm ³ 7 x 7 x 3.7 mm ³ @ >2580mW	<ul style="list-style-type: none"> Industry's most robust high power ceramic package w/ glass lens for high performance over full lifetime Operating temperature -40 - 115/125°C 	<ul style="list-style-type: none"> Access ctrl, security Appliances & tools, robotics Factory, home & bldg. automation Material processing Medical lighting
	940 nm	1350 / 3750 mW	1000 / 700 mA			
	850 nm	930 - 3750 mW	1000 mA			

LOW Power IR-LED Portfolio



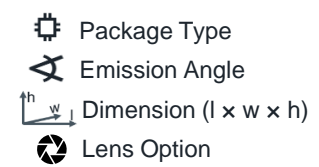
Overview of the most important product families in power¹⁾ range ≤0.1W

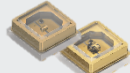



















Product Family	Spectrum (λ_{peak})	Power ¹⁾	Current (typ.)	Package	Features & Benefits	Application Focus
Chip LED 	950 nm	35 - 48 mW	70 mA	140° 1 × 0.5 × 0.45 mm ³	<ul style="list-style-type: none"> Standard and reverse mount option Very small package, suitable for SMT assembly 	<ul style="list-style-type: none"> Medical (digital diagnostic devices, vital signal monitoring) Access control, appliances & tools Eye, face, hand & gesture tracking
	860 nm					
Chip LED Lens 	950 nm	40 - 55 mW	50 -100 mA	18° - 80° 3 × 1.2 × 1.1 mm ³ 3 × 2.4 × 1.2 mm ³ 3.2 × 1.6 × 1 (or 1.85) mm ³	<ul style="list-style-type: none"> Narrow lens options available w/ 18° or 20° for focused beam Flexible design possibilities due to the availability of toplooker and sidelooker package options 	<ul style="list-style-type: none"> Industrial Automation (Machine Controls, Light Barriers, Vision Controls)
	860 nm					
FIREFLY 	950 nm	40 / 48 mW	70 mA	140° 1 × 0.55 × 0.325 mm ³	<ul style="list-style-type: none"> Very small sidelooker SMT package 	<ul style="list-style-type: none"> Eye tracking Gesture recognition
	930 nm					
	860 nm					
MIDLED 	950 nm	35 - 60 mW	70 / 100 mA	20°, 24° 3.1 × 2.25 × 1.6 mm ³	<ul style="list-style-type: none"> Availability as top & side-looker Short switching times Narrow beam angle 	<ul style="list-style-type: none"> Access control & security Appliances & tools Factory automation Robotics
	860 nm					
TOPLED 	950 nm	25 - 115 mW	70 / 100 mA	120° (130° Mini TOPLED) 2.2 × 1.4 × 1.3 mm ³ (Mini TOPLED) 3.5 × 2.8 × 1.9 mm ³ 5.2 × 2.8 × 1.9 mm ³	<ul style="list-style-type: none"> High quality robust package for demanding environments Scalable package option w/ single- & double-stack chip technology for different power classes UL certified options incl. matching detectors (e.g. SFH 2201/2, BPW 34S) Power option w/ 4 contact pads for improved heat dissipation Short switching times 	<ul style="list-style-type: none"> 3D Sensing Access control & CCTV Surveillance Industrial automation (Vision, Barriers, Controls) Gaming Appliances & tools
	860 nm					
TOPLED Lens 	950 nm	65 / 70 / 115 mW	100 mA	24°, 30°, 50° 3.5 × 2.8 × 3.5 (or 3.8) mm ³ 5.2 × 2.8 × 1.9 mm ³	<ul style="list-style-type: none"> Power option w/ 4 contact pads for improved heat dissipation Short switching times 	<ul style="list-style-type: none"> Access control & security Appliances & tools
	860 nm					
SIDELED 	950 nm	35 - 60 mW	70 / 100 mA	120° 4 × 4 × 3.6 mm ³ 1.2 × 3 × 1.1 mm ³ (Micro SIDELED)	<ul style="list-style-type: none"> Homogenous Radiation Pattern 	<ul style="list-style-type: none"> Access Control & Security Appliances & Tools Display mgmt & eye, face, hand tracking Factory, home & building automation
	860 nm					
SMARTLED 	860 nm	60 mW	100 mA	140° 1.7 × 0.8 × 0.65 mm ³	<ul style="list-style-type: none"> High optical total power combined w/ very small package Short switching times 	<ul style="list-style-type: none"> Medical health monitoring (heart rate, pulse oximetry)
Metal & Radial 	950 nm	25 - 80 mW	100 mA	6° - 60° 3.8 × 3.8 × 3.9 mm ³ to 5.7 × 5.7 × 8.6 mm ³	<ul style="list-style-type: none"> Broad set of lens options allowing matching desired application (lens option, robustness, UL certific. etc.) Flexible design possibilities due to different lead types Same package option for emitter and detector available 	<ul style="list-style-type: none"> Access control & security Factory automation Home & building automation Appliances & tools
	860 nm					

¹⁾ represented the typical radiant flux value

UV LED Portfolio

Overview of the most important product families

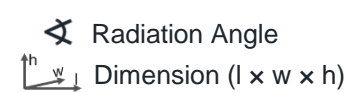




















Product Family	Spectrum (λ_{peak})	Power ¹⁾	Current (typ.)	Package	Features & Benefits	Application Focus
OSRAM OSOLON UV® 3535 	UV-C 270-280 nm	0.16 - 0.54 W	30 - 100 mA	 Ceramic  glass cover  120°  3.5 x 3.5 x 1.56 mm	<ul style="list-style-type: none"> Industry standard footprint and SMT solderability, full solder pad compatibility to all other products within OSOLON UV family Superior wall plug efficiency up to 4.1% Peak wavelength binning @ 5nm 	<ul style="list-style-type: none"> UV-C disinfection, treatment Agriculture & horticulture Material processing & curing
		1.1 - 2.1 W	185 - 350 mA	 Ceramic  no glass cover  120°  3.5 x 3.5 x 1.03 mm		
		2.2 W	350 mA	 Ceramic  no glass cover  120°  3.5 x 3.5 x 1.26 mm		
LED ENGIN LuxiGen 	UV-A 367 nm	1.39 W	900 mA	 Ceramic  glass lens  75°  4.4 x 4.4 x 2.7 mm	<ul style="list-style-type: none"> High robustness / high power ceramic package with glass lens for high performance over lifetime 	<ul style="list-style-type: none"> Agriculture & horticulture Appliances & tools Entertainment Material processing Medical lighting

¹⁾ represented the typical radiant flux value

Photodetectors





Overview of the most important Photodiodes (PD) & Phototransistors (PT)



Product	Type	Spectral Range ($\lambda_{10\%}$) min. [nm] max. [nm]	Sensitivity λ_{Peak} [nm]	Photocurrent (Typical)	Rise/Fall Time	Radiation Sens. Area	Package	Features & Benefits	Main Application
Chip LED 	PD PD/PT PD PD PD/PT	300 400 700 350 400 470 480	1100 950 1000 660 670 650 890 - 900 570	PD: 0.12 - 1.5 μ A PT: 7 - 49 μ A	PD: 0.07 - 0.4 μ s PT:	PD: 0.35 - 3.27 mm ² PT: 0.29 mm ²	 PD: 110° - 140° PT: 120°  PD/PT: 2.0 x 1.25 x 0.8 mm ³ PD: 2.0 x 1.8 x 0.6 mm ³ PD: 2.5 x 2.2 x 0.6 mm ³ PD: 3.2 x 2.0 x 0.6 mm ³	Very small package, suitable for reflow soldering, SMT option	Automotive (In-Cabin Sensing, Ambient Light, Rain/Tunnel Sensing) Medical (Vital Sign, Diagnostics)
TOPLED 	PT PT PD PD PD	450 750 300 400 480	1150 1120 1100 940 950 620 565 980 980	PD: 5.6 - 13 μ A PT: 45 / 85 μ A	PD: 0.4 - 1.2 / (20) μ s PT: 7 μ s	PD: 0.16 / 7.02 / 8.12 mm ² PT: 0.038 mm ²	 PD/PT: 120° PT: 50°  PT: 3.5 x 2.8 x 1.9 mm ³ PT: 3.5 x 2.8 x 3.35 mm ³ PD: 5.09 x 4.0 x 0.85 mm ³ PD/PT: 5.2 x 2.8 x 1.9 mm ³	Small silicone package w/ solder control structure Low leakage current	Industrial (Appliances & tools, access control & security, factory automation) Consumer & Wearables (eye / face / hand tracking)
MIDLED 	PT	500	1100 880	PT: 200	PT: 7 μ s	PT: 0.22 mm ²	 PT: 18°  PT: 3.1 x 1.6 x 2.25 mm ³ PT: 3.1 x 2.25 x 1.6 mm ³	Narrow angle, emitter same package option (SFH 46xx) available	Industrial (Appliances & tools, Access control & security, Factory automation)
SIDELED & Sidelooker 	PD/PT PD/PT PD	420 450 740 750 740	1120 1120 1100 980 900 900	PT: 50 - 80 μ A PD: 45 μ A	PD: 0.02 μ s PT: 7 μ s	PD: 7.02 mm ² PT: 0.038 mm ²	 PT: 120°, 130°  PT: 4.0 x 3.6 x 4.0 mm ³ PT: 4.85 x 2.85 x 6.9 mm ³ PT: 4.9 x 3.9 x 6.6 mm ³	High linearity Epoxy, PLCC-2 package	Industrial (Appliances & tools, Access control & security, Factory automation, HaBA) Consumer & Wearables (eye / face / hand tracking, display management)
DIL SMT & Smart DIL 	PD PD PD PD PT PD	420 300 380 730 - 800 400 400 400	1120 1100 1100 900 950 690 920 950 880 570 600 620	PD: 6.2 - 80 μ A PT: 9 / 14 μ A	PD: 0.005 / 0.09 / 200 μ s	PD: 1 - 8.12 PT: 0.29 mm ²	 PD/PT: 120°  4.6 x 2.0 x 1.05 mm ³ 5.15 x 3.85 x 2.05 mm ³ 6.45 x 3.85 x 1.15 mm ³ 5.15 x 3.85 x 2.05 mm ³	Fast response time Broad spectral option	Automotive (In-Cabin Sensing, Ambient Light, Rain/Tunnel Sensing) Medical, Industrial, Consumer
Radials & Metal Can 	PT PD/PT PD/PT PD PT PT PD	380 420 730 740 350 - 450 740 750 740 395 350	1150 1120 1100 1100 1060 960 820 860 860 920 850 850 850 615 550	PD: 2.7 - 135 μ A PT: 4.8 / 200 / 1650 - 9000 μ A	PD: 0.005 - 6 μ s PT: 7 - 20 μ s	PD: 0.31 - 7.45 mm ² PT: 0.038 - 0.55 mm ²	 PD: 20° - 150° PT: 16° - 160°  3.8 x 3.8 x 2.8 to 9.25 x 9.25 x 3.2	Fast response time Hermetically sealed metal package option for harsh ambient conditions	Industrial (Appliances & tools, Access control & security, Home & building automation, Factory automation)




Optical Modules (integrated emitters + photodetectors)

Overview of optical modules

Product Family	Product	Package	LEDs			Photodiode			Distance from Emitter to PD	Features & Benefits		Application Focus	
			Centroid Wavelength (λ nm)		Max Current (Pulsed)	Photocurrent **	Spectral Range (nm)	Sensitive Area					
BIOFY	SFH 7050 A 	4.7 x 2.5 x 0.9 mm ³	530	GREEN	300 mA	0.5 μA	400 - 1100	1.51 mm ²	2.83 mm (LEDs to PD)	<ul style="list-style-type: none"> Small multi chip package featuring emitter(s) and detector(s) Light Barrier to block optical crosstalk Green LED and sensitive PD combination is ideal for PPG measurements Red and IR LED/PD combination enables SpO2 measurements Proximity Sensing is also enabled by these LED/PD combinations. 	<ul style="list-style-type: none"> Compact Economical Option 	Vital Signs Monitoring: <ul style="list-style-type: none"> Heart Rate Monitoring Pulse Oximetry 	
			655	RED	300 mA	0.75 μA							
			940	IR	1000 mA	1.22 μA							
	SFH 7072 	7.5 x 3.9 x 0.9 mm ³	2x 530	2x GREEN	2x 300 mA	0.4 μA (PD1)	400 - 1100 (PD1)	0.88 mm ² (PD1)	5.9 mm (IR/Red to PD1)		<ul style="list-style-type: none"> 2x PDs optimized for HRM & SpO2: <ul style="list-style-type: none"> 1x Broadband PD 1x PD with optical grade IR-cut filter 2x Green LEDs for highest PPG signal 		Proximity sensing
						1.1 μA (PD2)							
			655	RED	300 mA	0.75 μA (PD1)	400 - 700 (PD2)	3.27 mm ² (PD2)	2.95 mm (Green to PD2)				
	SFH 7074 	12.0 x 4.1 x 0.8 mm ³	530	GREEN	300 mA	1.1 μA (PD3)	400 - 1100 (PD3)	3.27 mm ² (PD3)	6.09 mm (IR/Red to PD3)		<ul style="list-style-type: none"> 3x PDs optimized for HRM & SpO2: <ul style="list-style-type: none"> 1x Broadband PD 2x PDs with IR-cut filter, either side of the Green LED for maximum HRM signal 		Force Sensing
						0.95 μA (PD1/2)							
			655	RED	300 mA	1.6 μA (PD3)	400 - 660 (PD1/PD2)	2*3.27 mm ² (PD1+PD2)	3.0 mm (Green to PD1/2)				
	SFH 7070 	7.5 x 3.9 x 0.9 mm ³	2x 530	2x GREEN	2x 300 mA	0.985 μA	400 - 690	3.46 mm ²	2.94 mm (LEDs to PD)		<ul style="list-style-type: none"> Light barrier against cross-talk PD with IR-cut filter 2x Green LEDs for highest PPG signal 		Heart Rate Monitoring

Analog Front Ends

High Level Summary

Product	Package	LEDs or VCSELs	Photo-diodes	Other Functions	SNR	Parallel Drivers	ADCs	Supply	Inter-face	Power (I_{VDD}) ¹⁾	Features & Benefits	Application
AS7058 	WLCSP 2.82 x 2.55 ³ x 0.5 mm ³	8x LEDs or VCSELs	8x PD's <u>PD Current</u> • Max: 64uA • Resolution: 64pA ²⁾	• ECG • BioZ ³⁾ (Includes GSR, EDA & BIA)	120dB (incl post proces)	2 Drivers: 2x 300 mA	• Parallel ADC's : 2 for PD Current 1 for ECG/BioZ • Resolution: 20b • $t_{INTEGRATION} > 10\mu s$	VDD: 1.8V	I2C SPI	17μA	• 2x 20-bit ADCs for simultaneous PD acquisition • Very high SNR • Increased design flexibility due to 8 LEDs + 8 PDs • Small system footprint • Low power consumption	• Vital sign monitoring • Wearables • Smart watch • Hearables • Medical patches • Pulse-oximetry
AS7057 	WLCSP 1.68 x 1.68 ³ x 0.4 mm ³	3x LEDs	3x PD's <u>PD Current</u> Max: 64uA Resolution: 64pA ²⁾	• Proximity Interrupt	90dB	3 Drivers: 3x 200 mA	• Parallel ADC's : 2 for PD Current • Resolution: 20b	VLED: <5.5V	I2C	20μA	• 2x 20-bit ADCs for Simultaneous PD acquisition • High SNR • Advanced photodiode offset compensation • Proximity Detection • Low power • Small (WLCSP) package	
AS7056 		2x LEDs + 1x VCSEL				3 Drivers: 2x 200mA 1x 25mA (incl VCSEL Safety Ckt)						



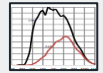












¹⁾ I_{VDD} @ 25 Hz Sample Rate and $t_{INTEGRATION} = 117 \mu s$;

²⁾ Resolution calculated as max-current / ADC resolution

³⁾ BioZ = Bio-Impedance, GSR=Galvanic Skin Response, EDA = Electrodermal Activity, BIA = Bioelectrical Impedance Analysis



Ambient Light Sensors (ALS)

High Level Summary

Product	Package	Output Channels	Power	Supply	Interface	Features & Benefits	Application
TSL25911 	FN Dual Flat No-Lead (6 p) 2.4x2x0.65 mm ³	<ul style="list-style-type: none"> 2-Channel ALS   Interrupt 	Active: 275 µA @ 3 V Sleep: 2.3 µA @ 3 V	3.3 V	I2C: 3.3 V/1.8 V	<ul style="list-style-type: none"> Ambient light sensor (3.3V) with dual diode two channel architecture allows for tunable illuminance Excellent ALS sensitivity to 188uLux (enables dark glass) Wideband & IR compensation channels 600M:1 dynamic range (dark room to sunlight) 	<ul style="list-style-type: none"> Display management
TSL2585 	OLGA-6; 2.0x1.0x0.35 mm ³	<ul style="list-style-type: none"> Photopic ALS  UVA  IR  Flicker Interrupt 	Active: 235 µA Sleep: 0.7 µA	1.8 V	I2C	<ul style="list-style-type: none"> High sensitivity ALS: reliable detection under low transmissivity UVA sensing for UV index estimation Small, very low profile: Ideal for height and space constrained cases Enables off-center system design, enhances industrial design flexibility Low power 	<ul style="list-style-type: none"> Display management UV index estimation Exposure and flicker detection for camera
TSL252x 	OLGA-6 2.0x1.0x0.5 mm ³	<ul style="list-style-type: none"> Photopic ALS  IR  Interrupt 	Active: 195 µA Sleep: 0.7 µA	1.8 V	I2C	<ul style="list-style-type: none"> Best ALS sensitivity, with UV/IR-blocked Clear Channel Flicker Immune Thin package optimized for height constrained applications Edge located photodiodes for µBezel Very Low power 	<ul style="list-style-type: none"> Indoor/outdoor brightness information Display management Camera image correction
SFH5721 	Clear Epoxy 6-pin; 2.0x2.0x0.5 mm ³	<ul style="list-style-type: none"> Photopic ALS  IR  Dark Channel 	Active: 265 µA @ 3 V Shutdown: 0.32 µA @ 3 V	3.3 V	I2C: 3.3 V/1.8 V	<ul style="list-style-type: none"> Photopic, infrared and dark channel integrated in one single chip Low noise => excellent SNR HDR (1mlux – 67Klux) & Temp range (-40 to 85°C operation) Sync input function 	<ul style="list-style-type: none"> 3D Sensing Display Management Gesture Recognition Remote Control Proximity Detection
SFH5701x 	2-pin 2x1.25x0.8 mm ³	<ul style="list-style-type: none"> Analog Photopic ALS  	Current: 0.01 - 10000 µA	1.45 V to 5 V	Analog Current	<ul style="list-style-type: none"> Analog output current is proportional to Ambient Light Intensity. Illuminance Range: 0.01lx to 10000lx Sensitivity: 1uA/lx; Typical output current = 135uA@100lx Dark Current Compensation integrated 	<ul style="list-style-type: none"> Industrial Automation (Machine Controls, Light Barriers) Remote Control Smart Home

Capacitive Sensors

High Level Summary

Product	Package	Inputs	Sensitivity & Resolution	Range	Measurement Frequency	Supply & Interface	Power	Features & Benefits	Application
AS8579 	SSOP 24 8.2x7.8x1.8 mm ³	10	80 fF 10 bits (ADC) 14 bits (accumulated)	2 - 2000 pF	45-125 kHz	Supply: 5V Interface: SPI	50mA	<ul style="list-style-type: none"> • Separation of resistive and capacitive components due to unique "IQ" measurement => highly reliable • 10 channels • Good sensitivity over wide range. • Touchless and wear free technology • Programmable frequency for measurement. • AEC-Q100 Grade 1 • Active shielding output. • Long term delivery and quality due to ams' own production site in central Europe 	<ul style="list-style-type: none"> • Autonomous driving: hands on steering, seat occupancy detection • Interior Controls/ Switches (A/C, radio navigation) • Fluid Level Sensing • Human presence • Quality Sensing
AS8580 	TSSOP 14 5x4.4x1.1 mm ³	4	1.9 fF 12bits (ADC)	0 - 70 pF	5-20 MHz		16mA	<ul style="list-style-type: none"> • Extremely sensitive • Low Consumption • Intrinsic compensation of parasitic resistance to enable pure capacitive measurement • No external oscillator needed • AEC-Q100 Grade 1 	

dToF Sensors















High Level Summary



Single Zone



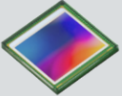


Multi-Zone

Product	Zones @FrameRate	Package	Range		Field of View	Accuracy	Sunlight Immunity	Power	Common Features & Benefits	Specific Features	Applications
			Min	Max							
TMF8801 	Single @30Hz 	OLGA-12 3.6 x 2.2 x 1.0 mm ³	1 cm	250 cm	24° to 37° far/near	+/-5%	100k lux @ 60 cm 350 lux @ 250cm	230µA @ 1Hz 27mA @ 30Hz 0.26µA @ Pwrn	<ul style="list-style-type: none"> Small Footprint (enables narrow bezel) High accuracy Dynamic cover glass calibration for easy design Temperature and drift compensated by Reference SPAD On-chip Histogram processing: distance and signal quality reported Smudge & Crosstalk compensation built in Eye-safety circuitry shuts down VCSEL at fault. (Class1) Low power: longer battery 	<ul style="list-style-type: none"> Wafer level optical filter for sunlight immunity No FW download for 5m Distance modes upto 10m I2C: 1.2V/1.8-3.3V 	<ul style="list-style-type: none"> Camera autofocus; Complementing 3D camera; Presence detection Object detection & Collision avoidance
TMF8806 	Single @30Hz 		0 cm	1000 cm		+/-3%	350 lux @ 500 cm	14µA @ 0.5Hz 27mA @ 30Hz 0.26µA @ Pwrn			
TMF8701 	Single @60Hz 		0 cm	60 cm		+/-5%	100k lux @ 35 cm 350 lux @ 60 cm	940µA @ 10Hz 26mA @ 60Hz 0.26µA @ Pwrn			
TMF8820 	3x3 @30Hz 	OLGA-12 4.6 x 2.0 x 1.4 mm ³	1 cm	500 cm	up to 63° diagonal	+/-2% Short range +/-3% Long range	10k lux @ 150cm 1k lux @ 450cm	141mW @ 3x3 / 30Hz 2µA @Pwrn	Supply: <ul style="list-style-type: none"> VDD: 3V Interface: <ul style="list-style-type: none"> I2C/I3C: 1.8-3.3V 	<ul style="list-style-type: none"> Wafer level optical filter for sunlight immunity Very wide field of view User-configurable zones to allow selecting area of interest Multi Object 8821: Time multiplex mode for (4x4, 3x6) 8828: Time multiplex mode for 8x8 	<ul style="list-style-type: none"> Presence detection Click to focus, Object tracking, (Computing, Industrial) Object detection & collision avoidance (Robotics) Light curtain (Industrial)
TMF8821 	4x4 , (3x3, 3x6) @15Hz 										
TMF8828 	8x8 @7Hz (4x4, 3x3, 3x6) @ 15/30Hz) 										
TMF8829 ^{*)} 	32x32 @10Hz (8x8, 16x16 @ 30Hz) 										

*) up to 48x32 zones also possible, B-samples available for device

Global Shutter Image Sensors





VIS & NIR Spectrum

Product	Size	Resolution	Optical Format	Pixel Size	Frame Rate ¹⁾	Dynamic Range	Power	Filter	Package	Inter-faces	Features & Benefits	Main Application
 Mira220	5.3x5.3 mm ²	2.2 MPixel <i>H x V:</i> 1600 x 1400	1/2.7"	2.79 μm	90 fps	63.6 db	350 mW @ 90 fps 290 mW @ 30 fps 4 mW @ <i>Standby</i>	mono RGB RGB-IR	Chip, CSP, <i>module</i>	I2C (ctrl) MIPI, CSI-2, DPHY	<ul style="list-style-type: none"> Market leading 40% quantum efficiency at 940nm Stacked back-side illuminated pixel design allows for better sensitivity pixels at small overall form-factor Small chip or CSP package device footprint (up to 20% smaller than close competitor or higher pixel count at similar device area) 	Robotics Biometric Access Home & Building Automation (HaBA) AIDC scanners Factory Automation Appliances & Tools Projection & Display Computing
 Mira050	2.25x2.75 mm ²	0.5 MPixel <i>H x V:</i> 576 x 768	1/7"	2.79 μm	<200 fps	63 db	73 mW @ 120 fps 17 mW @ 30 fps 0.06 mW @ <i>Standby</i>	mono RGB RGB-IR	Chip, CSP, <i>module</i>			AR/VR Computing Robotics Factory Automation
 Mira016	1.7x1.7 mm ²	0.16 MPixel <i>H x V:</i> 400 x 400	1/10"	2.79 μm	480 fps	>60 db	<10 mW	mono	Chip, CSP, <i>module</i>			

¹⁾ Maximum frame rate measured @ full resolution

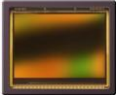
Global Shutter Image Sensors

VIS Spectrum

Product	Size	Resolution	Optical Format	Pixel Size	Frame Rate ¹⁾	Dynamic Range	Power	Filter	Package	Inter- faces	Features & Benefits	Main Application
CMV 2000 	13.5×18.65 mm ²	2 MPixel <i>H × V:</i> 2048 × 1088	2/3"	5.5 μm	340 fps	60 dB	550 - 1200 mW	Mono, RGB	PGA / LGA / LCC, plain & incl. cov-glass ²⁾	16× LVDS	<ul style="list-style-type: none"> Flexibility in Hw due to pin compatibility of CMV200 & CMV4000 High dynamic range with dual exposure Reliable tracking of fast moving objects 	<ul style="list-style-type: none"> Machine Vision 3D Imaging Motion Capture Bar- and QR-Code Scanning Intelligent traffic systems Video and Broadcast Biometrics
CMV 4000 	18.65×18.65 mm ²	4 MPixel <i>H × V:</i> 2048 × 2048	1"	5.5 μm	180 fps	60 dB	550 - 1200 mW	Mono, RGB	PGA / LGA / LCC, plain & incl. cov-glass ²⁾	16× LVDS		
CMV 12000 	33.8×47 mm ²	12 MPixel <i>H × V:</i> 4096 × 3072	35mm	5.5 μm	300 fps	60 dB	~2.1-4W	Mono, RGB	PGA, plain	64× LVDS	<ul style="list-style-type: none"> Capable of using standard optics 	<ul style="list-style-type: none"> Material Processing Factory Automation
CMV 20000 	51.9×48.1 mm ²	20 MPixel <i>H × V:</i> 5120 × 3840	35mm	6.4 μm	30 fps	66 dB	~2-25W	Mono, RGB	PGA incl. cover glass ²⁾	16× LVDS		
CSG8K 	22×20 mm ²	8 MPixel <i>H × V:</i> 3840 × 2160	3/4"	3.2 μm	231 fps	69 dB (linear)	1930 mW	Mono, RGB	LGA incl. cover glass ²⁾	16× LVDS	<ul style="list-style-type: none"> High speed, high resolution OB pixels for on-chip offset & noise corrections Output data compression Binning for higher FWC, DR and SNR Dual exposure HDR mode Ext. trigger & exposure control possible Image statistics gathering Flexibility in Hw due to pin compatibility of CSG8K & CSG14K 	
CSG14K 	22×20 mm ²	14 MPixel <i>H × V:</i> 3840 × 3584	1.05"	3.2 μm	140 fps	69 dB (linear)	1930 mW	Mono, RGB	LGA incl. cover glass ²⁾	16× LVDS		




Rolling Shutter Image Sensors

VIS Spectrum

Product	Size	Resolution	Optical Format	Pixel Size	Frame Rate ¹⁾	Dynamic Range	Power	Filter	Package	Inter- faces	Features & Benefits	Application
<p><u>CHR 71000</u></p> 	34×39 mm ²	<p>71 MPixel</p> <p><i>H × V:</i> 10000 × 7096</p>	35 mm	3.1 μm	3 fps	63 dB	435 mW	Mono, RGB	Ceramic PGA, plain & w/ cov-glass ²⁾	8× LVDS	<p>Highest resolution image sensor w/ on-chip timing generation</p> <p>Strong electro-optical performance in compact form factor</p> <p>Rolling shutter technology</p>	<p>High-end vision solutions for</p> <ul style="list-style-type: none"> • material processing • factory automation

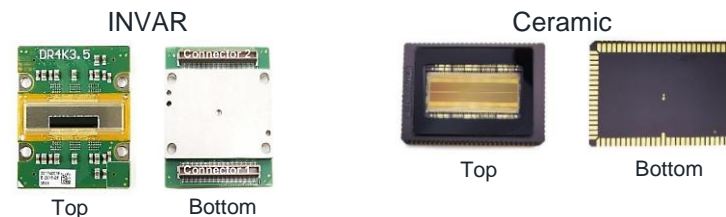
Line Scan Image Sensors

VIS Spectrum

Product	Size [mm ²]	Resolution [kP] (H × V)	Pixel Size	Frame Rate ¹⁾	Dynamic Range	Power	Filter	Package	Interfaces	Features & Benefits	Application
Dragster (1-Line) 	???	2 (2082 × 1) 4 (4128 × 1) 6 (6174 × 1) 8 (8224 × 1) 16 (16448 × 1)	7 μm <i>(2 – 8kP)</i> 3.5 μm <i>(4 – 16kP)</i>	80 kHz	67 dB	0.5 - 4 W <i>(0.5W per 2kP segment)</i>	Mono, RGB+Mono	INVAR, Ceramic <i>(both w/ cover glass and anti-reflective coating)</i>	SRAM like parallel pixel interface plus 1x SPI per 2k segment (config only)	Easy integration using common integration platform (most complete sensor family w/ identical camera interface).	Machine vision Document scanner Print media Sorting in food industry or industrial production Automated Optical Inspection for food, battery, print, PCB / flat-panel / battery manufacturing etc.
Dragster (2-Line) 	???	4 (2082 × 2) 8 (4128 × 2) 16 (8224 × 2)		160 kHz <i>(80 kHz × 2)</i>						SRAM like parallel pixel interface plus 2x SPI per 4k segment (config only)	
4LS (4-Line) 	55 × 60 (5kP) 98 × 60 (10kP) 98 × 60 (15kP)	5 (5152 × 4) 10 (10304 × 4) 15 (15456 × 4)	5.6 μm	480 kHz <i>(120 kHz × 4)</i>	<58 dB	3.85 - 11.5 W	Mono, RGB+Mono	INVAR		Fastest high-resolution sensor on the market operating four lines simultaneously	




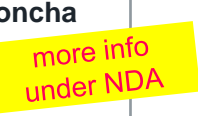
¹⁾ Maximum frame rate measured @ full resolution

Overview of package types



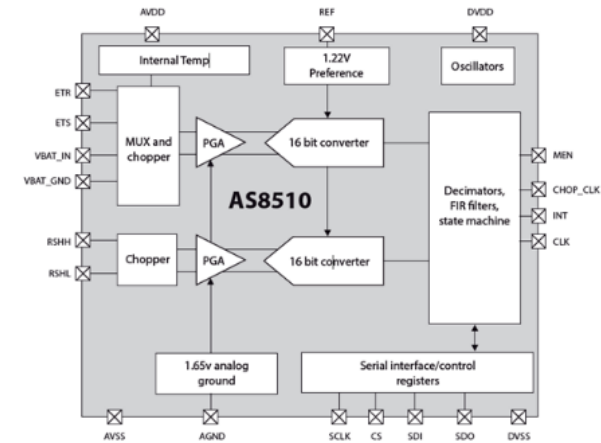
Miniature Cameras



VIS Spectrum, Rolling Shutter Technology

Product	Size ¹⁾ [mm ³]	Resolution	Lens Config.	Pixel Size	Frame Rate ²⁾	Dynamic Range	Power	Filter	Package	Inter- faces	Features & Benefits	Main Application
 NanEye2D	1 × 1 × 1.6	0.062 Mpixel HxV: 250 × 250	FOV: 90°/120° Aperture: F2.7/F2.8	3x3 μm	42 - 62 fps	58 dB	1.5 - 16.1 mW (supply depend.)	Mono (SGA) RGB (cabled)	CSP SGA cabled module (2m)	10bit serial LVDS 4-wire	<ul style="list-style-type: none"> Fully integrated camera module incl. optics w/ tiny footprint, available as 4-pad solder or cabled option highly sensitive pixel, with reduced noise and higher light efficiency Pre-assembled cable eliminates the complexities of cable procurement / attachment allowing easy integration Possible to drive a signal through an endoscope of up to 3m with low EMI 	<ul style="list-style-type: none"> Medical & industrial endoscopy
 NanEyeM	1.05 × 1.05 × 2.77	0.1 MPixel HxV: 320 × 320)	FOV120° F4	2.4 μm	4 - 49 fps	60 dB	3.2 - 12 mW (mode depend.)	RGB	Cabled module (2 & 2.5m)	10bit serial LVDS 4-wire	<ul style="list-style-type: none"> Higher resolution fully integrated camera module incl. optics w/ tiny footprint, cabled option Sensitive pixel, with reduced noise & higher light efficiency @ better resolution Optional integration w/ 2 LEDs, selectable in spectrum 	<ul style="list-style-type: none"> Intra-oral scanning Appliances & tools Eye, face & hand-tracking for AR / VR Gesture recognition Robotics
 NanEyeC	1.04 × 1.04 × 2.292	0.1 MPixel HxV: 320 × 320	FOV: 120° Aperture: F4	2.4 μm	1 - 58 fps	60 dB	3.2 - 12 mW (mode depend.)	RGB	CSP	Single ended 4-wire	<ul style="list-style-type: none"> Higher resolution fully integrated camera module incl. optics w/ tiny footprint, 4-pin solder option Sensitive pixel, with reduced noise & higher light efficiency @ better resolution 	<ul style="list-style-type: none"> Ideal for single-use applications
 Poncha more info under NDA		>1 MPixel HxV:									<i>Next generation pixel design with higher resolution</i>	

IVT Sensors (Battery Management)









High Level Summary



Product	Package	Current Measurement Channel	Voltage / Temperature Channel	Features & Benefits	Application
AS8512 	SSOP20 7.2x7.8x2 mm ³	Current Range: 1mA to 1500kA Shunt resistor: 100μΩ Accuracy: Total: < ±0.5% Linearity: < ±0.25%	Inputs to Channel (multiplexed): External Inputs: . Battery voltage (attenuated) . External temperature sensor Internal temperature sensor Vin Range: -160 to +160 mV Accuracy: < ±0.5%	<ul style="list-style-type: none"> • Battery Current, Voltage and Temperature • High accuracy measurement over full temperature range due to Unique measurement principle • 16-bit resolution • High precision and stability 1.2V Vref source (±3.5mV) • Low supply voltage (3.3V) • Power (30mA typical and 40uA standby) • SPI Communication • Flexible configuration, Integrated diagnostics • Flexible in-house Supply chain, 0.45ppm 	<ul style="list-style-type: none"> • Grid Storage Systems • Energy Storage Systems at Home • E-bikes • Robotics, • Tools
AS8510 		Sampling Rate: 1Hz to 8 kHz	External Temperature Sensor Bias Current: 270uA (typ)	<ul style="list-style-type: none"> • All above plus temp range upto 125 • Automotive Qualified AEC-Q100 	<ul style="list-style-type: none"> • All above plus Automotive

Optical Force Sensors

High Level Summary

Product	Type	Package	Configuration		Supply	Interface	Features & Benefits	Application
			Emitter	Detector*				
AS7100  upcoming	Integrated Module	PMDFN12 4.0 × 3.05 × 0.7 mm ³	<ul style="list-style-type: none"> • Integrated • 1 LED (IR) • 250mA 	<ul style="list-style-type: none"> • Integrated • 6x IR PD's • Baseline: 2.6mm 	VDD: 3.3V	I2C: 1.8, 3.3V	<ul style="list-style-type: none"> • Automotive compliant (EC-Q102-003) • High SNR, resolution down to 1µm • Dual photodiode architecture for distinct Prox & Force 	<ul style="list-style-type: none"> • 1 – 2x force touch single buttons. • Automotive & Industrial Smart surfaces.
AS7150  upcoming	Analog Front End (AFE)	WLCSP 1.68 × 1.68 × 0.4 mm ³	<ul style="list-style-type: none"> • External • 3x LEDs (3x Driver) • 300 mA 	<ul style="list-style-type: none"> • External • 3x PD's (2 ADC's) • 64uA max 	VDD: 1.8V VLED: <5.5V	I2C	<ul style="list-style-type: none"> • 2x 20-bit ADCs for Simultaneous photodiode acquisition • Threshold-based interrupt • Very high SNR, Photodiode offset compensation, low power • Signal processing, filtering, FIFO 	<ul style="list-style-type: none"> • Up to 3x (or 8x for AS7160) single buttons as combination of the a single AS7* (AFE) and multiple SFH7* (OFE's) • Touch-on-metal surfaces, keypads, water/dirt-proof switches • Smart home, HaBA, appliances, consumer, medical,.
AS7160  upcoming		WLCSP 2.82 × 2.55 × 0.5 mm ³	<ul style="list-style-type: none"> • External • 8x LEDs (Drive Mux) • 300 mA 	<ul style="list-style-type: none"> • External • 8x PD's (2x ADC's) • 64uA max 		I2C, SPI	<ul style="list-style-type: none"> • 2x 20-bit ADCs for Simultaneous photodiode acquisition • Extremely high SNR, photodiode offset compensation • Signal processing, filtering, FIFO • Small system footprint (8 LE/PD pairs with one AFE!) 	
SFH 7050A 	Optical Front End (OFE)	Top Looker 4.7 × 2.5 × 0.9 mm ³	<ul style="list-style-type: none"> • 3x LED (IR+R+G) • 1A (IR) 	<ul style="list-style-type: none"> • 1x PD • 1.2uA typ • 1.5 mm² 	VLED:1.3-2.6V	-	<ul style="list-style-type: none"> • Small package • Large sensitive area PD (1.5mm²) => great sensitivity • Light Barrier to block optical crosstalk • 2nd PD (SFH7062) for differential measurements 	<ul style="list-style-type: none"> • Optimally suited for touch detection on edges
SFH 7061/2  upcoming		Top Looker 1.8 × 1.0 × 0.5 mm ³	<ul style="list-style-type: none"> • 1x LED 	<ul style="list-style-type: none"> • 1x PD 		<ul style="list-style-type: none"> • Side looker => force/touch sensing on same plane as PCB • 2nd PD (SFH7066) for differential measurements 		
SFH 7065/6  upcoming		Side Looker						
SFH 4053 	Separate Emitter & Detector	1.0 × 0.5 × 0.45 mm ³	<ul style="list-style-type: none"> • 1x LED • 0.7 A 	-	VLED:1.6V	-	<ul style="list-style-type: none"> • Integrated ADC with I2C interface 	<ul style="list-style-type: none"> • 1 pair per button, for use cases that do not allow for integrated front end
SFH 5721 		2.0 × 2.0 × 0.5 mm ³	-	<ul style="list-style-type: none"> • 1x PD 	VDD: 3.3V	I2C	<ul style="list-style-type: none"> • Low noise => excellent SNR 	

Position Sensors

Package Options





















Position Sensing Scope



Product	Auto Qual	Dual Die	Package	Tech.	Sensing Scope	Resolution	Accuracy**	Speed	Sample Time	Supply	Output Interfaces	Features & Benefits	Application	
AS5600x	-	-	SOIC8 WLCSP	Magnetic	Rotary	12 bit, 0.088°	1.0°	~1000 rpm	125 μs to 150 μs	5V, 3.3V	I ² C, PWM Analog	<ul style="list-style-type: none"> • Easy to program, high resolution contactless magnetic position sensor. • Highest reliability & durability. • Great flexibility on angular excursion. • Field Range: 10-90mT. 	<ul style="list-style-type: none"> • Low-power • Cost Effective • Compact 	<ul style="list-style-type: none"> • Price sensitive applications • Potentiometers, knobs, pedals, servos
AS5200L	✓	✓	MLF16								I ² C, PWM			
AS5070x	-	-	SOIC8								UART PWM/SENT or Analog			
AS5171x	✓	-	SIP								PSI5			
AS5270x	✓	✓	MLF16								PSI5			
AS5172x	✓	-	TSSOP14 SIP		PSI5	• PSI5 interface								
AS5116	✓	-	SOIC8		High Speed Rotary	Analog (∞)	1.0°	30,000 rpm	-	5V, 3.3V	Analog (sin/cos)	<ul style="list-style-type: none"> • High-resolution rotary position sensor for fast absolute angle measurement. • Strong stray field immunity • Easy to use . • No programmer needed • Versatile choice of the interface. • Lower system cost (no shielding) • Magnet size: 6-8mm 	<ul style="list-style-type: none"> • High speed, Analog Interface 	<ul style="list-style-type: none"> • Simple ASIL
AS5215	✓	✓	MLF32								Economical			
AS5047D	-	-	TSSOP14								High speed			
AS5147	✓	-	TSSOP14								High speed, Integrated Filter			
AS5247	✓	✓	MLF40	High speed, Integrated Filter										
AS5047P	-	-	TSSOP14	High speed, Integrated Filter										
AS5147P	✓	-	TSSOP14	High speed, Integrated Filter										
AS5047U	-	-	TSSOP14	High speed, Integrated Filter										
AS5147U	✓	-	TSSOP14	High speed, Integrated Filter										
AS5247U	✓	✓	TQFP-32	High speed, Integrated Filter										
AS5510	-	-	SOIC8 WLCSP	Linear	10 bit	3%	-	20 μs	5V, 3V	I ² C	<ul style="list-style-type: none"> • Short strokes measurement, power down mode, simple interface, high resolution. Range: +/-25mT 	<ul style="list-style-type: none"> • Linear short strokes: Servo, camera lens etc 		
AS5311	-	-	TSSOP20		12 bit (488nm)	5.6 μm	650 mm/s			PWM, ABI, SSI			<ul style="list-style-type: none"> • High resolution linear motion and off-axis rotary • Immune to external magnetic stray fields 	
AS5715R	✓	-	TSSOP14	Inductive	Linear	Analog (∞)	0.3°***	480,00 rpm	-	5V	Analog (sin/cos)	<ul style="list-style-type: none"> • High Speed & Accuracy; Flexible pcb design: Hollow shaft, side shaft coil & sensor layout. • Inductance 1uH. 	<ul style="list-style-type: none"> • Traction Motor control. • BLDC, Brake booster, power steering 	

Proximity Sensors (Modules)


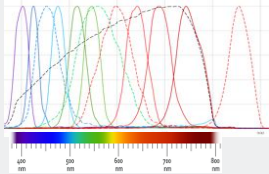




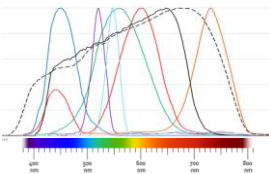



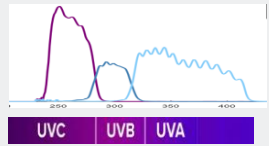


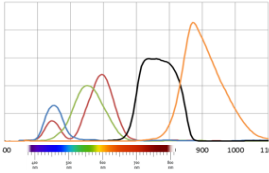




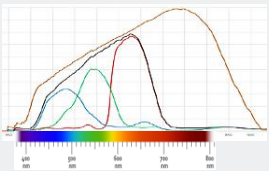

High Level Summary

Product	Package	Output Channels	Sensor Parameters		Supply	Interface	Features & Benefits	Application
			Emitter	Proximity**				
TMD2636 	OLGA-6 Ultra small 2x1x 0.35 mm ³	<ul style="list-style-type: none"> Proximity  Near, Far Interrupts: Detect / Release 	<ul style="list-style-type: none"> VCSEL (940nm) 7mA Class-1 safe 	<ul style="list-style-type: none"> Baselines: 0.2 & 0.75mm Range (typ): 10mm ?? 	VDD: 1.8V VCSEL: 3.3V	I2C	<ul style="list-style-type: none"> Ultra low-height & Low power (perfect for earbuds/accessories) Automatic ambient light compensation for proximity measure Near/far photodiodes and offset emitter/detector placement Better aperture design flexibility (1.5mm circular/ 1x2mm oval) 	<ul style="list-style-type: none"> Smallest size applications In ear detection
TMD2712 	OLGA-6 2x1x0.5 mm ³	<ul style="list-style-type: none"> Proximity  Photopic ALS  NIR  Interrupts  	<ul style="list-style-type: none"> VCSEL (940nm) 8mA Class-1 safe 	<ul style="list-style-type: none"> Baseline: 1.55mm Range (typ): 30mm 	VDD: 1.8V VCSEL: 3.3V	I2C	<ul style="list-style-type: none"> Smallest packaged Prox + ALS Low cross talk, ambient light cancellation & offset adjustment Significant cost saving, no light pipe, no special ink, no interposer Wider FOV and long Prox detection range 	<ul style="list-style-type: none"> User proximity Ambient Light Sensing Display management
AS7100 upcoming 	PMDFN12 4x3x0.7 mm ³	<ul style="list-style-type: none"> Proximity  Optical Force  Interrupts  	<ul style="list-style-type: none"> LED (940nm) 250mA 	<ul style="list-style-type: none"> Baseline: 2.6mm Range: upto 300mm 	VDD: 3.3V	I2C: 1.8 & 3.3V	<ul style="list-style-type: none"> Automotive compliant High SNR, resolution down to 1µm thanks to latest gen tech Dual photodiode architecture for distinct Prox & Force 	<ul style="list-style-type: none"> Automotive, Industrial smart surfaces. switches
TMD3725 	OLGA-8 single-hole 3.65x2x1 mm ³	<ul style="list-style-type: none"> Proximity  RGB + Clear  Interrupts 	<ul style="list-style-type: none"> IR LED 90mA 	<ul style="list-style-type: none"> Baseline: 1.055mm Range (typ): 30mm 	VDD: 1.8V VLED: 3.3V	I2C	<ul style="list-style-type: none"> Proximity + RGB Color with <10% CCT accuracy High SNR & dynamic range: dark room to sunlight operation Low cross talk, ambient light cancellation & offset adjustment Reduces board space requirements 	<ul style="list-style-type: none"> Ambient light & prox sensing Display and camera mgmt
TMD27723 	8-pin 4x2.4x1.3mm ³	<ul style="list-style-type: none"> Proximity  ALS  Interrupt  	<ul style="list-style-type: none"> IR LED <100mA 	<ul style="list-style-type: none"> Baseline: 2.4mm Range (typ): 30mm 	VDD: 3V VLED: <4.4V	I2C: 1.8 & 3V	<ul style="list-style-type: none"> 3V supplied ALS and proximity sensor 1M:1 dynamic range with high sensitivity ALS based on patented dual-diodes Calibrated and trimmed prox detection 	<ul style="list-style-type: none"> Display Control, Switch, Industrial Process Control, Medical Diagnostics

**Baseline = Distance from Emitter to Photodiode


Spectral & Color Sensors

High Level Summary

Product	Package	Spectral Responsivity	Output Channels	Supply	Interface	Features & Benefits	Application
TCS3448/9 	OLGA-8 3.1 × 2.0 × 1.0 mm ³		14 Total: • X,Y,Z  • 8 Col : 405-745nm  • NIR: 855nm  • Clear, Flicker	1.8 / 1.2V	I2C/ I3C	<ul style="list-style-type: none"> Spectrometer: 8 Colors in VIS range + true color (XYZ) channels Highest Sensitivity for ultra low light operation Nano-optic interference filter with high spectral resolution Delivers quantitative results (color grade) Calibration data available for TCS3449 	<ul style="list-style-type: none"> Spectrometer for Horticulture (PAR, PPDF) Smoke detection, Color matching, Skin tone , Lab reagent analysis
TCS3530 	OLGA-8 with diffuser 2.5 × 1.8 × 1.5 mm ³		8 Total: • X,Y,Z  • HgL & HgH: 519nm, 545nm • NIR: 750nm  • Clear, Flicker	1.8V	I2C/I3C: 1.8 & 1.2V	<ul style="list-style-type: none"> Integrated diffuser in package – simplifies design Factory calibrated with multiple light-sources Ultra-high sensitivity & true color (XYZ) channels => high-accuracy sensor mimicking the human eye Flicker detection up to 7 kHz (14kS raw data) 	<ul style="list-style-type: none"> Automatic white balancing in cameras, Display color management.
AS7331 	OLGA-16 3.6 × 2.6 × 1.1 mm ³		3 Total: • UVA, UVB, UVC 	3.3V	I2C	<ul style="list-style-type: none"> UVA/B/C filter characteristic (238nm – 415nm) 250M:1 dynamic range (16...24 Bit ADC) with a sensitivity up to 2295 counts/(μW/cm²) in UV No filter aging or drifts over lifetime and temperature 	<ul style="list-style-type: none"> UVC- treatment (water, air, surfaces) Partial Discharge Det Home appliances
TCS3430 	OLGA-8 2.41 x 1.75 x 1.00 mm ³		5 Total: • X,Y,Z  • Far-Red/IR: 750nm  • IR: 875nm 	1.8V	I2C	<ul style="list-style-type: none"> CIE 1931 Tristimulus color sensing (XYZ) & Dual IR channels Small footprint & low profile for an optical window-ed package Dual IR channels enables IR slope measurement to identify light source High sensitivity, wide dynamic range (1M:1) 	<ul style="list-style-type: none"> Display Management Color matching Light source identification White Balancing
TCS3410 	OLGA with Clear mold 2.0 × 1.0 × 0.5 mm ³		5 Total: • R,G,B  • Clear • Flicker	1.8V	I2C	<ul style="list-style-type: none"> RGB sensing with high sensitivity under any glass type CCT measurements in parallel to Flicker measurements Ultra-thin package optimized for height constrained applications Edge located photodiodes for μBezel or combined apertures 7 kHz flicker detection for high PWM LED light sources 	<ul style="list-style-type: none"> Display color management, brightness control AWB and flicker detection for camera enhancement

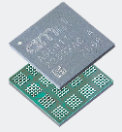
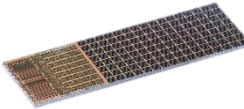
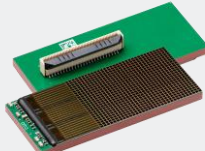
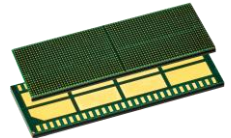
Temperature Sensors

High Level Summary

Product	Package	Accuracy			Temperature Range	Supply	Features & Benefits	Application
		$\leq 0.1^{\circ}\text{C}$	$\leq 0.5^{\circ}\text{C}$	$\leq 1^{\circ}\text{C}$				
AS6221	WLCSP 6pin 1.5 x 1.0 x 0.5 mm ³ 	$\pm 0.09^{\circ}\text{C}$ @ 20...42°C	$\pm 0.3^{\circ}\text{C}$ @ -40...125°C		-40°C - to 125°C	1.71 - 3.6V @ 0...125°C 2.00 - 3.6V @ -40...125°C	<ul style="list-style-type: none"> • Ultra low power consumption <ul style="list-style-type: none"> - 6µA @ 4Hz - 1.6µA @ 1Hz - 0.1µA @ standby • High temperature accuracy and 16-bit resolution • Small size (WLCSP) enables Minimal board space • Fast reaction time (Conversion time of 36ms) • Easy to Use solution; No calibration or linearization needed • Complete sensor system with serial bus connection • Alert functionality for exact temperature control • Broad Supply Range 	<ul style="list-style-type: none"> • Thermostat control • PCB temperature monitoring • Home automation • Smoke detectors • Cameras • HVAC • Cold chain monitoring • Industrial automation
AS6212		$\pm 0.2^{\circ}\text{C}$ @ -10... 65°C	$\pm 0.3^{\circ}\text{C}$ @ -40...-10°C $\pm 0.5^{\circ}\text{C}$ @ 85...125°C					
AS6214		$\pm 0.4^{\circ}\text{C}$ @ 0... 65°C	$\pm 1.0^{\circ}\text{C}$ @ -40...0°C @ 65...125°C					
AS6218		$\pm 0.8^{\circ}\text{C}$ @ 0... 65°C $\pm 1.0^{\circ}\text{C}$ @ -40...0°C & @ 65...125°C						
AS6221T		$\pm 0.09^{\circ}\text{C}$ @ 20°C... 42°C	$\pm 0.12^{\circ}\text{C}$ @ 0°C ...60°C		0°C to 60°C	1.8V		


CT Sensors

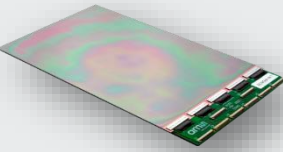
High Level Summary

Product Family	Product	# of input channels	# of Slices in CT	Integration time (min.)	Power	Package	Features & Benefits	Application
Standalone ADCs 	AS5900	128	n/a	50 μ s	1 mW/ch	FBGA @ 10 x 10mm ²	<ul style="list-style-type: none"> Best in class ADC performance across all CT segments Very low power dissipation down to 1mW/channel Ultra-low noise down to 0.29 fC Very fast integration time down to 50μs High linearity of \pm250ppm of reading \pm1ppm of FSR 	<ul style="list-style-type: none"> Medical CT imaging Security X-ray
	AS5911	256	n/a	51 μ s	1.25 mW/ch	FBGA @ 14 x 14mm ²		
	AS5912	512	n/a	51 μ s	1.25 mW/ch	FBGA @ 23 x 15mm ²		
Integrated Sensor (pixel array + ADC) 	AS5950	64	16	200 μ s	0.65 mW/ch	die-on-foil	<ul style="list-style-type: none"> Monolithic integration of ADCs and photodiode array Cost and performance optimized solution for CT value segment Ultra-low dark current of max. 1pA High signal to noise ratio due to low noise of 0.36 fC incl. photodiode Pixel dimension customization on request 	<ul style="list-style-type: none"> Medical CT imaging
	AS5951	128	32	200 μ s	0.82 mW/ch	die-on-foil		
	AS5952	256	64	80 μ s	1.45 mW/ch	die-on-foil		
Integrated Modules (multiple sensors) 	AS5951M	1024	32	200 μ s	0.82 mW/ch	Module w/ wire-bonded AS595x on PCB substrate and glob top protection; bottom-side interface w/ connector	<ul style="list-style-type: none"> Reduced integration complexity 2-side and 3-side buttable module for cost optimized solution for value and performance CT segment 4-side buttable module for premium segment 	
	AS5952M	768	64	80 μ s	1.45 mW/ch			
	AS5966M	640	128+	195 μ s	0.94 mW/ch			
Photon Counting Module 	AS5920M	1728	All	104 μ s	0.58 mW/ch	4-Side Buttable System-In-Package (BSIP) @ 24.52 x 8.75 mm ²	<ul style="list-style-type: none"> Innovative "Photon Counting Module" for 9x smaller pixel area using pixel size of 341x365 μm² 4-side buttable innovative package solution Lowest power consumption at lowest noise of 330 electrons 	<ul style="list-style-type: none"> Medical CT imaging Industrial X-ray Security X-ray

Digital X-Ray Technologies and Solutions

High Level Summary

Product Family	Product	# of Input Channels	Integration time (min.)	Resolution	Package	Features & Benefits	Application
X-ray Read-out IC 	AS585xA	256	15 μ s	16 bit	chip-on-flex 60 μ m detector channel pitch	1st Generation Low Noise Charge-to-Digital Converter for aSi and IGZO based direct and indirect conversion flat panel detectors. Best-in-class figure of merit for noise power consumption and speed	<ul style="list-style-type: none"> • X-ray Flat Panel Detectors • Digital Radiography • Fluoroscopy Panels and Dynamic X-ray Detectors • Portable & Mobile X-ray Systems • Mammography Panels • Industrial and Security X-ray Scanners
	AS585xB	256	15 μ s	16 bit	chip-on-flex 100 μ m detector channel pitch		
	AS587x	256	<10 μ s	16 bit	chip-on-flex	2nd Generation Low Noise Charge-to-Digital Converter Improved speed, noise and power consumption for high end applications	

Product Family	Product	Active Area	Pixel pitch	Readouts Speed	Package	Features & Benefits	Application
Large-scale CMOS Detector 	AS5860	10x15cm	100 μ m	133 FPS	Sensor tile	High performance CMOS detector for flat panel detectors. Sensitive, high speed and high-resolution detector based on CMOS photodiodes. Tile able detectors allowing various FPD sizes. Patented best in class solution in cost & performance	<ul style="list-style-type: none"> • Mammography • Surgical & intervention • Dental Cone-beam CT (CBCT) • Industrial X-Ray, Battery inspection • Industrial CT
	AS8562	10x5cm	100 μ m	300 FPS	Sensor tile		
	AS5863	11x15cm	<50 μ m	30 FPS	Sensor tile		

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