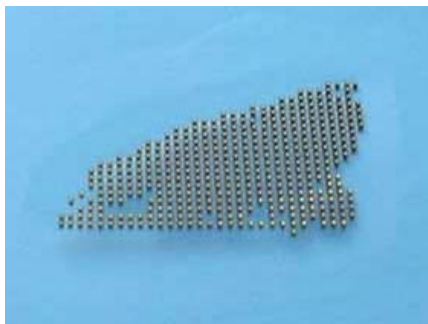


Special optoelectronic components made in Germany !
We develop and produce top quality for your applications.



Chips

- ◆ visible
- ◆ infrared
- ◆ special design



AutoSelective Photodiodes

- ◆ ultraviolet
- ◆ visible
- ◆ infrared



LEDs, SMDs in different designs

- ◆ visible
- ◆ infrared
- ◆ high-power
- ◆ high-speed

EPIGAP Type Designation System

LED Chips:

E	L	C	-	1234	-	5	6	7	-	8
EPIGAP	Light emitting	Chip		Wavelength λ [nm]		Polarity	Size ($\pm 10 \mu\text{m}$) [μm]	Emission area [μm]		Chip design
						1 = anode up 2 = cathode up 3 = flip chip 4 = one side contacts	1 = 235 2 = 255 3 = 265 4 = 295 5 = 325 6 = 350 7 = 365 8 = 465 9 = special	1 = $\varnothing 25$ 2 = $\varnothing 50$ 3 = $\varnothing 75$ 4 = $\varnothing 100$ 5 = $\varnothing 150$ 6 = $\varnothing 200$ 7 = $\varnothing 250$ 8 = $\varnothing 300$ 9 = special		

LEDs:

E	L	X	-	1234	-	5	6	7	-	8
EPIGAP	Light emitting	Type		Wavelength λ [nm]*		Package diameter [mm]	Viewing angle φ [deg]	Forward current I_F [mA]		LED design
		D = Diode (standard packages) S = SMD A = Array J = Jumbo I = Illuminator P = Point-source				0 = TO-case 1 = $\varnothing 10$ 2 = $\varnothing 12$ 3 = $\varnothing 3$ 5 = $\varnothing 5$ 6 = $\square(2 \times 4)$ 7 = $\square(2 \times 5)$ 8 = $\square(2 \times 7)$ 9 = special	0 < 4 1 = 4 - 14 2 = 15 - 24 3 = 25 - 34 4 = 35 - 44 5 = 45 - 54 6 = 55 - 64 7 = 65 - 74 8 = 75 - 84 9 = >85	1 = 1 2 = 2 3 = 20 4 = 50 5 = 100 6 = 150 7 = 200 8 = 250 9 = 300 0 > 300		

*W- for white

Photodiodes and photodiode chips:

E	P	X	-	1234	-	5	/	6, 7	-	8
EPIGAP	Photo	Type		Wavelength λ [nm]		Packaging		Chip size [mm]		Chip design
		D = Diode (standard packages) C = Chip				0 = TO-case 1 = SMD 3 = $\varnothing 3$ mm 5 = $\varnothing 5$ mm 9 = special C = chip		0.4 0.5 0.9 1.0 1.4 2.5 3.6		

Symbols and Terminology

Alphabetically

f - Frequency. [Hz, kHz, MHz].

I_F - Continuous, DC forward current . [A, mA].

I_{FM} - Peak forward current. [A, mA].

I_{FSM} - Surge forward current. [A, mA].

I_R - Reverse current, leakage current. [A, μ A, nA, pA].

I_{SC} - That value of the current which flows when a photovoltaic cell or a photodiode is short circuited ($R_L \ll R_i$), at its terminals. [A, μ A, nA, pA].

I_v - Luminous intensity (of a source in a given direction). [cd=lm/sr, mcd].

I_{v typ} - Luminous intensity, typical. [cd, mcd].

m- mass. [kg, g].

P - Power dissipation. [W, mW].

S_p - Spectral sensitivity (responsivity) at a wavelength λ_p . [A/W].

T - Period (duration). [s, ms, μ s, ns].

T_{amb} - Ambient temperature. [$^{\circ}$ C].

T_p - Pulse duration . [s, ms, μ s, ns]. The pulse duration (width) is the interval between the 10% amplitude points on the leading and trailing edges of a pulse.

t_r - Rise time. [s, ms, μ s, ns].

t_f - Fall time. [s, ms, μ s, ns].

t_r, t_f- Rise and fall time are the interval between the 10% and 90% amplitude points on the leading and trailing edges of a pulse.

T_{op} - Operating temperature range. [$^{\circ}$ C].

T_{sd} - Soldering temperature. Maximum allowable temperature for soldering with a specified distance from the case and its duration. [$^{\circ}$ C].

T_{stg} - Storage temperature range. [$^{\circ}$ C].

V_F - Forward voltage. [V].

V_{F max} - Forward voltage, maximal. [V].

V_{F typ} - Forward voltage, typical. [V].

V_{OC} - Open circuit voltage. The voltage measured between the photovoltaic cell or photodiode terminals at a specified radiation/illumination if the circuit is open. [V].

V_R - Reverse voltage. Voltage drop which results from the flow of reverse current. [V].

ϕ - Viewing angle [degrees]. Full angle of half intensity or sensitivity.

λ - Wavelength. The wavelength of an electromagnetic radiation. [nm].

λ_d - Dominant wavelength. [nm].

λ_p - Peak wavelength. Wavelength of peak sensitivity or emission. [nm].

$\Delta\lambda_{0.5}$ - Spectral bandwidth at 50% of the maximum value of the spectral sensitivity or spectral emission. [nm].

$\Phi_{e min}$ - Minimal emitted (optical) power. [mW].

$\Phi_{e typ}$ - Typical emitted (optical) power. [mW].

Φ_v - Luminous flux. [lm].

LED Chips visible

High-power ($I_F = 100 \text{ mA}$)

Type	Material	Peak wavelength λ_p [nm]	$V_{F \text{ typ}}$ [V]	$V_{F \text{ max}}$ [V]	$\Phi_e \text{ typ}^*$ [mW]	Chip size [mm]
ELC-645-29-1	AllnGaP/GaAs	645	2.2	2.6	10	1 x 1
ELC-685-29-2	AlGaAs/AlGaAs	685	1.7	2.1	9	1 x 1

High-brightness ($I_F = 20 \text{ mA}$)

Type	Material	Peak wavelength λ_p [nm]	$V_{F \text{ typ}}$ [V]	$V_{F \text{ max}}$ [V]	$I_v \text{ typ}^*$ [mcd]
ELC-572-13	AllnGaP/GaAs	572	2.0	2.4	20
ELC-590-13	AllnGaP/GaAs	592	2.4	2.6	80
ELC-610-13	AllnGaP/GaAs	610	2.4	2.6	70
ELC-620-13	AllnGaP/GaAs	620	2.4	2.6	70
ELC-625-14-3	AllnGaP/GaAs	625	2.25	2.5	105
ELC-630-13	AllnGaP/GaAs	630	2.2	2.5	60
ELC-630-14-3	AllnGaP/GaAs	633	2.15	2.5	70
ELC-640-13	AllnGaP/GaAs	644	2.4	2.6	40
ELC-655-23-1	AlGaAs/AlGaAs	655	1.95	2.3	28
ELC-670-14	AllnGaP/GaAs	670	2.3	2.5	20

Standard ($I_F = 20 \text{ mA}$)

Type	Material	Peak wavelength λ_p [nm]	$V_{F \text{ typ}}$ [V]	$V_{F \text{ max}}$ [V]	$I_v \text{ typ}^*$ [mcd]
ELC-560-13	GaP/GaP	556	2.3	2.6	2.0
ELC-568-13	GaP:N/GaP	568	2.25	2.5	16.5
ELC-588-13	GaAsP/GaP	588	2.2	2.5	6.0
ELC-635-13	GaAsP/GaP	635	2.1	2.5	5.0

*Bare chip on TO-header

Note: Special wavelengths, brightness and chip designs on request

LED Chips infrared

At $I_F = 20 \text{ mA}$

Type	Material	Peak wavelength λ_D [nm]	$V_{F \text{ typ}}$ [V]	$\Phi_e \text{ min}^*$ [mW]	$\Phi_e \text{ typ}^*$ [mW]	t_r, t_f [ns]
ELC-700-25	AlGaAs/AlGaAs	700	1.9	1,0	1,5	35
ELC-740-25-1	AlGaAs/AlGaAs	740	1.9	2.2	2.7	35
ELC-770-25	AlGaAs/AlGaAs	770	1.7	2.2	2.7	35
ELC-810-27	AlGaAs/AlGaAs	810	1.6	2.5	3.2	40
ELC-840-27	AlGaAs/AlGaAs	840	1.7	2.5	3.5	40
ELC-870-17-1	AlGaAs/AlGaAs	870	1.3	3.2	3.7	20
ELC-870f-17	AlGaAs/AlGaAs	870	1.3	3.0	3.5	10
ELC-870-27	AlGaAs/AlGaAs	870	1.35	3.8	4.6	25
ELC-905-17	AlGaAs/AlGaAs	905	1.25	2.8	3.2	400
ELC-920-17	AlGaAs/AlGaAs	920	1.25	2.8	3.2	300
ELC-940-17	AlGaAs/GaAs/GaAs	940	1.2	2.0	2.4	500
ELC-980-17	InGaAs/GaAs	980	1.2	0.5	0.6	10
ELC-1020-28	InGaAs/GaAs	1020	1.1	0.5	0.7	10
ELC-1300-25	InGaAs/InP	1300	0.95	0.5	0.8	10

***Bare chip on TO-header**

Note: Special wavelengths, power and chip designs on request

Point-source LED Chips visible and infrared

EPIGAP Optoelektronik GmbH has developed for high-end optical applications new point-source light emitting diodes that emit at 595, 645 and 850 nm. The point-source LED is a suitable light source for a photo sensor because it has a small emission area. It is composed of AlInGaP or AlGaAs material, features round emitting surface and has special design to provide high intensity of visible or infrared light within a small emission area. AlInGaP is more reliable in humid conditions in comparison with traditional AlGaAs LEDs. The devices are available in either chip form or mounted in a package. They can also be mounted on printed circuit boards or other substrates.

Applications include medical (activation of photosensitive drugs), scanning systems, adjustment of optical devices.

Optical and electrical characteristics

Type	Material	Peak wavelength λ_p [nm]	Diameter, μm	$V_{F\text{ tvd}}$ [V]	$I_{V\text{ tvd}}$ [mcd]*	$\Phi_{e\text{ tvd}}$ [μW]*	I_F [mA]*
ELC-595-29-2	AlInGaP/GaAs	595	50	2.3	7.5	40	5
ELC-595-29-5	AlInGaP/GaAs	595	150	2.20	45	240	20
ELC-630-29-1	AlInGaP/GaAs	630	25	2.3	3	-	5
ELC-645-29-3	AlInGaP/GaAs	645	50	2.00	3	75	5
ELC-645-29-2	AlInGaP/GaAs	645	70	2.00	3	75	5
ELC-645-29-5	AlInGaP/GaAs	645	150	2.20	35	600	20

*Bare chip on TO-header

Note: Special wavelengths, power, brightness and chip designs on request

**Under development

Selective Photodiode Chips

ultraviolet, visible, infrared

Ultraviolet Photodiode Chips

Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Material, technology	Applications
EPC-440/0.9 EPC-440/1.4 EPC-440/2.5 EPC-440/3.6	440	180	0.17	GaP, Shottky barrier	Medical engineering, flame detection, UV lamp control, radiation control and water purification

Visible Range Selective Photodiode Chips

Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Material, technology	Applications
EPC-470/0.9 EPC-470/1.4* EPC-470/2.5*	470	100	0.18	GaP, p-n-junction	alarm systems, light barriers, special sensors for automotive industry
EPC-520/0.5* EPC-520/0.9 EPC-520/1.4* EPC-520/2.5*	520	70	0.15	GaP, p-n-junction	alarm systems, light barriers, special sensors for automotive industry
EPC-660/0.5* EPC-660/0.9*	660	80	0.2	AlGaAs/ GaAs	alarm systems, light barriers, special sensors

Infrared Selective Photodiode Chips

Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Material, technology	Applications
EPC-740/0.5* EPC-740/0.9*	740	80...100	0.4	AlGaAs/ GaAs	Optical communication, remote control, alarm systems, light barriers, rain sensors

* Under development

Note: Special wavelengths and chip sizes on request

Selective Photodiodes

ultraviolet, visible, infrared

Ultraviolet Selective Photodiodes

Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Packages	Applications
EPD-150-0*	440	180	0.12	TO-39	Medical engineering, flame detection, UV lamp control, radiation control and water purification
EPD-365-0	365	85	0.07	TO-46, TO-39	Medical engineering, flame detection, UV lamp control, radiation control and water purification

* Short wavelength limit ~150 nm.

Visible Range Selective Photodiodes

Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Packages	Applications
EPD-440-0	440	180	0.12	TO-46, TO-39	Medical engineering, flame detection, radiation control
EPD-470-0** EPD-470-1	470	100	0.18	TO, SMD	special sensors for automotive industry
EPD-520-0** EPD-520-1	550	70	0.15	TO, SMD	special sensors, optical communication
EPD-660-0** EPD-660-1** EPD-660-5**	660	80	0.2	TO, SMD, \varnothing 5 mm	alarm systems, light barriers, special sensors

Infrared Selective Photodiodes

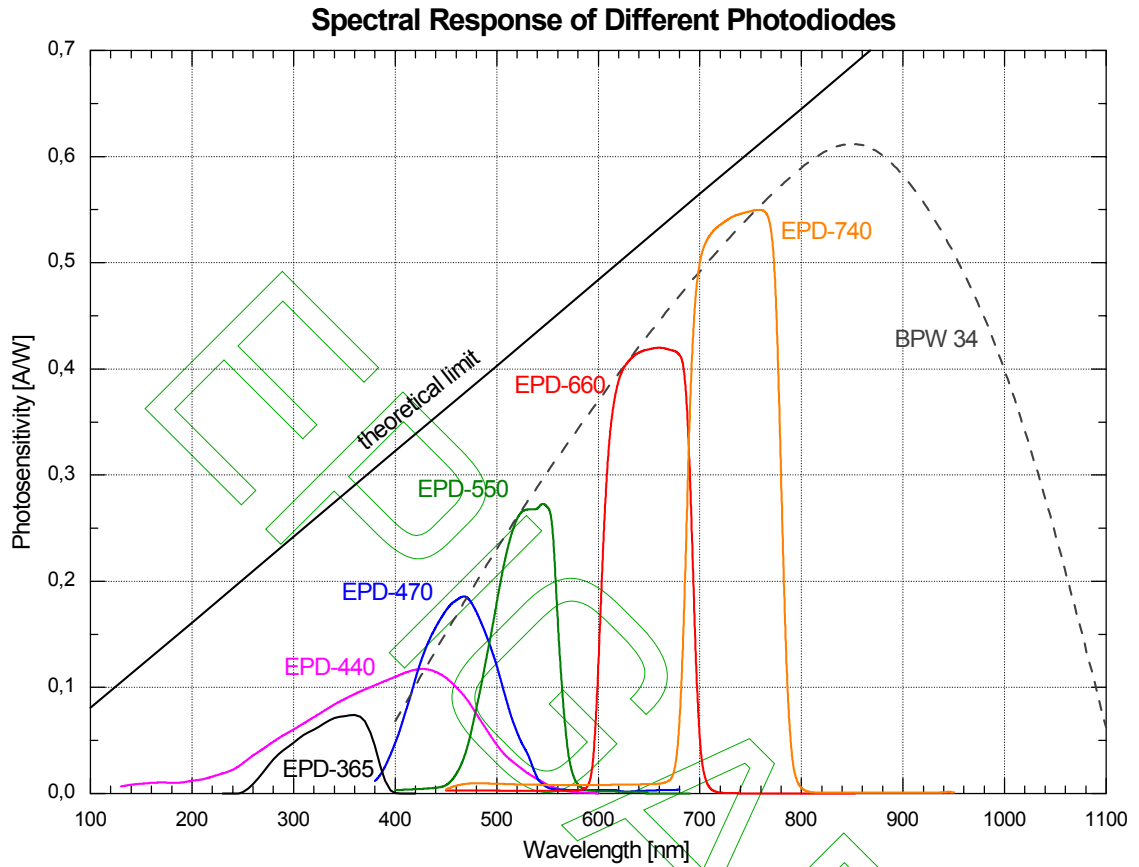
Type	Peak sensitivity wavelength λ_p [nm]	Spectral bandwidth at 50% $\Delta\lambda_{0.5}$ [nm]	Responsivity S_p at λ_p [A/W]	Package	Applications
EPD-740-1 EPD-740-5**	740	80...100	0.4	SMD \varnothing 5 mm	Optical communication, remote control, alarm systems, light barriers, rain sensors

** Under development

Note: Special wavelengths and packages are available on request

Photodiodes are tested according to MIL-STD-750D and GR-468-CORE standards

Selective Photodiodes spectral response



3 mm Standard LEDs
in waterclear plastic package*

Type	Peak wavelength λ_P [nm]	Luminous intensity $I_{V,typ}$ at $I_F = 20$ mA [mcd]	Material	Viewing angle φ [deg]
ELD-568-333	568	200	GaP:N/GaP	30
ELD-588-333	588	120	GaAsP/GaP	30
ELD-625-323	625	850	AlInGaP/GaAs	20
ELD-635-333	635	40	GaAsP/GaP	30
ELD-650-333	650	300	AlGaAs/GaAs	30
ELD-670-344	670	330	AlInGaP/GaAs	40

Note: Special wavelengths, brightness and packages on request

Maximum Ratings at $T_{amb} = 25$ °C :

Parameter	Symbol	Value	Units
Forward Current (DC)	I_F	30	mA
Peak Operating Forward Current ($t_P \leq 100$ μ s, $t_P/T = 1/10$)	I_{Fm}	100	mA
Reverse Voltage ($I_R = 10$ μ A)	V_R	5	V
Power Dissipation	P	100	mW
Operating Temperature Range	T_{op}	-20...+100	°C
Storage Temperature Range	T_{stg}	-55...+100	°C

***Packages are available both with and without standoff**

5 mm Standard LEDs
in waterclear plastic package*

Type	Peak wavelength λ_P [nm]	Luminous intensity $I_{V,typ}$ at I_F = 20 mA [mcd]	Material	Viewing angle ϕ [deg]
ELD-568-523	568	400	GaP:N/GaP	20
ELD-568-543	568	270	GaP:N/GaP	40
ELD-590-523	590	200	GaAsP/GaP	20
ELD-635-523	635	200	GaAsP/GaP	20
ELD-650-523	650	400	AlGaAs/GaAs	20
ELD-650-543	650	140	AlGaAs/GaAs	40

Note: Special wavelengths, brightness and packages (viewing angles) on request

Maximum Ratings at $T_{amb} = 25\text{ °C}$:

Parameter	Symbol	Value	Units
Forward Current (DC)	I_F	30	mA
Peak Forward Current ($t_P \leq 100\ \mu\text{s}$, $t_P/T = 1/10$)	I_{Fm}	100	mA
Reverse Voltage ($I_R = 100\ \mu\text{A}$)	V_R	5	V
Power Dissipation	P	100	mW
Operating Temperature Range	T_{amb}	-20...+100	°C
Storage Temperature Range	T_{stg}	-55...+100	°C

***Packages are available both with and without standoff**

3 mm High Brightness LEDs in waterclear plastic package*

Type	Peak wavelength λ_p [nm]	Luminous intensity I_V typ at $I_F = 20$ mA [mcd]	Material	Viewing angle ϕ [deg]
ELD-590-333-1	590	1500	AlInGaP	25
ELD-610-333	610	2000	AlInGaP	25
ELD-620-333	620	2000	AlInGaP	25
ELD-630-333	630	1500	AlInGaP	25
ELD-640-333	645	1000	AlInGaP	25
ELD-655-344	655	500	GaAlAs	35
ELD-670-344	670	330	AlInGaP	35

Note: Special wavelengths, brightness and packages (viewing angles) on request

Maximum Ratings at $T_{amb} = 25$ °C :

Parameter	Symbol	Value	Units
Forward current (DC)	I_F	30	mA
Peak forward current ($t_P \leq 50$ μ S, $t_P/T \leq 1/10$)	I_{Fm}	100	mA
Reverse voltage ($I_R = 100$ μ A)	V_R	5	V
Power dissipation	P	100	mW
Operating temperature range	T_{op}	-20...+100	°C
Storage temperature range	T_{stg}	-55...+100	°C

***Packages are available both with and without standoff**

5 mm High Brightness LEDs in waterclear plastic package*

Type	Peak wavelength λ_p [nm]	Luminous intensity $I_{V, tvD}$ at $I_F = 20$ mA [mcd]	Material	Viewing angle φ [deg]
ELD-450W-523	450**	4200	InGaN/Al ₂ O ₃	20
ELD-465-523	465	1750	InGaN/Al ₂ O ₃	20
ELD-470W-523	470**	3200	InGaN/Al ₂ O ₃	20
ELD-575-523	576	600	AlInGaP	20
ELD-575-543	576	125	AlInGaP	40
ELD-580-523	583	1100	AlInGaP	20
ELD-580-543	583	275	AlInGaP	40
ELD-590-523-5	592	1500	AlInGaP	20
ELD-590-543	592	375	AlInGaP	40
ELD-610-523	610	1900	AlInGaP	20
ELD-610-543	610	475	AlInGaP	40
ELD-620-523-3	620	2000	AlInGaP	20
ELD-620-543	620	500	AlInGaP	40
ELD-625-523	625	2650	AlInGaP	20
ELD-625-543	625	660	AlInGaP	40
ELD-630-523-4	630	3300	AlInGaP	20
ELD-630-543	630	400	AlInGaP	40
ELD-640-523	644	1100	AlInGaP	20
ELD-640-543	644	275	AlInGaP	40
ELD-655-523	655	1000	AlGaAs/AlGaAs	20
ELD-655-543	655	250	AlGaAs/AlGaAs	40
ELD-670-524	670	240	AlInGaP	20
ELD-670-534	670	550	AlInGaP	30
ELD-670-554-2	670	145	AlInGaP	50

Note: Special wavelengths, brightness and packages (viewing angles) on request

**of blue chip

Maximum Ratings at $T_{amb} = 25$ °C:

Parameter	Symbol	Value	Units
Forward current (DC)	I_F	30	mA
Peak forward current ($t_p \leq 100$ μ s, $t_p/T = 1/10$)	I_{Fm}	100	mA
Reverse voltage ($I_R = 100$ μ A)	V_R	5	V
Power dissipation	P	100	mW
Operating temperature range	T_{op}	-20...+100***	°C
Storage temperature range	T_{stg}	-55...+100****	°C

***Packages are available both with and without standoff**

***-40...+85 °C for types ELD-450W-523, ELD-465-523, ELD-470W-523

****-40...+100 °C for types ELD-450W-523, ELD-465-523, ELD-470W-523

Bi-Color LEDs green-red

Type	Package dimension [mm]	Luminous intensity I_V typ at $I_F = 20$ mA [mcd]	Material	Viewing angle ϕ [deg]	Case color
ELD-568/660-333	3	100/30*	GaP/AlGaAs	30	waterclear or diffused*
ELD-568/660-523	5	100/30*	GaP/AlGaAs	20	waterclear or diffused*
ELD-568/660-603	rectangular 2 x 4	30	GaP/AlGaAs	100	diffused
ELD-568/660-803	rectangular 2 x 7	30	GaP/AlGaAs	100	diffused

Note: Special wavelengths, color- / infrared- combinations, high brightness and special packages on request

Maximum Ratings at $T_{amb} = 25$ °C:

Parameter	Symbol	Value	Units
Forward current (DC)	I_F	20	mA
Peak forward current ($t_P \leq 100$ μ s, $t_P/T = 1/10$) (red/green)	I_{Fm}	100/60	mA
Reverse voltage ($I_R = 100$ μ A)	V_R	5	V
Operating temperature range	T_{op}	-20...+85	°C
Storage temperature range	T_{stg}	-30...+100	°C

3 mm High Power and High Speed Infrared LEDs in waterclear plastic package*

Type	Radiant power $\Phi_{e,typ}$ [mW]	Peak wavelength λ_P [nm]	Spectral bandwidth $\Delta\lambda_{0.5}$ [nm]	Switching times t_r ; t_f [ns]	Viewing angle ϕ [deg]	I_F [mA]
ELD-700-334	10	700	45	20; 25	40	50
ELD-740-334	10	740	30	15; 20	40	50
ELD-770-334	10	770	30	30; 20	40	50
ELD-810-335	28	810	35	40; 40	40	100
ELD-870-335	32	870	45	20; 20	40	100
ELD-870f-335-2	24	870	65	10; 10	40	100
ELD-910-335	28	910	28	400; 400	40	100
ELD-940-345	25	935	70	≥ 600 ; ≥ 600	40	100

*Note: Special wavelengths, radiant power and packages on request

Maximum Ratings at $T_{amb} = 25^\circ\text{C}$:

Parameter	Symbol	Value	Units
Forward current (DC)**	I_F	50/100	mA
Peak forward current ($t_P \leq 50 \mu\text{s}$, $t_P/T = 1/2$)**	I_{Fm}	100/200	mA
Surge forward current ($t_P \leq 10 \mu\text{s}$)**	I_{Fsm}	1/2	A
Reverse voltage ($I_R = 100 \mu\text{A}$)	V_R	5	V
Operating temperature range	T_{op}	-20...+100	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...+100	$^\circ\text{C}$

**First value corresponds to wavelengths from 700 to 770 nm

5 mm High Power and High Speed Infrared LEDs in waterclear plastic package*

Type	Radiant power $\Phi_{e\text{ typ}}$ [mW]	Peak wave-length λ_p [nm]	Spectral bandwidth $\Delta\lambda_{0.5}$ [nm]	Switching times t_r ; t_f [ns]	Viewing angle φ [deg]	I_F [mA]
ELD-700-524 /544	10	700	45	20; 25	20 / 40	50
ELD-740-524-5	10	740	30	15; 20	20 / 40	50
ELD-770-524 /544	10	770	30	30; 20	20 / 40	50
ELD-810-525-2	28	810	35	40; 40	20 / 40	100
ELD-870f-525	24	870	65	10; 10	20	100
ELD-880-525-3	35	880	45	25; 20	20	100
ELD-880-535	35	880	45	25; 20	35	100
ELD-910-525	30	910	55	400; 400	20	100
ELD-940-525/545	26	950	65	500; 500	20 / 40	100

*Note: Special wavelengths, radiant power and packages on request

Maximum Ratings at $T_{amb} = 25\text{ °C}$:

Parameter	Symbol	Value	Units
Forward current (DC)**	I_F	50/100	mA
Peak forward current ($t_p \leq 50\ \mu\text{s}$, $t_p/T = 1/2$)**	I_{Fm}	100/200	mA
Surge forward current ($t_p \leq 10\ \mu\text{s}$)**	I_{Fsm}	1/2	A
Reverse voltage ($I_R = 100\ \mu\text{A}$)	V_R	5	V
Operating temperature range	T_{op}	-20...+100	°C
Storage temperature range	T_{stg}	-55...+100	°C

**First value corresponds to wavelengths from 700 to 770 nm

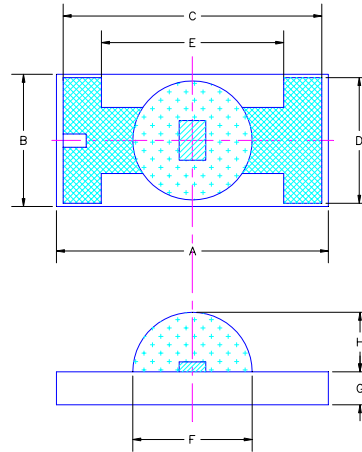
SMD-LEDs on silicon carrier

Description

High-power, AlGaAs double heterostructure with removed substrate on heatsink for „up side down“ mounting

Applications

Signalization and displays, alarm guard systems, photoelectric barriers, remote controls, illumination for CCD-cameras and night vision systems



A	$4,0 \pm 0,05$
B	$2,0 \pm 0,05$
C	$3,9 \pm 0,05$
D	$1,9 \pm 0,05$
E	$2,75 \pm 0,05$
F	$1,7 (2,1^*) \pm 0,1$
G	$0,5 \pm 0,1$
H	$0,75(2,1^*) \pm 0,05$
all dimensions in mm	

Infrared SMD-Types

Type	Package dimensions, mm	Radiant power Φ_e at $I_F = 100$ mA [mW]	Peak wavelength λ_p at $I_F = 100$ mA [nm]	Switching times $t_r = t_f$ [ns]	Viewing angle ϕ [deg]	Spectral bandwidth $\Delta\lambda_{0.5}$ at $I_F = 100$ mA
ELS-810-638*	2x4	17	810	30	30	30
ELS-810-608	2x4	17	810	30	160	30
ELS-880-638*	2x4	20	880	30	30	45
ELS-880-608	2x4	20	880	30	160	45
ELS-920-638*	2x4	25	920	100; 350	30	60
ELS-920-608	2x4	25	920	100; 350	160	60

Maximum Ratings at $T_{amb} = 25$ °C :

Parameter	Test conditions	Symbol	Value	Unit
Forward current (DC)	on heatsink	I_F	250	mA
Peak forward current	$t_p \leq 10 \mu s, f \leq 500$ Hz	I_{FM}	2	A
Reverse voltage	$I_R = 10 \mu A$	V_R	5	V
Operating temperature range		T_{op}	-25 to +85	°C
Storage temperature range		T_{stg}	-55...+100	°C

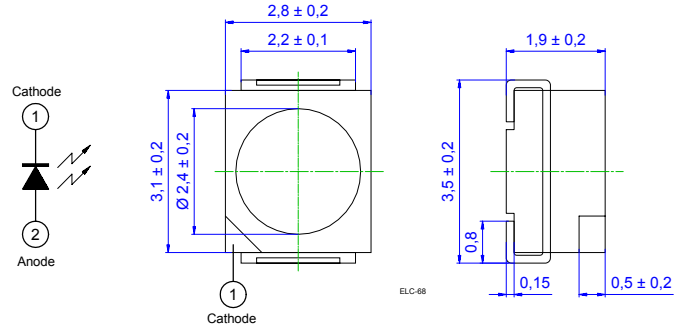
SMD-LEDs in PLCC-2 (TOP-LED) or SMD 1206 housing

Description

High-power, AlGaAs double heterostructures with removed substrate

Applications

Optical communication, safety equipment



Infrared SMD-Types

PLCC-2 (TOP-LED)

Type	Radiant power Φ_e at $I_F = 50$ mA [mW]	Peak wavelength λ_p at $I_F = 50$ mA [nm]	Switching times t_r, t_f [ns]	Viewing angle ϕ [deg]	Spectral bandwidth $\Delta\lambda_{0.5}$ at $I_F = 50$ mA
ELS-740-994	6.4	740	15; 20	120	30

SMD 1206 housing

Type	Radiant power Φ_e at $I_F = 100$ mA [mW]	Peak wavelength λ_p at $I_F = 100$ mA [nm]	Switching times t_r, t_f [ns]	Viewing angle ϕ [deg]	Spectral bandwidth $\Delta\lambda_{0.5}$ at $I_F = 100$ mA
ELS-870-995	16.5	870	20	120	45

Maximum Ratings at $T_{amb} = 25$ °C :

Parameter	Test conditions	Symbol	Value	Unit
Forward current (DC)		I_F	50/100*	mA
Peak forward current	$t_p \leq 50$ μ s, $t_p/T=1/2$	I_{FM}	100/200*	mA
Surge forward current	$t_p \leq 10$ μ s	I_{FSM}	1/2*	A
Reverse voltage	$I_R = 100$ μ A	V_R	5	V
Operating temperature range		T_{op}	-40...+90	°C
Storage temperature range		T_{stg}	-40...+85	°C

*First value corresponds to wavelengths up to 740 nm

Other wavelengths are available on request

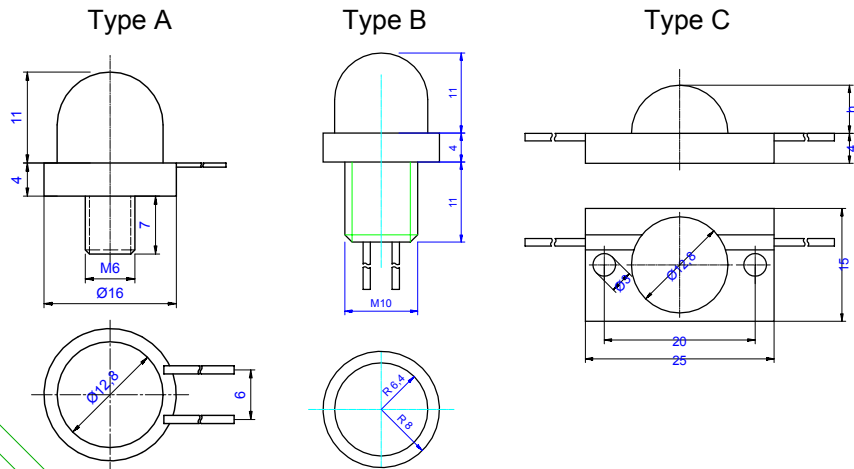
Jumbo-LEDs with waterclear plastic lens on metal case

Description

High-power visible or infrared modules, AlInGaP or double-hetero AlGaAs structures, six chips are soldered on metal stud or flat header, fast switching time.

Applications

Illumination for CCD-cameras, alarm systems, target designation for night-vision systems, remote control and optical communication.



Visible Jumbo-Types (at $I_F = 100$ mA)

Type	Material	Peak wavelength λ_P [nm]	$V_{F\ typ}$ [V]	Luminous intensity I_v [cd]	Radiant power Φ_e [mW]	Viewing angle ϕ [deg]
ELJ-575-225	AllnGaP/GaAs	575	12.7	5.5	3.5	20
ELJ-595-225	AllnGaP/GaAs	595	14	28	20	20
ELJ-640-225	AllnGaP/GaP	640	19	32	120	20

Infrared Jumbo-Types

Type	Package Types	Radiant power Φ_e at $I_F=250$ mA [mW]	Peak wavelength λ_P at $I_F=250$ mA [nm]	Switching times $t_r = t_f$ [ns]	Viewing angles ϕ [deg]	Spectral bandwidth $\Delta\lambda_{0.5}$ [nm] at $I_F=250$ mA
ELJ-810-228	A,B,C	225	810	150	20	30
ELJ-810-248	A,B,C	225	810	150	40	30
ELJ-810-208	A,B,C	225	810	150	120, 140	30
ELJ-880-228	A,B,C	250	880	100	20	50
ELJ-880-248	A,B,C	250	880	100	40	50
ELJ-880-208	A,B,C	250	880	100	120, 140	50
ELJ-910-228	A,B,C	250	910	200	20	50
ELJ-910-248	A,B,C	250	910	200	40	50
ELJ-910-208	A,B,C	250	910	200	120, 140	50

Note: LEDs with flat plastic windows are also available on request

7-segment LED Chip

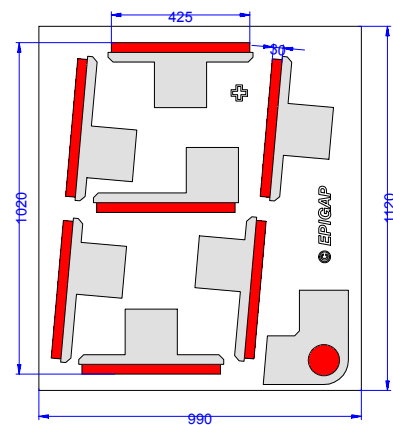
Color	Type	Technology	Electrodes
Red	ELC-660-199	GaAsP/GaAs diffusion type	P (anode) up

Outline (dimensions in microns)

Application: This miniature device is an excellent choice for applications where small size and reduced space are important factors such as complex displays in optical devices for laboratory, measurement, control- and medical equipment.

Contact metallization: anode- aluminum, cathode- Au alloy.

Typical chip thickness: 290 μm .



Optical and Electrical Characteristics

$T_{\text{amb}} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions*	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20 \text{ mA}$	V_F	1.5	1.7	1.9	V
Reverse voltage	$I_R = 10 \mu\text{A}$	V_R	5	15		V
Luminous intensity/segment	$I_F = 20 \text{ mA}$	I_V	180	300		μcd
Luminous intensity ratio segment to segment	$I_F = 20 \text{ mA}$				1.75	
Luminous intensity ratio to adjacent chip	$I_F = 20 \text{ mA}$				2.00	
Peak wavelength	$I_F = 20 \text{ mA}$	λ_p	645	660	665	nm
Dominant wavelength	$I_F = 20 \text{ mA}$	λ_D	624	639	644	nm
Spectral bandwidth at 50%	$I_F = 20 \text{ mA}$	$\Delta\lambda_{0.5}$		17		nm

* Current for one segment

Labeling

Type	Lot N°	I_V (typ, min, max)	Quantity
ELC-660-199			

Packing

Chips in wafer pack or on adhesive film with wire-bond side on top

LED's in TO metal or special package

Type	typ. peak wavelength [nm] (peak Wert)	typ. optical power [mW] ($I_F=100\text{mA}$)	typ. forward voltage [V] ($I_F=100\text{mA}$)
ELA-880-225	880	120	17,5
ELD-1300-014	1300	3,0	1,0
ELD-1300-094-1	1300	2,2	1,0
ELD-1300-096	1300	5,0	1,0
ELD-470-013-1	470	2,0*	3,6*
ELD-635-095-1	635	11	1,9
ELD-660-014-1	660	3,0*	1,8*
ELD-670-094-1	670	5,1**	2,45**
ELD-810-095-2	810	10	1,7
ELD-870-015-1	875	20	1,6
ELD-875-095-1	875	30	1,4
ELD-880-096-1	880	45***	1,5***
ELD-RGB-593-2	644/525/468	60/150/50*	1,8/3,5/3,5*
ELD-RGB-593-6	644/525/46	300/400/200*	1,8/3,5/3,5*
ELI-635-095x4	635	11	1,9
ELP-645-013	645	0,3*	2,9*
ELI-880-014-1	880	3,5**	1,9**

*($I_F=20\text{mA}$) , **($I_F=50\text{mA}$) , ***($I_F=300\text{mA}$)

For data sheets please have a look at our website.