

OSRAM KW SITRA1.KD

Datasheet

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SYNIOS® E1515

KW SITRA1.KD

This compact LED is specifically designed for LCD direct back-lighting. Its batwing radiation profile and 360° emission enable low profile, homogeneous backlights. The LED achieves high efficacy (125lm/W) at 30mA.



Applications

- Display Backlighting

Features

- Package: colored silicone resin, SMD epoxy package
- Chip technology: InGaN on Sapphire
- Color: Cx = 0.28, Cy = 0.26 acc. to CIE 1931 (● white)
- Corrosion Robustness Class: 2B
- Qualifications: AEC-Q102 Qualified
- ESD: 4 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3A)
- Unique design: It is strongly advised to apply the recommended solder pad design for a proper function of the LED.

Ordering Information

Type	Luminous Flux ¹⁾ I _F = 30 mA Φ _V	Ordering Code
KW SITRA1.KD-FRGU-DG25DS49-HN-N4W4	13.00 ... 28.00 lm	Q65113A5734

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Maximum Ratings

Parameter	Symbol		Values
Operating Temperature	T_{op}	min.	-40 °C
		max.	110 °C
Storage Temperature	T_{stg}	min.	-40 °C
		max.	110 °C
Junction Temperature	T_j	max.	125 °C
Forward current $T_s = 25\text{ °C}$	I_F	max.	120 mA
Forward current pulsed $D = 25\text{ %}; T_s = 25\text{ °C}$	$I_{F\text{ pulse}}$	max.	240 mA
Reverse voltage ²⁾ $T_s = 25\text{ °C}$	V_R	max.	10 V
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3A)	V_{ESD}		4 kV

Characteristics

 $I_F = 30 \text{ mA}$; $T_s = 25 \text{ °C}$

Parameter	Symbol		Values
Chromaticity Coordinate ³⁾	C _x	typ.	0.28
	C _y	typ.	0.26
Peak Wavelength $I_F = 30 \text{ mA}$	λ_{peak}	min.	446 nm
		max.	458 nm
Forward Voltage ⁴⁾ $I_F = 30 \text{ mA}$	V_F	min.	5.40 V
		typ.	5.75 V
		max.	6.00 V
Reverse current ²⁾ $V_R = 10 \text{ V}$	I_R	typ.	0.01 μA
		max.	10 μA
Real thermal resistance junction/solderpoint ⁵⁾	$R_{\text{thJS real}}$	typ.	38 K / W
		max.	51 K / W
Electrical thermal resistance junction/solderpoint ⁵⁾ with efficiency $\eta_e = 47 \text{ %}$	$R_{\text{thJS elec.}}$	typ.	20 K / W
		max.	27 K / W

Brightness Groups

Group	Luminous Flux ¹⁾ $I_F = 30 \text{ mA}$ min. Φ_V	Luminous Flux ¹⁾ $I_F = 30 \text{ mA}$ max. Φ_V
FR	13.00 lm	14.00 lm
FS	14.00 lm	15.00 lm
FT	15.00 lm	16.40 lm
FU	16.40 lm	18.00 lm
GP	18.00 lm	19.40 lm
GQ	19.40 lm	21.00 lm
GR	21.00 lm	22.40 lm
GS	22.40 lm	24.00 lm
GT	24.00 lm	25.90 lm
GU	25.90 lm	28.00 lm

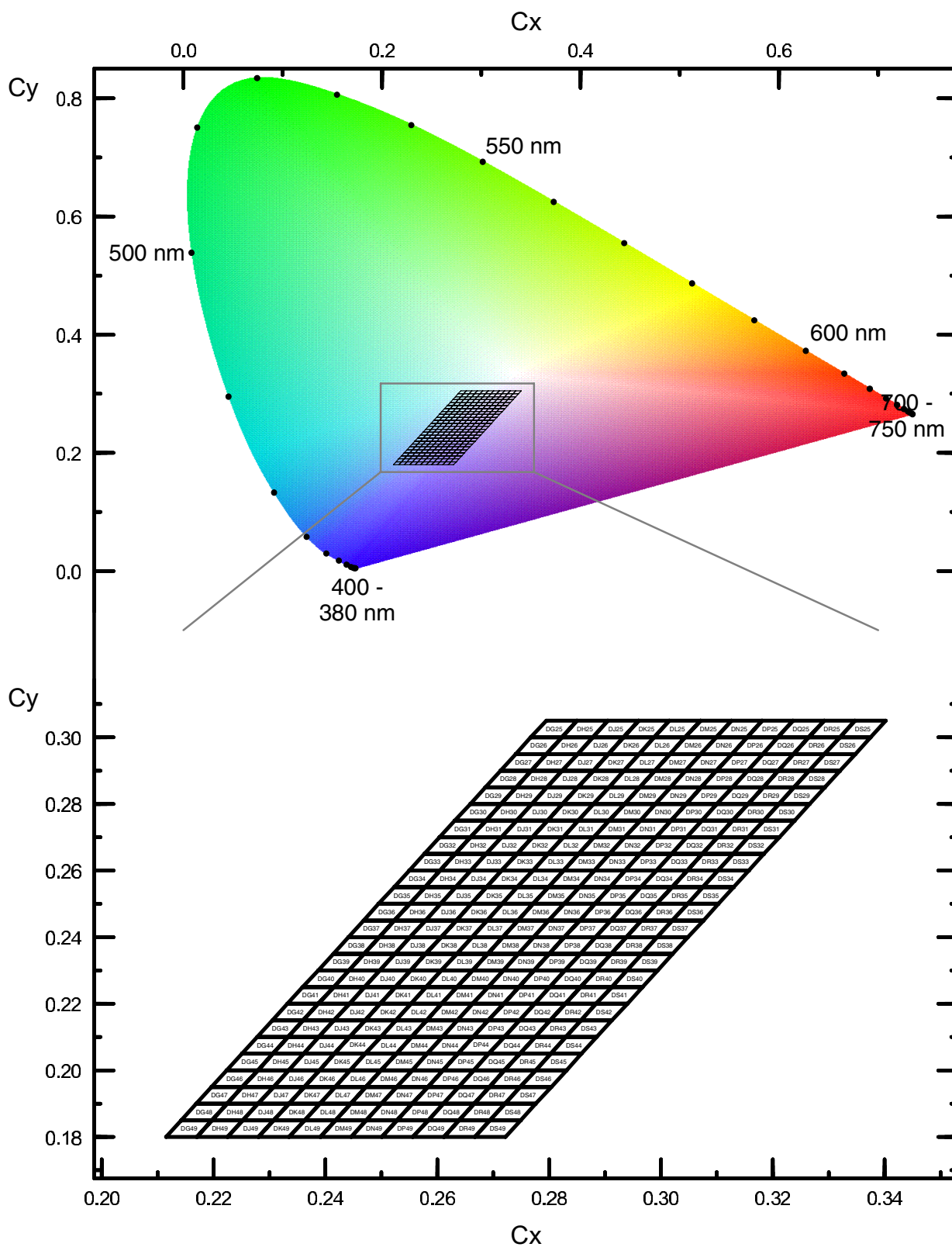
Forward Voltage Groups

Group	Forward Voltage ⁴⁾ $I_F = 30 \text{ mA}$ min. V_F	Forward Voltage ⁴⁾ $I_F = 30 \text{ mA}$ max. V_F
N4	5.40 V	5.60 V
S4	5.60 V	5.80 V
W4	5.80 V	6.00 V

Wavelength Groups

Group	Peak Wavelength $I_F = 30 \text{ mA}$ min. λ_{peak}	Peak Wavelength $I_F = 30 \text{ mA}$ max. λ_{peak}
H	446 nm	448 nm
J	448 nm	450 nm
K	450 nm	452 nm
L	452 nm	454 nm
M	454 nm	456 nm
N	456 nm	458 nm

Chromaticity Coordinate Groups



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Chromaticity Coordinate Groups ³⁾

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DG25	0.2767	0.3000	DG33	0.2550	0.2600	DG41	0.2332	0.2200
	0.2795	0.3050		0.2577	0.2650		0.2359	0.2250
	0.2850	0.3050		0.2632	0.2650		0.2415	0.2250
	0.2823	0.3000		0.2605	0.2600		0.2387	0.2200
DG26	0.2740	0.2950	DG34	0.2523	0.2550	DG42	0.2305	0.2150
	0.2767	0.3000		0.2550	0.2600		0.2332	0.2200
	0.2823	0.3000		0.2605	0.2600		0.2387	0.2200
	0.2795	0.2950		0.2578	0.2550		0.2360	0.2150
DG27	0.2713	0.2900	DG35	0.2495	0.2500	DG43	0.2278	0.2100
	0.2740	0.2950		0.2523	0.2550		0.2305	0.2150
	0.2795	0.2950		0.2578	0.2550		0.2360	0.2150
	0.2768	0.2900		0.2551	0.2500		0.2333	0.2100
DG28	0.2686	0.2850	DG36	0.2468	0.2450	DG44	0.2251	0.2050
	0.2713	0.2900		0.2495	0.2500		0.2278	0.2100
	0.2768	0.2900		0.2551	0.2500		0.2333	0.2100
	0.2741	0.2850		0.2523	0.2450		0.2306	0.2050
DG29	0.2659	0.2800	DG37	0.2441	0.2400	DG45	0.2223	0.2000
	0.2686	0.2850		0.2468	0.2450		0.2251	0.2050
	0.2741	0.2850		0.2523	0.2450		0.2306	0.2050
	0.2714	0.2800		0.2496	0.2400		0.2279	0.2000
DG30	0.2631	0.2750	DG38	0.2414	0.2350	DG46	0.2196	0.1950
	0.2659	0.2800		0.2441	0.2400		0.2223	0.2000
	0.2714	0.2800		0.2496	0.2400		0.2279	0.2000
	0.2687	0.2750		0.2469	0.2350		0.2251	0.1950
DG31	0.2604	0.2700	DG39	0.2387	0.2300	DG47	0.2169	0.1900
	0.2631	0.2750		0.2414	0.2350		0.2196	0.1950
	0.2687	0.2750		0.2469	0.2350		0.2251	0.1950
	0.2659	0.2700		0.2442	0.2300		0.2224	0.1900
DG32	0.2577	0.2650	DG40	0.2359	0.2250	DG48	0.2142	0.1850
	0.2604	0.2700		0.2387	0.2300		0.2169	0.1900
	0.2659	0.2700		0.2442	0.2300		0.2224	0.1900
	0.2632	0.2650		0.2415	0.2250		0.2197	0.1850

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DG49	0.2115	0.1800	DH32	0.2632	0.2650	DH40	0.2415	0.2250
	0.2142	0.1850		0.2659	0.2700		0.2442	0.2300
	0.2197	0.1850		0.2715	0.2700		0.2497	0.2300
	0.2170	0.1800		0.2687	0.2650		0.2470	0.2250
DH25	0.2823	0.3000	DH33	0.2605	0.2600	DH41	0.2387	0.2200
	0.2850	0.3050		0.2632	0.2650		0.2415	0.2250
	0.2905	0.3050		0.2687	0.2650		0.2470	0.2250
	0.2878	0.3000		0.2660	0.2600		0.2443	0.2200
DH26	0.2795	0.2950	DH34	0.2578	0.2550	DH42	0.2360	0.2150
	0.2823	0.3000		0.2605	0.2600		0.2387	0.2200
	0.2878	0.3000		0.2660	0.2600		0.2443	0.2200
	0.2851	0.2950		0.2633	0.2550		0.2415	0.2150
DH27	0.2768	0.2900	DH35	0.2551	0.2500	DH43	0.2333	0.2100
	0.2795	0.2950		0.2578	0.2550		0.2360	0.2150
	0.2851	0.2950		0.2633	0.2550		0.2415	0.2150
	0.2823	0.2900		0.2606	0.2500		0.2388	0.2100
DH28	0.2741	0.2850	DH36	0.2523	0.2450	DH44	0.2306	0.2050
	0.2768	0.2900		0.2551	0.2500		0.2333	0.2100
	0.2823	0.2900		0.2606	0.2500		0.2388	0.2100
	0.2796	0.2850		0.2579	0.2450		0.2361	0.2050
DH29	0.2714	0.2800	DH37	0.2496	0.2400	DH45	0.2279	0.2000
	0.2741	0.2850		0.2523	0.2450		0.2306	0.2050
	0.2796	0.2850		0.2579	0.2450		0.2361	0.2050
	0.2769	0.2800		0.2551	0.2400		0.2334	0.2000
DH30	0.2687	0.2750	DH38	0.2469	0.2350	DH46	0.2251	0.1950
	0.2714	0.2800		0.2496	0.2400		0.2279	0.2000
	0.2769	0.2800		0.2551	0.2400		0.2334	0.2000
	0.2742	0.2750		0.2524	0.2350		0.2307	0.1950
DH31	0.2659	0.2700	DH39	0.2442	0.2300	DH47	0.2224	0.1900
	0.2687	0.2750		0.2469	0.2350		0.2251	0.1950
	0.2742	0.2750		0.2524	0.2350		0.2307	0.1950
	0.2715	0.2700		0.2497	0.2300		0.2279	0.1900

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DH48	0.2197	0.1850	DJ31	0.2715	0.2700	DJ39	0.2497	0.2300
	0.2224	0.1900		0.2742	0.2750		0.2524	0.2350
	0.2279	0.1900		0.2797	0.2750		0.2579	0.2350
	0.2252	0.1850		0.2770	0.2700		0.2552	0.2300
DH49	0.2170	0.1800	DJ32	0.2687	0.2650	DJ40	0.2470	0.2250
	0.2197	0.1850		0.2715	0.2700		0.2497	0.2300
	0.2252	0.1850		0.2770	0.2700		0.2552	0.2300
	0.2225	0.1800		0.2743	0.2650		0.2525	0.2250
DJ25	0.2878	0.3000	DJ33	0.2660	0.2600	DJ41	0.2443	0.2200
	0.2905	0.3050		0.2687	0.2650		0.2470	0.2250
	0.2960	0.3050		0.2743	0.2650		0.2525	0.2250
	0.2933	0.3000		0.2715	0.2600		0.2498	0.2200
DJ26	0.2851	0.2950	DJ34	0.2633	0.2550	DJ42	0.2415	0.2150
	0.2878	0.3000		0.2660	0.2600		0.2443	0.2200
	0.2933	0.3000		0.2715	0.2600		0.2498	0.2200
	0.2906	0.2950		0.2688	0.2550		0.2471	0.2150
DJ27	0.2823	0.2900	DJ35	0.2606	0.2500	DJ43	0.2388	0.2100
	0.2851	0.2950		0.2633	0.2550		0.2415	0.2150
	0.2906	0.2950		0.2688	0.2550		0.2471	0.2150
	0.2879	0.2900		0.2661	0.2500		0.2443	0.2100
DJ28	0.2796	0.2850	DJ36	0.2579	0.2450	DJ44	0.2361	0.2050
	0.2823	0.2900		0.2606	0.2500		0.2388	0.2100
	0.2879	0.2900		0.2661	0.2500		0.2443	0.2100
	0.2851	0.2850		0.2634	0.2450		0.2416	0.2050
DJ29	0.2769	0.2800	DJ37	0.2551	0.2400	DJ45	0.2334	0.2000
	0.2796	0.2850		0.2579	0.2450		0.2361	0.2050
	0.2851	0.2850		0.2634	0.2450		0.2416	0.2050
	0.2824	0.2800		0.2607	0.2400		0.2389	0.2000
DJ30	0.2742	0.2750	DJ38	0.2524	0.2350	DJ46	0.2307	0.1950
	0.2769	0.2800		0.2551	0.2400		0.2334	0.2000
	0.2824	0.2800		0.2607	0.2400		0.2389	0.2000
	0.2797	0.2750		0.2579	0.2350		0.2362	0.1950

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DJ47	0.2279	0.1900	DK30	0.2797	0.2750	DK38	0.2579	0.2350
	0.2307	0.1950		0.2824	0.2800		0.2607	0.2400
	0.2362	0.1950		0.2879	0.2800		0.2662	0.2400
	0.2335	0.1900		0.2852	0.2750		0.2635	0.2350
DJ48	0.2252	0.1850	DK31	0.2770	0.2700	DK39	0.2552	0.2300
	0.2279	0.1900		0.2797	0.2750		0.2579	0.2350
	0.2335	0.1900		0.2852	0.2750		0.2635	0.2350
	0.2307	0.1850		0.2825	0.2700		0.2607	0.2300
DJ49	0.2225	0.1800	DK32	0.2743	0.2650	DK40	0.2525	0.2250
	0.2252	0.1850		0.2770	0.2700		0.2552	0.2300
	0.2307	0.1850		0.2825	0.2700		0.2607	0.2300
	0.2280	0.1800		0.2798	0.2650		0.2580	0.2250
DK25	0.2933	0.3000	DK33	0.2715	0.2600	DK41	0.2498	0.2200
	0.2960	0.3050		0.2743	0.2650		0.2525	0.2250
	0.3015	0.3050		0.2798	0.2650		0.2580	0.2250
	0.2988	0.3000		0.2771	0.2600		0.2553	0.2200
DK26	0.2906	0.2950	DK34	0.2688	0.2550	DK42	0.2471	0.2150
	0.2933	0.3000		0.2715	0.2600		0.2498	0.2200
	0.2988	0.3000		0.2771	0.2600		0.2553	0.2200
	0.2961	0.2950		0.2743	0.2550		0.2526	0.2150
DK27	0.2879	0.2900	DK35	0.2661	0.2500	DK43	0.2443	0.2100
	0.2906	0.2950		0.2688	0.2550		0.2471	0.2150
	0.2961	0.2950		0.2743	0.2550		0.2526	0.2150
	0.2934	0.2900		0.2716	0.2500		0.2499	0.2100
DK28	0.2851	0.2850	DK36	0.2634	0.2450	DK44	0.2416	0.2050
	0.2879	0.2900		0.2661	0.2500		0.2443	0.2100
	0.2934	0.2900		0.2716	0.2500		0.2499	0.2100
	0.2907	0.2850		0.2689	0.2450		0.2471	0.2050
DK29	0.2824	0.2800	DK37	0.2607	0.2400	DK45	0.2389	0.2000
	0.2851	0.2850		0.2634	0.2450		0.2416	0.2050
	0.2907	0.2850		0.2689	0.2450		0.2471	0.2050
	0.2879	0.2800		0.2662	0.2400		0.2444	0.2000

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DK46	0.2362	0.1950	DL29	0.2879	0.2800	DL37	0.2662	0.2400
	0.2389	0.2000		0.2907	0.2850		0.2689	0.2450
	0.2444	0.2000		0.2962	0.2850		0.2744	0.2450
	0.2417	0.1950		0.2935	0.2800		0.2717	0.2400
DK47	0.2335	0.1900	DL30	0.2852	0.2750	DL38	0.2635	0.2350
	0.2362	0.1950		0.2879	0.2800		0.2662	0.2400
	0.2417	0.1950		0.2935	0.2800		0.2717	0.2400
	0.2390	0.1900		0.2907	0.2750		0.2690	0.2350
DK48	0.2307	0.1850	DL31	0.2825	0.2700	DL39	0.2607	0.2300
	0.2335	0.1900		0.2852	0.2750		0.2635	0.2350
	0.2390	0.1900		0.2907	0.2750		0.2690	0.2350
	0.2363	0.1850		0.2880	0.2700		0.2663	0.2300
DK49	0.2280	0.1800	DL32	0.2798	0.2650	DL40	0.2580	0.2250
	0.2307	0.1850		0.2825	0.2700		0.2607	0.2300
	0.2363	0.1850		0.2880	0.2700		0.2663	0.2300
	0.2335	0.1800		0.2853	0.2650		0.2636	0.2250
DL25	0.2988	0.3000	DL33	0.2771	0.2600	DL41	0.2553	0.2200
	0.3015	0.3050		0.2798	0.2650		0.2580	0.2250
	0.3071	0.3050		0.2853	0.2650		0.2636	0.2250
	0.3043	0.3000		0.2826	0.2600		0.2608	0.2200
DL26	0.2961	0.2950	DL34	0.2743	0.2550	DL42	0.2526	0.2150
	0.2988	0.3000		0.2771	0.2600		0.2553	0.2200
	0.3043	0.3000		0.2826	0.2600		0.2608	0.2200
	0.3016	0.2950		0.2799	0.2550		0.2581	0.2150
DL27	0.2934	0.2900	DL35	0.2716	0.2500	DL43	0.2499	0.2100
	0.2961	0.2950		0.2743	0.2550		0.2526	0.2150
	0.3016	0.2950		0.2799	0.2550		0.2581	0.2150
	0.2989	0.2900		0.2771	0.2500		0.2554	0.2100
DL28	0.2907	0.2850	DL36	0.2689	0.2450	DL44	0.2471	0.2050
	0.2934	0.2900		0.2716	0.2500		0.2499	0.2100
	0.2989	0.2900		0.2771	0.2500		0.2554	0.2100
	0.2962	0.2850		0.2744	0.2450		0.2527	0.2050

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DL45	0.2444	0.2000	DM28	0.2962	0.2850	DM36	0.2744	0.2450
	0.2471	0.2050		0.2989	0.2900		0.2771	0.2500
	0.2527	0.2050		0.3044	0.2900		0.2827	0.2500
	0.2500	0.2000		0.3017	0.2850		0.2800	0.2450
DL46	0.2417	0.1950	DM29	0.2935	0.2800	DM37	0.2717	0.2400
	0.2444	0.2000		0.2962	0.2850		0.2744	0.2450
	0.2500	0.2000		0.3017	0.2850		0.2800	0.2450
	0.2472	0.1950		0.2990	0.2800		0.2772	0.2400
DL47	0.2390	0.1900	DM30	0.2907	0.2750	DM38	0.2690	0.2350
	0.2417	0.1950		0.2935	0.2800		0.2717	0.2400
	0.2472	0.1950		0.2990	0.2800		0.2772	0.2400
	0.2445	0.1900		0.2963	0.2750		0.2745	0.2350
DL48	0.2363	0.1850	DM31	0.2880	0.2700	DM39	0.2663	0.2300
	0.2390	0.1900		0.2907	0.2750		0.2690	0.2350
	0.2445	0.1900		0.2963	0.2750		0.2745	0.2350
	0.2418	0.1850		0.2936	0.2700		0.2718	0.2300
DL49	0.2335	0.1800	DM32	0.2853	0.2650	DM40	0.2636	0.2250
	0.2363	0.1850		0.2880	0.2700		0.2663	0.2300
	0.2418	0.1850		0.2936	0.2700		0.2718	0.2300
	0.2391	0.1800		0.2908	0.2650		0.2691	0.2250
DM25	0.3043	0.3000	DM33	0.2826	0.2600	DM41	0.2608	0.2200
	0.3071	0.3050		0.2853	0.2650		0.2636	0.2250
	0.3126	0.3050		0.2908	0.2650		0.2691	0.2250
	0.3099	0.3000		0.2881	0.2600		0.2664	0.2200
DM26	0.3016	0.2950	DM34	0.2799	0.2550	DM42	0.2581	0.2150
	0.3043	0.3000		0.2826	0.2600		0.2608	0.2200
	0.3099	0.3000		0.2881	0.2600		0.2664	0.2200
	0.3072	0.2950		0.2854	0.2550		0.2636	0.2150
DM27	0.2989	0.2900	DM35	0.2771	0.2500	DM43	0.2554	0.2100
	0.3016	0.2950		0.2799	0.2550		0.2581	0.2150
	0.3072	0.2950		0.2854	0.2550		0.2636	0.2150
	0.3044	0.2900		0.2827	0.2500		0.2609	0.2100

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DM44	0.2527	0.2050	DN27	0.3044	0.2900	DN35	0.2827	0.2500
	0.2554	0.2100		0.3072	0.2950		0.2854	0.2550
	0.2609	0.2100		0.3127	0.2950		0.2909	0.2550
	0.2582	0.2050		0.3100	0.2900		0.2882	0.2500
DM45	0.2500	0.2000	DN28	0.3017	0.2850	DN36	0.2800	0.2450
	0.2527	0.2050		0.3044	0.2900		0.2827	0.2500
	0.2582	0.2050		0.3100	0.2900		0.2882	0.2500
	0.2555	0.2000		0.3072	0.2850		0.2855	0.2450
DM46	0.2472	0.1950	DN29	0.2990	0.2800	DN37	0.2772	0.2400
	0.2500	0.2000		0.3017	0.2850		0.2800	0.2450
	0.2555	0.2000		0.3072	0.2850		0.2855	0.2450
	0.2528	0.1950		0.3045	0.2800		0.2828	0.2400
DM47	0.2445	0.1900	DN30	0.2963	0.2750	DN38	0.2745	0.2350
	0.2472	0.1950		0.2990	0.2800		0.2772	0.2400
	0.2528	0.1950		0.3045	0.2800		0.2828	0.2400
	0.2500	0.1900		0.3018	0.2750		0.2800	0.2350
DM48	0.2418	0.1850	DN31	0.2936	0.2700	DN39	0.2718	0.2300
	0.2445	0.1900		0.2963	0.2750		0.2745	0.2350
	0.2500	0.1900		0.3018	0.2750		0.2800	0.2350
	0.2473	0.1850		0.2991	0.2700		0.2773	0.2300
DM49	0.2391	0.1800	DN32	0.2908	0.2650	DN40	0.2691	0.2250
	0.2418	0.1850		0.2936	0.2700		0.2718	0.2300
	0.2473	0.1850		0.2991	0.2700		0.2773	0.2300
	0.2446	0.1800		0.2964	0.2650		0.2746	0.2250
DN25	0.3099	0.3000	DN33	0.2881	0.2600	DN41	0.2664	0.2200
	0.3126	0.3050		0.2908	0.2650		0.2691	0.2250
	0.3181	0.3050		0.2964	0.2650		0.2746	0.2250
	0.3154	0.3000		0.2936	0.2600		0.2719	0.2200
DN26	0.3072	0.2950	DN34	0.2854	0.2550	DN42	0.2636	0.2150
	0.3099	0.3000		0.2881	0.2600		0.2664	0.2200
	0.3154	0.3000		0.2936	0.2600		0.2719	0.2200
	0.3127	0.2950		0.2909	0.2550		0.2692	0.2150

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DN43	0.2609	0.2100	DP26	0.3127	0.2950	DP34	0.2909	0.2550
	0.2636	0.2150		0.3154	0.3000		0.2936	0.2600
	0.2692	0.2150		0.3209	0.3000		0.2992	0.2600
	0.2664	0.2100		0.3182	0.2950		0.2964	0.2550
DN44	0.2582	0.2050	DP27	0.3100	0.2900	DP35	0.2882	0.2500
	0.2609	0.2100		0.3127	0.2950		0.2909	0.2550
	0.2664	0.2100		0.3182	0.2950		0.2964	0.2550
	0.2637	0.2050		0.3155	0.2900		0.2937	0.2500
DN45	0.2555	0.2000	DP28	0.3072	0.2850	DP36	0.2855	0.2450
	0.2582	0.2050		0.3100	0.2900		0.2882	0.2500
	0.2637	0.2050		0.3155	0.2900		0.2937	0.2500
	0.2610	0.2000		0.3128	0.2850		0.2910	0.2450
DN46	0.2528	0.1950	DP29	0.3045	0.2800	DP37	0.2828	0.2400
	0.2555	0.2000		0.3072	0.2850		0.2855	0.2450
	0.2610	0.2000		0.3128	0.2850		0.2910	0.2450
	0.2583	0.1950		0.3100	0.2800		0.2883	0.2400
DN47	0.2500	0.1900	DP30	0.3018	0.2750	DP38	0.2800	0.2350
	0.2528	0.1950		0.3045	0.2800		0.2828	0.2400
	0.2583	0.1950		0.3100	0.2800		0.2883	0.2400
	0.2556	0.1900		0.3073	0.2750		0.2856	0.2350
DN48	0.2473	0.1850	DP31	0.2991	0.2700	DP39	0.2773	0.2300
	0.2500	0.1900		0.3018	0.2750		0.2800	0.2350
	0.2556	0.1900		0.3073	0.2750		0.2856	0.2350
	0.2528	0.1850		0.3046	0.2700		0.2828	0.2300
DN49	0.2446	0.1800	DP32	0.2964	0.2650	DP40	0.2746	0.2250
	0.2473	0.1850		0.2991	0.2700		0.2773	0.2300
	0.2528	0.1850		0.3046	0.2700		0.2828	0.2300
	0.2501	0.1800		0.3019	0.2650		0.2801	0.2250
DP25	0.3154	0.3000	DP33	0.2936	0.2600	DP41	0.2719	0.2200
	0.3181	0.3050		0.2964	0.2650		0.2746	0.2250
	0.3236	0.3050		0.3019	0.2650		0.2801	0.2250
	0.3209	0.3000		0.2992	0.2600		0.2774	0.2200

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DP42	0.2692	0.2150	DQ25	0.3209	0.3000	DQ33	0.2992	0.2600
	0.2719	0.2200		0.3236	0.3050		0.3019	0.2650
	0.2774	0.2200		0.3292	0.3050		0.3074	0.2650
	0.2747	0.2150		0.3264	0.3000		0.3047	0.2600
DP43	0.2664	0.2100	DQ26	0.3182	0.2950	DQ34	0.2964	0.2550
	0.2692	0.2150		0.3209	0.3000		0.2992	0.2600
	0.2747	0.2150		0.3264	0.3000		0.3047	0.2600
	0.2720	0.2100		0.3237	0.2950		0.3020	0.2550
DP44	0.2637	0.2050	DQ27	0.3155	0.2900	DQ35	0.2937	0.2500
	0.2664	0.2100		0.3182	0.2950		0.2964	0.2550
	0.2720	0.2100		0.3237	0.2950		0.3020	0.2550
	0.2692	0.2050		0.3210	0.2900		0.2992	0.2500
DP45	0.2610	0.2000	DQ28	0.3128	0.2850	DQ36	0.2910	0.2450
	0.2637	0.2050		0.3155	0.2900		0.2937	0.2500
	0.2692	0.2050		0.3210	0.2900		0.2992	0.2500
	0.2665	0.2000		0.3183	0.2850		0.2965	0.2450
DP46	0.2583	0.1950	DQ29	0.3100	0.2800	DQ37	0.2883	0.2400
	0.2610	0.2000		0.3128	0.2850		0.2910	0.2450
	0.2665	0.2000		0.3183	0.2850		0.2965	0.2450
	0.2638	0.1950		0.3156	0.2800		0.2938	0.2400
DP47	0.2556	0.1900	DQ30	0.3073	0.2750	DQ38	0.2856	0.2350
	0.2583	0.1950		0.3100	0.2800		0.2883	0.2400
	0.2638	0.1950		0.3156	0.2800		0.2938	0.2400
	0.2611	0.1900		0.3128	0.2750		0.2911	0.2350
DP48	0.2528	0.1850	DQ31	0.3046	0.2700	DQ39	0.2828	0.2300
	0.2556	0.1900		0.3073	0.2750		0.2856	0.2350
	0.2611	0.1900		0.3128	0.2750		0.2911	0.2350
	0.2584	0.1850		0.3101	0.2700		0.2884	0.2300
DP49	0.2501	0.1800	DQ32	0.3019	0.2650	DQ40	0.2801	0.2250
	0.2528	0.1850		0.3046	0.2700		0.2828	0.2300
	0.2584	0.1850		0.3101	0.2700		0.2884	0.2300
	0.2556	0.1800		0.3074	0.2650		0.2856	0.2250

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DQ41	0.2774	0.2200	DQ49	0.2556	0.1800	DR32	0.3074	0.2650
	0.2801	0.2250		0.2584	0.1850		0.3101	0.2700
	0.2856	0.2250		0.2639	0.1850		0.3156	0.2700
	0.2829	0.2200		0.2612	0.1800		0.3129	0.2650
DQ42	0.2747	0.2150	DR25	0.3264	0.3000	DR33	0.3047	0.2600
	0.2774	0.2200		0.3292	0.3050		0.3074	0.2650
	0.2829	0.2200		0.3347	0.3050		0.3129	0.2650
	0.2802	0.2150		0.3320	0.3000		0.3102	0.2600
DQ43	0.2720	0.2100	DR26	0.3237	0.2950	DR34	0.3020	0.2550
	0.2747	0.2150		0.3264	0.3000		0.3047	0.2600
	0.2802	0.2150		0.3320	0.3000		0.3102	0.2600
	0.2775	0.2100		0.3292	0.2950		0.3075	0.2550
DQ44	0.2692	0.2050	DR27	0.3210	0.2900	DR35	0.2992	0.2500
	0.2720	0.2100		0.3237	0.2950		0.3020	0.2550
	0.2775	0.2100		0.3292	0.2950		0.3075	0.2550
	0.2748	0.2050		0.3265	0.2900		0.3048	0.2500
DQ45	0.2665	0.2000	DR28	0.3183	0.2850	DR36	0.2965	0.2450
	0.2692	0.2050		0.3210	0.2900		0.2992	0.2500
	0.2748	0.2050		0.3265	0.2900		0.3048	0.2500
	0.2720	0.2000		0.3238	0.2850		0.3020	0.2450
DQ46	0.2638	0.1950	DR29	0.3156	0.2800	DR37	0.2938	0.2400
	0.2665	0.2000		0.3183	0.2850		0.2965	0.2450
	0.2720	0.2000		0.3238	0.2850		0.3020	0.2450
	0.2693	0.1950		0.3211	0.2800		0.2993	0.2400
DQ47	0.2611	0.1900	DR30	0.3128	0.2750	DR38	0.2911	0.2350
	0.2638	0.1950		0.3156	0.2800		0.2938	0.2400
	0.2693	0.1950		0.3211	0.2800		0.2993	0.2400
	0.2666	0.1900		0.3184	0.2750		0.2966	0.2350
DQ48	0.2584	0.1850	DR31	0.3101	0.2700	DR39	0.2884	0.2300
	0.2611	0.1900		0.3128	0.2750		0.2911	0.2350
	0.2666	0.1900		0.3184	0.2750		0.2966	0.2350
	0.2639	0.1850		0.3156	0.2700		0.2939	0.2300

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DR40	0.2856	0.2250	DR48	0.2639	0.1850	DS31	0.3156	0.2700
	0.2884	0.2300		0.2666	0.1900		0.3184	0.2750
	0.2939	0.2300		0.2721	0.1900		0.3239	0.2750
	0.2912	0.2250		0.2694	0.1850		0.3212	0.2700
DR41	0.2829	0.2200	DR49	0.2612	0.1800	DS32	0.3129	0.2650
	0.2856	0.2250		0.2639	0.1850		0.3156	0.2700
	0.2912	0.2250		0.2694	0.1850		0.3212	0.2700
	0.2884	0.2200		0.2667	0.1800		0.3184	0.2650
DR42	0.2802	0.2150	DS25	0.3320	0.3000	DS33	0.3102	0.2600
	0.2829	0.2200		0.3347	0.3050		0.3129	0.2650
	0.2884	0.2200		0.3402	0.3050		0.3184	0.2650
	0.2857	0.2150		0.3375	0.3000		0.3157	0.2600
DR43	0.2775	0.2100	DS26	0.3292	0.2950	DS34	0.3075	0.2550
	0.2802	0.2150		0.3320	0.3000		0.3102	0.2600
	0.2857	0.2150		0.3375	0.3000		0.3157	0.2600
	0.2830	0.2100		0.3348	0.2950		0.3130	0.2550
DR44	0.2748	0.2050	DS27	0.3265	0.2900	DS35	0.3048	0.2500
	0.2775	0.2100		0.3292	0.2950		0.3075	0.2550
	0.2830	0.2100		0.3348	0.2950		0.3130	0.2550
	0.2803	0.2050		0.3320	0.2900		0.3103	0.2500
DR45	0.2720	0.2000	DS28	0.3238	0.2850	DS36	0.3020	0.2450
	0.2748	0.2050		0.3265	0.2900		0.3048	0.2500
	0.2803	0.2050		0.3320	0.2900		0.3103	0.2500
	0.2776	0.2000		0.3293	0.2850		0.3076	0.2450
DR46	0.2693	0.1950	DS29	0.3211	0.2800	DS37	0.2993	0.2400
	0.2720	0.2000		0.3238	0.2850		0.3020	0.2450
	0.2776	0.2000		0.3293	0.2850		0.3076	0.2450
	0.2748	0.1950		0.3266	0.2800		0.3048	0.2400
DR47	0.2666	0.1900	DS30	0.3184	0.2750	DS38	0.2966	0.2350
	0.2693	0.1950		0.3211	0.2800		0.2993	0.2400
	0.2748	0.1950		0.3266	0.2800		0.3048	0.2400
	0.2721	0.1900		0.3239	0.2750		0.3021	0.2350

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
DS39	0.2939	0.2300	DS43	0.2830	0.2100	DS47	0.2721	0.1900
	0.2966	0.2350		0.2857	0.2150		0.2748	0.1950
	0.3021	0.2350		0.2912	0.2150		0.2804	0.1950
	0.2994	0.2300		0.2885	0.2100		0.2776	0.1900
DS40	0.2912	0.2250	DS44	0.2803	0.2050	DS48	0.2694	0.1850
	0.2939	0.2300		0.2830	0.2100		0.2721	0.1900
	0.2994	0.2300		0.2885	0.2100		0.2776	0.1900
	0.2967	0.2250		0.2858	0.2050		0.2749	0.1850
DS41	0.2884	0.2200	DS45	0.2776	0.2000	DS49	0.2667	0.1800
	0.2912	0.2250		0.2803	0.2050		0.2694	0.1850
	0.2967	0.2250		0.2858	0.2050		0.2749	0.1850
	0.2940	0.2200		0.2831	0.2000		0.2722	0.1800
DS42	0.2857	0.2150	DS46	0.2748	0.1950			
	0.2884	0.2200		0.2776	0.2000			
	0.2940	0.2200		0.2831	0.2000			
	0.2912	0.2150		0.2804	0.1950			

Group Name on Label

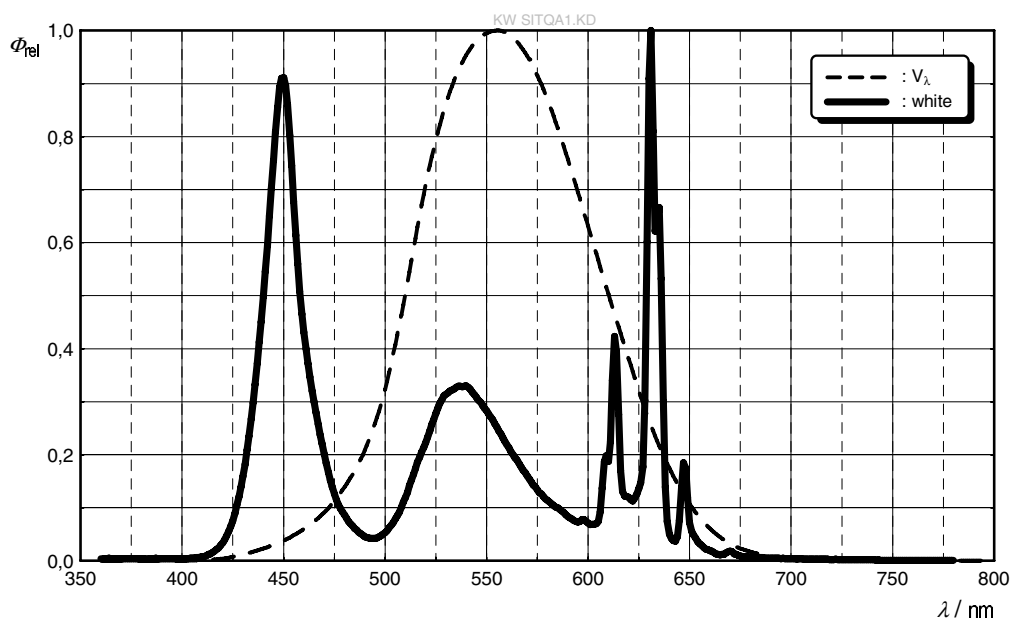
Example: FR-DG25-H-N4

Brightness	Color Chromaticity	Wavelength Groups	Forward Voltage
FR	DG25	H	N4

DRAFT – For reference only. Subject to change without notice.

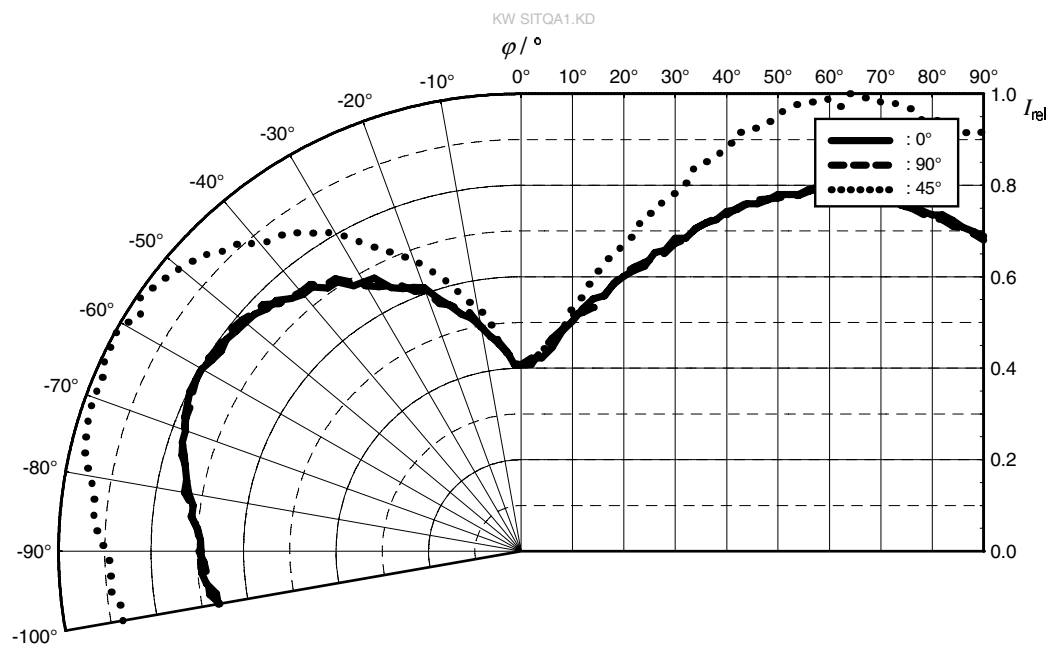
Relative Spectral Emission ⁶⁾

$\Phi_{\text{rel}} = f(\lambda)$; $I_F = 30 \text{ mA}$; $T_S = 25 \text{ }^\circ\text{C}$



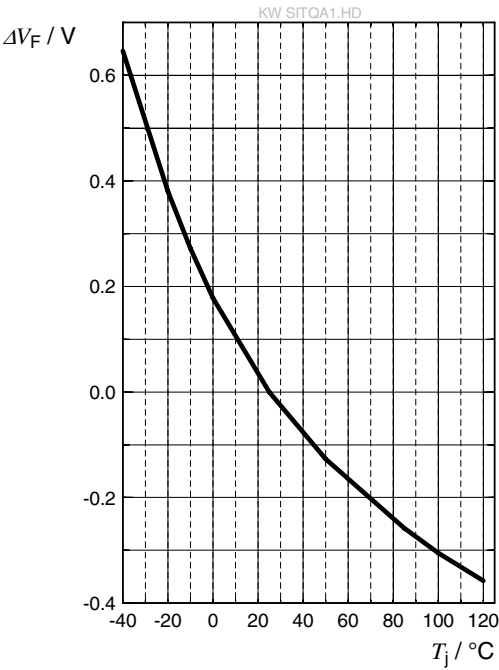
Radiation Characteristics ⁶⁾

$I_{\text{rel}} = f(\phi)$; $T_S = 25 \text{ }^\circ\text{C}$

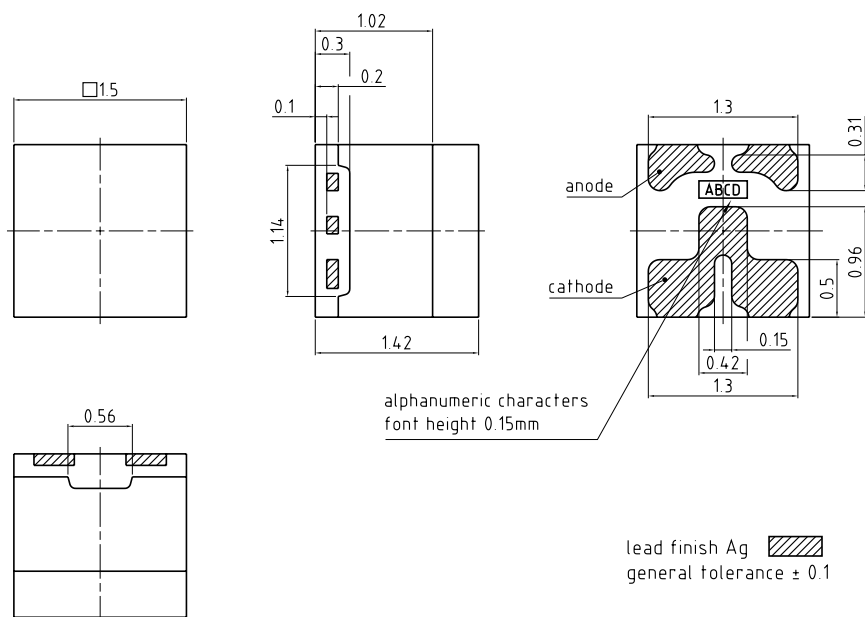


Forward Voltage ⁶⁾

$\Delta V_F = V_F - V_F(25\text{ }^{\circ}\text{C}) = f(T_j); I_F = 30\text{ mA}$



Dimensional Drawing ⁷⁾



C63062-A4441-A1-01

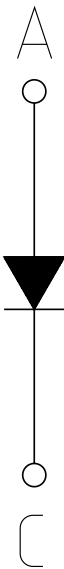
Further Information:

Approximate Weight: 6.2 mg

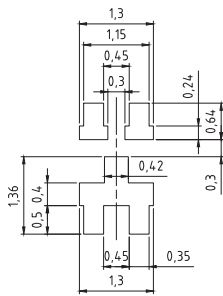
Corrosion test: Class: 2B
Test condition: 25°C / 75 % RH / 10 ppm H₂S / 21 days (IEC 60068-2-43)

Electrical Internal Circuit

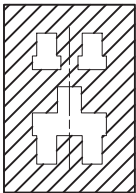
Polarity



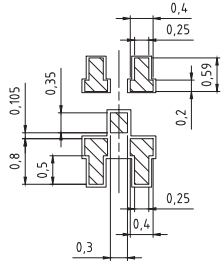
Recommended Solder Pad ⁷⁾



foot print

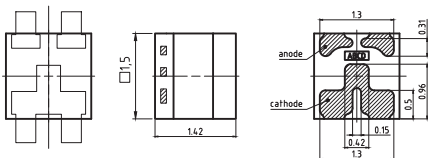


solder resist



solder stencil
recommended stencil
thickness 100µm

Component Location on Pad

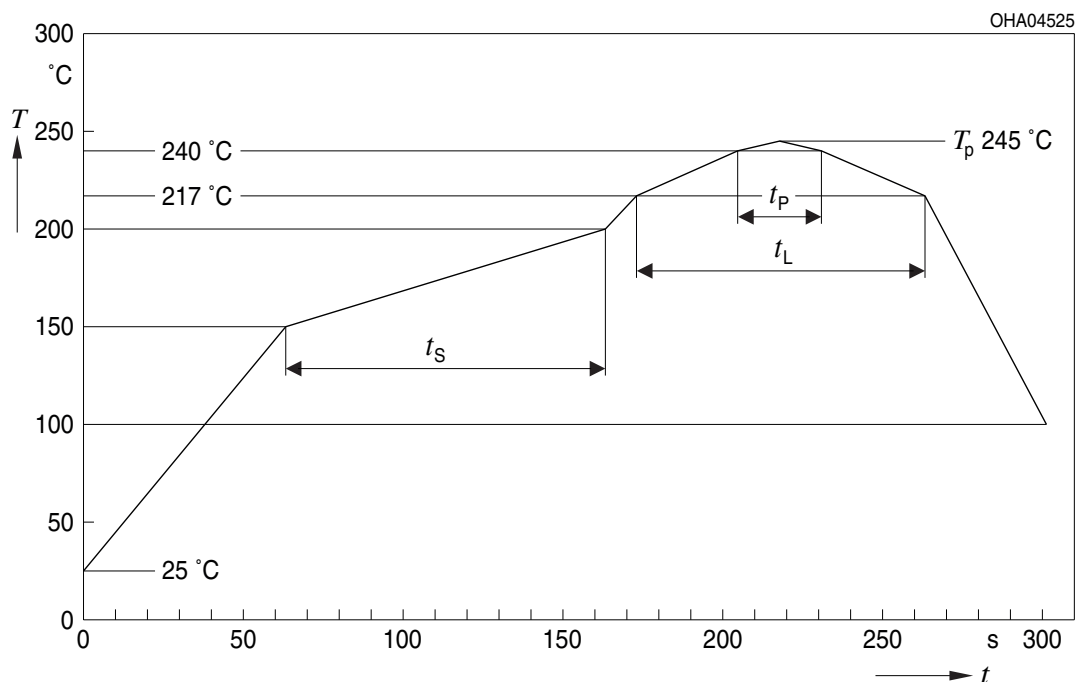


E062.3010.322 -01

For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. Package not suitable for ultra sonic cleaning.

Reflow Soldering Profile

Product complies to MSL Level 2 acc. to JEDEC J-STD-020E

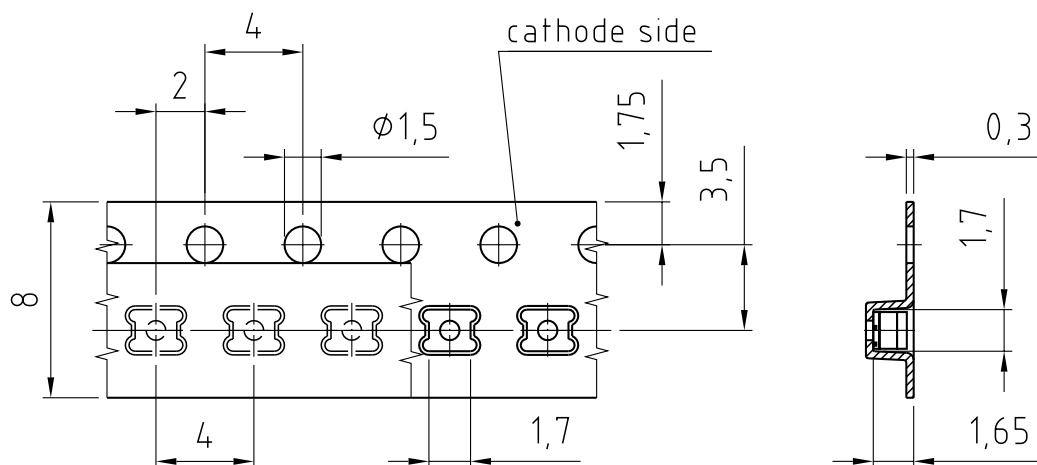


Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_s T_{Smin} to T_{Smax}	t_s	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_p			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_p		245	260	°C
Time within 5 °C of the specified peak temperature $T_p - 5$ K	t_p	10	20	30	s
Ramp-down rate*) T_p to 100 °C			3	6	K/s
Time 25 °C to T_p				480	s

All temperatures refer to the center of the package, measured on the top of the component

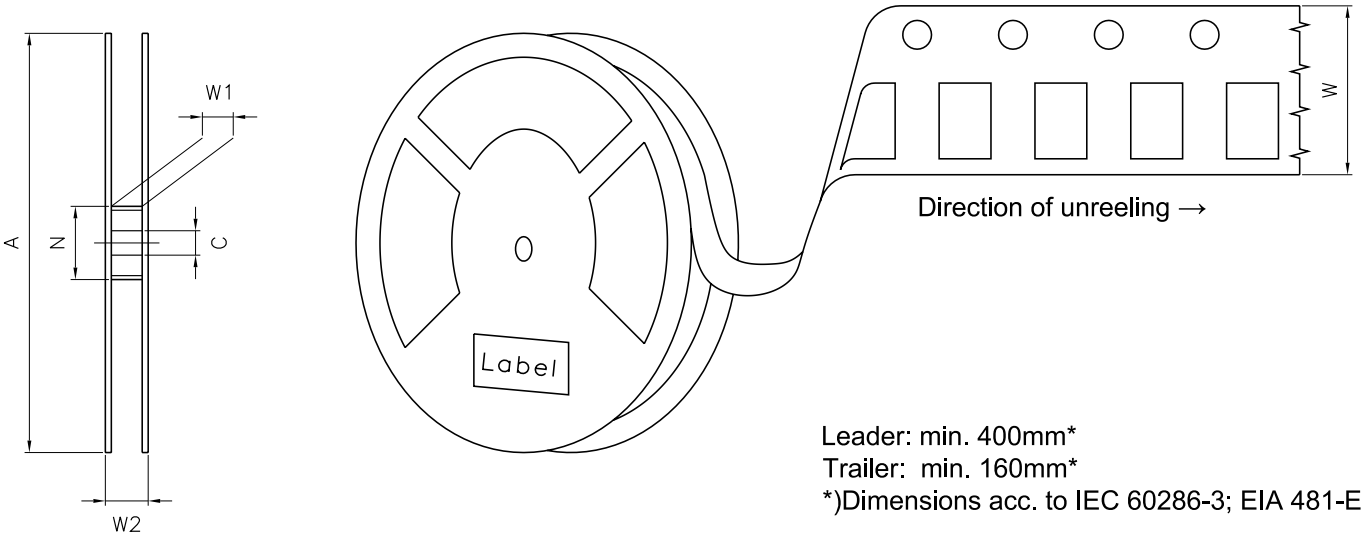
*) slope calculation DT/Dt : Dt max. 5 s; fulfillment for the whole T-range

Taping ⁷⁾



C63062-A4411-B8-03

Tape and Reel ⁸⁾



Reel Dimensions

A	W	N _{min}	W ₁	W _{2 max}	Pieces per PU
180 mm	8 + 0.3 / - 0.1 mm	60 mm	8.4 + 2 mm	14.4 mm	2500

OSRAM

BIN1: XX-XX-X-XXX-X

(6P) BATCH NO: 1234567890



(1T) LOT NO: 1234567890

(9D) D/C: 1234



ML Temp ST
X XXX °C X



Pack: RXX

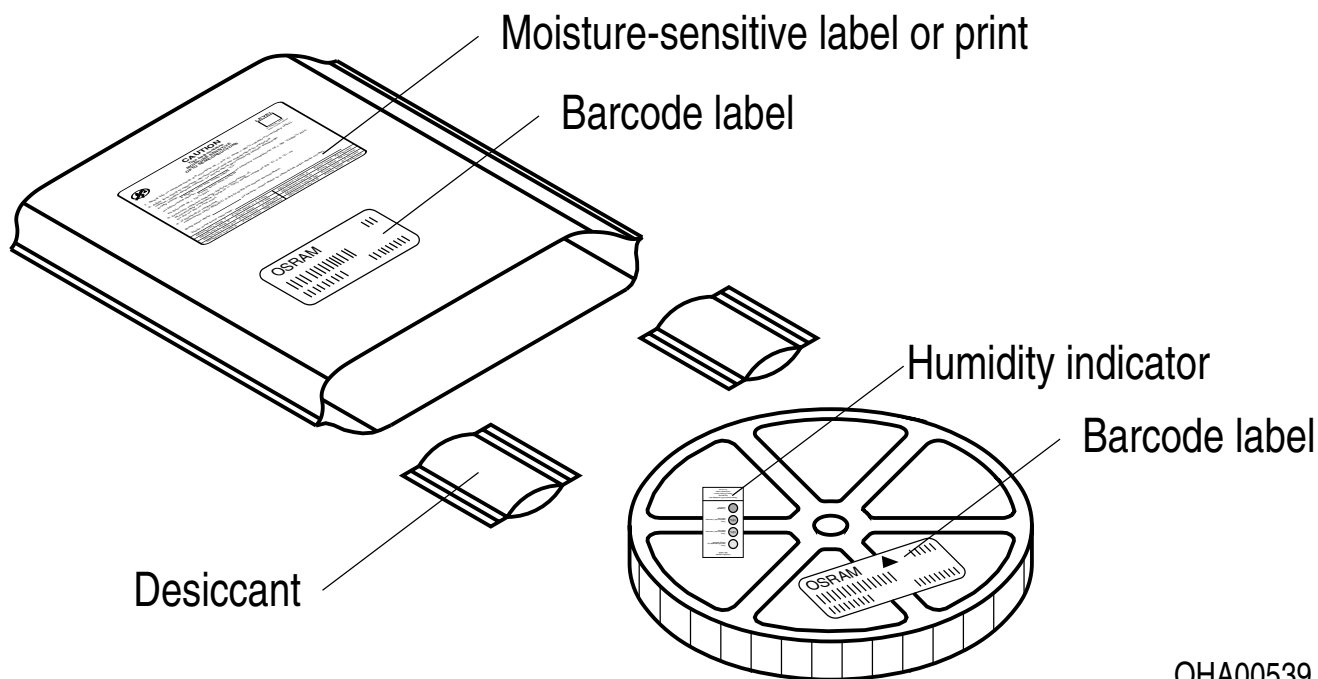
DEMY XXX

X X123 1234.1234 X

(X) PROD NO: 123456789 (Q) QTY: 9999 (G) GROUP: XX-XX-X-X



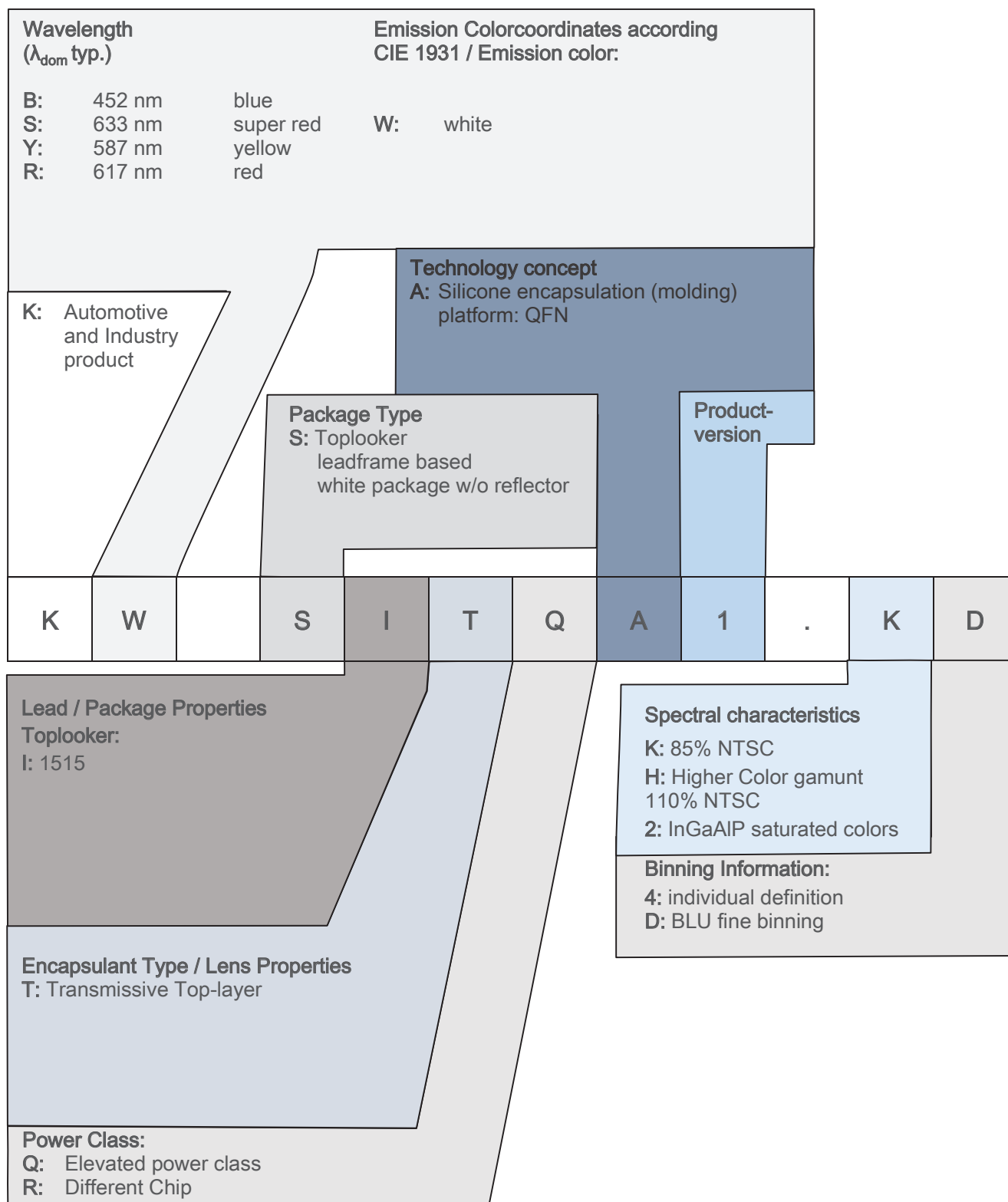
OHA04563



OHA00539

Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card according JEDEC-STD-033.

Type Designation System



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Notes

The evaluation of eye safety occurs according to the standard IEC 62471:2006 (photo biological safety of lamps and lamp systems). Within the risk grouping system of this IEC standard, the device specified in this data sheet fall into the class **exempt group (exposure time 10000 s)**. Under real circumstances (for exposure time, conditions of the eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. When looking at bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment, and even accidents, depending on the situation.

Subcomponents of this device contain, in addition to other substances, metal filled materials including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

For further application related information please visit <https://ams-osram.com/support/application-notes>

Disclaimer

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Attention please!

The information describes the type of component and shall not be considered as assured characteristics. Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances.

For information on the types in question please contact our Sales Organization.

If printed or downloaded, please find the latest version on our website.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Product and functional safety devices/applications or medical devices/applications

Our components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.

Our products are not qualified at module and system level for such application.

In case buyer – or customer supplied by buyer – considers using our components in product safety devices/applications or medical devices/applications, buyer and/or customer has to inform our local sales partner immediately and we and buyer and /or customer will analyze and coordinate the customer-specific request between us and buyer and/or customer.

Glossary

- 1) **Brightness:** Brightness values are measured during a current pulse of typically 25 ms, with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (acc. to GUM with a coverage factor of $k = 3$).
- 2) **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any continuous reverse bias or forward bias below the voltage range of light emission shall be avoided because it may cause migration which can change the electro-optical characteristics or damage the LED.
- 3) **Chromaticity coordinate groups:** Chromaticity coordinates are measured during a current pulse of typically 25 ms, with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (acc. to GUM with a coverage factor of $k = 3$).
- 4) **Forward Voltage:** The forward voltage is measured during a current pulse of typically 8 ms, with an internal reproducibility of $\pm 0.05\text{ V}$ and an expanded uncertainty of $\pm 0.1\text{ V}$ (acc. to GUM with a coverage factor of $k = 3$).
- 5) **Thermal Resistance:** $R_{th\text{ max}}$ is based on statistic values (6σ) used for Derating.
- 6) **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.
- 7) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimensions are specified in mm.
- 8) **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
α.0	2022-12-15	Initial Version
α.1	2023-02-23	Maximum Ratings
α.2	2023-05-31	Recommended Solder Pad

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EU RoHS and China RoHS compliant product

此产品符合欧盟 RoHS 指令的要求；
按照中国的相关法规和标准，
不含有毒有害物质或元素。

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