

OSRAM KW DPL833.KD

Datasheet

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SYNIOS® E4014

KW DPL833.KD

The low-profile rectangular shape of SYNIOS E4014 enables the light from this LED to be injected into light guides so that wide range of design ideas can be realized. These mid-power-light emitting diodes also have

- an impressively robust plastic package,
- a particularly uniform distribution of light and
- an excellent price performance ratio.

KW DPL833.KD is optimized for highest lumen output in order to enable automotive applications that require high Luminance backlights for LC Displays.



Applications

- Display Backlighting

Features

- Package: colored silicone resin, SMD epoxy package
- Chip technology: InGaN on Sapphire
- Typ. Radiation: 120° (Lambertian emitter)
- Color: $C_x = 0.28$, $C_y = 0.26$ acc. to CIE 1931 (● white)
- Optical efficacy: 130 lm/W
- Corrosion Robustness Class: 2B
- Qualifications: AEC-Q102 Qualified
- ESD: 8 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3B)

Ordering Information

Type	Luminous Flux ¹⁾ I _F = 120 mA Φ _V	Ordering Code
KW DPL833.KD-JULP-D025D184-BG-N464	65.8 ... 121.0 lm	Q65113A6557

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	min.	5 mA
		max.	240 mA
Forward current pulsed $D = 10\text{ %}; T_s = 25\text{ °C}$	$I_{F\text{ pulse}}$	max.	400 mA
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3B)	V_{ESD}		8 kV
Reverse current ²⁾	I_R	max.	200 mA

Characteristics

 $I_F = 120 \text{ mA}$; $T_s = 25 \text{ °C}$

Parameter	Symbol		Values
Chromaticity Coordinate ³⁾	C _x	typ.	0.28
	C _y	typ.	0.26
Peak Wavelength $I_F = 120 \text{ mA}$	λ_{peak}	min.	447 nm
		max.	459 nm
Viewing angle at 50% I_v	2 ϕ	typ.	120 °
Forward Voltage ⁴⁾ $I_F = 120 \text{ mA}$	V_F	min.	5.40 V
		typ.	6.00 V
		max.	6.40 V
Reverse voltage (ESD device)	$V_{\text{R ESD}}$	min.	45 V
Reverse voltage ²⁾ $I_R = 20 \text{ mA}$	V_R	max.	1.2 V
Real thermal resistance junction/solderpoint ⁵⁾	$R_{\text{thJS real}}$	typ.	12.0 K / W
		max.	15.5 K / W
Electrical thermal resistance junction/solderpoint ⁵⁾ with efficiency $\eta_e = 43 \text{ %}$	$R_{\text{thJS elec.}}$	typ.	6.8 K / W
		max.	8.8 K / W

Brightness Groups

Group	Luminous Flux ¹⁾ $I_F = 120 \text{ mA}$ min. Φ_V	Luminous Flux ¹⁾ $I_F = 120 \text{ mA}$ max. Φ_V	Luminous Intensity ⁶⁾ $I_F = 120 \text{ mA}$ typ. I_V
JU	65.8 lm	71.0 lm	23.1 cd
KP	71.0 lm	76.3 lm	24.9 cd
KQ	76.3 lm	82.0 lm	26.7 cd
KR	82.0 lm	89.2 lm	28.9 cd
KS	89.2 lm	97.0 lm	31.4 cd
KT	97.0 lm	104.2 lm	34.0 cd
KU	104.2 lm	112.0 lm	36.5 cd
LP	112.0 lm	121.0 lm	39.3 cd

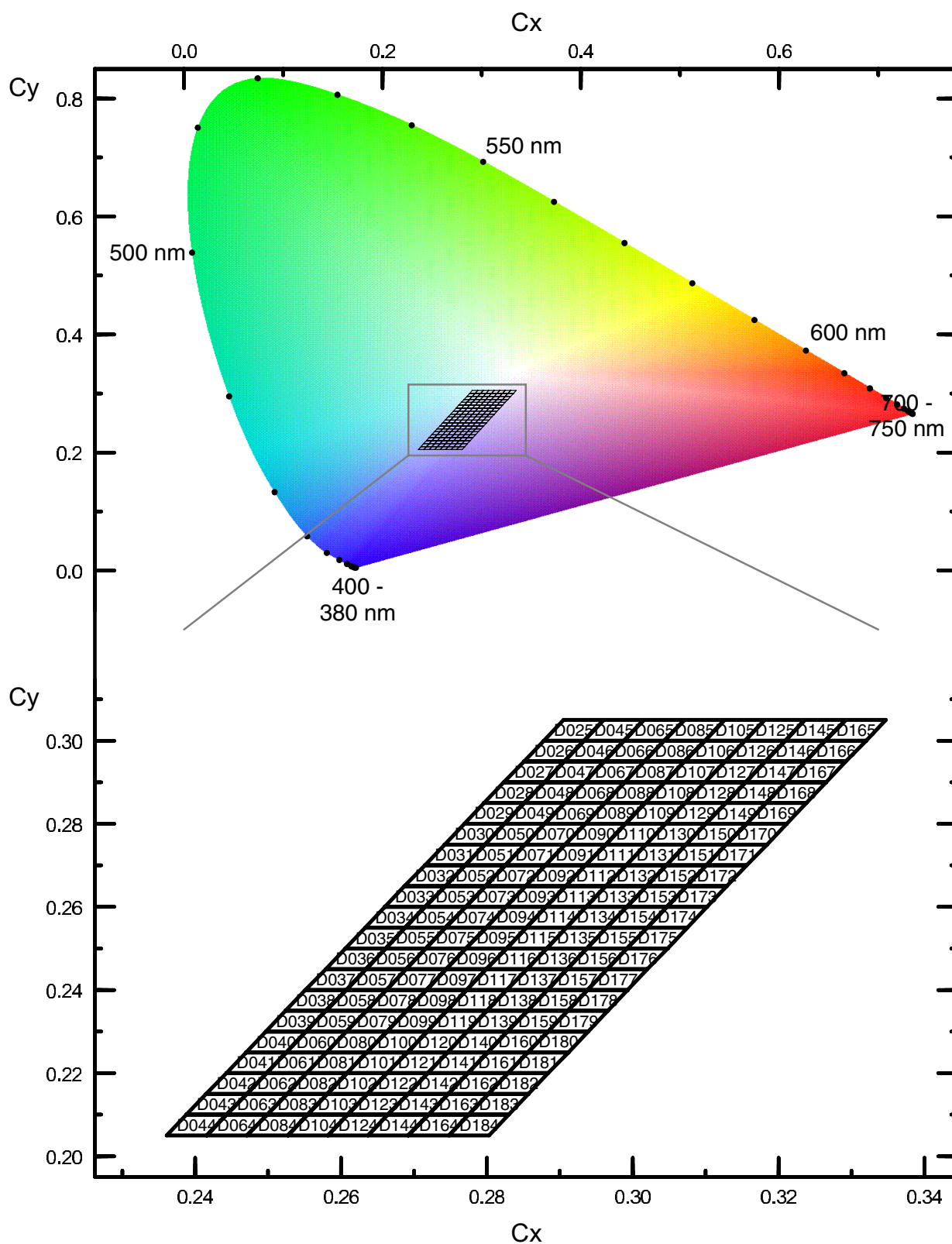
Forward Voltage Groups

Group	Forward Voltage ⁴⁾ $I_F = 120 \text{ mA}$ min. V_F	Forward Voltage ⁴⁾ $I_F = 120 \text{ mA}$ max. V_F
N4	5.40 V	5.60 V
S4	5.60 V	5.80 V
W4	5.80 V	6.00 V
24	6.00 V	6.20 V
64	6.20 V	6.40 V

Wavelength Groups

Group	Peak Wavelength $I_F = 120\text{ mA}$ min. λ_{peak}	Peak Wavelength $I_F = 120\text{ mA}$ max. λ_{peak}
B	447 nm	449 nm
C	449 nm	451 nm
D	451 nm	453 nm
E	453 nm	455 nm
F	455 nm	457 nm
G	457 nm	459 nm

Chromaticity Coordinate Groups



Chromaticity Coordinate Groups ³⁾

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D025	0.2878	0.3000	D033	0.2660	0.2600	D041	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
D026	0.2851	0.2950	D034	0.2633	0.2550	D042	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
D027	0.2823	0.2900	D035	0.2606	0.2500	D043	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
D028	0.2796	0.2850	D036	0.2579	0.2450	D044	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
D029	0.2769	0.2800	D037	0.2551	0.2400	D045	0.2933	0.3000
	0.2796	0.2850		0.2579	0.2450		0.2960	0.3050
	0.2851	0.2850		0.2634	0.2450		0.3015	0.3050
	0.2824	0.2800		0.2607	0.2400		0.2988	0.3000
D030	0.2742	0.2750	D038	0.2524	0.2350	D046	0.2906	0.2950
	0.2769	0.2800		0.2551	0.2400		0.2933	0.3000
	0.2824	0.2800		0.2607	0.2400		0.2988	0.3000
	0.2797	0.2750		0.2579	0.2350		0.2961	0.2950
D031	0.2715	0.2700	D039	0.2497	0.2300	D047	0.2879	0.2900
	0.2742	0.2750		0.2524	0.2350		0.2906	0.2950
	0.2797	0.2750		0.2579	0.2350		0.2961	0.2950
	0.2770	0.2700		0.2552	0.2300		0.2934	0.2900
D032	0.2687	0.2650	D040	0.2470	0.2250	D048	0.2851	0.2850
	0.2715	0.2700		0.2497	0.2300		0.2879	0.2900
	0.2770	0.2700		0.2552	0.2300		0.2934	0.2900
	0.2743	0.2650		0.2525	0.2250		0.2907	0.2850

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D049	0.2824	0.2800	D057	0.2607	0.2400	D065	0.2988	0.3000
	0.2851	0.2850		0.2634	0.2450		0.3015	0.3050
	0.2907	0.2850		0.2689	0.2450		0.3071	0.3050
	0.2879	0.2800		0.2662	0.2400		0.3043	0.3000
D050	0.2797	0.2750	D058	0.2579	0.2350	D066	0.2961	0.2950
	0.2824	0.2800		0.2607	0.2400		0.2988	0.3000
	0.2879	0.2800		0.2662	0.2400		0.3043	0.3000
	0.2852	0.2750		0.2635	0.2350		0.3016	0.2950
D051	0.2770	0.2700	D059	0.2552	0.2300	D067	0.2934	0.2900
	0.2797	0.2750		0.2579	0.2350		0.2961	0.2950
	0.2852	0.2750		0.2635	0.2350		0.3016	0.2950
	0.2825	0.2700		0.2607	0.2300		0.2989	0.2900
D052	0.2743	0.2650	D060	0.2525	0.2250	D068	0.2907	0.2850
	0.2770	0.2700		0.2552	0.2300		0.2934	0.2900
	0.2825	0.2700		0.2607	0.2300		0.2989	0.2900
	0.2798	0.2650		0.2580	0.2250		0.2962	0.2850
D053	0.2715	0.2600	D061	0.2498	0.2200	D069	0.2879	0.2800
	0.2743	0.2650		0.2525	0.2250		0.2907	0.2850
	0.2798	0.2650		0.2580	0.2250		0.2962	0.2850
	0.2771	0.2600		0.2553	0.2200		0.2935	0.2800
D054	0.2688	0.2550	D062	0.2471	0.2150	D070	0.2852	0.2750
	0.2715	0.2600		0.2498	0.2200		0.2879	0.2800
	0.2771	0.2600		0.2553	0.2200		0.2935	0.2800
	0.2743	0.2550		0.2526	0.2150		0.2907	0.2750
D055	0.2661	0.2500	D063	0.2443	0.2100	D071	0.2825	0.2700
	0.2688	0.2550		0.2471	0.2150		0.2852	0.2750
	0.2743	0.2550		0.2526	0.2150		0.2907	0.2750
	0.2716	0.2500		0.2499	0.2100		0.2880	0.2700
D056	0.2634	0.2450	D064	0.2416	0.2050	D072	0.2798	0.2650
	0.2661	0.2500		0.2443	0.2100		0.2825	0.2700
	0.2716	0.2500		0.2499	0.2100		0.2880	0.2700
	0.2689	0.2450		0.2471	0.2050		0.2853	0.2650

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D073	0.2771	0.2600	D081	0.2553	0.2200	D089	0.2935	0.2800
	0.2798	0.2650		0.2580	0.2250		0.2962	0.2850
	0.2853	0.2650		0.2635	0.2250		0.3017	0.2850
	0.2826	0.2600		0.2608	0.2200		0.2990	0.2800
D074	0.2743	0.2550	D082	0.2526	0.2150	D090	0.2907	0.2750
	0.2771	0.2600		0.2553	0.2200		0.2935	0.2800
	0.2826	0.2600		0.2608	0.2200		0.2990	0.2800
	0.2799	0.2550		0.2581	0.2150		0.2963	0.2750
D075	0.2716	0.2500	D083	0.2499	0.2100	D091	0.2880	0.2700
	0.2743	0.2550		0.2526	0.2150		0.2907	0.2750
	0.2799	0.2550		0.2581	0.2150		0.2963	0.2750
	0.2771	0.2500		0.2554	0.2100		0.2935	0.2700
D076	0.2689	0.2450	D084	0.2471	0.2050	D092	0.2853	0.2650
	0.2716	0.2500		0.2499	0.2100		0.2880	0.2700
	0.2771	0.2500		0.2554	0.2100		0.2935	0.2700
	0.2744	0.2450		0.2527	0.2050		0.2908	0.2650
D077	0.2662	0.2400	D085	0.3043	0.3000	D093	0.2826	0.2600
	0.2689	0.2450		0.3071	0.3050		0.2853	0.2650
	0.2744	0.2450		0.3126	0.3050		0.2908	0.2650
	0.2717	0.2400		0.3099	0.3000		0.2881	0.2600
D078	0.2635	0.2350	D086	0.3016	0.2950	D094	0.2799	0.2550
	0.2662	0.2400		0.3043	0.3000		0.2826	0.2600
	0.2717	0.2400		0.3099	0.3000		0.2881	0.2600
	0.2690	0.2350		0.3071	0.2950		0.2854	0.2550
D079	0.2607	0.2300	D087	0.2989	0.2900	D095	0.2771	0.2500
	0.2635	0.2350		0.3016	0.2950		0.2799	0.2550
	0.2690	0.2350		0.3071	0.2950		0.2854	0.2550
	0.2663	0.2300		0.3044	0.2900		0.2827	0.2500
D080	0.2580	0.2250	D088	0.2962	0.2850	D096	0.2744	0.2450
	0.2607	0.2300		0.2989	0.2900		0.2771	0.2500
	0.2663	0.2300		0.3044	0.2900		0.2827	0.2500
	0.2635	0.2250		0.3017	0.2850		0.2799	0.2450

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D097	0.2717	0.2400	D105	0.3099	0.3000	D113	0.2881	0.2600
	0.2744	0.2450		0.3126	0.3050		0.2908	0.2650
	0.2799	0.2450		0.3181	0.3050		0.2963	0.2650
	0.2772	0.2400		0.3154	0.3000		0.2936	0.2600
D098	0.2690	0.2350	D106	0.3071	0.2950	D114	0.2854	0.2550
	0.2717	0.2400		0.3099	0.3000		0.2881	0.2600
	0.2772	0.2400		0.3154	0.3000		0.2936	0.2600
	0.2745	0.2350		0.3127	0.2950		0.2909	0.2550
D099	0.2663	0.2300	D107	0.3044	0.2900	D115	0.2827	0.2500
	0.2690	0.2350		0.3071	0.2950		0.2854	0.2550
	0.2745	0.2350		0.3127	0.2950		0.2909	0.2550
	0.2718	0.2300		0.3099	0.2900		0.2882	0.2500
D100	0.2635	0.2250	D108	0.3017	0.2850	D116	0.2799	0.2450
	0.2663	0.2300		0.3044	0.2900		0.2827	0.2500
	0.2718	0.2300		0.3099	0.2900		0.2882	0.2500
	0.2691	0.2250		0.3072	0.2850		0.2855	0.2450
D101	0.2608	0.2200	D109	0.2990	0.2800	D117	0.2772	0.2400
	0.2635	0.2250		0.3017	0.2850		0.2799	0.2450
	0.2691	0.2250		0.3072	0.2850		0.2855	0.2450
	0.2663	0.2200		0.3045	0.2800		0.2827	0.2400
D102	0.2581	0.2150	D110	0.2963	0.2750	D118	0.2745	0.2350
	0.2608	0.2200		0.2990	0.2800		0.2772	0.2400
	0.2663	0.2200		0.3045	0.2800		0.2827	0.2400
	0.2636	0.2150		0.3018	0.2750		0.2800	0.2350
D103	0.2554	0.2100	D111	0.2935	0.2700	D119	0.2718	0.2300
	0.2581	0.2150		0.2963	0.2750		0.2745	0.2350
	0.2636	0.2150		0.3018	0.2750		0.2800	0.2350
	0.2609	0.2100		0.2991	0.2700		0.2773	0.2300
D104	0.2527	0.2050	D112	0.2908	0.2650	D120	0.2691	0.2250
	0.2554	0.2100		0.2935	0.2700		0.2718	0.2300
	0.2609	0.2100		0.2991	0.2700		0.2773	0.2300
	0.2582	0.2050		0.2963	0.2650		0.2746	0.2250

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D121	0.2663	0.2200	D129	0.3045	0.2800	D137	0.2827	0.2400
	0.2691	0.2250		0.3072	0.2850		0.2855	0.2450
	0.2746	0.2250		0.3128	0.2850		0.2910	0.2450
	0.2719	0.2200		0.3100	0.2800		0.2883	0.2400
D122	0.2636	0.2150	D130	0.3018	0.2750	D138	0.2800	0.2350
	0.2663	0.2200		0.3045	0.2800		0.2827	0.2400
	0.2719	0.2200		0.3100	0.2800		0.2883	0.2400
	0.2692	0.2150		0.3073	0.2750		0.2856	0.2350
D123	0.2609	0.2100	D131	0.2991	0.2700	D139	0.2773	0.2300
	0.2636	0.2150		0.3018	0.2750		0.2800	0.2350
	0.2692	0.2150		0.3073	0.2750		0.2856	0.2350
	0.2664	0.2100		0.3046	0.2700		0.2828	0.2300
D124	0.2582	0.2050	D132	0.2963	0.2650	D140	0.2746	0.2250
	0.2609	0.2100		0.2991	0.2700		0.2773	0.2300
	0.2664	0.2100		0.3046	0.2700		0.2828	0.2300
	0.2637	0.2050		0.3019	0.2650		0.2801	0.2250
D125	0.3154	0.3000	D133	0.2936	0.2600	D141	0.2719	0.2200
	0.3181	0.3050		0.2963	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
D126	0.3127	0.2950	D134	0.2909	0.2550	D142	0.2692	0.2150
	0.3154	0.3000		0.2936	0.2600		0.2719	0.2200
	0.3209	0.3000		0.2992	0.2600		0.2774	0.2200
	0.3182	0.2950		0.2964	0.2550		0.2747	0.2150
D127	0.3099	0.2900	D135	0.2882	0.2500	D143	0.2664	0.2100
	0.3127	0.2950		0.2909	0.2550		0.2692	0.2150
	0.3182	0.2950		0.2964	0.2550		0.2747	0.2150
	0.3155	0.2900		0.2937	0.2500		0.2720	0.2100
D128	0.3072	0.2850	D136	0.2855	0.2450	D144	0.2637	0.2050
	0.3099	0.2900		0.2882	0.2500		0.2664	0.2100
	0.3155	0.2900		0.2937	0.2500		0.2720	0.2100
	0.3128	0.2850		0.2910	0.2450		0.2692	0.2050

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D145	0.3209	0.3000	D153	0.2992	0.2600	D161	0.2774	0.2200
	0.3236	0.3050		0.3019	0.2650		0.2801	0.2250
	0.3292	0.3050		0.3074	0.2650		0.2856	0.2250
	0.3264	0.3000		0.3047	0.2600		0.2829	0.2200
D146	0.3182	0.2950	D154	0.2964	0.2550	D162	0.2747	0.2150
	0.3209	0.3000		0.2992	0.2600		0.2774	0.2200
	0.3264	0.3000		0.3047	0.2600		0.2829	0.2200
	0.3237	0.2950		0.3020	0.2550		0.2802	0.2150
D147	0.3155	0.2900	D155	0.2937	0.2500	D163	0.2720	0.2100
	0.3182	0.2950		0.2964	0.2550		0.2747	0.2150
	0.3237	0.2950		0.3020	0.2550		0.2802	0.2150
	0.3210	0.2900		0.2992	0.2500		0.2775	0.2100
D148	0.3128	0.2850	D156	0.2910	0.2450	D164	0.2692	0.2050
	0.3155	0.2900		0.2937	0.2500		0.2720	0.2100
	0.3210	0.2900		0.2992	0.2500		0.2775	0.2100
	0.3183	0.2850		0.2965	0.2450		0.2748	0.2050
D149	0.3100	0.2800	D157	0.2883	0.2400	D165	0.3264	0.3000
	0.3128	0.2850		0.2910	0.2450		0.3292	0.3050
	0.3183	0.2850		0.2965	0.2450		0.3347	0.3050
	0.3156	0.2800		0.2938	0.2400		0.3320	0.3000
D150	0.3073	0.2750	D158	0.2856	0.2350	D166	0.3237	0.2950
	0.3100	0.2800		0.2883	0.2400		0.3264	0.3000
	0.3156	0.2800		0.2938	0.2400		0.3320	0.3000
	0.3128	0.2750		0.2911	0.2350		0.3292	0.2950
D151	0.3046	0.2700	D159	0.2828	0.2300	D167	0.3210	0.2900
	0.3073	0.2750		0.2856	0.2350		0.3237	0.2950
	0.3128	0.2750		0.2911	0.2350		0.3292	0.2950
	0.3101	0.2700		0.2884	0.2300		0.3265	0.2900
D152	0.3019	0.2650	D160	0.2801	0.2250	D168	0.3183	0.2850
	0.3046	0.2700		0.2828	0.2300		0.3210	0.2900
	0.3101	0.2700		0.2884	0.2300		0.3265	0.2900
	0.3074	0.2650		0.2856	0.2250		0.3238	0.2850

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
D169	0.3156	0.2800	D175	0.2992	0.2500	D181	0.2829	0.2200
	0.3183	0.2850		0.3020	0.2550		0.2856	0.2250
	0.3238	0.2850		0.3075	0.2550		0.2912	0.2250
	0.3211	0.2800		0.3048	0.2500		0.2884	0.2200
D170	0.3128	0.2750	D176	0.2965	0.2450	D182	0.2802	0.2150
	0.3156	0.2800		0.2992	0.2500		0.2829	0.2200
	0.3211	0.2800		0.3048	0.2500		0.2884	0.2200
	0.3184	0.2750		0.3020	0.2450		0.2857	0.2150
D171	0.3101	0.2700	D177	0.2938	0.2400	D183	0.2775	0.2100
	0.3128	0.2750		0.2965	0.2450		0.2802	0.2150
	0.3184	0.2750		0.3020	0.2450		0.2857	0.2150
	0.3156	0.2700		0.2993	0.2400		0.2830	0.2100
D172	0.3074	0.2650	D178	0.2911	0.2350	D184	0.2748	0.2050
	0.3101	0.2700		0.2938	0.2400		0.2775	0.2100
	0.3156	0.2700		0.2993	0.2400		0.2830	0.2100
	0.3129	0.2650		0.2966	0.2350		0.2803	0.2050
D173	0.3047	0.2600	D179	0.2884	0.2300			
	0.3074	0.2650		0.2911	0.2350			
	0.3129	0.2650		0.2966	0.2350			
	0.3102	0.2600		0.2939	0.2300			
D174	0.3020	0.2550	D180	0.2856	0.2250			
	0.3047	0.2600		0.2884	0.2300			
	0.3102	0.2600		0.2939	0.2300			
	0.3075	0.2550		0.2912	0.2250			

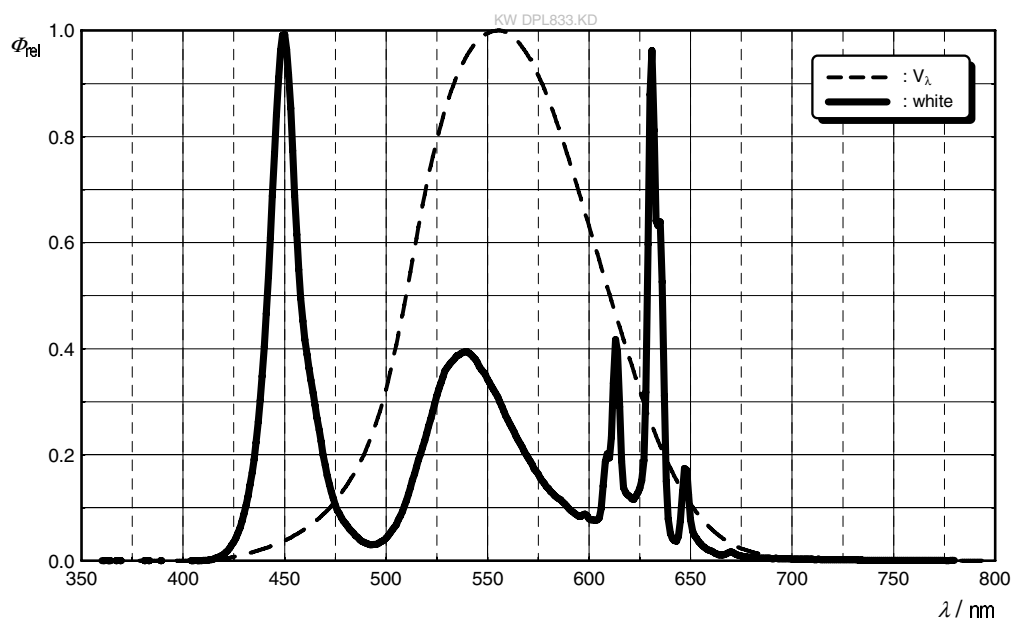
Group Name on Label

Example: JU-D025-B-24

Brightness	Color Chromaticity	Wavelength Groups	Forward Voltage
JU	D025	B	24

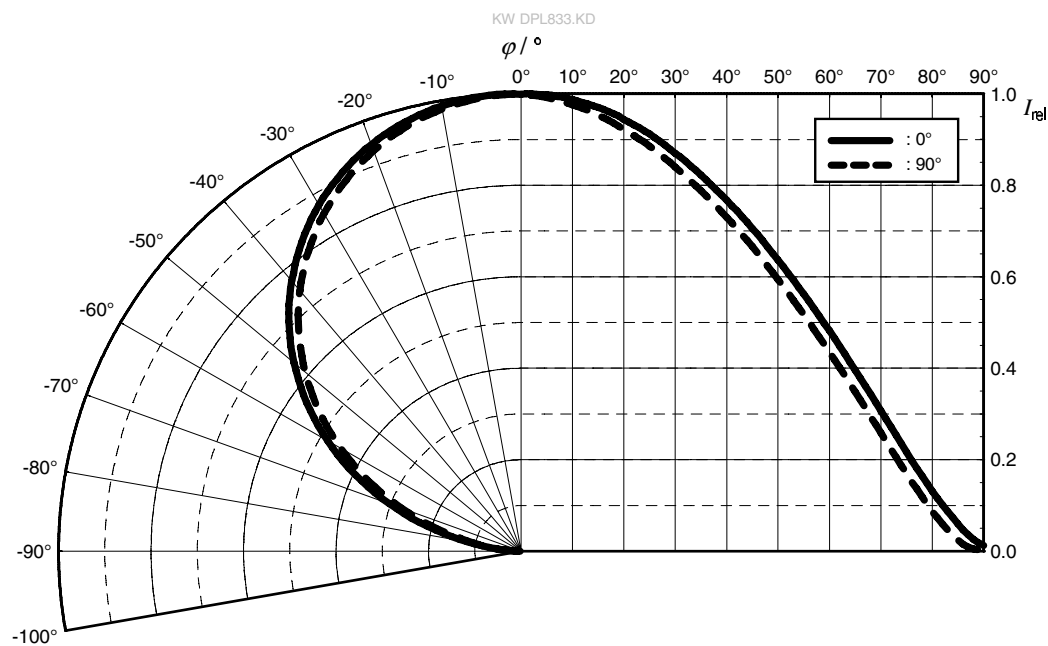
Relative Spectral Emission ⁷⁾

$\Phi_{\text{rel}} = f(\lambda)$; $I_F = 120 \text{ mA}$; $T_S = 25 \text{ °C}$



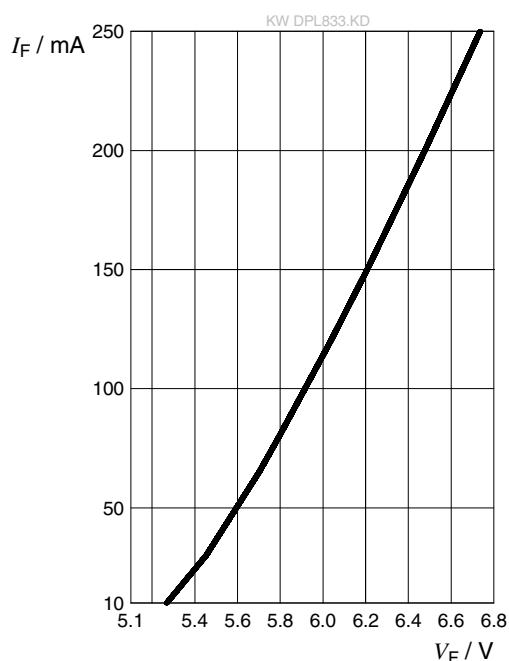
Radiation Characteristics ⁶⁾

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

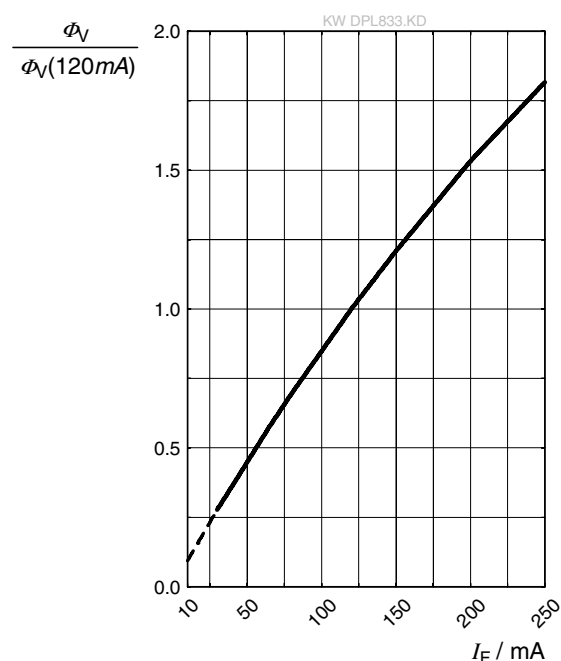


Forward current ⁶⁾

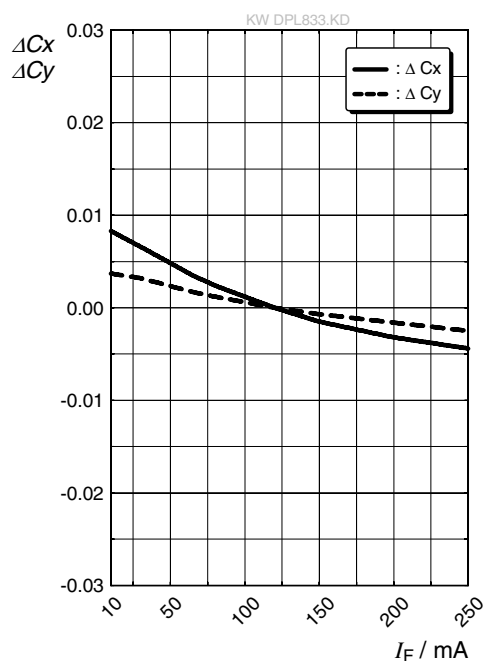
$$I_F = f(V_F); T_S = 25\text{ °C}$$

**Relative Luminous Flux** ^{6), 8)}

$$\Phi_V / \Phi_V(120\text{ mA}) = f(I_F); T_S = 25\text{ °C}$$

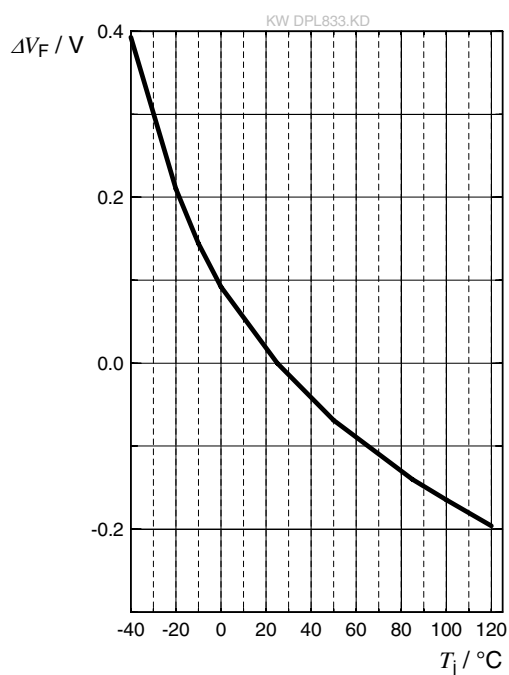
**Chromaticity Coordinate Shift** ⁶⁾

$$\Delta Cx, \Delta Cy = f(I_F); T_S = 25\text{ °C}$$

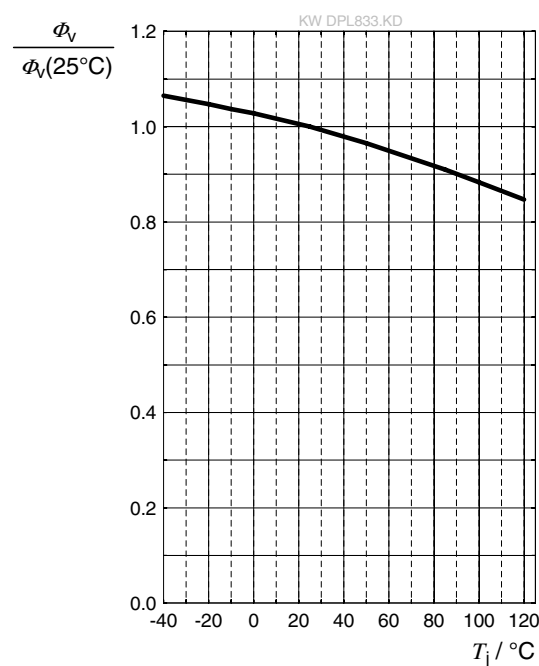


Forward Voltage ⁶⁾

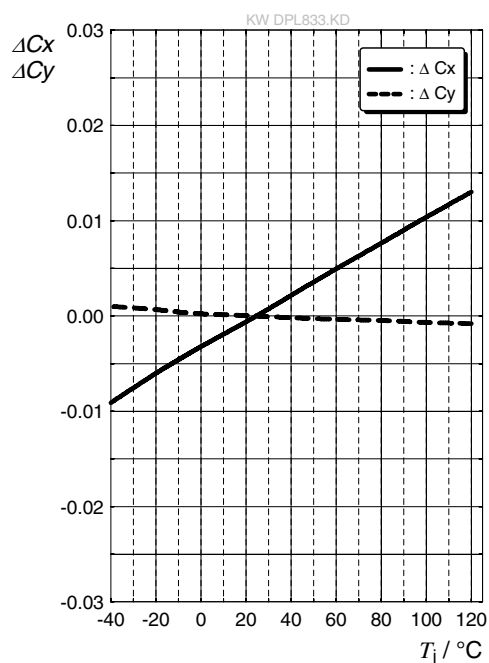
$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 120\text{ mA}$$

**Relative Luminous Flux** ⁶⁾

$$\Phi_V / \Phi_V(25^\circ\text{C}) = f(T_j); I_F = 120\text{ mA}$$

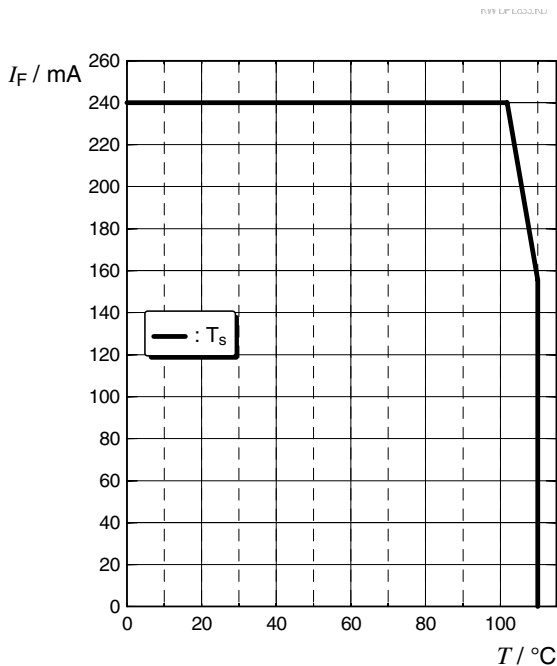
**Chromaticity Coordinate Shift** ⁶⁾

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 120\text{ mA}$$



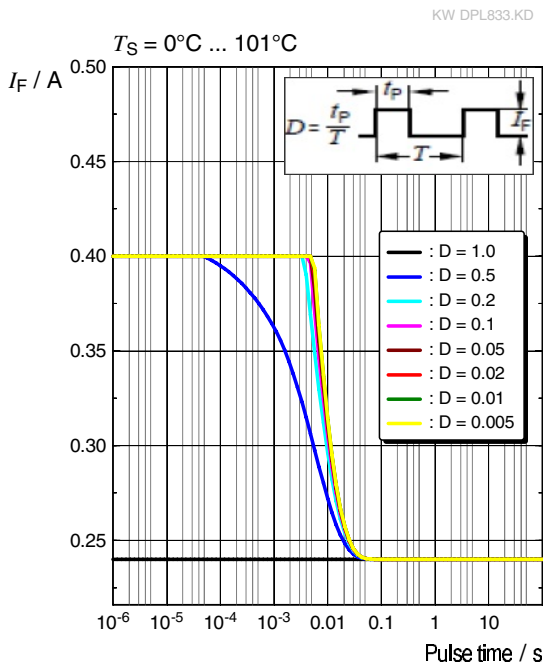
Max. Permissible Forward Current ⁵⁾

$$I_F = f(T)$$



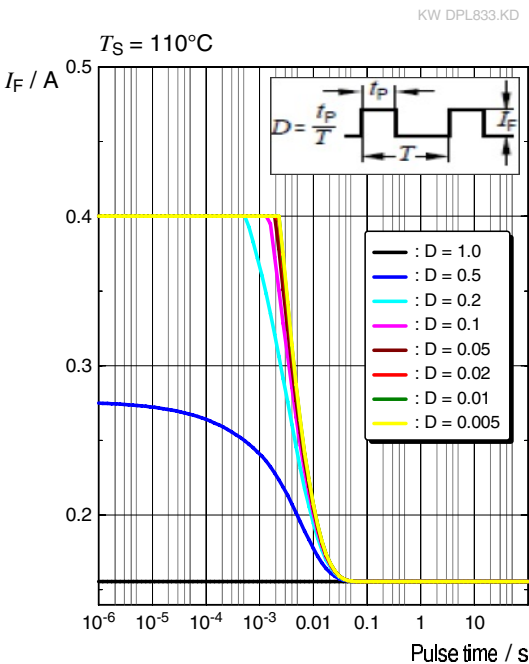
Permissible Pulse Handling Capability

$$I_F = f(t_p); D: \text{Duty cycle}$$

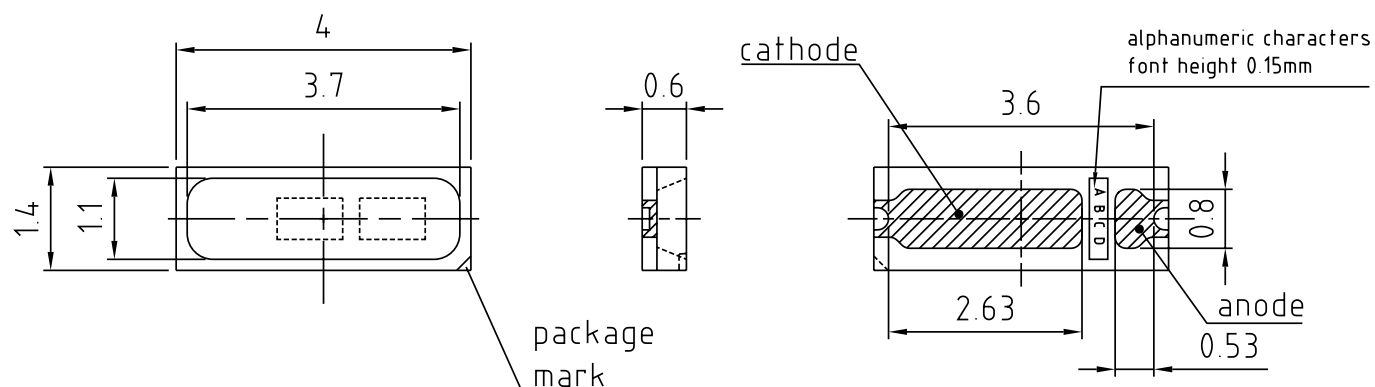


Permissible Pulse Handling Capability

$$I_F = f(t_p); D: \text{Duty cycle}$$



Dimensional Drawing ⁹⁾



general tolerance ± 0.1

lead finish Ag 

C69062-A0011-A1..-01

Further Information:

Approximate Weight: 9.0 mg

Package marking: Cathode

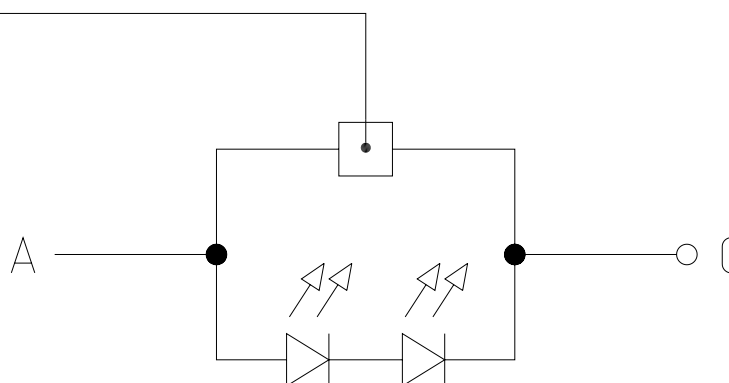
Corrosion test: Class: 2B

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

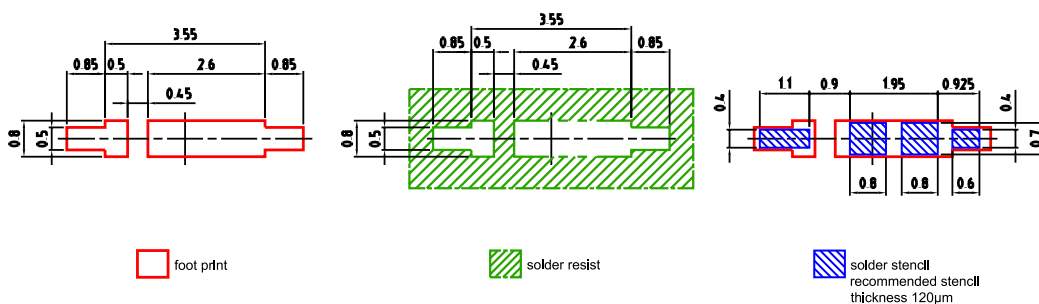
ESD advice: The device is protected by ESD device which is connected in parallel to the Chip.

Electrical Internal Circuit

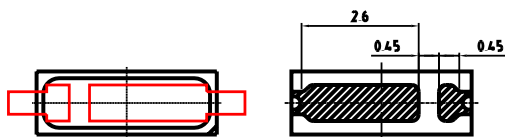
ESD protection device



Recommended Solder Pad ⁹⁾



Component Location on Pad

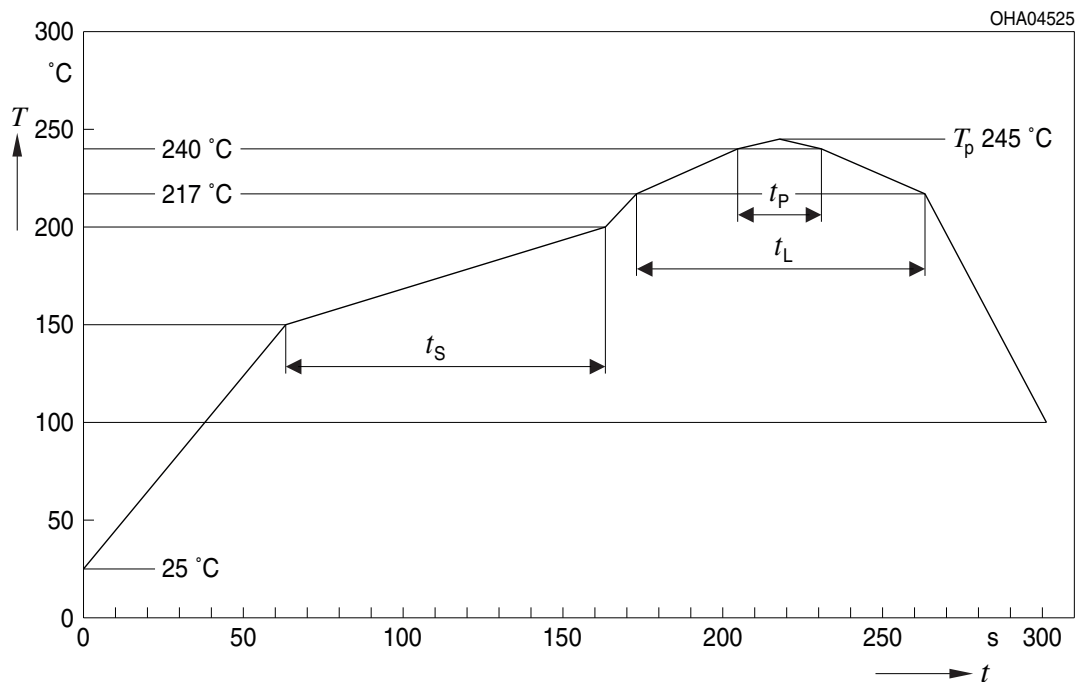


E062 3010 307-01

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

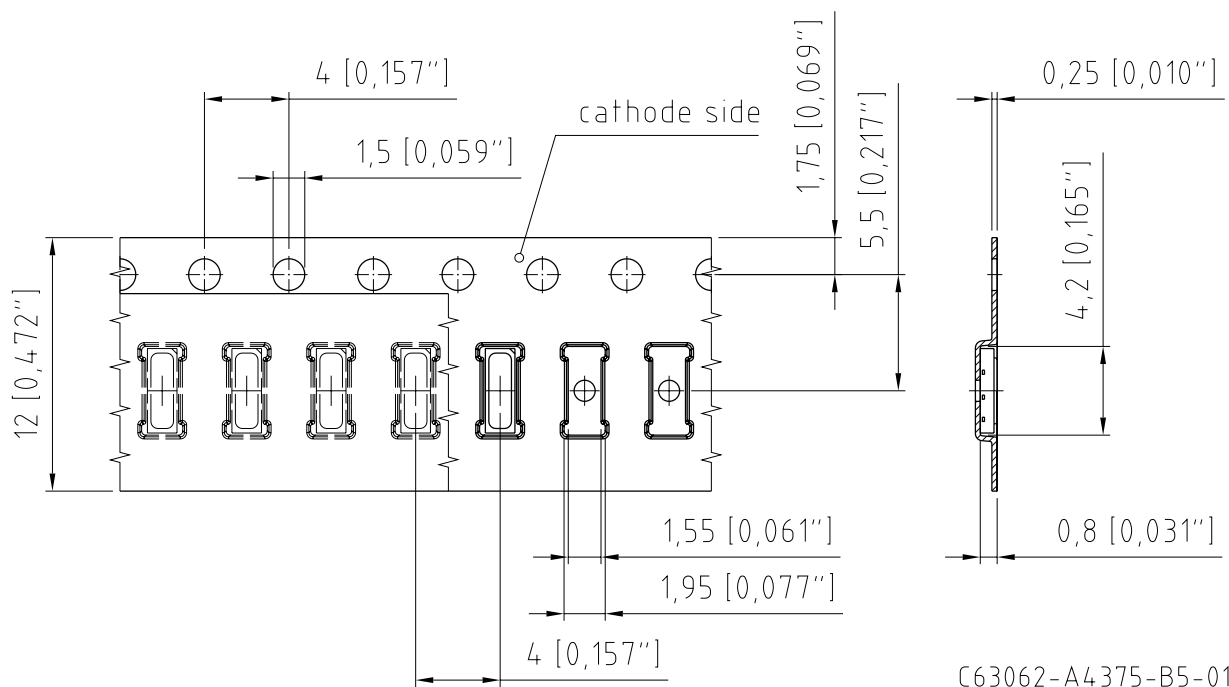


Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat ^{*)} 25 °C to 150 °C			2	3	K/s
Time t_s T_{Smin} to T_{Smax}	t_s	60	100	120	s
Ramp-up rate to peak ^{*)} T_{Smax} to T_p			2	3	K/s
Liquidus temperature	T_L		217		$^{\circ}\text{C}$
Time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

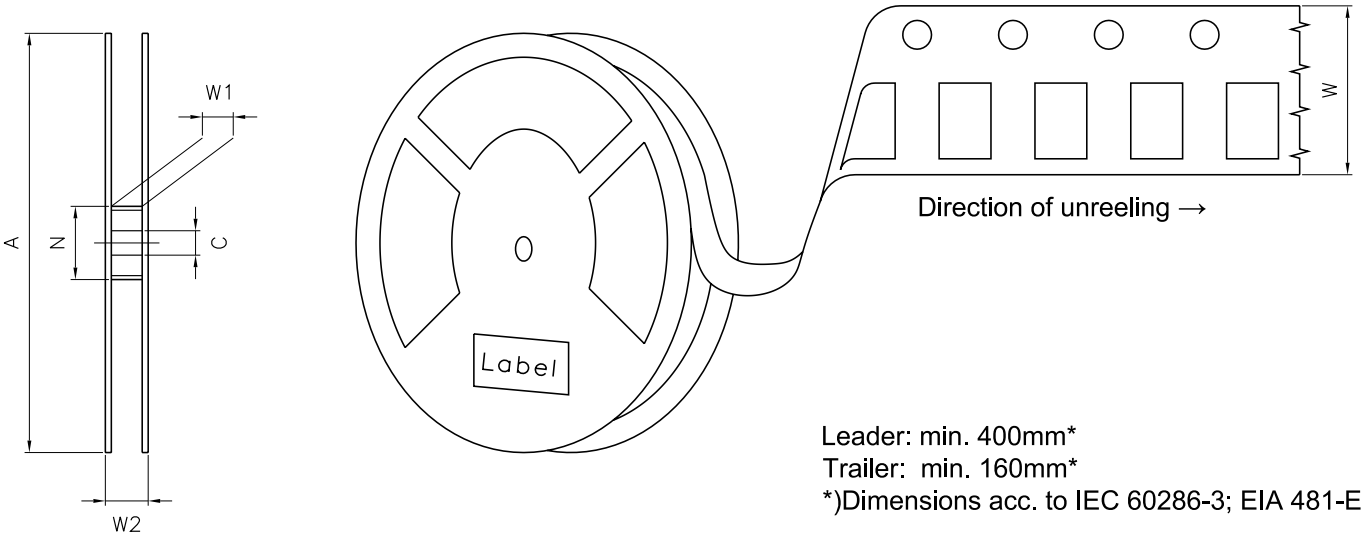
All temperatures refer to the center of the package, measured on the top of the component

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

Taping ⁹⁾



Tape and Reel ¹⁰⁾



Reel Dimensions

A	W	N _{min}	W ₁	W _{2 max}	Pieces per PU
180 mm	12 + 0.3 / - 0.1 mm	60 mm	12.4 + 2 mm	18.4 mm	4000

Barcode-Product-Label (BPL)

OSRAM

LX XXXX

BIN1: XX-XX-X-XXX-X

RoHS Compliant

(6P) BATCH NO: 1234567890

(1T) LOT NO: 1234567890

(9D) D/C: 1234

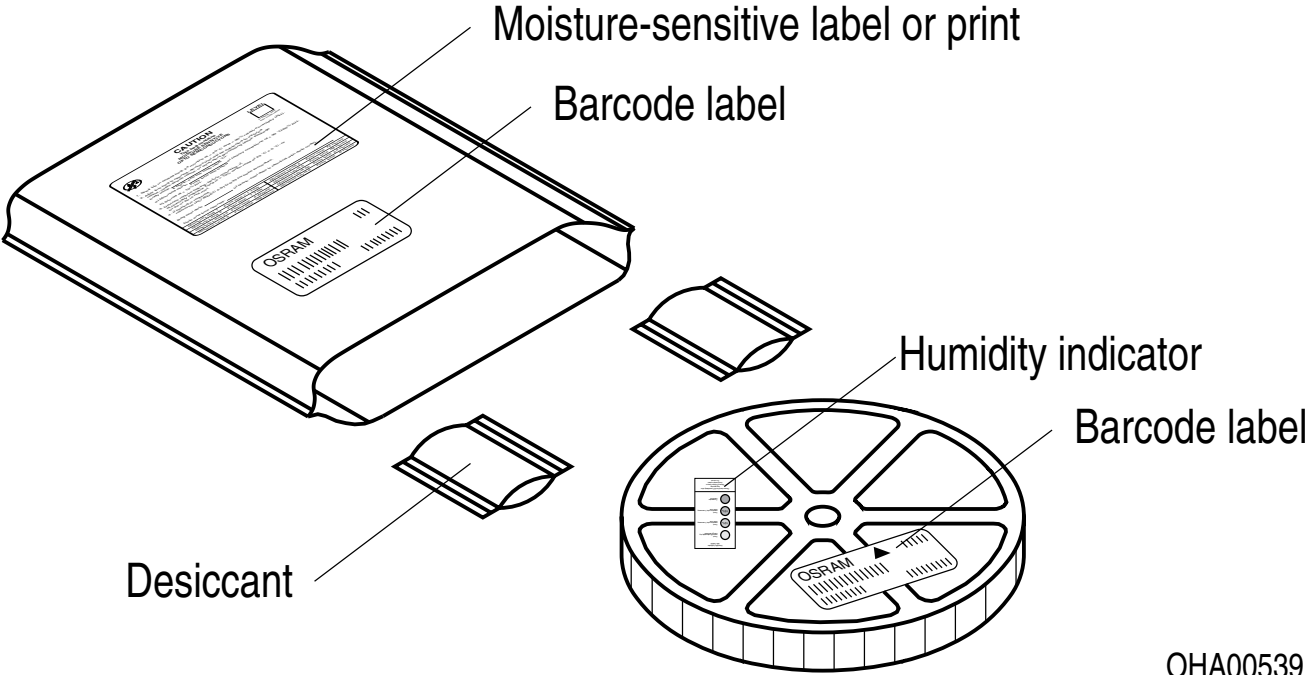
(X) PROD NO: 123456789(Q)QTY: 9999 (G) GROUP: XX-XX-X-X

ML Temp ST
X XXX °C X

Pack: RXX
DEMY XXX
X_X123_1234.1234 X

OHA04563

Dry Packing Process and Materials ⁹⁾



OHA00539

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

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 **moderate risk (exposure time 0.25 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

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 45 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 45 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 28 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) **Luminescence:** The red conversion material used in this LED has a significantly slower response time compared to the green conversion material and the blue emitter.
The red converter will fluoresce with a rise and decay time of about 8ms. This may result in a visible red sparkling effect if operated in pulse-width-modulation mode. In order to mitigate such effect please consider DC mode operation or apply appropriate timing in combination with circuit design.
- 8) **Characteristic curve:** In the range where the line of the graph is broken, you must expect higher differences between single devices within one packing unit.
- 9) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimensions are specified in mm.
- 10) **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
1.0	2022-08-30	Initial Version
1.1	2022-10-11	Derating (Diagrams)
1.2	2023-02-08	New Layout
1.2	2023-02-08	New Layout
1.3	2023-04-25	Additional Information
1.4	2023-05-30	Ordering Information Characteristics Wavelength Groups Group Name on Label Glossary



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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